THE SHAPE OF THINGS TO COME

WHY AGE STRUCTURE MATTERS TO A SAFER, MORE EQUITABLE WORLD

POPULATION ACTION INTERNATIONAL

BY ELIZABETH LEAHY WITH ROBERT ENGELMAN, CAROLYN GIBB VOGEL, SARAH HADDOCK AND TOD PRESTON

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MISSION STATEMENT
POPULATION ACTION INTERNATIONAL (PAI) WORKS TO IMPROVE INDIVIDUAL WELL-BEING AND PRESERVE GLOBAL RESOURCES BY MOBILIZING POLITICAL AND FINANCIAL SUPPORT FOR POPULATION, FAMILY PLANNING AND REPRODUCTIVE HEALTH POLICIES AND PROGRAMS.

DEDICATION

Ambassador Marshall Green
1916 – 1998

Marshall Green served as U.S. Ambassador to Indonesia and Australia and as Assistant Secretary of State for East Asian and Pacific Affairs. After his return to Washington, Ambassador Green became the State Department's Coordinator of Population Affairs, where he coordinated U.S. international population policy and headed the U.S. delegation to the United Nations Population Commission in 1977 and 1979. After retiring from the Foreign Service in 1979, he served on the Board of Directors of Population Action International until 1996.

Robert Fearey
1918 – 2004

Robert Fearey's career in the U.S. State Department included positions as the last Civil Administrator of Okinawa before the United States returned the islands to Japan and as Director of East Asian Affairs. Mr. Fearey joined Population Action International after retiring from the Foreign Service in 1979. He brought his dedication to the cause of universal access to family planning and reproductive health services to the position of Administrator and Assistant Treasurer of PAI until his retirement in 1997 and, later, as inaugural Secretary of the Advisory Council to the PAI Board of Directors.

ILLUSTRATIONS

ACKNOWLEDGMENTS

PREFACE

"In an increasingly interconnected world, progress in the areas of development, security and human rights must go hand in hand. There will be no development without security and no security without development."

These words, contained in a comprehensive 2005 report by former U.N. Secretary General Kofi Annan,[1] underscore the reality that the threats to the well-being and security of our world – from HIV/AIDS and terrorism to climate change and poverty – require a bold mix of interventions and partnerships that combine elements of both "hard" and "soft" power.

One area of growing attention on the nexus between "hard" and "soft" power, particularly given the focus of policymakers on terrorism and security, is the issue of fragile or failing states. From government to academia, there is an increasing desire to understand what makes a state "healthy" – healthy in the sense of more peaceful, more democratic, and better able to provide for the needs of its citizens. Additionally, there is a growing sense that steps must be taken toward achieving poverty alleviation in a more concerted fashion.

What follows is the result of more than two years of research and analysis. From this work, we conclude that population age structure can have a significant impact on countries' stability, governance, economic development and the well-being of its people. Most importantly, we find that age structures are dynamic and can be influenced – and shaped – through policies that affect the demographic forces (i.e. births, deaths and migration) that determine these age structures.

In looking to the future and the shape of things to come, this means that programs that promote the demographic transition – family planning, girls' education, maternal and child health, HIV/AIDS prevention, care and treatment – must be an integral part of development assistance. Extreme poverty, disease, inadequate health care, and lack of educational and economic opportunity – particularly for women – all pose risks, both in terms of human well-being and in state security.

Collectively, we must do more to support developing nations as they move along the path to universal access to family planning and the protection of individual rights. These modest investments can pay enormous dividends, as has been shown in the development of the Asian Tiger nations in East Asia. With one-half of the world's population under the age of 30, and one-half of the population of sub-Saharan Africa under age 20, the needs are great. Time is of the essence.

Amy Coen, President and CEO
Population Action International

EXECUTIVE SUMMARY

All populations, like all individuals, must address issues of age. Unlike people, however, populations can stay young indefinitely and can even grow younger with time. This report is about the ages of populations, how age is structured within populations, why that matters, and how governments and societies can influence population age structure.

Age structures, or population profiles when they are pictured graphically as in this report, demonstrate the comparative sizes of specific age groups relative to others or to the population as a whole. These age structures yield insights into many of the political, economic and security challenges that countries face, now and in the future. Age structures carry particular importance when a large proportion of a country's population is passing through one of life's dependent stages, such as childhood or old age, or when a small proportion is passing through an age of productivity. In these cases, society's resources are likely to be stretched and a government's stability and political and economic management are likely to be tested.

The Shape of Things to Come presents evidence that certain age structures in populations can support governments' efforts to create and maintain political stability, and that others can impede such efforts. The report does not argue that these demographic structures and their dynamics directly cause development failures or successes. Yet the influence of age structure on a state's progress toward democracy, on the risk of an outbreak of civil conflict and on economic development is both significant and quantifiable.

This report identifies for the first time four main types of age structures present in current populations: very young, youthful, transitional and mature. Chapters for each structure type describe their basic demographic parameters and the common development challenges and opportunities faced. A quantitative analysis shows that each structure has distinct traits in vulnerability to civil conflict, governance and economic growth.

Each chapter also profiles one or two countries representative of the age structure type. The case study analysis aims to represent as many major regions of the world as possible, and individual countries were selected for their interest to international policymakers and/or because their demographic history has been particularly noteworthy. Some of the countries profiled, such as Germany, Mexico and Nigeria, face demographic scenarios that are emblematic of others in their age structure category or geographic region. The governments of other countries profiled, such as Iran and Tunisia, have made uncommon policy decisions that uniquely affected their demographic progress. This group of both archetypical and distinctive case studies should offer a wide range of possibilities and lessons applicable to other countries. Specific recommendations for the following key findings are offered following this summary.

Graphic representations of age structures, such as this one, are used throughout this publication. They demonstrate the proportional size of different age groups within a population at a given point in time by showing the percent of a country's total population that is comprised of males and females within five-year age groups. Along the side of the graph, the current age of members of each group, based on the year from which the profile is drawn, and their birth years are shown. Ethiopia is an example of a country with a very young age structure, which will be explained further in Chapter Two.
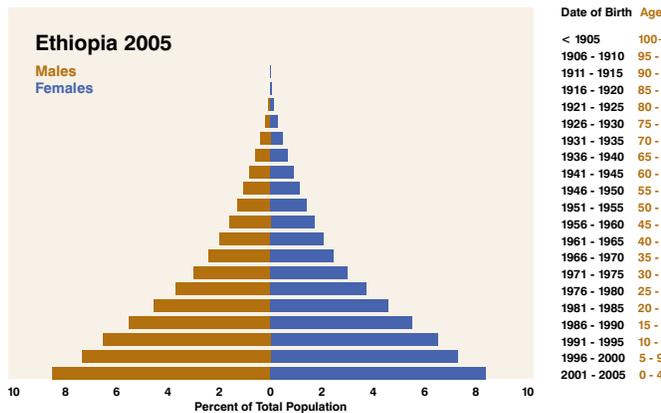
Key Findings

Population age structure has significant impacts on countries' stability, governance, economic development and social well-being.

Very young and youthful age structures are most likely to undermine countries' development and security. Between 1970 and 1999, 80 percent of all civil conflicts that caused at least 25 deaths occurred in countries in which 60 percent or more of the population was under age 30. During the 1990s, countries with a very young structure were three times more likely to experience civil conflict than countries with a mature age structure. Nearly 90 percent of countries with very young structures had autocratic or weakly democratic governments at the end of the 20th century.

Countries in the transitional category stand to experience significant benefits from demographic change, if their governments take advantage of the opportunity it presents. Between 1970 and 1999, these countries experienced an average annual economic growth rate of 3.6 percent, which may be due to their reduced dependency ratios that allow greater personal savings and government spending. Their vulnerability to civil conflict and likelihood of undemocratic governance also decreased dramatically.

Countries with a mature age structure, in which more than 55 percent of the population is above age 30, have generally been the most stable, democratic and highly developed. In the 1980s, none of these countries experienced civil conflict, and in the 1990s, only two did. More than 80 percent of countries with mature structures over the time period analyzed have been full democracies. Countries with a mature population have low rates of economic growth. But because they typically also have very high national incomes, so far this slower expansion has not had major repercussions.

Societies, and especially governments, can influence age structures through policies that affect the demographic forces – births, deaths and migration – that shape these structures. Demographic-based policies that have worked successfully in many countries with transitional and mature age structures include improving access to family planning and reproductive health care, education for girls and economic opportunities for women.

Ethiopia 2005

Males
Females

Percent of Total Population

Date of Birth	Age
< 1905	100+
1906 - 1910	95 - 99
1911 - 1915	90 - 94
1916 - 1920	85 - 89
1921 - 1925	80 - 84
1926 - 1930	75 - 79
1931 - 1935	70 - 74
1936 - 1940	65 - 69
1941 - 1945	60 - 64
1946 - 1950	55 - 59
1951 - 1955	50 - 54
1956 - 1960	45 - 49
1961 - 1965	40 - 44
1966 - 1970	35 - 39
1971 - 1975	30 - 34
1976 - 1980	25 - 29
1981 - 1985	20 - 24
1986 - 1990	15 - 19
1991 - 1995	10 - 14
1996 - 2000	5 - 9
2001 - 2005	0 - 4

Ensuring more balanced age structures, especially among developing countries with very young and youthful populations, requires strong international partnerships, comprehensive policies and adequate funding to address those populations' needs. In particular, policies must focus on significantly increasing assistance for programs that improve access to modern contraception and other sexual and reproductive health services, expanding educational opportunities for girls, increasing women's participation in government and throughout society, and enhancing employment opportunities for youth. In the minority of developed countries confronting rapid population aging, programs that work to balance

women's professional and family responsibilities and increase men's involvement in childrearing, as well as other innovative approaches, should be considered.

Given the profound impact of demographic trends on countries' economic and social well-being that this report documents, governments should implement programs that can influence the shape of those demographic trends in the future. A number of interventions, especially in the area of health and social services, can significantly influence a country's age structure. Such steps include the following:

WHEN COUPLES CHOOSE TO HAVE SMALLER FAMILIES, MORE CHILDREN – ESPECIALLY GIRLS – ATTEND SCHOOL AND MORE WOMEN ARE ABLE TO WORK AND INCREASE THEIR FAMILIES' INCOME.

1 Expand access to family planning services and improve sexual and reproductive health as a means to achieve balanced age structures.

In countries that retain high birth and death rates, particularly those with very young and youthful age structures, demographic research and experience demonstrate that a range of social interventions can spur lower birth and death rates. Predominant among these are increased availability of voluntary family planning and sexual and reproductive health services, improvements in girls' education and income-generating opportunities for women, maternal and child health programs, and prevention and treatment of sexually transmitted infections, including HIV/AIDS.

Greater political commitment and more funding, both from international donors and countries themselves, are needed to expand programs that enable women and couples to choose for themselves the timing and frequency of childbirth, that promote maternal and infant survival, and that protect reproductive-age adults from HIV and other sexually transmitted infections. For example, African health ministers recently developed a plan "to take the continent forward towards the goal of universal access to comprehensive sexual and reproductive health services in Africa by 2015." The plan recognizes that sexual and reproductive health encompasses many elements: "adolescent sexual and reproductive health; safe motherhood and newborn care; abortion care; family planning; prevention and management of sexually transmitted infections including HIV/AIDS; prevention and management of infertility; prevention and management of reproductive cancers; addressing mid-life concerns of boys, girls, men and women; health and development; reduction of gender-based violence; interpersonal communication and counseling; and health education."[2]

While policies and programs in family planning and reproductive health are generally under the purview of donors of development assistance and health and social service agencies and ministries, non-traditional actors such as the military can play important roles as well. For example, military commands should be prepared to lend logistical and organizational support, with proper training and carefully defined roles, to organizations working to provide reproductive health care. Such cooperation is particularly needed in rural areas and post-conflict environments where the logistical and distributional challenges – and lack of access to health services – are the most acute.

In recent years, support for family planning and sexual and reproductive health programs from international donors has fallen victim to funding reductions, ideologically-based policy restrictions and competing priorities in international development.* As a result, unmet need for family planning and sexual and reproductive health care in developing nations remains high. More than 200 million women in the developing world who want to delay or end childbearing are unable to access the services and supplies to do so.

Rather than limiting their funding or tying it to policy restrictions, donors should create and promote development assistance policies that support universal access to voluntary family planning and sexual and reproductive health care, with gender issues fully mainstreamed. For example, the Danish International Development Agency has developed a policy stating that "Denmark gives high priority to multilateral cooperation with organizations that strive to eliminate violence against women and ensure women's sexual and reproductive rights as well as their access to resources…Denmark stresses the importance of promoting gender equality in the areas of peace, security, refugees and humanitarian assistance as well as in regional political dialogues and assistance."[3]

Countries with transitional age structures have already benefited from policies and programs that encourage demographic development. But as mortality and fertility rates decline from critical levels, their continued progress is not guaranteed unless governments make deliberate efforts. Access to a broad range of sexual and reproductive health services, such as contraceptives, should be expanded to make them universally available and affordable. Programs to improve educational attainment and economic opportunities for women should reach full scale.

With their low fertility and mortality rates symbolizing the end of the demographic transition, countries with a mature age structure generally have high economic and governance standards and are more stable and less prone to conflict than countries with other age structure types. Governments of these countries tend to be concerned about the future social and economic impact of their populations' aging. To that end, a variety of more generous family-friendly policies (such as expanded family and maternal leave policies) could encourage greater equity for women and, possibly, higher fertility in aging nations. However, efforts to encourage childbearing should be based on the rights of individuals and couples to decide for themselves the timing and number of childbirths.

2 Support improvements in the legal, educational and economic status of women.

Countries in which most girls attend secondary school and most women are employed in the formal labor sector have better maternal and child health indicators and lower fertility rates. When couples choose to have smaller families, more children – especially girls – attend school and more women are able to work and increase their families' income. Governments and donors benefit through greater per capita spending on health and education, and through increased savings and investment in the economy. Improving women's status can influence social environments, help change cultural norms and, ultimately, speed demographic transition. The World Bank has recognized this connection between women's roles and development: "Women's lack of economic empowerment…not only imperils growth and poverty reduction, but also has a host of other negative impacts, including less favorable education and health outcomes for children and a more rapid spread of HIV/AIDS."[4]

Policies should encourage social and political reforms that help girls stay in school and strengthen school curricula. Income-generating opportunities for women should be promoted, and women should be fully protected from gender-based violence. Women should have a full and equal role in the political process, ranging from the right to vote to greater representation in parliament and high levels of government.

Governments should promote the judicial oversight of women's and family legal disputes in civil courts of law and, where applicable, their removal from the purview of religious courts or customary law. Where the decisions of religious or customary courts have framed family law, on balance, women have made little progress. In some cases they have lost ground in securing equal rights to custody of their own children, to divorce, to access to sexual and reproductive health services, to inheritance and land title, and to protection in schools and in the workplace.

Countries and regions with disproportionately low levels of female children as a result of neglect and sex-selective abortion may face future repercussions. Societies are less stable when there are large numbers of men unable to marry, due to unbalanced sex ratios or economic challenges in establishing a home or paying a dowry. There are no easy prescriptions for the dismal status of females in societies in which skewed demographic disparities in favor of males are actively promoted. Governments and civil society in such countries should pursue policies that promote equal status of women and men and discourage norms and actions that eradicate naturally occurring gender balance.

3 Consider population trends when setting societal priorities.

Population age structure can have significant impacts on countries' stability, governance, and social well-being. However, demography is not monolithic or entirely predictable, and the demographic situation and potential of geographically or culturally similar countries can be very different. Policymakers and program managers should focus greater attention on the nature and impact of demography and age structures, both regionally and in specific countries. The United Nations Millennium Project has noted the relationship between demographics and the broad development objectives of the Millennium Development Goals (MDGs): "The achievement of the MDGs is influenced by population dynamics such as population growth, fertility and mortality levels, age structure and rural-urban distribution. Each developing country has its own unique combination of demographic factors that affect the prospects for progress toward the MDGs."[5]

Demographic data, in the form of statistics, case studies and trend analysis, should be incorporated into research and publications on security, economic and development issues. Policymakers should seek to emulate in developing nations the successful role that programs that impact age structures – including voluntary family planning, girls' education, and women's empowerment – have had in countries that have progressed further along the demographic transition.

* In the case of the United States as an international donor, such restrictions have included the Mexico City Policy and components of the President's Emergency Plan for AIDS Relief (PEPFAR). The Mexico City Policy, sometimes called the Global Gag Rule, denies U.S. family planning assistance to foreign organizations that use their own non-U.S. funds to provide legal abortion, counsel or refer for abortion, or lobby for the legalization of abortion in their country. In addition to forfeiting U.S. financial assistance, foreign organizations also lose valuable technical assistance and U.S.-donated contraceptives, including condoms. PEPFAR mandates that a minimum of one-third of U.S. bilateral HIV/AIDS prevention funds (20 percent of the $3 billion authorized annually) be dedicated solely for "abstinence-until-marriage" programs. PEPFAR also includes a requirement that organizations receiving U.S. HIV/AIDS assistance have an official policy explicitly opposing prostitution and sex trafficking as a condition of eligibility for funds. Both of these provisions limit the ability of organizations working on HIV/AIDS prevention to address the critical health needs of married women, sex workers, intravenous drug users, and other highly vulnerable populations.

THE SHAPE OF THINGS: THE MEANING OF POPULATION AGE STRUCTURES

1

"Are we really going to be able to give these extra people jobs, homes, health care and education?" Official in Uganda's Ministry of Finance, discussing population growth in *The Guardian*, August 25, 2006[6]

"Germany is becoming the world's nursing home...Germans really are a dying breed." *The Economist*, March 18, 2006[7]

All national governments inherit the legacy of population dynamics shaped by demographic history stretching back into the dimmest human past. The structure of age within a population is among these dynamics. Along with population growth or decline, density and distribution, age structure can help a government's policies succeed or challenge its resources and undermine its legitimacy.

Fortunately for those who understand the connections among demographics, national stability and development, age structures can be influenced through population-relevant policies and programs. International actors can improve the efficacy of such policies and programs by helping countries establish and maintain public health and education systems.

Snapshot: World Population Today

World population today is moving in several directions that may seem contradictory. Its growth rate is slowing, but it is still gaining almost as many people each year – 76 million – as ever. Humanity's median age is rising (it was 28 in 2005), yet every year there are more people under the age of 30. And finally, while analysts and policymakers in much of the industrialized world fret about falling birthrates and the reality or possibility of population decline, world population continues to climb with no certain end in sight. In 2006, the number of human beings on the planet surpassed 6.5 billion, and projections indicate it will reach nine billion by 2050. Only significant further declines in fertility and unexpected decreases in life expectancy could prevent the addition of another billion people over the next two decades.[8]

Demographically, the world is more diverse than ever before. Fifty-five percent of the world's people live in countries whose birthrates guarantee indefinite future growth. Nearly one billion people live in countries – Afghanistan, Iraq, Nigeria, Pakistan, the Palestinian territories, Somalia and Sudan among others – in which fertility averages four or more children per woman. Assuming no changes in family size or life expectancy, these countries' populations will double in fewer than 35 years.

Simultaneously, population aging and decline have risen in prominence on the public policy agenda in many regions. Nearly 45 percent of the world's people live in countries in which the average family size is below the number needed over the long term (usually slightly more than two children per woman) to avoid population decline. Populations with higher median ages have experienced smaller family sizes and, thus, slower growth or even shrinkage in recent years – usually along with increases in life expectancy. Most of these countries are developed, but not all – among them are Chile, China (with 1.3 billion people), Iran, South Korea and Thailand. Population decline has not yet begun in most of these countries and is likely to proceed gradually when it does, in contrast to the still-rapid pace of growth in the dozen or more fastest-growing national populations. So far, despite fears about its future impacts, population aging has not caused demonstrable harm to the economy, security or environment of any country.

Rapid population growth correlates closely with young populations. Countries with high proportions of young people tend to have, or to have had recently, a preponderance of large families. Moreover, existing high proportions of young people build significant growth into a country's future, even if members of the rising generation have smaller families than their parents did. Countries with high rates of population growth often experience increased strain on environmental and social resources. Unless economic growth steadily keeps apace with an increasing population and is equitably distributed, per capita incomes also shrink.

Because young populations grow, any government efforts to slow aging by increasing birthrates or encouraging youthful streams of immigrants also induce growth in population size and density. For most of the world's countries, in any event, aging is a future rather than a present worry. High birthrates and low life expectancies in these countries all but assure youthful population age structures for many years to come.

Favorable and Adverse Age Structures

When a country's age structure is favorable, its government and institutions stand to experience a relatively easy time (under average global and regional conditions) improving the welfare of the country's people and solving economic and political problems. When a country's age structure is adverse, it is more difficult to meet these challenges, resulting in lost opportunities and sometimes state failures.

Favorable age structures, though they vary depending on a country's economic prospects and its government's security intentions, generally include a large proportion of the population comprised of working-age adults, with smaller proportions and slower growth among dependent children and older adults. A favorable age structure provides a sufficient tax base for government services and a social safety net for the more dependent age groups. Adverse age structures, in contrast, often develop when there is a bulge in the proportion of young, dependent age groups or under conditions of economic stagnation and high unemployment.

The notion of a favorable or unfavorable age structure, however, is static – a snapshot in time. Population age structures can shift relatively rapidly and sometimes dramatically in response to policies and programs, to epidemic diseases and to other natural and human-induced events. Economically and socially significant shifts in age structure can occur in under a decade, and profound reconfigurations of the profile can occur in 25 years, as happened in Iran (Figure 1.1). Two examples of such rapid changes are Iran's recent decline from high to low birthrates and the ongoing toll of AIDS-related deaths in southern Africa.

Such rapid changes in age structure, and the gradual ones that are more common, are often the result of one or more modern demographic forces. These include the *demographic transition*, AIDS-related mortality and international migration. High rates of death from AIDS, which have been most profound in southern Africa, shrink the number of working-age adults and leave dependent children with fewer economic resources. Relatively high levels of inward-migration have benefited the economies and kept the populations of countries such as the U.S. relatively youthful compared to many European countries, where fertility rates are lower and restrictions on immigration are tighter. Even more dramatic effects are found in the Persian Gulf, where extremely high immigration keeps various economic sectors growing and makes working-age adults the most prominent segment of the population.

Figure 1.1
Iran's Population Age Structures: 1980 and 2005

These two population profiles, showing Iran 25 years apart, illustrate how a decline in fertility rates can make a dramatic impact on age structure in a relatively short amount of time. In the case of Iran, fertility rates declined from 6.6 children per woman in 1980-1985 to 2.1 children per woman in 2000-2005, producing a more balanced and favorable age structure. Over the 25 years, the share of Iran's population under age 30 decreased from 71 to 64 percent. Chapter Three discusses Iran's transition in detail.
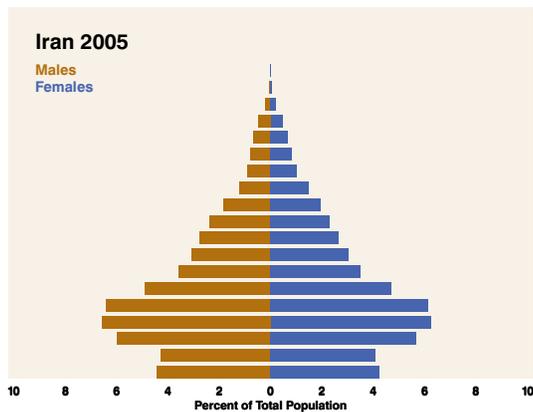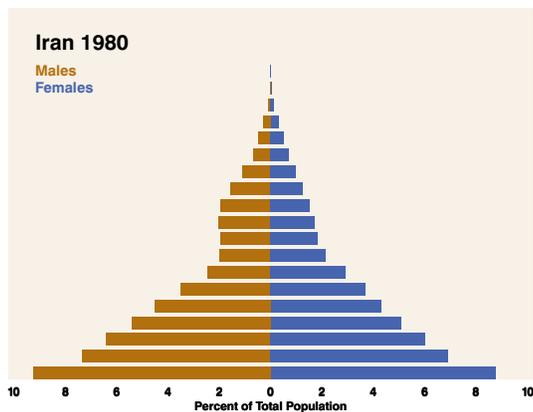
The demographic transition – the transformation of a population characterized by large families and short lives into a population of small families and long lives – is one of the seismic shifts that have shaped the world in which we live. Others include the *agricultural transition*, by which farming in developed countries evolved from a household livelihood to a specialized industry in the 20th century, and the *epidemiological transition*, by which the dominant cause of death shifted from infectious to noncommunicable disease, also in the 20th century.

Like these other great changes, the demographic transition unfolds distinctly in each population and is rarely continuous or smooth. The general trend in recent history, nonetheless, has been similar and nearly universal in overall changes in death and birth rates despite differences in time periods. The transition began in some European populations as much as 250 years ago, but in many African populations death rates only began to decline after World War II.

In all country populations, death rates have declined – especially among infants and the very young – and life expectancy has risen. This is the initial phase of the demographic transition. In the vast majority of populations, with important exceptions that will be described in more detail in this report, some time after death rates have declined, birth rates have begun to descend as well, usually in response to higher rates of modern contraception use. In a few cases, also to be described in this report, the demographic transition has stalled or actually moved backward. In these cases, life expectancy has fallen, most often in response to a very high prevalence of HIV/AIDS in certain country populations.

The decline in the infant death rate that launches the demographic transition typically follows public health improvements such as more comprehensive access to clean water and better sanitation as well as higher rates of girls' education. The increase in the share of children surviving to adolescence tends to widen the population profile's base, which reflects the larger proportional size of age groups in infancy and early childhood within the total population.

Research provides substantial evidence that girls' education, later marriage and women's employment outside the home have played important roles in improving nutrition and decreasing mortality in childhood, and increasing the demand for contraception in adulthood.[9] In turn, increased use of contraception leads to a decline in fertility rates, the second key characteristic of the demographic transition.[10] This typically comes later than a decline in infant death rates, and it narrows the base of the age profile.

Figure 1.2
The Demographic Transition[11]

This pictorial representation of the demographic transition shows that as death rates decline, followed later by a decline in birth rates, populations grow rapidly but eventually plateau at a relatively stable level, presuming no further drastic changes in mortality or fertility.
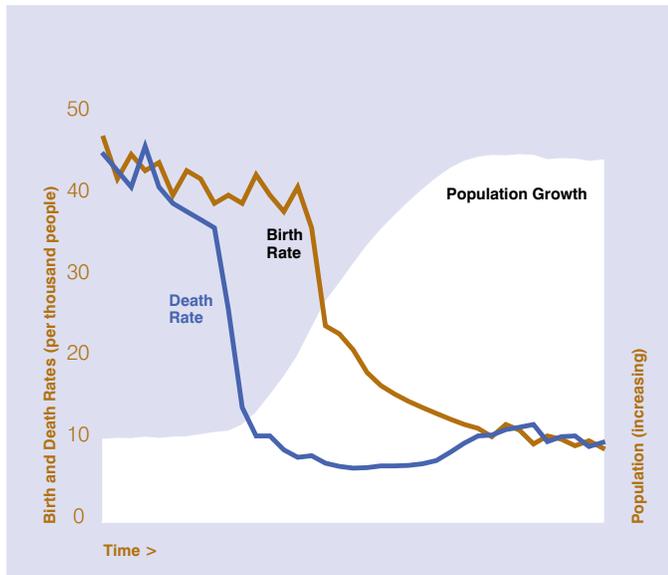
Figure 1.3
Age Structure Types Along the Demographic Transition

The demographic transition is represented as a line marking the path populations make toward a more balanced age structure. Each point represents a country's population, with four colors distinguishing the four major age structure types (very young, youthful, transitional, mature) and their location along the demographic transition function in 2005.
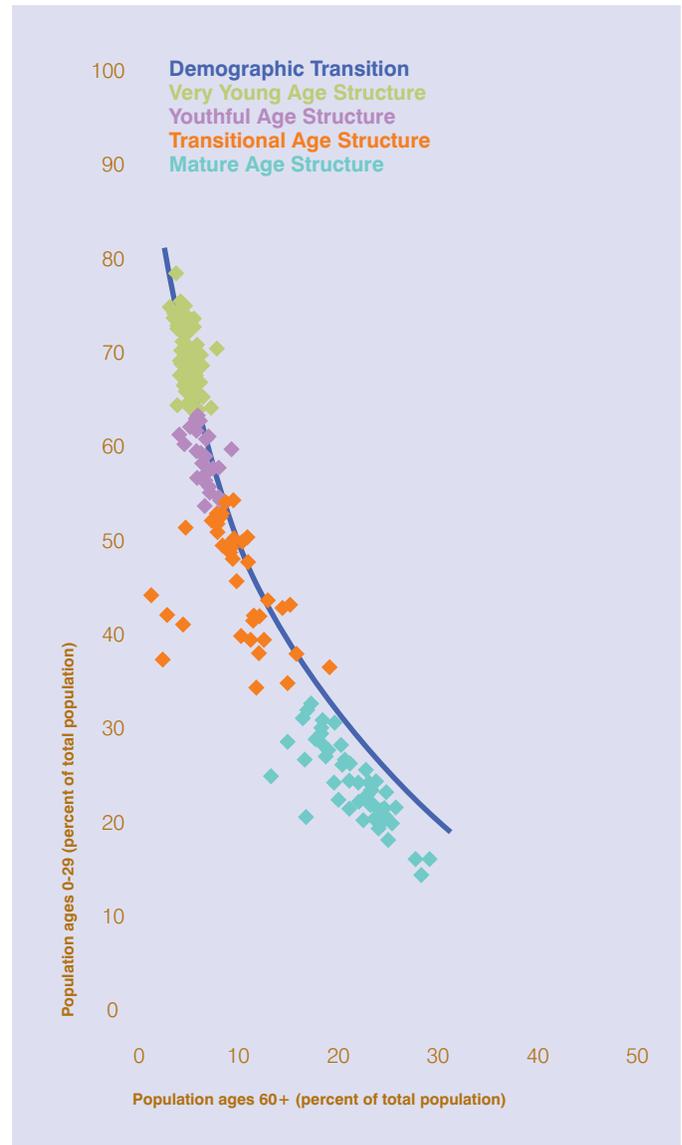
In recent decades, the demographic transition's impact on country population profiles has been surprisingly rapid. The full transitions that took most European countries about 150 years to complete occurred in parts of East Asia and the Caribbean in less than 50 years. Yet more than one-third of all countries remain in the transition's early and middle phases.[12] Rates of birth and death – particularly among infants, children and women in pregnancy and childbirth – remain high in most of sub-Saharan Africa and in parts of South and Central Asia. And although death rates have declined, birthrates remain high in much of the Middle East and in several Latin American countries and Pacific Islands. This places these countries in the middle of the demographic transition, mostly with youthful age structures.

Population Geometry: Age Structures Defined
This report characterizes all national populations into one of four major types of contemporary age structures: *very young*, *youthful*, *transitional*, and *mature* types. These four profiles represent progressive steps along the path of the demographic transition. Because only four major categories have been devised to contain more than 150 countries, a range of structures occurs within each type. Still, countries in each of these types experience similar challenges and successes in their economic, political and social development.

By themselves, these profiles provide an incomplete view of a country's current and future risks and opportunities. Demographic projections do not account for the historic, ethnic and cultural factors that could contribute either to government resilience or weakness in the face of challenges and threats, and they ignore the conditions in the country's geographic neighborhood. Nonetheless the associations found in comparing age structures strongly suggest that demographics should be examined in every country analysis. Governments should consider the programs and policies targeted at health, education and employment that can influence their population dynamics.

The four current age structure types are created by dividing a country's population into three age groups – youth (ages zero to 29 years), mid-adults (30 to 59 years) and older adults (60 and older) – and using those proportions to track the country's position along the demographic transition. Calculated this way using demographic data, any age structural *bulges* (large proportions of individuals within specific age groups) and *contractions* (small proportions) within the population can be identified.

Opportunities at Every Age
Among the three major age structure components, youth includes life's most formative years, and some of its riskiest. When education, health care and employment are available, young women and men hold the potential to renew and revitalize the country's economy and institutions. Without access to these social services, however, countries with a large proportion of young people tend to face escalating demands for jobs and education. These countries have historically been the most volatile and vulnerable to civil conflict.[13] A contraction in the youthful age groups, meanwhile, generally indicates an actively declining birthrate or previous declines. This presents opportunities for governments and parents to save and to invest more in each child's education and health.

The middle age segment – composed of adults ages 30 to 59 – is typically the most productive group in a country's development through the accumulation of technical expertise and financial assets. A large bulge in this age group is characteristic of populations that have experienced considerable progress along the demographic transition. With effective governance, this increases federal revenue and provides funding for state programs including education, health care for children and a social safety net for the needy and elderly. Conversely, a contraction in this age group can limit government spending unless alternative sources of revenue are available.

Most countries will eventually experience significantly larger proportions of older adults than in the past. In industrial countries, the need for health care funding for a large number of older adults and elderly was historically met by the significantly larger cohorts of younger people who could assume responsibility for their care. As populations continue to age and younger generations grow smaller, the development of a large proportion of older adults in countries with state-run pensions and health care benefits is likely to severely challenge these systems.

Figure 1.4
Age Structure Type Summary

This table shows the number of countries in each of the four major age structure types across the past 35 years. The range of possibilities for the number of countries in each type (and one speculative type) within two different future population projections is also shown.
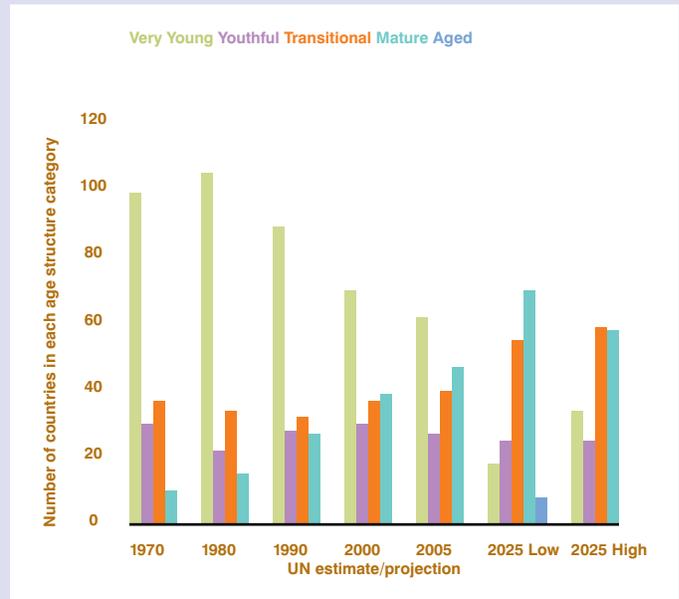
Figure 1.5
World Age Structure Types, 2005

Countries are indicated by color in each of the four major types and three subtypes of age structures, based on their 2005 population.
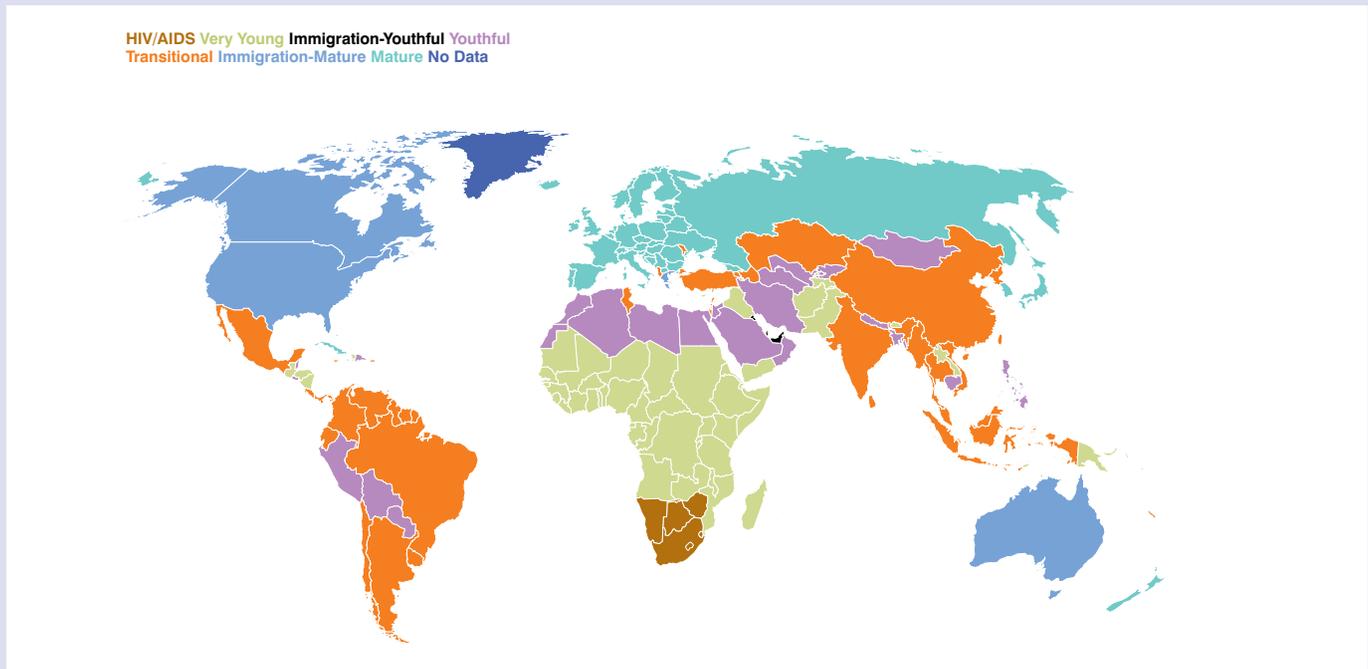
Age Structure, Security and Development

In addition to describing a new typology of population age structures, *The Shape of Things to Come* analyzes how countries in each age structure type experienced three critical aspects of the development process at the end of the twentieth century. The three measures selected – *civil conflict* (hostilities within a country's borders in which at least one party is a state actor and at least 25 people are killed annually), economic growth and level of democracy – are just a few of the many factors that contribute to a country's development and the well-being of its residents. These three happen to offer high-quality data and a demonstrated relationship to population dynamics, but other measures of development are equally intriguing.[14]

Age structures' influence on a state's security, democracy and development is significant and quantifiable. Previous research has linked the incidence of civil conflict to the share of young people in a population.[15] Based on this report's classification, countries with the most youthful age structures are statistically much more likely to have experienced civil conflict in the 1970s, 1980s and 1990s. Countries with older age structures have historically been more peaceful. In the 1990s alone, countries with a very young age structure were more than three times more likely to experience conflict than countries with a mature age structure.

The particular economic challenges faced by developing countries with high rates of population growth are well-documented. Population growth increases the pressures on a country's natural resources and demands for social spending, and reduces or negates the scale of improvements in national income.[16] Aging countries experience their own economic challenges as fewer working-age adults must support higher numbers of elderly citizens and taxation revenue shrinks. Economic growth rates vary among age structure categories, with highest rates of economic expansion among countries with very young and transitional age structures. The high rates of growth experienced by countries with a transitional age structure may be due to the rapid demographic changes they are undergoing.

Finally, countries with very young age structures have historically had a nearly 90 percent probability of autocratic or only partially democratic governance, while the majority of countries with transitional and mature age structures are full democracies. The likelihood of democratic governance increases markedly with each successive age structure type, and increases especially between countries with a youthful and transitional age structure. Democracy does not equate to good governance, but such measures of political freedom can be important to donors in deciding where and how to invest in developing countries.

It is important to highlight two caveats of this research. First, while the results suggest that countries with younger age structures are more likely to experience challenges regarding their stability, development and governance, this does not mean that age structures are direct or unique causes of these challenges. Many other political,

economic, environmental and geographic factors are at play in complex relationships. Also, some age structures – particularly the most aged, with very large proportions of people over age 60 – have not yet materialized. So far, countries with a relatively large share of older adults remain generally peaceful, stable and high-income. The absence of current statistical evidence does not preclude future problems among age structures that have yet to develop.

The Impact of Policies and Programs

At the beginning of the 21st century, the range of contemporary population age structures and the extent of their interplay with economics and domestic politics are broader than ever before. The demographic changes that have created this array of age structures do not happen automatically. In many cases, they have been inspired by national and regional policies. Such policies can have either a passive effect on demographics – as in the case of efforts to scale up educational and economic opportunities and build more housing – or an active effect – as in the case of encouraging or discouraging immigration.[17]

Public policies are often purposefully meant to reshape the population profile. Historically this has been done through rights-based approaches such as national family planning programs and expanded social welfare systems as well as more coercive methods such as financial incentives to increase or decrease fertility, and even forced sterilization or China's restrictive one-child policy. In sub-Saharan Africa and parts of South Asia, the Middle East and Latin America, attention has been focused on rapid growth in the numbers of children and adolescents in an environment with inadequate educational and health infrastructure, and a dearth of teachers and jobs. Although life expectancies have lengthened and fertility rates have declined across the developing world in recent decades, epidemic diseases continue to decimate the most vulnerable – particularly women and children – while hundreds of millions of couples lack access to contraceptive services. Many countries, often with the assistance of international partners, have implemented state-supported voluntary family planning programs that provide affordable contraception, counseling and related reproductive health care. They hope that these programs, along with efforts to increase girls' educational attainment, will help instigate a voluntary shift to small families, as they have in other developing countries.

Recently, in the industrialized countries in Europe and East Asia, policymakers have been engaged in addressing just the opposite issue – fertility rates that have declined to precipitously low levels. In response, governments have implemented a spate of incentives to encourage childbearing, such as financial bonuses and subsidized day care.[18] These inducements to childbearing have had, in recent decades, little quantifiable impact on fertility rates.[19] Many observers attribute these ongoing low fertility rates to the tension between women's professional advancement in these societies and their continued traditional role in family life, in which they are often expected to assume the majority of child care and elder care responsibilities.

Summary Point Countries with more favorable age structures are generally more peaceful and democratic, allowing governments to better meet the needs of their people. An adverse age structure, in contrast, presents challenges when national resources are insufficient to improve economic and social welfare. Countries that progress along the demographic transition – changing from high rates of mortality and fertility to smaller families and longer lives – generally demonstrate more favorable age structures. Shifts in a country's position on the demographic transition can occur rapidly and can be dramatically influenced by government policies and programs.

Policy Recommendation Policies and programs that result in progress along the demographic transition – such as access to family planning and sexual and reproductive health care and girls' education – should be designed, funded and prioritized in a context of individual rights. The European Union, for example, has set the following objectives for its population assistance in developing countries: to "secure the right of women, men, adolescents to good reproductive and sexual health; enable women, men and adolescents to have access to a comprehensive range of safe and reliable reproductive and sexual health care; reduce maternal mortality rates."[20]

Governments and international policymakers should consider the position along the demographic transition of their own countries and others of strategic interest. Given their country's mortality and fertility rates, they should evaluate changes that might result in a more favorable age structure.

AGE STRUCTURES' INFLUENCE ON A STATE'S SECURITY, DEMOCRACY AND DEVELOPMENT IS SIGNIFICANT AND QUANTIFIABLE.

VERY YOUNG
AGE STRUCTURES

With generally low levels of development, countries with a very young age structure are consistently the most likely to face major challenges. When countries that experienced new conflict in the 1970s, 1980s and 1990s were cross-referenced with their age structure at the beginning of each of those decades, very young structures were found to have the strongest correlation with occurrences of civil conflict. In the 1990s, for example, countries with a very young structure were three times more likely to experience conflict than countries with a mature structure. Between 1970 and 1999, 80 percent of all new outbreaks of civil conflicts occurred in countries in which 60 percent or more of the population was under age 30.

Date of Birth	Age
< 1905	100+
1906 - 1910	95 - 99
1911 - 1915	90 - 94
1916 - 1920	85 - 89
1921 - 1925	80 - 84
1926 - 1930	75 - 79
1931 - 1935	70 - 74
1936 - 1940	65 - 69
1941 - 1945	60 - 64
1946 - 1950	55 - 59
1951 - 1955	50 - 54
1956 - 1960	45 - 49
1961 - 1965	40 - 44
1966 - 1970	35 - 39
1971 - 1975	30 - 34
1976 - 1980	25 - 29
1981 - 1985	20 - 24
1986 - 1990	15 - 19
1991 - 1995	10 - 14
1996 - 2000	5 - 9
2001 - 2005	0 - 4

Afghanistan 2005

Males
Females

Percent of Total Population

Democratic Republic of the Congo 2005

Males
Females

Percent of Total Population

Haiti 2005

Males
Females

Percent of Total Population

Uganda 2005

Males
Females

Percent of Total Population
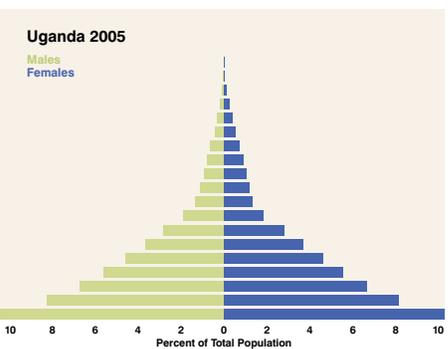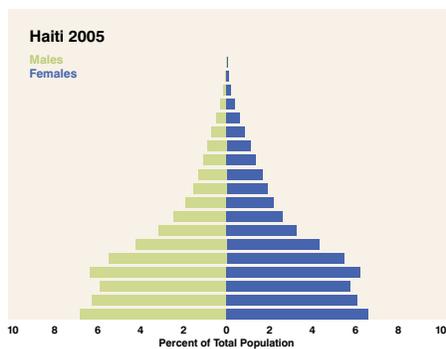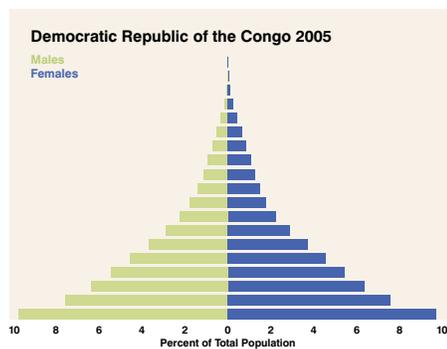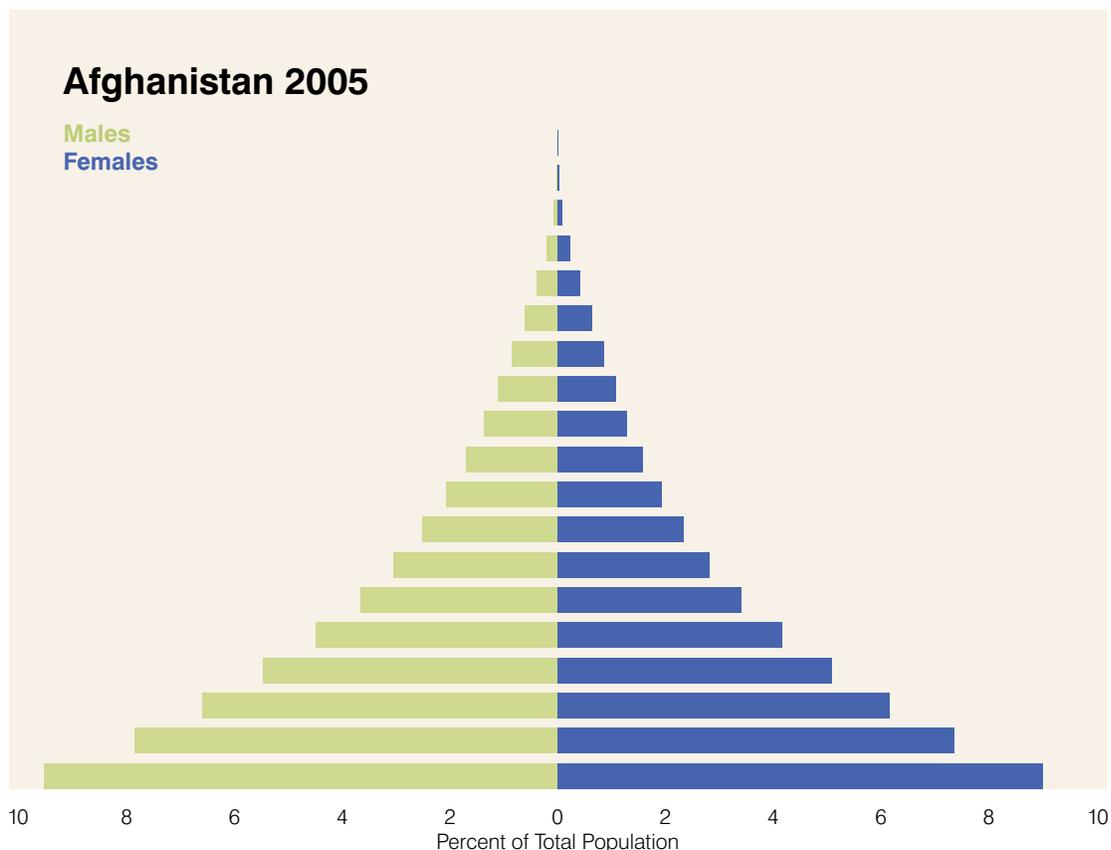
Date of Birth	Age
< 1905	100+
1906 - 1910	95 - 99
1911 - 1915	90 - 94
1916 - 1920	85 - 89
1921 - 1925	80 - 84
1926 - 1930	75 - 79
1931 - 1935	70 - 74
1936 - 1940	65 - 69
1941 - 1945	60 - 64
1946 - 1950	55 - 59
1951 - 1955	50 - 54
1956 - 1960	45 - 49
1961 - 1965	40 - 44
1966 - 1970	35 - 39
1971 - 1975	30 - 34
1976 - 1980	25 - 29
1981 - 1985	20 - 24
1986 - 1990	15 - 19
1991 - 1995	10 - 14
1996 - 2000	5 - 9
2001 - 2005	0 - 4

Figure 2.1
Very Young Age Structure Profiles

Youth (ages 0-29) approximately 67 percent or more of total population
Mid-Adults (ages 30-59) approximately 18-27 percent of total population
Seniors (ages 60+) approximately 3-6 percent of total population
Demographic character Pyramidal shaped; progressively larger bulges in young adults and child portion of the age profile

Population doubling time 20-35 years
Country count (2005) 62
Regional prevalence sub-Saharan Africa
Civil conflict risk 26 percent likely to experience civil conflict, 1970-99
Economic performance 3.6 percent median average GDP annual growth rate, 1970-99
Governance 13 percent likely to have fully democratic governance, 1970-99

The finding that countries with very young populations are more vulnerable to conflict holds true despite the maturation of age structures globally at the end of the twentieth century. This suggests that the vulnerability of countries with a very young population was not merely a result of the large numbers of institutionally weak states in the early stages of industrialization. Although age structures in most countries in East Asia, the Caribbean and Latin America matured significantly over this three-decade period and many countries in these regions moved into more advanced age structures, the likelihood that countries with very young age structures would experience civil conflict actually increased in each decade from the 1970s to the 1990s.

A positive relationship between the proportion of young adults in a population and its vulnerability to conflict has already been established. Other analyses have demonstrated that countries with a youth bulge (proportion of the adult population ages 15 to 29) of 41 percent or greater are at high risk of civil conflict.[21] This correlates with this report's finding that the vast majority of new civil conflicts in recent decades have occurred in countries in which at least 60 percent of the entire population is comprised of youth (ages 0 to 29). Although the 21st century is still young, the eight new outbreaks of civil conflict that occurred between 2000 and 2004 appear to follow the same general pattern around age structure.

Once conflict has broken out in a country, there is little evidence that changes in age structure help restore peace. Persistent and recurring conflicts have occurred in some of the most mature populations in the world in recent years, such as the Basque separatist movement in Spain and ongoing religious and political divisions in Northern Ireland. Therefore, the connections between population age structure and civil instability are most relevant to new outbreaks of conflict. Nonetheless, it is plausible to suspect that the nature of civil conflict may change when recruitment of insurgents becomes difficult, leaving uprisings with isolated criminal elements rather than full-scale revolutions. Such a change could occur when a greater share of young people, particularly men, have decent economic prospects, a development that may be spurred by a shift toward a more mature age structure.

Figure 2.2
Outbreaks of Civil Conflict

Countries in which more than 60 percent of the population was under age 30 have been at least four times as likely than countries with more mature population age structures to experience new outbreaks of civil conflict.
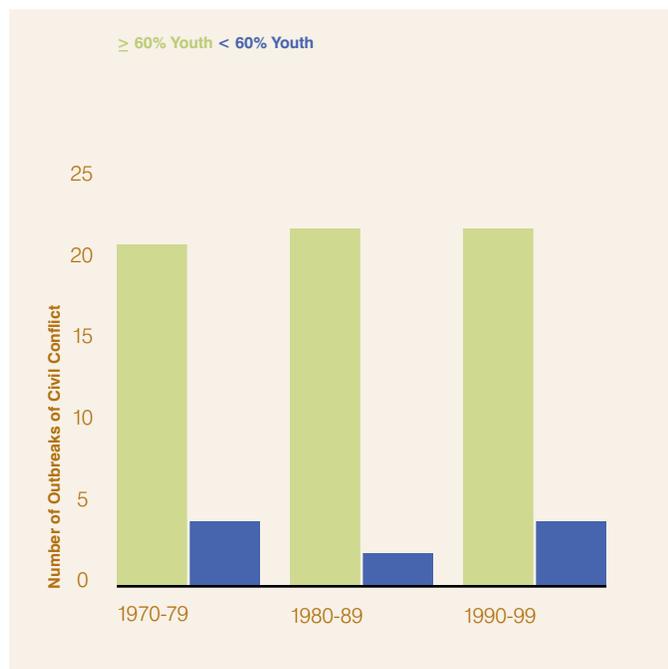
Figure 2.3
Risk of Civil Conflict by Age Structure Type
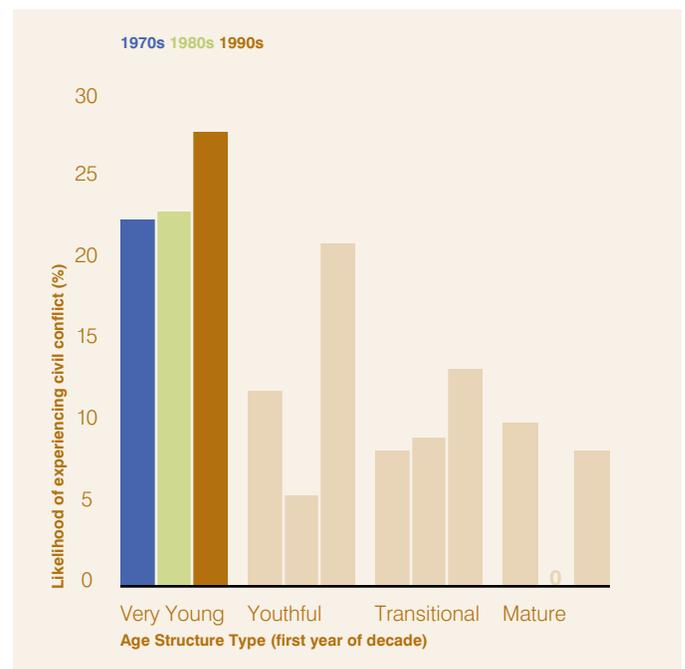
Countries with very young and transitional age structures experienced an almost identical average median GDP growth rate over the entire 30-year period, at 3.6 percent. Countries with very young age structures are generally very poor; their median per capita GDP in 2005 was just $1,800. Historically, rapid rates of GDP growth are common in these countries, especially those with crude natural resources available for export. However, a high percentage growth rate in a country with a tiny per capita national income usually does little in the short term to improve the living situation of the millions of people living in poverty.

When an age profile contains a bulge in a dependent or institutionally demanding component of the population, the government may struggle to properly address its obligations and may fail to meet citizens' expectations. Bulges in the youth cohort of a population (teenagers and those in their twenties) can pose a particular problem if unemployment is high, especially if youth are well-educated and expect financial stability.

Historically, the vast majority – nearly 90 percent – of countries with very young age structures had governments that were autocratic or only partially democratic. Countries with a very young structure were consistently likely to have an autocratic government and, over most of the period surveyed, their median democracy rating was nearly the lowest possible. In the 1990s, this rating improved slightly for countries with a very young structure, but they were still overwhelmingly likely to have an autocratic or partially democratic government.

Figure 2.4
Age Structure Type and GDP Growth[23]

1970s 1980s 1990s

Median average GDP growth rate

Age Structure Type (first year of decade)

Very Young   Youthful   Transitional   Mature
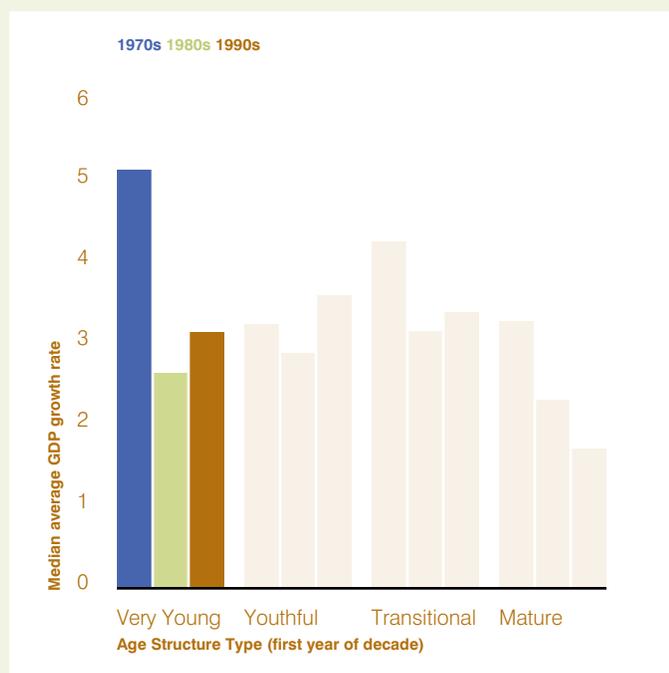
Figure 2.5
Governance and Age Structure Type

1970s 1980s 1990s

Percent of countries that were full democracies at end of decade

Age Structure Type (first year of decade)

Very Young   Youthful   Transitional   Mature
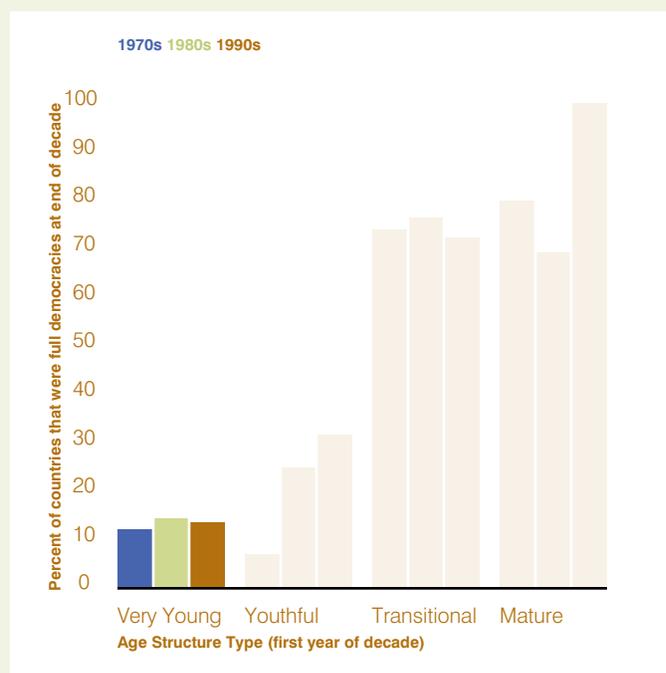
Countries in Profile: Nigeria
Demographic Development: Reversing Course?

With the largest population in Africa, more than 40 percent of the region's GDP, and a government maintaining a delicate hold on democracy, Nigeria's political and economic developments reverberate across the continent. Nigeria is the eighth largest oil-exporting country in the world. The petroleum industry is responsible for about two-thirds of national revenue and a great deal of international interest in the country, but it has also been the target of recent political instability. In 2006, militant rebels angry about the distribution of Nigerian oil revenue initiated a series of attacks against the industry, including kidnapping foreign workers, which resulted in the country's petroleum output dropping by 25 percent.[24] Fighting has also broken out between Christians and Muslims; the society is extremely heterogeneous, with more than 250 different ethnic groups.

Since its independence from Great Britain in 1960, Nigeria's development has been hampered by extended periods of governmental corruption, instability and general mismanagement, all of which have created a weak infrastructure. Despite its vast size and agricultural resources, Nigeria must import food. Environmental challenges include rapid urbanization, pollution from both high population density and the oil industry, and deforestation and loss of arable land.

Nigeria is firmly within the category of a very young age structure, with nearly three-quarters of its population under the age of 30. In fact, its population has actually grown more unbalanced over time. Between 1975 and 2005, the share of young people in the country's population increased while the share of older adults slightly decreased. Thus Nigeria has reversed course along the path of the demographic transition – an anomaly in the process of most countries' development (Figure 2.7)

Nigeria's lack of progress along the demographic transition can be explained by its stagnant death rate and only slightly declining birth rate. Mortality rates have barely changed since 1975, from 20 to 19 annual deaths per 1,000 people. While HIV/AIDS has not reached the scale in Nigeria that it has in southern Africa, four percent of reproductive age adults are infected with the virus. Total life expectancy is around 44 years for men and women, a decline from previous decades. Meanwhile, the total fertility rate dropped from 6.9 to 5.9 children per woman between 1975 and 2005, but remains extremely high. Only eight percent of married women of reproductive age use a modern method of contraception, partially because the ideal number of children is nearly seven. A number of factors may explain this high desired fertility, including poor child survival rates – one-fifth of all children born in Nigeria die before they turn five – and low educational attainment among women, 42 percent of whom have never been to school at all.[26]

Figure 2.6
Nigeria's Age Structures, 1975 and 2005[25]

Nigeria's population age profile has remained virtually unchanged since 1975 in a classic pyramid shape, with bulges in the youngest age groups and steady declines in the proportional size of each successively older age group. This is unusual, compared to most developing countries, which have been experiencing at least gradual declines in fertility and mortality. Nigeria's age structure has not matured since 1975, reflecting the country's reversal in position along the demographic transition.

Nigeria 1975
Males
Females

Percent of Total Population

Date of Birth	Age
< 1875	100+
1876 - 1880	95 - 99
1881 - 1885	90 - 94
1886 - 1890	85 - 89
1891 - 1895	80 - 84
1896 - 1900	75 - 79
1901 - 1905	70 - 74
1906 - 1910	65 - 69
1911 - 1915	60 - 64
1916 - 1920	55 - 59
1921 - 1925	50 - 54
1926 - 1930	45 - 49
1931 - 1935	40 - 44
1936 - 1940	35 - 39
1941 - 1945	30 - 34
1946 - 1950	25 - 29
1951 - 1955	20 - 24
1956 - 1960	15 - 19
1961 - 1965	10 - 14
1966 - 1970	5 - 9
1971 - 1975	0 - 4

Nigeria 2005
Males
Females

Percent of Total Population

Date of Birth	Age
< 1905	100+
1906 - 1910	95 - 99
1911 - 1915	90 - 94
1916 - 1920	85 - 89
1921 - 1925	80 - 84
1926 - 1930	75 - 79
1931 - 1935	70 - 74
1936 - 1940	65 - 69
1941 - 1945	60 - 64
1946 - 1950	55 - 59
1951 - 1955	50 - 54
1956 - 1960	45 - 49
1961 - 1965	40 - 44
1966 - 1970	35 - 39
1971 - 1975	30 - 34
1976 - 1980	25 - 29
1981 - 1985	20 - 24
1986 - 1990	15 - 19
1991 - 1995	10 - 14
1996 - 2000	5 - 9
2001 - 2005	0 - 4

Following the end of military rule in 1999, Nigeria was rated as a partial democracy, an improvement from 15 years spent under an autocratic regime.[27] Still, corruption extends to the highest reaches of government, with state governors immune from prosecution within the country's borders and the vice president implicated as accepting bribes from a U.S. Congressman.[28] Despite President Olusegun Obasanjo's promises of reforms, no high-ranking government official has yet been convicted of corruption during his presidency. In 2006, an unsuccessful attempt, not publicly opposed by Obasanjo, was made to alter the country's constitution to allow him to run for a third term in office. Elections in 2007 should mark the first time that one democratically elected Nigerian president turns over power to another.[29]

Although many previous international development projects had poor results, Nigeria and its donors have taken steps to reduce its debt to foreign creditors. Through currently active projects, the World Bank is funding nearly $2 billion in development assistance to the country. Still, one-third of the population lives in poverty, and Nigeria is among the 20 poorest countries in the world.

In order to project a plausible range of demographic changes for several decades into the future, United Nations demographers generate a series of scenarios including the low-, medium- and high-fertility variants.[31] Figure 2.9 shows the range of possibilities for Nigeria's age profile in 2025 based on the low-fertility variant, which assumes a rapid fertility rate decline to 3.1 children per woman, and the high-fertility variant, which projects a fertility rate of 4.1 children per woman. Nigeria's population more than doubled between 1975 and 2005, and is projected to increase by 40 percent by 2025, according to the UN's medium fertility scenario. Even if its fertility and mortality rates begin the rapid decline of the low-fertility variant, Nigeria will have a youthful age structure in 2025.

Now that the country has established a democratic government and increased support from international donors, priority must be given to improving its people's standard of living. Improvements in health and economics would likely lead to a much more stable situation for one of Africa's leading states. Critical areas include maternal and child health, increased use of contraception, and entrenchment against HIV/AIDS and other infectious diseases. Nigeria and its international partners should also focus on greater access to basic education, especially for girls, and a more equitable distribution of wealth together with other programs to diversify and balance the economy.

Figure 2.7
Nigeria's Position Along the Demographic Transition

The disparities among age groups in Nigeria's population have actually grown more pronounced over the past three decades, as the share of people under 30 has increased and the proportion of older adults has declined. Even if fertility rates drop rapidly, Nigeria will have a youthful age structure in 2025.

Demographic Transition
Nigeria's Position Along Demographic Transition

2005
1975
2025 High
2025 Medium
2025 Low

Points for 2025 are based on the range of fertility projections produced by the UN Population Division.

Population ages 0-29 (percent of total population)

Population ages 60+ (percent of total population)
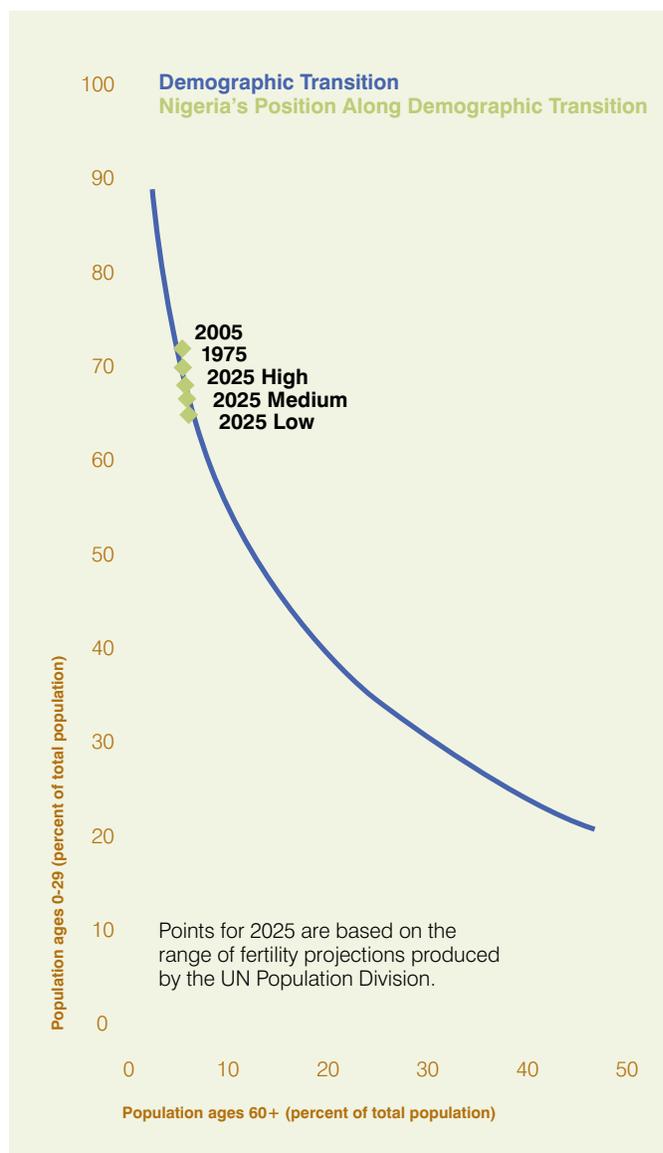
Figure 2.8
Current Demographic Statistics for Nigeria[30]

Population 1975 59 million
Population 2005 132 million
Population 2025 (medium term projection) 190 million
Population 2050 (medium term projection) 258 million
Median population age 18 years
Population under age 15 44%
Total fertility rate (2005-2010) 5.3
Contraceptive prevalence rate (modern methods, 2003) 8%
Unmet need for family planning 17%
Life expectancy 44 years male and female
HIV prevalence rate (ages 15-49, 2005) 4%
GNI per capita (Atlas method, current US$, 2005) $560
Population living below poverty line 34%
Unemployment rate 3%
Adult literacy rate (2003) 67% total, 59% women
Arable land (% of total) 33

Figure 2.9
Nigeria's Potential Age Structures, 2025

Even if birthrates begin to decline rapidly and meet the UN low-fertility variant, they are currently so high that Nigeria will transition just one category and have a youthful age structure in 2025. A more favorable age structure should develop once priority attention is given to both mortality and fertility aspects of health.

Nigeria 2025

Low Fertility
Variant Male
Population
High Fertility
Variant Male
Population
Low Fertility
Variant Female
Population
High Fertility
Variant Female
Population

Date of Birth	Age
< 1925	100+
1926 - 1930	95 - 99
1931 - 1935	90 - 94
1936 - 1940	85 - 89
1941 - 1945	80 - 84
1946 - 1950	75 - 79
1951 - 1955	70 - 74
1956 - 1960	65 - 69
1961 - 1965	60 - 64
1966 - 1970	55 - 59
1971 - 1975	50 - 54
1976 - 1980	45 - 49
1981 - 1985	40 - 44
1986 - 1990	35 - 39
1991 - 1995	30 - 34
1996 - 2000	25 - 29
2001 - 2005	20 - 24
2006 - 2010	15 - 19
2011 - 2015	10 - 14
2016 - 2020	5 - 9
2021 - 2025	0 - 4

10   8   6   4   2   0   2   4   6   8   10
Percent of Total Population

Countries in Profile: Pakistan
A Youthful Population, Beginning to Mature

With 165 million people, Pakistan is today the sixth most populous country in the world. Its population has historically grown rapidly and, if current projections are on target, growth will continue well into the 21st century. Between 1975 and 2005, the country's population more than doubled, and the United Nations estimates that another 54 million people will be added in the next 15 years. Around the early 2040s, Pakistan will have surpassed Brazil and Indonesia to become the fourth most populous country in the world, following behind China, India and the United States.[32]

Pakistan is representative of countries that, while still maintaining a young age structure, are beginning to mature. Its demographic trends are particularly noteworthy because of its high strategic interest. Geographically, the country is situated between India – with whom it has maintained a fractious relationship since the two states were partitioned in the mid-twentieth century – and Afghanistan, whose political troubles have crossed Pakistan's border in recent decades. Two other neighbors are Iran, also profiled in this report, and China.

Pakistan's current age structure is similar to those of Cambodia, Nepal and Sudan. Its population profile maintains a classic pyramid shape, but the discrepancy in proportions between the age groups that include children and those comprising adolescents and young adults is less pronounced than in the youngest age structures. This gradual shift to a youthful age structure in Pakistan is due to the declines in birth and death rates that occur at the beginning of the demographic transition.

Figure 2.10
Pakistan's Age Structures, 1975 and 2005

In 1975, due to extremely high fertility rates, Pakistan's age structure was more youthful than it is today. Approximately 30 percent of the population was comprised of children ages nine and younger. Today, Pakistan has a very young age structure that still holds a classic pyramid shape. However, a gradual decline in mortality and fertility rates has decreased the scale of difference between each successively younger age group. Pakistan is on the verge of shifting to a youthful age structure.

Pakistan 1975
Males
Females

Date of Birth	Age
< 1875	100+
1876 - 1880	95 - 99
1881 - 1885	90 - 94
1886 - 1890	85 - 89
1891 - 1895	80 - 84
1896 - 1900	75 - 79
1901 - 1905	70 - 74
1906 - 1910	65 - 69
1911 - 1915	60 - 64
1916 - 1920	55 - 59
1921 - 1925	50 - 54
1926 - 1930	45 - 49
1931 - 1935	40 - 44
1936 - 1940	35 - 39
1941 - 1945	30 - 34
1946 - 1950	25 - 29
1951 - 1955	20 - 24
1956 - 1960	15 - 19
1961 - 1965	10 - 14
1966 - 1970	5 - 9
1971 - 1975	0 - 4

10   8   6   4   2   0   2   4   6   8   10
Percent of Total Population

Pakistan 2005
Males
Females

Date of Birth	Age
< 1905	100+
1906 - 1910	95 - 99
1911 - 1915	90 - 94
1916 - 1920	85 - 89
1921 - 1925	80 - 84
1926 - 1930	75 - 79
1931 - 1935	70 - 74
1936 - 1940	65 - 69
1941 - 1945	60 - 64
1946 - 1950	55 - 59
1951 - 1955	50 - 54
1956 - 1960	45 - 49
1961 - 1965	40 - 44
1966 - 1970	35 - 39
1971 - 1975	30 - 34
1976 - 1980	25 - 29
1981 - 1985	20 - 24
1986 - 1990	15 - 19
1991 - 1995	10 - 14
1996 - 2000	5 - 9
2001 - 2005	0 - 4

10   8   6   4   2   0   2   4   6   8   10
Percent of Total Population

Pakistan's government is a parliamentary democracy that has experienced repeated periods of authoritarian and/or military rule in the 60 years since independence. Major civil conflicts in recent decades have included the secession of Bangladesh in 1971 and continuing separatist struggles in other regions. Ongoing hostilities with India, centered over the Kashmir region, have escalated in geopolitical importance since both nations possess nuclear weapons.

Between 1975 and 2000, Pakistan's school-age population doubled.[33] As placement in public schools became increasingly competitive, low-income parents turned to religious schools (in Urdu, *madarasas*) as the only affordable alternatives for educating their sons. While estimates of the number of madarasas vary, a recent analysis suggests that there may be as many as 45,000 of these schools in Pakistan, with anywhere from ten to several thousand male students in each.[34] The madarasa system is self-perpetuating. Boys and young men who enter madarasas receive no scholastic or technical training. They leave qualified only for Pakistan's already over-staffed religious hierarchy, or to teach in a madarasa or start their own school.

The fundamentalist ideology that took hold in Afghanistan in the form of the Taliban has crossed into some parts of Pakistan as well. Pakistan was one of only three countries to recognize the Taliban-led government, and some of Pakistan's madarasas are believed to have ties with radical religious groups. State security remains threatened by extremists angered by the government's ties to the United States and its anti-terrorism activities in the region. In addition, Pakistan has served as a destination for millions of refugees from Afghanistan over recent decades, which has also affected its age structure. Nearly 60 percent of refugees living in Pakistan in 2003 were under the age of 18.[35]

As access to family planning has improved, Pakistan's total fertility rate has declined from 6.6 children per woman in 1975-1980 to 3.7 children per woman in 2005-2010. However, this current fertility rate produces a population growth rate above two percent annually, equating to a population doubling time of less than 40 years. Pakistan still remains in the early stages of the demographic transition and its position along that path has not changed significantly since 1975 (Figure 2.11). In order to make the progress along the demographic transition that the United Nations' medium-fertility variant projects it will, fertility will need to decline by one full child per woman in less than 20 years.

AROUND THE EARLY 2040s, PAKISTAN WILL HAVE SURPASSED BRAZIL AND INDONESIA TO BECOME THE FOURTH MOST POPULOUS COUNTRY IN THE WORLD, FOLLOWING BEHIND CHINA, INDIA AND THE UNITED STATES.

Figure 2.11
Pakistan's Position Along the Demographic Transition

Pakistan's path along the demographic transition has not changed significantly in the past 30 years. As fertility rates and mortality rates decline, the country's age structure will mature.
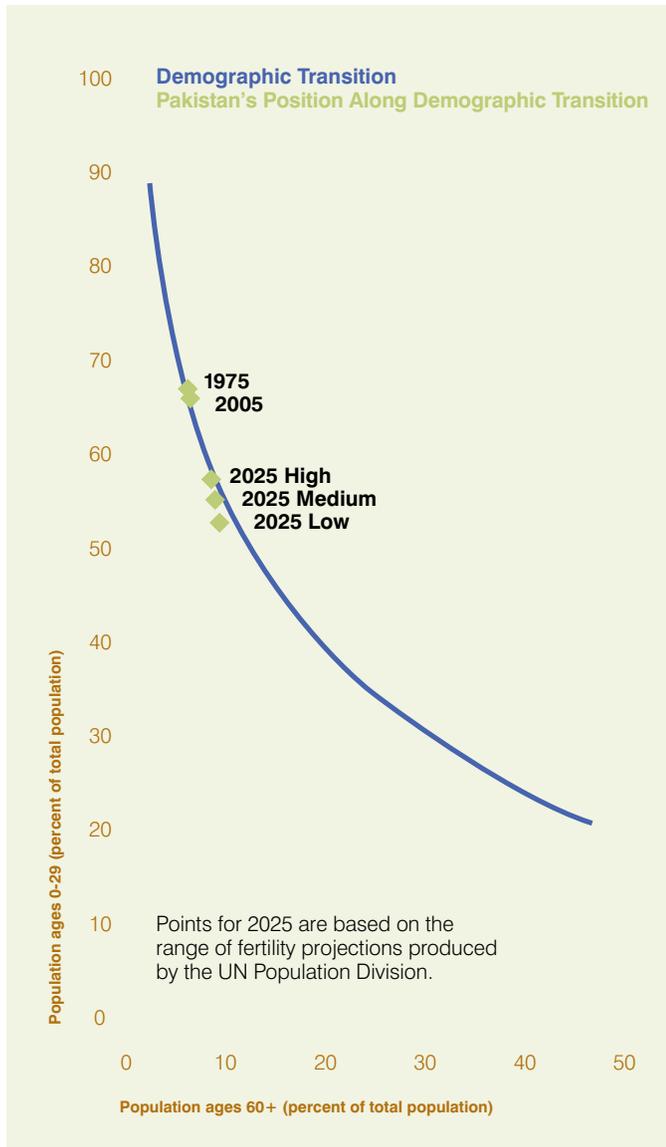
Figure 2.12
Current Demographic Statistics for Pakistan[36]

Population 1975 68 million
Population 2005 158 million
Population 2025 (medium term projection) 229 million
Population 2050 (medium term projection) 305 million
Median population age 20 years
Population under age 15 38%
Total fertility rate (2005-2010) 3.7
Contraceptive prevalence rate (modern methods, 2001) 20%
Unmet need for family planning 32%
Life expectancy 65 years, male and female
HIV prevalence rate (ages 15-49, 2005) 0.1%
GNI per capita (Atlas method, current US$, 2005) $690
Population living below poverty line 33%
Unemployment rate (2002) 8%
Adult literacy rate (2004) 63% male, 36% women
Arable land (% of total) 24

With a per capita GNI estimated at just under $700 annually, Pakistan is a low-income country, like more than three-quarters of all other countries with very young age structures. Nearly one-third of the population lives below the poverty line. Development prospects remain hampered by poor education – less than two-thirds of adult men are literate and only slightly more than one-third of women are. However, economic growth has improved markedly since 2000. Pakistan receives development assistance from a number of multilateral and bilateral donors, including a new program valued at over $6 billion from the World Bank.

Demographic Transition
Pakistan's Position Along Demographic Transition

1975
2005

2025 High
2025 Medium
2025 Low

Points for 2025 are based on the range of fertility projections produced by the UN Population Division.

Population ages 0-29 (percent of total population)

Population ages 60+ (percent of total population)

As future population projections reflect, Pakistan has the potential to transition into a more favorable age structure within 15 to 20 years. However, this requires that health care be expanded to a growing population, including the 32 percent of married women with an unmet need for family planning. In order to maintain the current decline in fertility rates to a level that will produce major changes in age structure, Pakistan's government should prioritize universal access to modern methods of family planning and reproductive health care. Education should also be a focus area of development for the country, by strengthening the overall quality of curricula, improving enrollment rates and paying particular attention to the needs of girls and women, whose access to education and achievement are highly inequitable.

Figure 2.13
Pakistan's Potential Age Structures, 2025

Comparisons of two future population projections from the United Nations show the difference in age structures possible depending on a range of fertility scenarios. If fertility rates decline from today's level of 3.7 to 2.3 children per woman (the UN's low-fertility projection), Pakistan's age structure will mature significantly and all age groups under the age of 35 will have roughly equal proportions. However, if fertility rates only decline to the UN's high projection of 3.3, the age structure will remain similar to today's, with progressively larger population proportions among successively younger age groups.
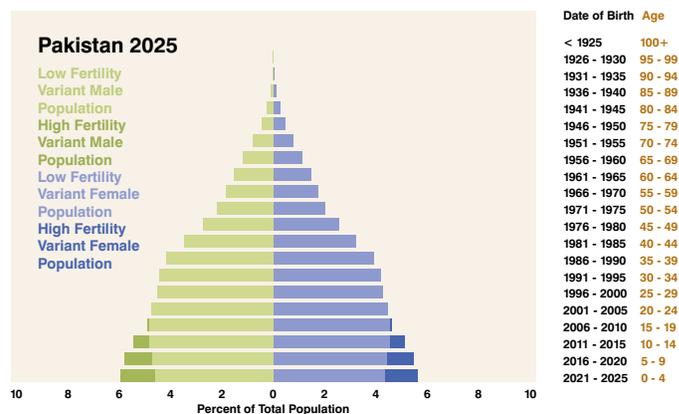
Pakistan 2025

Low Fertility Variant Male Population
High Fertility Variant Male Population
Low Fertility Variant Female Population
High Fertility Variant Female Population

Date of Birth	Age
< 1925	100+
1926 - 1930	95 - 99
1931 - 1935	90 - 94
1936 - 1940	85 - 89
1941 - 1945	80 - 84
1946 - 1950	75 - 79
1951 - 1955	70 - 74
1956 - 1960	65 - 69
1961 - 1965	60 - 64
1966 - 1970	55 - 59
1971 - 1975	50 - 54
1976 - 1980	45 - 49
1981 - 1985	40 - 44
1986 - 1990	35 - 39
1991 - 1995	30 - 34
1996 - 2000	25 - 29
2001 - 2005	20 - 24
2006 - 2010	15 - 19
2011 - 2015	10 - 14
2016 - 2020	5 - 9
2021 - 2025	0 - 4

10 8 6 4 2 0 2 4 6 8 10
Percent of Total Population

A HIGH PERCENTAGE GROWTH RATE IN A COUNTRY WITH A TINY PER CAPITA NATIONAL INCOME USUALLY DOES LITTLE IN THE SHORT TERM TO IMPROVE THE LIVING SITUATION OF THE MILLIONS OF PEOPLE LIVING IN POVERTY.

Summary Point As a group, countries with very young population age structures are extremely vulnerable to political instability. Six of every seven new outbreaks of civil conflict (80 percent) that emerged between 1970 and 1999 occurred where 60 percent or more of the population was under age 30. About one-fourth of all countries that entered any single decade with more than 60 percent of their populations under 30 left that decade having experienced armed civil conflict.

Policy Recommendation Military and intelligence strategists should consider age structure when assessing a country or region's vulnerability to conflict and policymakers should recognize the importance of investing in young people, particularly in education, family planning and sexual and reproductive health. Governments should prioritize cooperation between sectors that are traditionally focused on social welfare, such as health and population ministries, and those focused on political and economic development.

Summary Point Very young countries, with very low national incomes, can experience generally high rates of GDP growth because their economies are small to start with.

Policy Recommendation At this early stage of the demographic transition with accompanying high rates of population growth, increasing numbers of young people will be continually entering the job market. Economic development policies should be targeted at ensuring they have adequate education and training and that industries will be able to provide a sufficient number of jobs.

Summary Point Since 1970, countries with very young age structures have been likely to have undemocratic governments. As the 20th century drew to a close, an average of 13 percent of countries with very young age structures had fully democratic governments. Countries with weak or undemocratic governments *and* young populations may also face other major political challenges, such as civil unrest or poor economic performance.

Policy Recommendation Activists, policymakers and observers who value the importance of democracy should consider the relevance of population age structure and study the experiences of countries at a similar stage of the demographic transition that have seen regime change. They should also consider how demographic challenges can be alleviated – namely through proven successful policies such as voluntary family planning, sexual and reproductive health programs and girls' education.

Summary Point In addition to high birthrates, countries with a very young age structure tend to face many other serious health challenges, including high infant and maternal mortality rates. The status of women is often also low, leaving them less able to protect the health of themselves and their children.

Policy Recommendation Urgent attention to improving maternal and child health – including improving access to family planning and reproductive health services – is key to a government's efforts to achieve a more favorable age structure. Governments should prioritize funding for such programs and create a supportive policy environment. In addition, governments should seek donor assistance specifically for these purposes. Efforts must be made to improve the status of women, including increasing access to educational, economic and political opportunities and implementing and enforcing laws against gender-based violence.
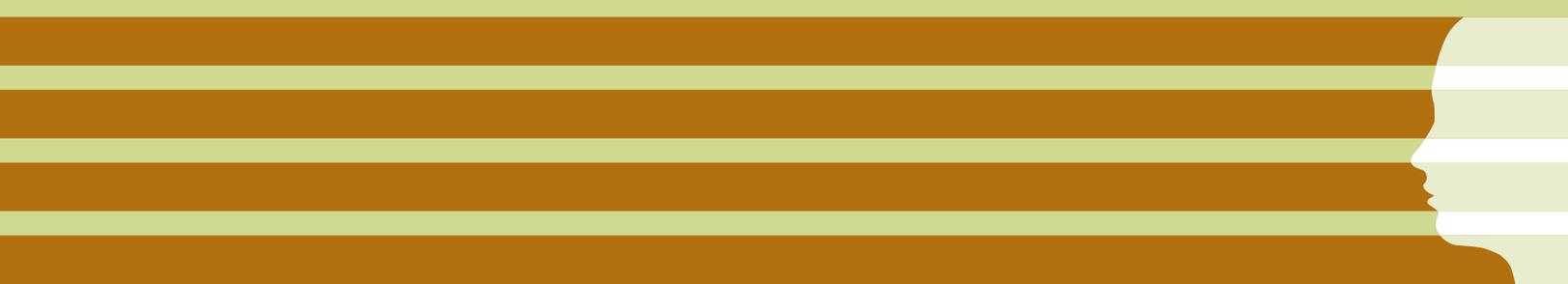
YOUTHFUL STRUCTURES
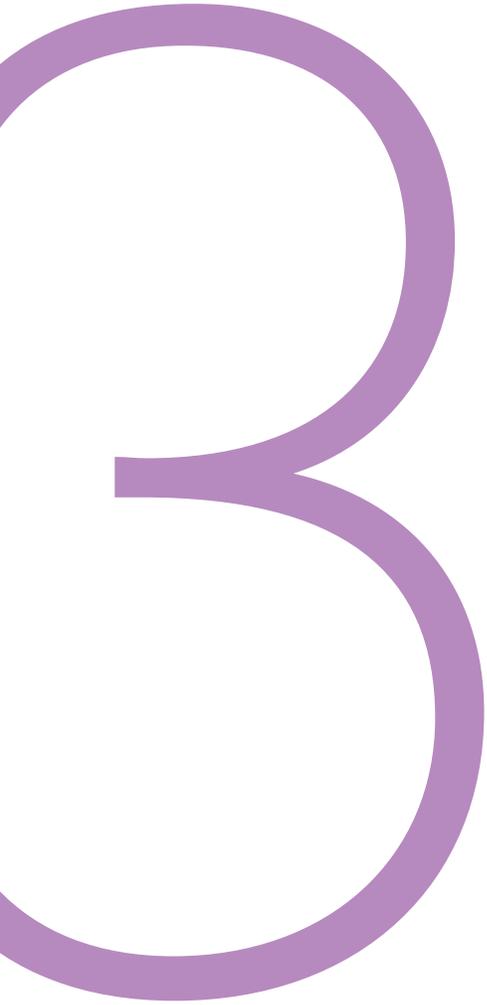
Countries with a youthful age structure have made noticeable progress along the demographic transition compared to those in the very young category. Some countries, such as Iran, have experienced significant declines in both mortality and fertility rates. However, these countries have not reached the point in the demographic transition where lower birthrates have been sustained long enough to offer opportunities for major economic growth and other development improvements. Their further advancement along the demographic transition is not guaranteed and requires government intervention in order to be achieved.

Countries with youthful age structures have experienced lower incidence of civil conflict than those with very young structures, but higher incidence than countries with transitional and mature age structures. Between 1970 and 1999, countries with youthful age structures had a 13 percent probability of experiencing civil conflict, the second highest level among the four major age structure types. Although in the 1980s they experienced a lower frequency of new outbreaks of conflict than countries in the transitional category, the probability of conflict among countries with a youthful age structure increased to 21 percent in the 1990s.

Date of Birth	Age
< 1905	100+
1906 - 1910	95 - 99
1911 - 1915	90 - 94
1916 - 1920	85 - 89
1921 - 1925	80 - 84
1926 - 1930	75 - 79
1931 - 1935	70 - 74
1936 - 1940	65 - 69
1941 - 1945	60 - 64
1946 - 1950	55 - 59
1951 - 1955	50 - 54
1956 - 1960	45 - 49
1961 - 1965	40 - 44
1966 - 1970	35 - 39
1971 - 1975	30 - 34
1976 - 1980	25 - 29
1981 - 1985	20 - 24
1986 - 1990	15 - 19
1991 - 1995	10 - 14
1996 - 2000	5 - 9
2001 - 2005	0 - 4

Egypt 2005

Males
Females

Percent of Total Population

Bangladesh 2005

Males
Females

Percent of Total Population

Peru 2005

Males
Females

Percent of Total Population

Philippines 2005

Males
Females

Percent of Total Population
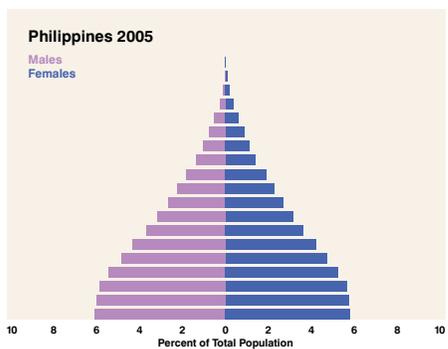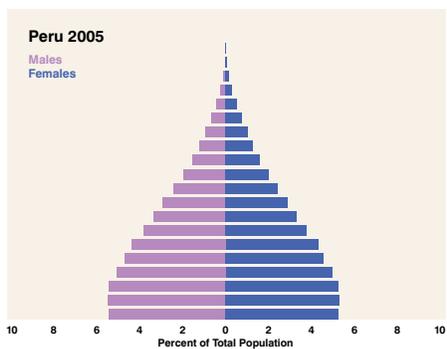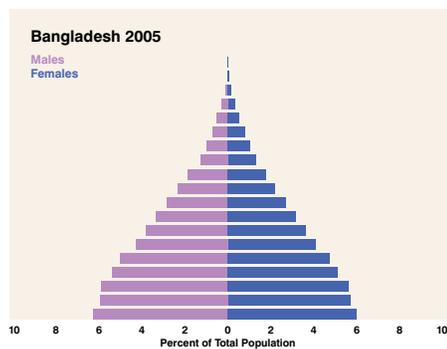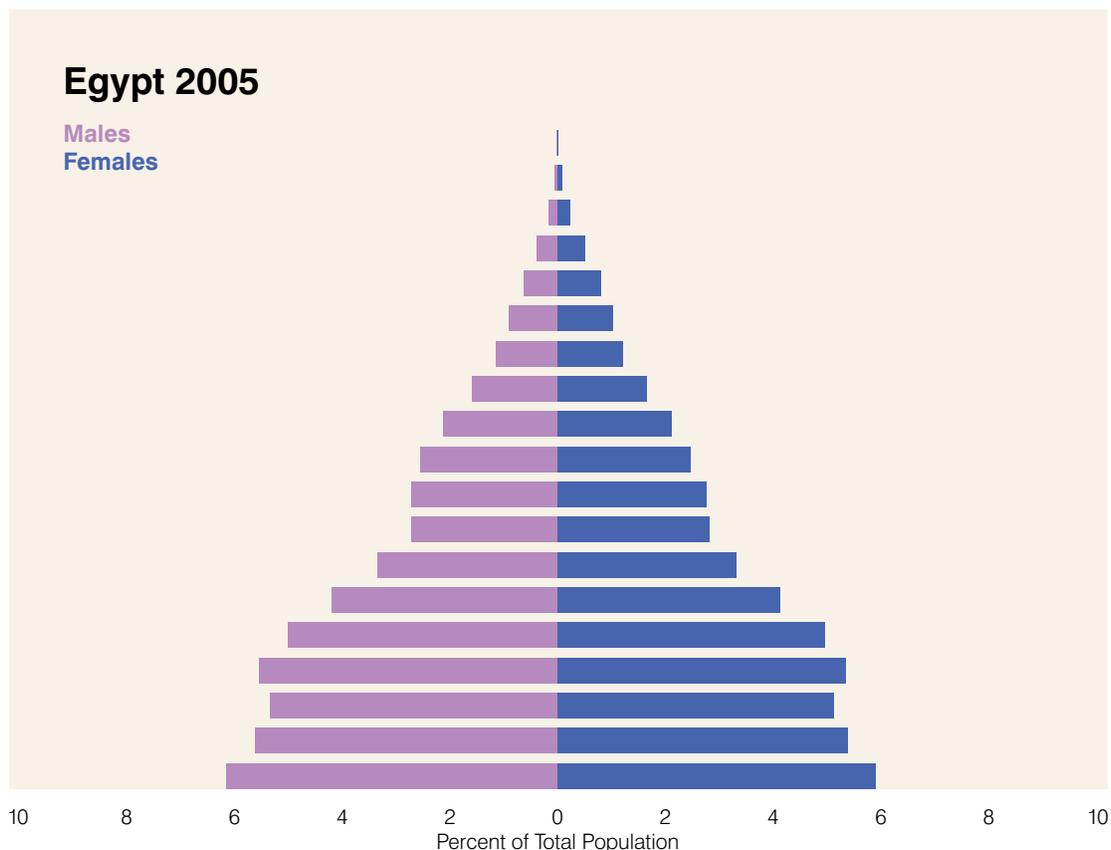
Figure 3.1
Youthful Age Structure Profiles

Youth (ages 0-29) approximately 60-67 percent of total population
Mid-Adults (ages 30-59) approximately 27-32 percent of total population
Seniors (ages 60+) approximately 6-8 percent of total population
Demographic character Maintaining a basic pyramidal shape, but youngest age groups (0-25) flattening to approximately equal proportions of population
Population doubling time 35-50 years

Country count 27
Regional prevalence Central Asia, North Africa, parts of Middle East
Civil conflict risk 15 percent likely to experience civil conflict, 1970-99
Economic performance 3.1 percent median average annual GDP growth rate, 1970-99
Governance 21 percent likely to have fully democratic governance, 1970-99

Figure 3.2
Risk of Civil Conflict by Age Structure Type

1970s **1980s** **1990s**

Likelihood of experiencing civil conflict (%)

30 — 25 — 20 — 15 — 10 — 5 — 0

Very Young   Youthful   Transitional   Mature

0

Age Structure Type (first year of decade)
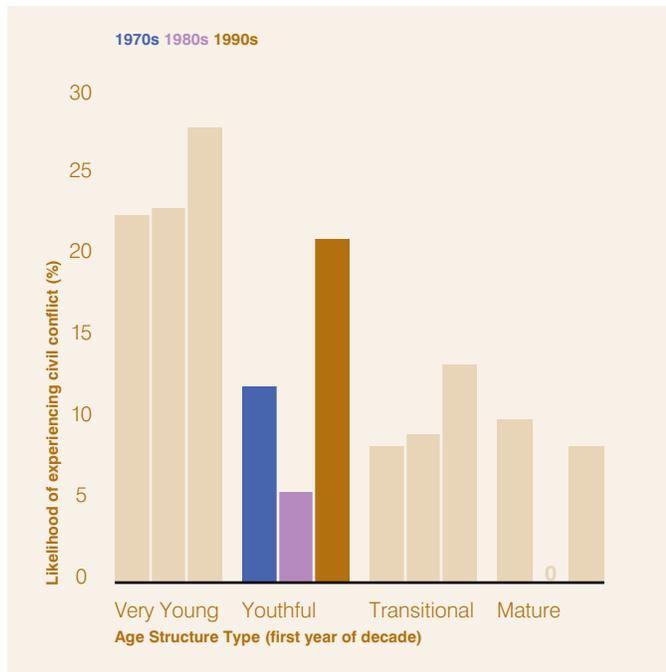
Countries with a youthful age structure had an average GDP growth rate of 3.1 percent across the entire period, lower than countries in the very young and transitional categories. As economies begin to grow and fertility rates start the gradual decline that signifies the beginning of the demographic transition, it is not surprising to find a slowing median growth rate among countries in the youthful type. These countries are still relatively low income, and large groups of children and youth keep dependency ratios high and savings low. In addition, donor support has often waned and the government must be more self-sufficient at stimulating the economy, a task it may lack the capacity or resources to accomplish.

Countries with a youthful age structure are more likely to have had democratic governance than countries in the very young age structure type, just as they have been less vulnerable to civil conflict. Countries with youthful structures had a 21 percent probability of fully democratic governance between 1970 and 1999, an eight percent increase from countries with very young structures. However, countries with a transitional structure, the next category along the demographic transition, had a democratic governance rate more than three times greater than countries with a youthful structure.

THESE COUNTRIES HAVE NOT REACHED THE POINT IN THE DEMOGRAPHIC TRANSITION WHERE LOWER BIRTHRATES HAVE BEEN SUSTAINED LONG ENOUGH TO OFFER OPPORTUNITIES FOR MAJOR ECONOMIC GROWTH AND OTHER DEVELOPMENT IMPROVEMENTS.

Figure 3.3
Age Structure Type and GDP Growth[37]

1970s 1980s 1990s

Median average GDP growth rate

Very Young   Youthful   Transitional   Mature
Age Structure Type (first year of decade)
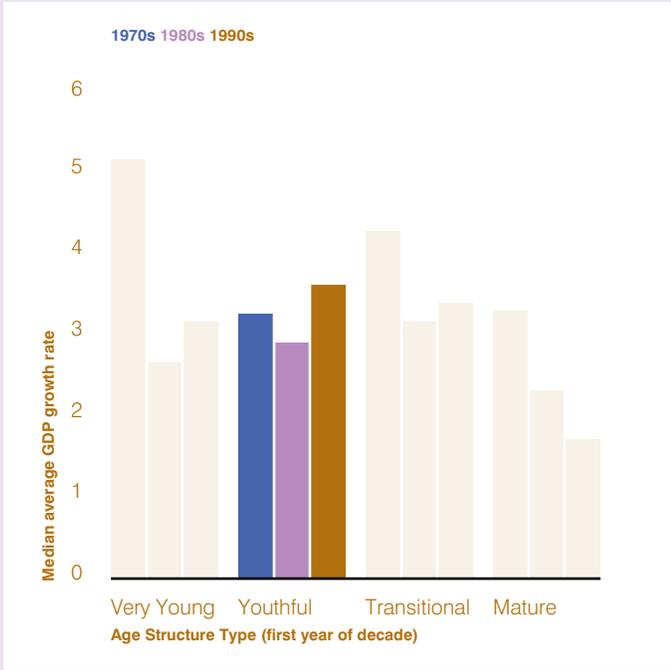
Figure 3.4
Governance and Age Structure Type

1970s 1980s 1990s

Percent of countries that were full democracies at end of decade

Very Young   Youthful   Transitional   Mature
Age Structure Type (first year of decade)
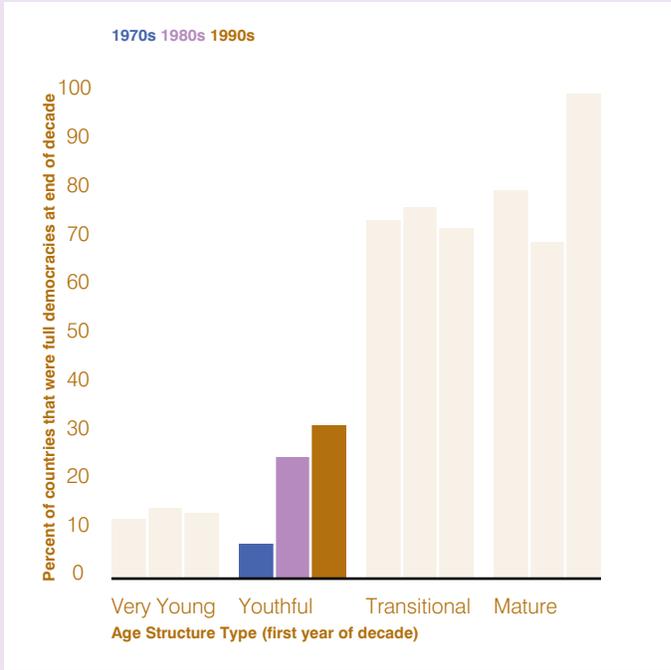
Countries in Profile: Iran
Demographics Ahead of Development

By the late 1970s, Iran had reached a breaking point. While Shah Mohammed Reza Pahlevi's family and government elite lived in luxury, Iranian citizens faced severe economic challenges. GDP growth had been negative for three years and prices of consumer goods rose by 10 to 12 percent each year.[38] With more than 70 percent of the population under age 30 and a population growth rate of 3.3 percent annually, demographic pressures exacerbated the country's troubles. The situation exploded in 1979, when a popular revolution deposed the shah and installed a conservative Islamic government headed by the Ayatollah Khomeini. A few months later, a group of students captured the U.S. embassy and held American employees hostage for 444 days, marking the beginning of a decades-long estrangement between Iran and many developed countries, particularly the United States.

Iran's new regime made religious law, *shari'a*, the foundation of the country's new constitution, and – counter to the secular policies of the shah – the ruling clerics initially took a very restrictive approach to social issues. This included a pro-natalist strategy designed to promote population growth that lowered minimum marriage ages to nine for girls and 14 for boys and outlawed abortion (a ban that remains in place today).[39] However, 10 years after the revolution, the Iranian government's attitude toward family planning and reproductive health shifted dramatically. As a result, Iran has experienced rapid progress along the demographic transition over the past two decades.

The change in the government's attitude toward population dynamics and family planning came quickly. Six years into a grinding war with Iraq that resulted in hundreds of thousands of casualties, the 1986 national census showed rapid rates of population growth, and many officials were enthusiastic. They believed that a large and growing population was necessary to support the war effort and as a defense mechanism against other foreign threats. However, some government agencies understood the economic consequences that Iran was suffering as demand for public services and jobs escalated. In the late 1980s, as the country created its first development plan, a publicity campaign successfully convinced key officials that the government needed to address population. Conferences organized by supportive finance

and health officials, combined with public media debates among members of the religious hierarchy, academics and professionals, successfully raised awareness of and interest in population issues. By 1989, commitments to reestablish a national family planning program – with the support of key clerics – had been secured.[41]

The national family planning program that was fully implemented by the early 1990s is quite extensive, although it neglects the reproductive health needs of young and unmarried individuals. Modern contraceptive methods are available free and at-will in public clinics, university students take a mandatory course on population and family planning, and both prospective spouses must attend a government-sponsored class on family planning in order to receive their marriage license.[42] All of these requirements support the government's policy to encourage smaller family sizes, increase the age of marriage and first pregnancy, and lengthen spacing between pregnancies.

Figure 3.5
Iran's Age Structures, 1980 and 2005[40]

In 1980, with 71 percent of its population under the age of 30 and small age groups among those older than 35, Iran had a very young age structure. By 2005, less than 20 years after the initiation of a government-supported family planning program, Iran had shifted to the middle of the range of countries with a youthful age structure.

Iran 1980
Males
Females

Percent of Total Population

Date of Birth	Age
< 1880	100+
1881 - 1885	95 - 99
1886 - 1890	90 - 94
1891 - 1895	85 - 89
1896 - 1900	80 - 84
1901 - 1905	75 - 79
1906 - 1910	70 - 74
1911 - 1915	65 - 69
1916 - 1920	60 - 64
1921 - 1925	55 - 59
1926 - 1930	50 - 54
1931 - 1935	45 - 49
1936 - 1940	40 - 44
1941 - 1945	35 - 39
1946 - 1950	30 - 34
1951 - 1955	25 - 29
1956 - 1960	20 - 24
1961 - 1965	15 - 19
1966 - 1970	10 - 14
1971 - 1975	5 - 9
1976 - 1980	0 - 4

Iran 2005
Males
Females

Percent of Total Population

Date of Birth	Age
< 1905	100+
1906 - 1910	95 - 99
1911 - 1915	90 - 94
1916 - 1920	85 - 89
1921 - 1925	80 - 84
1926 - 1930	75 - 79
1931 - 1935	70 - 74
1936 - 1940	65 - 69
1941 - 1945	60 - 64
1946 - 1950	55 - 59
1951 - 1955	50 - 54
1956 - 1960	45 - 49
1961 - 1965	40 - 44
1966 - 1970	35 - 39
1971 - 1975	30 - 34
1976 - 1980	25 - 29
1981 - 1985	20 - 24
1986 - 1990	15 - 19
1991 - 1995	10 - 14
1996 - 2000	5 - 9
2001 - 2005	0 - 4

Iran's family planning efforts have been more successful than the government anticipated. Current national fertility rates are just two children per woman, down from 6.5 children per woman at the time of the revolution. More than half of married women are using a modern method of contraception. Iran's age structure has shifted from being very young in 1980 to approximately halfway through the range of youthful structures in 2005. While there are still large bulges in the age groups between 10 and 24, the age groups of younger children are about one-third smaller.

Iran's demographic changes and comprehensive family planning program have recently been challenged by President Mahmoud Ahmadinejad, a political conservative. In late 2006, he stated that the country's fertility rate should be higher than two children per woman. In announcing a plan to reduce women's working hours as an effort to increase fertility, the president said that the country's population could reach 120 million, an increase of 70 percent from its current level.[43]

Despite its demographic progress, Iran faces a number of other development challenges, primarily political. It remains a lower-middle income country, with an economic growth rate averaging slightly above four percent in recent years. Although oil wealth is a significant contributor to the national economy, inflation and unemployment remain high. Since the revolution, there have been intermittent periods of civil conflict, combined with a disastrous war with Iraq through most of the 1980s. Iran is home to nearly one million refugees from neighboring Afghanistan, where recent politics have been even more tumultuous.

The Iranian government remains an outcast from much of the international community. The country's political establishment, with power centered in Supreme Leader and former president Ayatollah Khameini and other clerics, has resisted recent efforts toward political reform and openness. Since his election in 2005, President Ahmadinejad has raised tensions with the U.S. and other developed nations by refusing to suspend his country's efforts to develop nuclear technology.

Figure 3.6
Iran's Position Along the Demographic Transition

In 1975, Iran had a very young age structure, but in 30 years it has made demonstrable progress along the demographic transition. Even more dramatic changes are predicted for the future. By 2050, more than one-fourth of the country's population is projected to be over age 60.

Points for 2025 are based on the range of fertility projections produced by the UN Population Division.
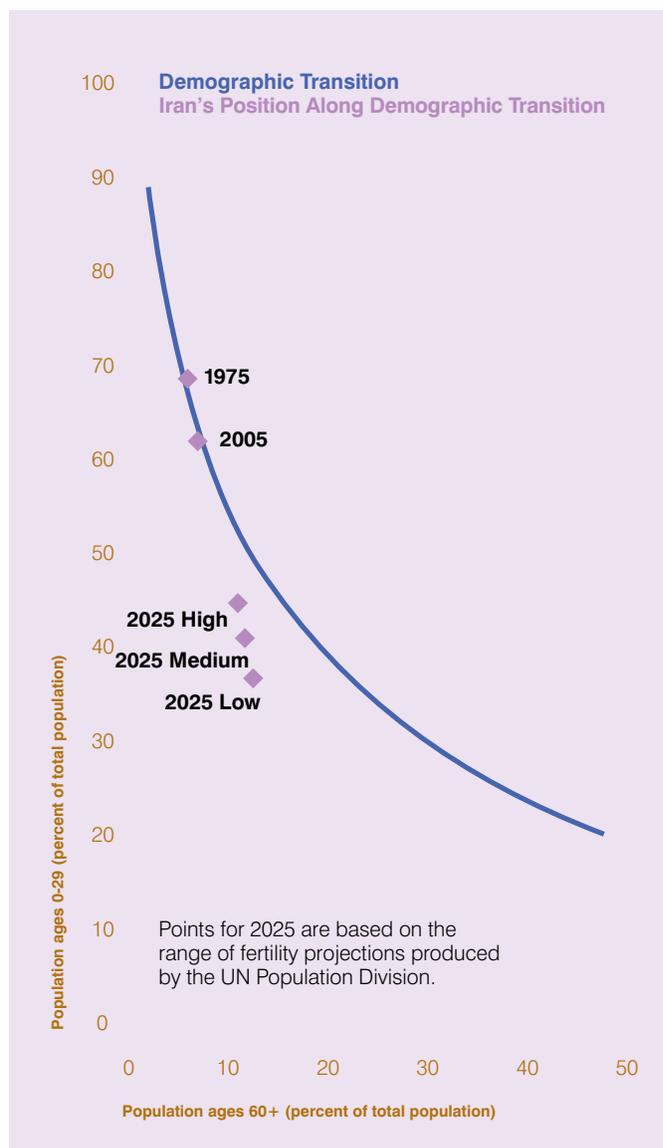
Figure 3.7
Current Demographic Statistics for Iran[44]

Population 1980 39 million
Population 2005 70 million
Population 2025 (medium term projection) 89 million
Population 2050 (medium term projection) 102 million
Median population age 23 years
Population under age 15 29%
Total fertility rate (2005-2010) 2.04
Contraceptive prevalence rate (modern methods, 1997) 56%
Unmet need for family planning no data
Life expectancy 69 years male, 72 years female
HIV prevalence rate (ages 15-49, 2005) 0.2%
GNI per capita (Atlas method, current US$, 2005) $2,770
Population living below poverty line (2002) 40%
Unemployment rate (2003) 12%
Adult literacy rate (2004) 84% men, 70% women
Arable land (% of total) 10

If the UN's low-fertility variant for 2025 is achieved, and fertility rates decline to 1.4 children per woman, Iran will have a mature age structure, similar to Europe and much of East Asia today. Under the high-fertility scenario, in which fertility increases from its current level to 2.4 children per woman, by 2025 Iran will have moved into the third category, a transitional structure. Despite the range of predictions, Iran is almost certain to make continued rapid progress along the demographic transition in the coming decades.

The Iranian experience suggests that economic growth and transformation to democracy are not necessary prerequisites to fertility decline. Although it has an extremely successful national family planning program and has made more demographic progress than most countries in its region, Iranian politics remain controlled by a small group of hard-line clerics, and economic challenges strain national resources. This mix of a progressive attitude toward family planning and reproductive health combined with other policies that inhibit development is uncommon. Analysts doubt that Ahmadinejad's proposal to reverse demographic changes by limiting women's role in the work force and raising fertility rates is likely to be accepted by the population, given how firmly the national family planning program and the changes it has brought are entrenched within Iranian society.[45]

Age structure will continue to play a central role in Iran's development in the future. With large age groups from previous high fertility still entering their adolescent and early adult years, it is critical for Iran to maintain its emphasis on universal access to reproductive health care, and implement better coverage for youth, in the coming years. The government should recognize that its demographic progress is paying dividends and use the country's more favorable age structure to address other pressing issues, especially in economics. As Iran learned in 1979, the combination of a population of educated youth with poor employment prospects and the appeal of a fundamentalist ideology can have volatile results.

Figure 3.8
Iran's Potential Age Structures, 2025

Two comparative age structures of Iran in 2025, based on the UN's low- and high-fertility variants, show that even if fertility rates increase significantly from their current level, Iran's age structure is likely to graduate into the transitional category. If fertility rates continue their rapid decline, Iran's age structure will reach the mature category within 20 years.

Iran 2025

Low Fertility Variant Male Population
High Fertility Variant Male Population
Low Fertility Variant Female Population
High Fertility Variant Female Population

Date of Birth	Age
< 1925	100+
1926 - 1930	95 - 99
1931 - 1935	90 - 94
1936 - 1940	85 - 89
1941 - 1945	80 - 84
1946 - 1950	75 - 79
1951 - 1955	70 - 74
1956 - 1960	65 - 69
1961 - 1965	60 - 64
1966 - 1970	55 - 59
1971 - 1975	50 - 54
1976 - 1980	45 - 49
1981 - 1985	40 - 44
1986 - 1990	35 - 39
1991 - 1995	30 - 34
1996 - 2000	25 - 29
2001 - 2005	20 - 24
2006 - 2010	15 - 19
2011 - 2015	10 - 14
2016 - 2020	5 - 9
2021 - 2025	0 - 4

10 8 6 4 2 0 2 4 6 8 10
Percent of Total Population

Summary Point Countries with a youthful age structure have begun the demographic transition, with mortality and fertility rates in decline. However, dependency ratios are still high, and economic growth tends to stall. These countries are more prone to outbreaks of civil conflict than countries with a more balanced age structure, and are less than one-third as likely as countries with a transitional age structure to have fully democratic governance.

Policy Recommendation Further progress along the demographic transition is possible even in countries with political and economic challenges. Policymakers must remain committed to increasing access to family planning and reproductive health services. With more control over fertility, women and couples are better able to participate and contribute to a healthy economy. Countries must improve the status of women by encouraging them to participate in the political process and the economy.

THE IRANIAN EXPERIENCE SUGGESTS THAT ECONOMIC GROWTH AND TRANSFORMATION TO DEMOCRACY ARE NOT NECESSARY PREREQUISITES TO FERTILITY DECLINE.

CHAPTER FOUR
TRANSITIONAL
AGE STRUCTURES

4

Countries with a transitional age structure are so termed because they are in the middle of the demographic transition, with mortality rates usually not much higher than those of fully industrialized countries and fertility rates on a similar decline. They have been passing through the demographic transition long enough for the proportion of children and adolescents to stabilize with that of young working-age adults. Transitional age structure countries are presented with a clear opportunity to experience the greatest economic benefits of the demographic transition. To do so, however, is not automatic: Governments must make wise investments in health and education, and the economy must be sufficiently developed to offer a sufficient number of jobs to new entrants into the labor force.

Over the thirty-year period at the end of the twentieth century, the risk of civil conflict among countries with a transitional structure has held fairly steady. On average, countries in this category have been slightly more likely to experience conflict than those in the mature category and slightly less likely than those with a youthful structure. In the 1990s, the four new outbreaks of conflict in these countries (Bosnia and Herzegovina, Georgia, Moldova and Serbia and Montenegro) were all in a region affected by the demise of the Soviet Union.

Date of Birth	Age
< 1905	100+
1906 - 1910	95 - 99
1911 - 1915	90 - 94
1916 - 1920	85 - 89
1921 - 1925	80 - 84
1926 - 1930	75 - 79
1931 - 1935	70 - 74
1936 - 1940	65 - 69
1941 - 1945	60 - 64
1946 - 1950	55 - 59
1951 - 1955	50 - 54
1956 - 1960	45 - 49
1961 - 1965	40 - 44
1966 - 1970	35 - 39
1971 - 1975	30 - 34
1976 - 1980	25 - 29
1981 - 1985	20 - 24
1986 - 1990	15 - 19
1991 - 1995	10 - 14
1996 - 2000	5 - 9
2001 - 2005	0 - 4

Turkey 2005

Males
Females

Percent of Total Population

Costa Rica 2005
Males
Females
Percent of Total Population

Indonesia 2005
Males
Females
Percent of Total Population

Thailand 2005
Males
Females
Percent of Total Population
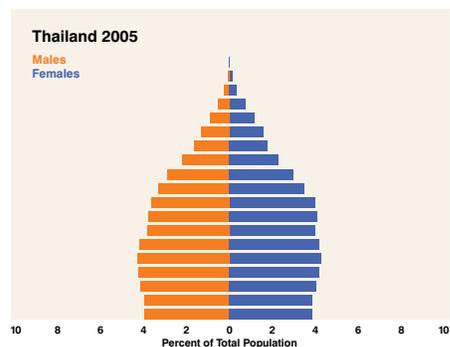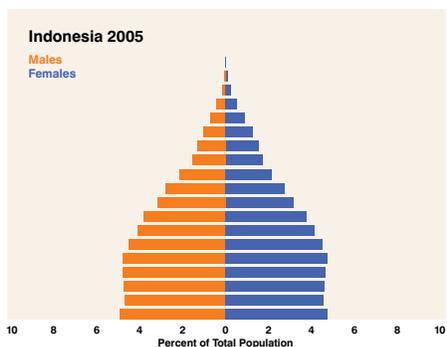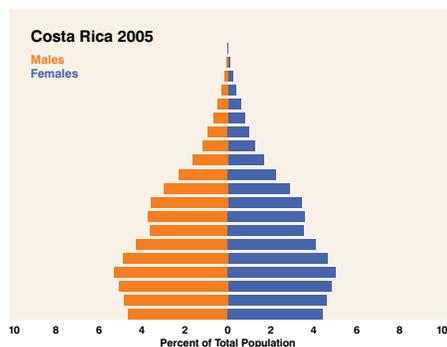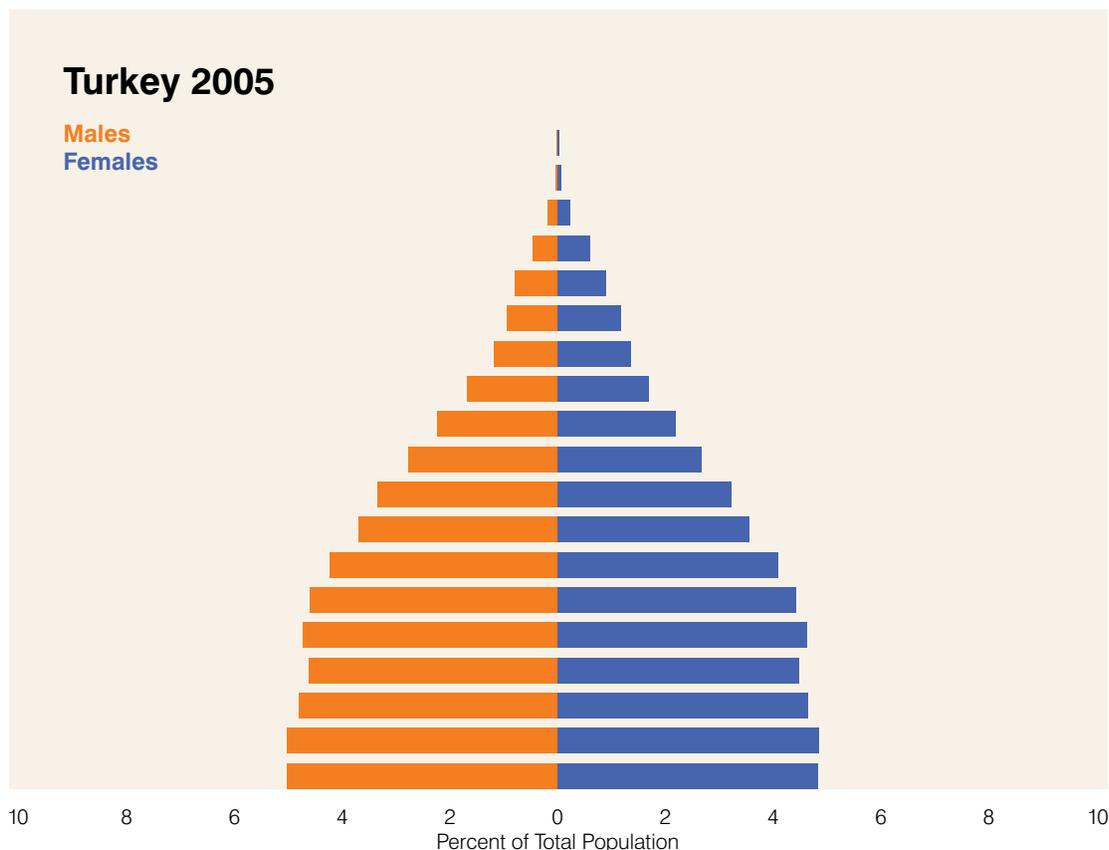
Figure 4.1
Transitional Age Structure Profiles

Youth (ages 0-29) approximately 45-60 percent of total population
Mid-Adults (ages 30-59) approximately 27-40 percent of total population
Seniors (ages 60+) approximately 8-15 percent of total population
Demographic character Although older age groups are still very small proportions of the population, there are only gradual declines in proportion among those age groups under 40.
Population doubling time 50-125 years

Country count 40
Regional prevalence Latin America, Caribbean, South Asia, China, parts of Middle East
Civil conflict risk 9 percent likely to experience civil conflict, 1970-99
Economic performance 3.6 percent median average annual GDP growth rate, 1970-99
Governance 74 percent likely to have fully democratic governance, 1970-99

43

Countries with a transitional age structure have a high average GDP growth rate, at 3.6 percent, which may be tied to those countries' demographic development. As death rates and birthrates decline, every country experiences a decades-long "demographic bonus" when working-age adults make up the largest share of its population, and there are relatively small groups of dependent children and older adults compared to previous generations. The lower dependency ratios during this period can lead to higher savings, greater per capita government spending on education and health, and increased wages. Such benefits of the demographic bonus contribute to boost countries' economies, as was the case of the "Asian Tigers" in the 1970s and 1980s.[46]

The opportunity for countries to take advantage of this demographic window is relatively short, usually less than 40 years, until the median age of the population increases and the higher proportion of older adults begins raising dependency ratios. Countries in the later stages of a transitional age structure, such as Chile, will see their window of opportunity close by 2015. Countries in the early stages of a transitional age structure or with a youthful age structure are just at the beginning of the demographic bonus period, and it has yet to occur in countries with very young age structures.[47] In order to take advantage of the demographic bonus and the economic benefits it offers, governments must implement policies focused on young people, to ensure that they have adequate education and employment and that the transition toward smaller families continues.

Nearly three-quarters of countries with a transitional structure were fully democratic, on average, between 1970 and 1999. Their probability of democratic governance was more than three times greater than that of countries with a youthful age structure, the previous category along the demographic transition. By the 1990s, many of the countries of Western Europe and other highly developed regions had mature age structures, and were replaced in the transitional structure category by countries in Eastern Europe and a few each from East Asia and South America. Complete governance data were not available for many of the Eastern European states, which may have made the average democratic score for countries in this group artificially higher.

Figure 4.2
Risk of Civil Conflict by Age Structure Type
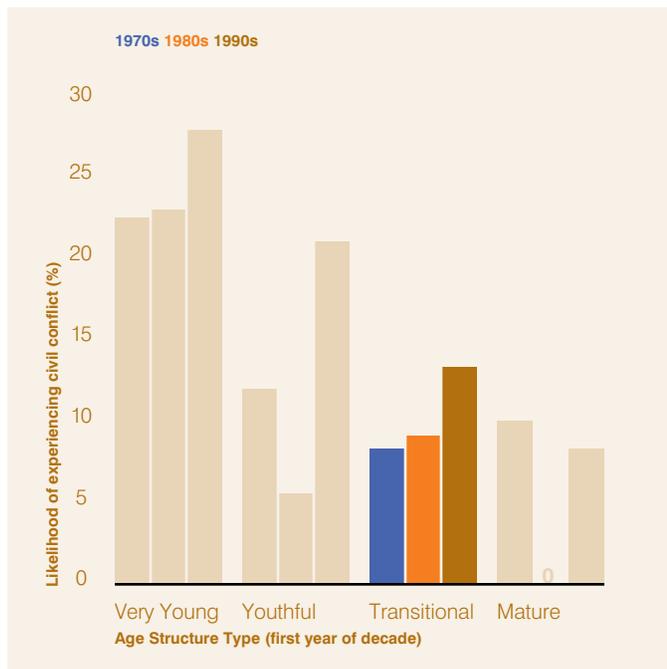
Figure 4.3
Age Structure Type and GDP Growth[48]
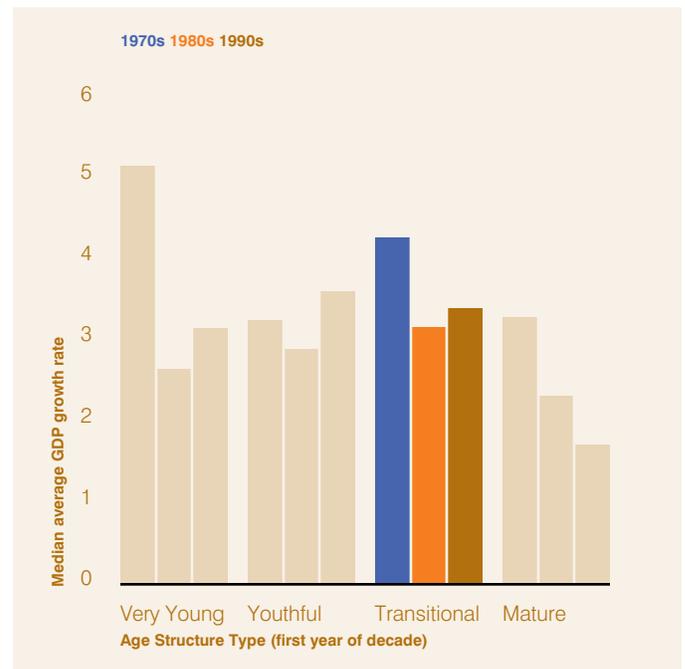
Figure 4.4
Governance and Age Structure Type

1970s 1980s 1990s

Percent of countries that were full democracies at end of decade

100
90
80
70
60
50
40
30
20
10
0

Very Young   Youthful   Transitional   Mature

Age Structure Type (first year of decade)
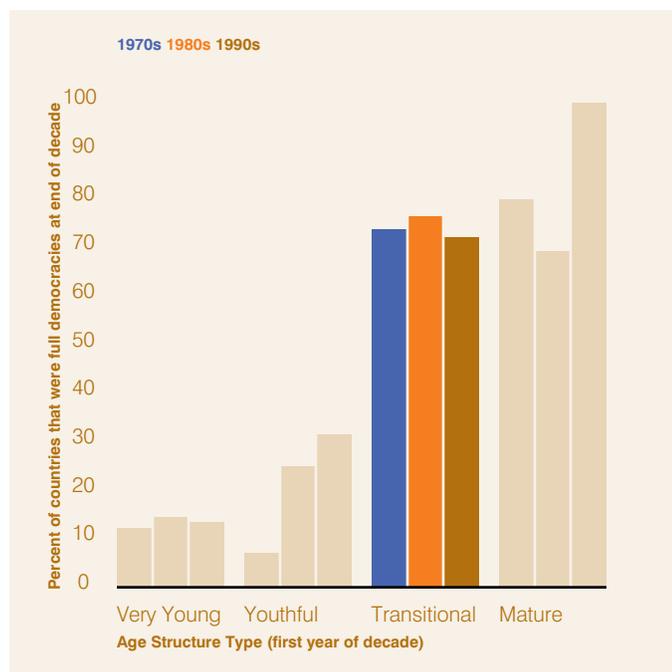
Countries in Profile: Mexico
Health Reforms Address Double Burden of Disease

Perhaps the most unique feature of Mexico's demographic and health situation is the stark difference in social and economic status between subpopulations. In many respects, Mexico resembles a developed country completing the demographic transition, with a life expectancy of 75 years, and crossing into the transitional age structure category. At the same time, marginalized populations within indigenous regions of the country more closely resemble the demographic characteristics found in the very young age structure that lag far behind in health, economic and social status. Interestingly, within the Mexican state of Chiapas, demographic statistics more resemble a conflict-marked country with a very young or youthful age structure. In 1994, after the North American Free Trade Agreement (NAFTA) was signed, Zapatista rebels began the "Ya Basta" uprising in Chiapas. The conflict, focused on issues of land reform and globalization, faced rapid reprisals from the Mexican army, and the Zapatistas and the government currently remain in a tense standoff.

This marked difference between subpopulations in Mexico has left the country facing a double burden of disease. As a country moves through the demographic transition, it also goes through an epidemiologic transition whereby the diseases of poverty persist even as diseases of affluence become more prevalent. Eventually, as overall health continues to improve, the country will leave behind most of the diseases of poverty. The health system of Mexico, in the middle of this transition, faces the double burden of disease. While still suffering from illnesses associated with poverty, including malnutrition, communicable diseases and reproductive health problems, other diseases typically associated with industrialized societies have emerged, creating a higher strain on health resources. These include conditions such as cardiovascular disease, obesity and cancers.[49]

Mexico's development of a transitional age structure occurred very recently and very rapidly. The country had a very young age structure as recently as 1990. In 15 years' time, the age structure progressed through two categories, reaching the transitional type in 2005. It is projected to remain in, but be nearing completion of, the transitional category in 2025.

Figure 4.5
Mexico's Age Structures, 1975 and 2005

Mexico's age structure profile changed dramatically in a short period of time. In 1975, with nearly 73 percent of the population younger than 30, Mexico's age structure held a classic pyramid shape, with significantly decreasing proportional size among each successive older age group. By 2005, the share of the population under 30 had declined to 59 percent, and the younger half of the profile was much more balanced.
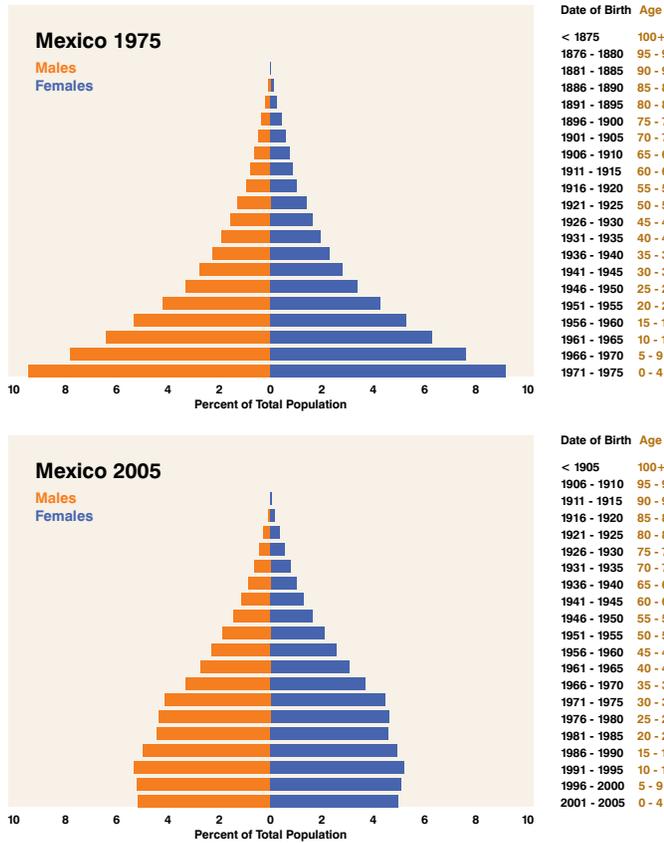
Until the early 1970s, when the population reached 54 million (up from 20 million in 1940) and the average woman had 6.5 children, Mexico's population policies were traditionally pro-natalist. Change occurred when the National Family Planning Program was created in 1972 followed by the National Population Council in 1974. By the latter half of the 1970s, family planning began to gain widespread acceptance with an estimated 42 percent of Mexican women of childbearing age using contraceptive methods.

Through the National Family Planning Program, states provided free family planning services and information as mandated under the general population law of 1974. This increased availability of health services led to a rapid decline in fertility and is today viewed as one of the most successful family planning programs. The strength and success of the family planning program and the fact that per capita income rose above $5,000 in 1990 led the United States Agency for International Development (USAID) to withdraw support for contraceptives beginning in 1992.[50] After the International Conference on Population and Development in 1994, Mexico was one of the first countries (and the first in Latin America) to replace population-control strategies with rights-based policies and programs.[51]

Mexico 1975

Males
Females

Date of Birth	Age
< 1875	100+
1876 - 1880	95 - 99
1881 - 1885	90 - 94
1886 - 1890	85 - 89
1891 - 1895	80 - 84
1896 - 1900	75 - 79
1901 - 1905	70 - 74
1906 - 1910	65 - 69
1911 - 1915	60 - 64
1916 - 1920	55 - 59
1921 - 1925	50 - 54
1926 - 1930	45 - 49
1931 - 1935	40 - 44
1936 - 1940	35 - 39
1941 - 1945	30 - 34
1946 - 1950	25 - 29
1951 - 1955	20 - 24
1956 - 1960	15 - 19
1961 - 1965	10 - 14
1966 - 1970	5 - 9
1971 - 1975	0 - 4

10 8 6 4 2 0 2 4 6 8 10
Percent of Total Population

Mexico 2005

Males
Females

Date of Birth	Age
< 1905	100+
1906 - 1910	95 - 99
1911 - 1915	90 - 94
1916 - 1920	85 - 89
1921 - 1925	80 - 84
1926 - 1930	75 - 79
1931 - 1935	70 - 74
1936 - 1940	65 - 69
1941 - 1945	60 - 64
1946 - 1950	55 - 59
1951 - 1955	50 - 54
1956 - 1960	45 - 49
1961 - 1965	40 - 44
1966 - 1970	35 - 39
1971 - 1975	30 - 34
1976 - 1980	25 - 29
1981 - 1985	20 - 24
1986 - 1990	15 - 19
1991 - 1995	10 - 14
1996 - 2000	5 - 9
2001 - 2005	0 - 4

10 8 6 4 2 0 2 4 6 8 10
Percent of Total Population

Figure 4.6
Mexico's Position Along the Demographic Transition

Mexico progressed along the demographic transition in a fairly typical way, beginning with falling death rates in the 1930s, followed by a period of rapid growth. Between 1955 and 1975, the population growth rate exceeded three percent annually. The 1970s saw the beginning of fertility decline and major reform of population policy.

Demographic Transition
Mexico's Position Along Demographic Transition

1975

2005

2025 High
2025 Medium
2025 Low

Points for 2025 are based on the range of fertility projections produced by the UN Population Division.

Population ages 0-29 (percent of total population)

Population ages 60+ (percent of total population)
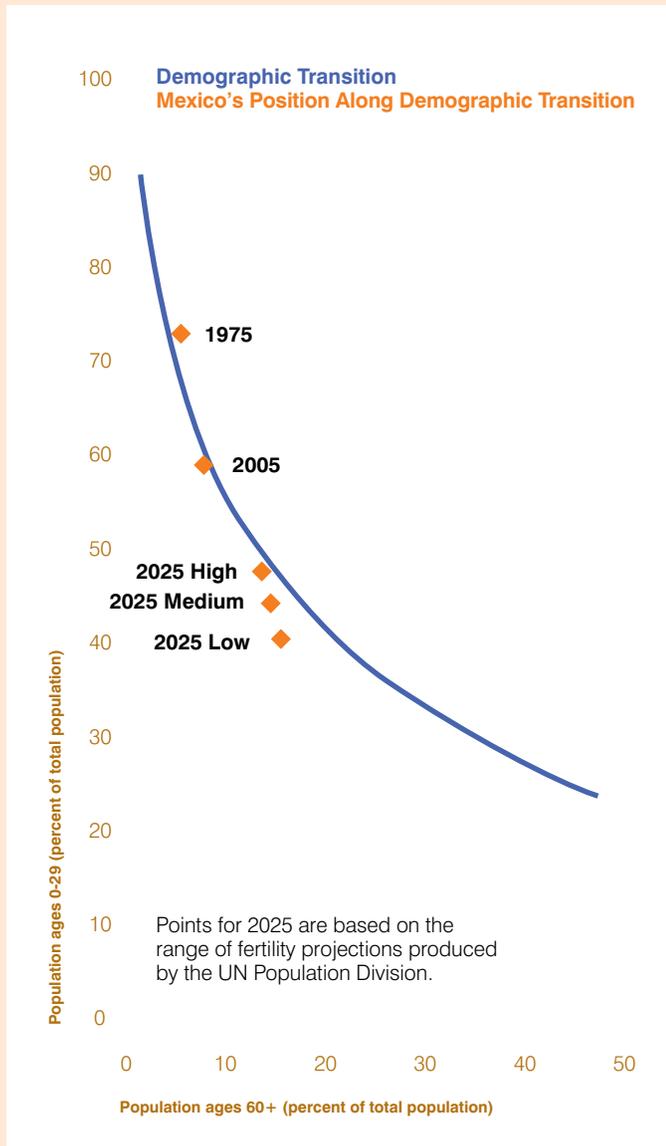
Figure 4.7
Current Demographic Statistics for Mexico[52]

Population 1980 68 million
Population 2005 107 million
Population 2025 (medium fertility projection) 129 million
Population 2050 (medium fertility projection) 139 million
Median population age 25 years
Population under age 15 31%
Total fertility rate (2005-2010) 2.15
Contraceptive prevalence rate (modern methods, 1997) 56%
Unmet need for family planning no data
Life expectancy 74 years male, 79 years female
HIV prevalence rate (ages 15-49, 2005) 0.3%
GNI per capita (Atlas method, current US$, 2005) $7,310
Population living below poverty line 20%
Unemployment rate (2004) 3%
Adult literacy rate (2004) 90% female, 92% male
Arable land (% of total, 2003) 13

The recent emergence of a democratic government in Mexico has had profound effects on the health system, ushering in radical health reforms. After more than 70 years of dominance, the Institutional Revolutionary Party (PRI) was defeated by the center-right PAN (the National Action Party) party. Vicente Fox succeeded PRI president Ernesto Zedillo in the 2000 presidential election, Mexico's first truly democratic election in a century.[53] The 2006 election, after very close balloting, led Felipe Calderón, the PAN candidate, to be declared the winner by the electoral tribunal.

Overwhelmed by the double burden of disease and facing stark inequalities in access to health care, the new democratic era empowered the people and government to embrace a rights-based health agenda. Although social insurance has been offered in Mexico for more than 50 years, it was limited in scope and left the majority of the population vulnerable to impoverishment in the face of poor health. About half of the population lacked health insurance, and the poorest paid the most for health services. Research showed that catastrophic health care costs were impoverishing families, creating a cycle of poverty that crossed generations. Mexico faced a paradox: While good health care was needed to combat poverty, the high costs of health care services were contributing to that impoverishment.[54]

The period from 2000 through 2006 has been quite remarkable for Mexico. The change in regime from near dictatorship to democracy in 2000 led to radical health systems reforms. A cornerstone of these reforms is the *Seguro Popular* program, an extension and outgrowth of the *Oportunidades* program. Oportunidades is Mexico's national health, nutrition and education program designed to interrupt the intergenerational transmission of poverty. Started in 1997, the strategy is based on cash transfers to female heads of household predicated on the performance of responsibilities including sending children to school, nutritional supplementation, clinic attendance and the use of preventive health measures such as reproductive health services.[55] While successful, Oportunidades could not keep up with the emerging double burden of disease, requiring a new and expanded program. Initiated in 2004, Seguro Popular aims to realize national universal health insurance by 2010.[56]

Mexico's health care reform efforts combine a strong analytical foundation with the creation of a social movement for change. The reforms are being watched closely by international partners as a test case for how radical and well-planned health reform can help mitigate the effects of difficult development, demographic and epidemiologic transitions. With substantial investment in research, evaluation and advocacy, interest in the program's successes is high, as evidenced by a recent series in *The Lancet*.[57] However, the reforms are still being fully implemented, and the administrations of the ruling PAN party have given voice to more socially conservative views. Abortion remains illegal (with a few exceptions), and gender inequality and violence against women remain major challenges for Mexico.

Figure 4.8

Figure 4.8
Mexico's Potential Age Structures, 2025

Under the UN's high-fertility scenario for 2025 – in which Mexico's fertility rate would rise from its current level of 2.15 to 2.4 children per woman – the country would remain in the transitional structure category. However, unless the government pursues an actively pro-natalist policy or there is a general collapse of the health care system and family planning program, an increase in fertility rates is unlikely. In contrast, under the UN's low-fertility projection, fertility rates would decline to 1.4 children per woman, pushing Mexico into the mature age structure category. Perhaps more likely is the medium-fertility variant between these two extremes, which assumes a decline in fertility rates to 1.9 and the population's continued progression through the transitional structure category.

Mexico 2025

Low Fertility Variant Male Population
High Fertility Variant Male Population
Low Fertility Variant Female Population
High Fertility Variant Female Population

Date of Birth	Age
< 1925	100+
1926 - 1930	95 - 99
1931 - 1935	90 - 94
1936 - 1940	85 - 89
1941 - 1945	80 - 84
1946 - 1950	75 - 79
1951 - 1955	70 - 74
1956 - 1960	65 - 69
1961 - 1965	60 - 64
1966 - 1970	55 - 59
1971 - 1975	50 - 54
1976 - 1980	45 - 49
1981 - 1985	40 - 44
1986 - 1990	35 - 39
1991 - 1995	30 - 34
1996 - 2000	25 - 29
2001 - 2005	20 - 24
2006 - 2010	15 - 19
2011 - 2015	10 - 14
2016 - 2020	5 - 9
2021 - 2025	0 - 4

10 8 6 4 2 0 2 4 6 8 10
Percent of Total Population

Countries in Profile: Tunisia
An Early Success Story

The Tunisian government made a forceful commitment to demographic change earlier than most other developing countries. With the full support of President Habib Bourguiba, Tunisia launched a national family planning program in the 1950s. In addition to educating the population about family planning and working to earn the support of religious leaders, the government raised the legal age for marriage and legalized abortion. As a result, Tunisia's fertility rate declined from a high of more than seven children per woman in 1960 to two children today, an extremely rapid improvement that took developed countries decades longer to achieve. Tunisia's fertility rate is lower than each of its North African neighbors – Algeria, Egypt, Libya and Morocco. The country's population growth rate has likewise dropped from 2.6 percent in the late 1970s to 1.1 percent at the beginning of this century.[58] General health has improved as well, with life expectancies climbing from less than 50 years in the 1950s and early 1960s to above 70 years today.

MEXICO WAS ONE OF THE FIRST COUNTRIES TO REPLACE POPULATION-CONTROL STRATEGIES WITH RIGHTS-BASED POLICIES AND PROGRAMS.

Figure 4.9
Tunisia's Age Structures, 1970 and 2005

In 1970, toward the beginning of Tunisia's national family planning program, the country had a very young age structure, with 69 percent of the population under age 30. In 2005, Tunisia had progressed across two categories into the transitional age structure group, a development that can be attributed to the success of the government's efforts to make family planning available comprehensively.

Tunisia, with a transitional age structure, continues to emphasize access to reproductive health care, even as it has made remarkable achievements in recent decades. More than half of women of reproductive age (53 percent) were using a modern contraceptive in 2001, an increase from 40 percent in 1988.[59] Condoms, pills and emergency contraception are available for free at clinics. The government spends $10 million annually on the extremely comprehensive national family planning program. It includes efforts targeted at providing young people with confidential access to services, at educating men, and at reaching traditionally underserved populations in rural areas.[60] Women are highly integrated into Tunisian society: Nearly 70 percent are employed in the formal sector and a greater number of women than men are enrolled in secondary and tertiary education.[61]

Tunisia 1970
Males
Females

Date of Birth	Age
< 1870	100+
1871 - 1875	95 - 99
1876 - 1880	90 - 94
1881 - 1885	85 - 89
1886 - 1890	80 - 84
1891 - 1895	75 - 79
1896 - 1900	70 - 74
1901 - 1905	65 - 69
1906 - 1910	60 - 64
1911 - 1915	55 - 59
1916 - 1920	50 - 54
1921 - 1925	45 - 49
1926 - 1930	40 - 44
1931 - 1935	35 - 39
1936 - 1940	30 - 34
1941 - 1945	25 - 29
1946 - 1950	20 - 24
1951 - 1955	15 - 19
1956 - 1960	10 - 14
1961 - 1965	5 - 9
1966 - 1970	0 - 4

Percent of Total Population

Tunisia 2005
Males
Females

Date of Birth	Age
< 1905	100+
1906 - 1910	95 - 99
1911 - 1915	90 - 94
1916 - 1920	85 - 89
1921 - 1925	80 - 84
1926 - 1930	75 - 79
1931 - 1935	70 - 74
1936 - 1940	65 - 69
1941 - 1945	60 - 64
1946 - 1950	55 - 59
1951 - 1955	50 - 54
1956 - 1960	45 - 49
1961 - 1965	40 - 44
1966 - 1970	35 - 39
1971 - 1975	30 - 34
1976 - 1980	25 - 29
1981 - 1985	20 - 24
1986 - 1990	15 - 19
1991 - 1995	10 - 14
1996 - 2000	5 - 9
2001 - 2005	0 - 4

Percent of Total Population

Figure 4.10
Tunisia's Progress Along the Demographic Transition

Demographic Transition
Tunisia's Position Along Demographic Transition

Points for 2025 are based on the range of fertility projections produced by the UN Population Division.

Population ages 0-29 (percent of total population)

Population ages 60+ (percent of total population)
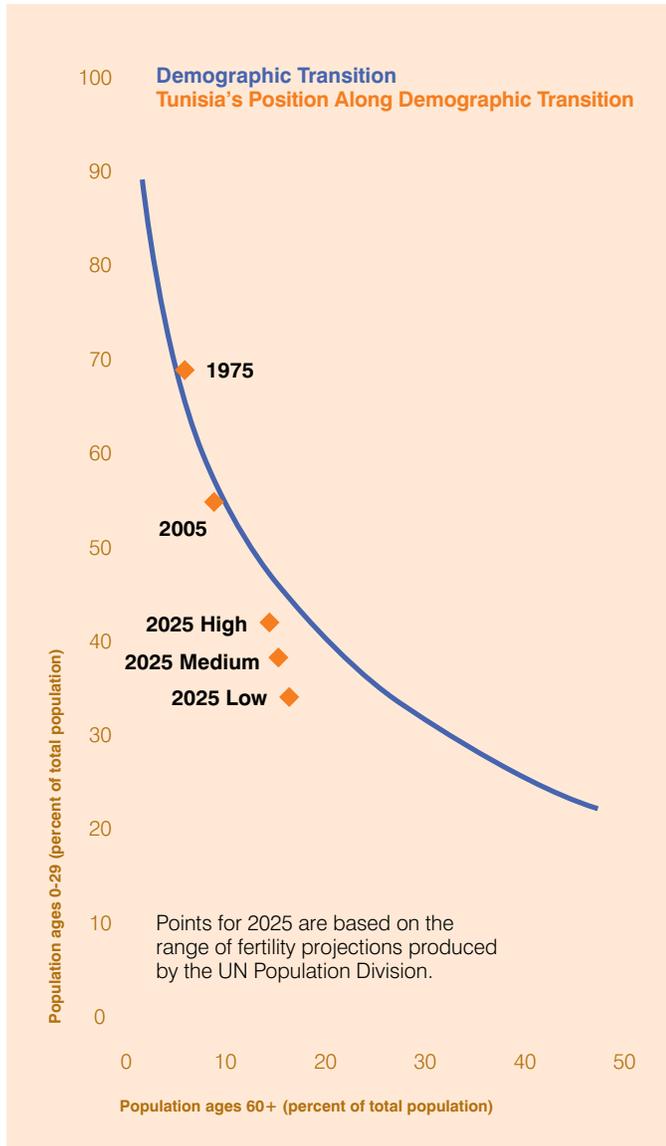
Figure 4.11
Current Demographic Statistics for Tunisia[62]

Population 1980 6 million
Population 2005 10 million
Population 2025 (medium fertility projection) 12 million
Population 2050 (medium fertility projection) 13 million
Median population age 27 years
Population under age 15 26%
Total fertility rate (2005-2010) 1.9
Contraceptive prevalence rate (modern methods, 2001) 53%
Unmet need for family planning 12%
Life expectancy 72 years male, 76 years female
HIV prevalence rate (ages 15-49, 2005) 0.1%
GNI per capita (Atlas method, current US$, 2005) $2,890
Population living below poverty line 8%
Unemployment rate (2003) 14%
Adult literacy rate (2004) 83% male, 65% female
Arable land (% of total, 2003) 18

Tunisia has remained very stable politically for many decades, with no outbreaks of civil conflict for more than 25 years. The economy has grown at up to five percent annually in recent years, and foreign investors are showing interest in establishing companies in Tunisia. The country does still face political and economic challenges. Handovers in political power are extremely rare. President Ben Ali won the most recent election with 95 percent of the vote and faces no term limits. Unemployment rates remain high, near 15 percent.

Although Mexico, Tunisia and other countries that have made progress toward more favorable age structures still have areas of development that require attention, their histories can serve as models for other developing countries. The concentrated focus these countries' governments have placed on family planning and reproductive health care have brought their populations to the third – transitional – age structure category where the potential benefits of the demographic transition are at their peak.

Figure 4.12
Tunisia's Potential Age Structures, 2025

Projections of Tunisia's population age structure for 2025 show a dramatic difference between the low- and high-fertility variants. If Tunisia's fertility increases to 2.3 children per woman as in the high-fertility projection, the country will be in the final stages of the transitional age structure category. The population will include a resurging youth bulge among children and teenagers. In the low-fertility projection, with the fertility rate declined to 1.3, the share of those under 30 will shrink to 36 percent of the total population.

Tunisia 2025

Low Fertility Variant Male Population
High Fertility Variant Male Population
Low Fertility Variant Female Population
High Fertility Variant Female Population

Date of Birth	Age
< 1925	100+
1926 - 1930	95 - 99
1931 - 1935	90 - 94
1936 - 1940	85 - 89
1941 - 1945	80 - 84
1946 - 1950	75 - 79
1951 - 1955	70 - 74
1956 - 1960	65 - 69
1961 - 1965	60 - 64
1966 - 1970	55 - 59
1971 - 1975	50 - 54
1976 - 1980	45 - 49
1981 - 1985	40 - 44
1986 - 1990	35 - 39
1991 - 1995	30 - 34
1996 - 2000	25 - 29
2001 - 2005	20 - 24
2006 - 2010	15 - 19
2011 - 2015	10 - 14
2016 - 2020	5 - 9
2021 - 2025	0 - 4

Percent of Total Population

TRANSITIONAL AGE STRUCTURE COUNTRIES ARE PRESENTED WITH A CLEAR OPPORTUNITY TO EXPERIENCE THE GREATEST ECONOMIC BENEFITS OF THE DEMOGRAPHIC TRANSITION.

Summary Point Progress along the demographic transition into the transitional age structure category occurs when death and birthrates have made significant declines. Countries' population structures begin to stabilize as the share of dependent children and adolescents becomes slightly larger than or equal to that of working-age adults. This progress creates opportunities for countries' social and economic development.

Policy Recommendation Countries with a transitional structure cannot assume that their advancement along the demographic transition will continue automatically and unfettered. In order to take full advantage of the demographic opportunities they have achieved, countries in this category should continue to work to improve general health and further reduce fertility, bolster women's status, and provide economic and employment opportunities for young women and men in equal measure.

Summary Point Countries that make significant progress through the demographic transition and reach a transitional age structure see rebounds in their economic growth rates. This improvement in economic growth between countries in the youthful and the transitional categories may show that progress along the demographic transition creates a "bonus" of working-age adults that can help spur economic expansion.

Policy Recommendation Countries moving into the transitional age structure category should take advantage of the potential for the demographic bonus by investing in health and education programs and making certain that jobs are available for young people. Sound investments in infrastructure will ensure that as they move toward a mature age structure, the economy will remain robust as the demographic bonus passes.
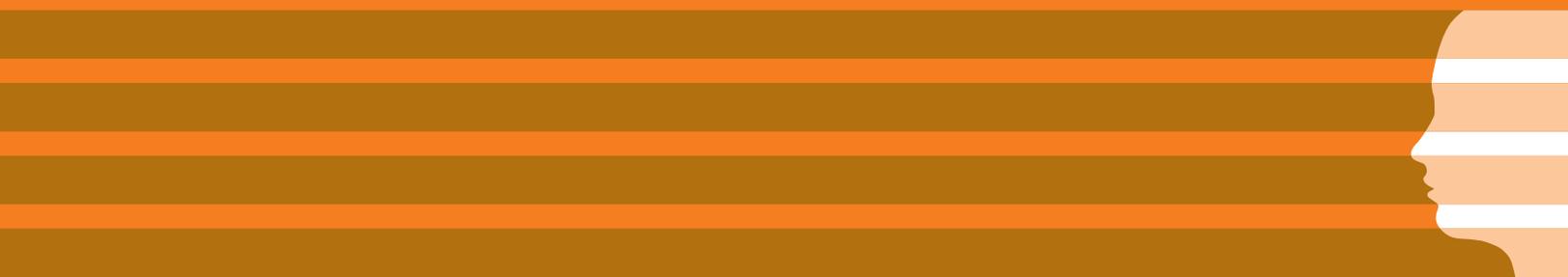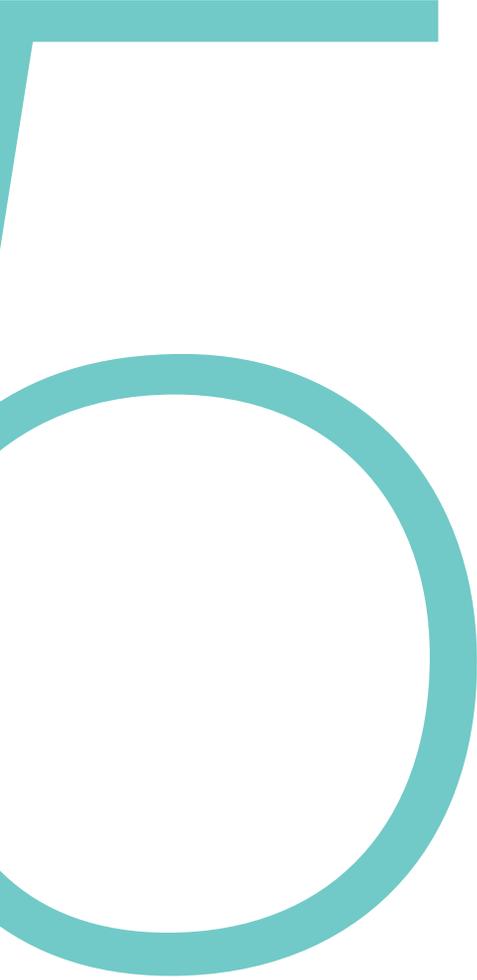
MATURE STRUCTURES

Countries that have completed the demographic transition reach the fourth and final major category, mature age structures. They have very low mortality and fertility rates and, in many cases, birthrates have declined below the point necessary to sustain the population at a stable level. The mature category encompasses all of the most industrialized countries in the world. While they are stable and prosperous as a group, there is significant variation in levels of health and economic development across the structure type. Russia and some countries with a mature structure in Eastern Europe tend to have worse health indicators than other countries in the category.

Date of Birth	Age
< 1905	100+
1906 - 1910	95 - 99
1911 - 1915	90 - 94
1916 - 1920	85 - 89
1921 - 1925	80 - 84
1926 - 1930	75 - 79
1931 - 1935	70 - 74
1936 - 1940	65 - 69
1941 - 1945	60 - 64
1946 - 1950	55 - 59
1951 - 1955	50 - 54
1956 - 1960	45 - 49
1961 - 1965	40 - 44
1966 - 1970	35 - 39
1971 - 1975	30 - 34
1976 - 1980	25 - 29
1981 - 1985	20 - 24
1986 - 1990	15 - 19
1991 - 1995	10 - 14
1996 - 2000	5 - 9
2001 - 2005	0 - 4

Japan 2005

Males
Females

Percent of Total Population

Croatia 2005
Males
Females

Percent of Total Population

Ireland 2005
Males
Females

Percent of Total Population

Italy 2005
Males
Females

Percent of Total Population
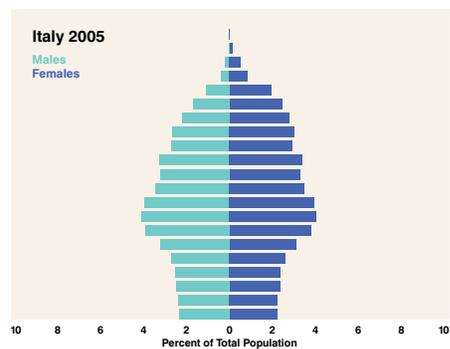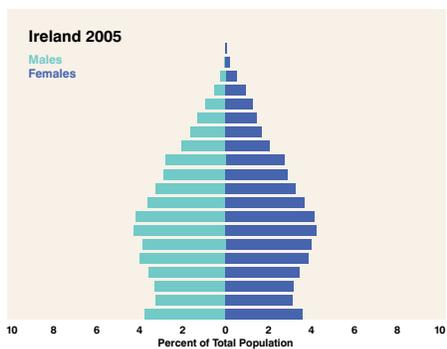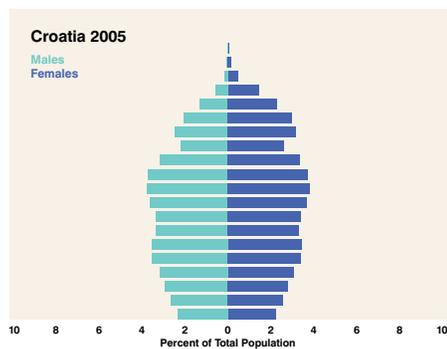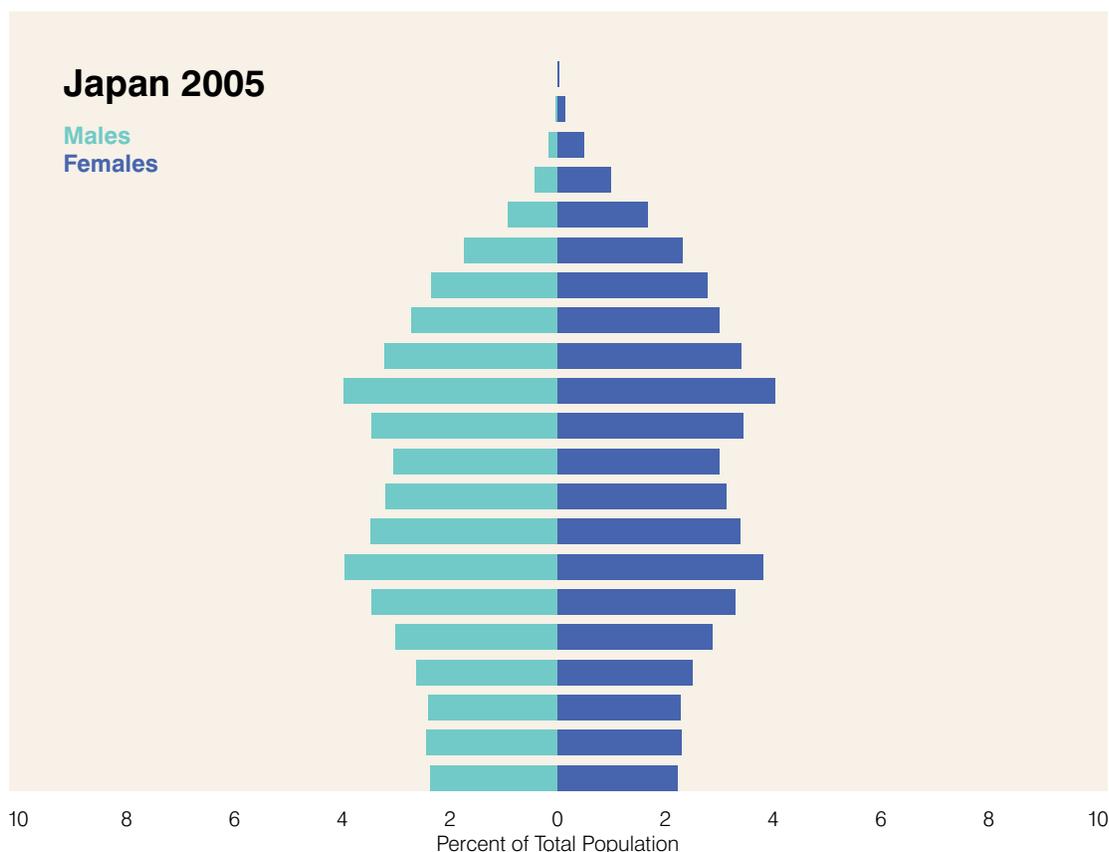
Figure 5.1
Mature Age Structure Profiles

Youth (ages 0-29) approximately 30-45 percent of total population
Mid-Adults (ages 30-59) approximately 40-55 percent of total population
Seniors (ages 60+) approximately 15-26 percent of total population
Country count 47
Demographic character Mid-adult age groups compose the largest proportion of the population, with declining proportions among young adults, teenagers and adolescents

Population doubling time 125-2,400 years
Regional prevalence Europe, former Soviet republics, East Asia
Civil conflict risk 6 percent likely to experience civil conflict, 1970-99
Economic performance 2.4 percent median average annual GDP growth rate, 1970-99
Governance 83 percent likely to have fully democratic governance, 1970-99

Countries with mature age structures have experienced very low levels of civil conflict in recent decades. In the 1980s, countries in this age structure type were entirely free from any outbreaks of civil conflict. In the 1990s, the only two conflicts to break out among this group were in Croatia and Slovenia. Many of the conflicts in countries with a mature age structure have been ongoing separatist movements, such as those in Northern Ireland and the Basque region of Spain.

Countries with a mature age structure had the lowest average GDP growth rate of all the major age structure types at 2.4 percent between 1970 and 1999. Countries at the end of the demographic transition have nearly all achieved upper-middle or high income status. With a median per capita GDP in 2005 of nearly $24,000, it is not surprising that these typically well-developed, diversified economies do not achieve the rapid rates of growth evident in developing countries. However, these countries are beginning to face strains on their pension systems and, in some cases, high unemployment, leading to apprehension about the impact of future population aging on their economies.

Figure 5.2
Risk of Civil Conflict by Age Structure Type
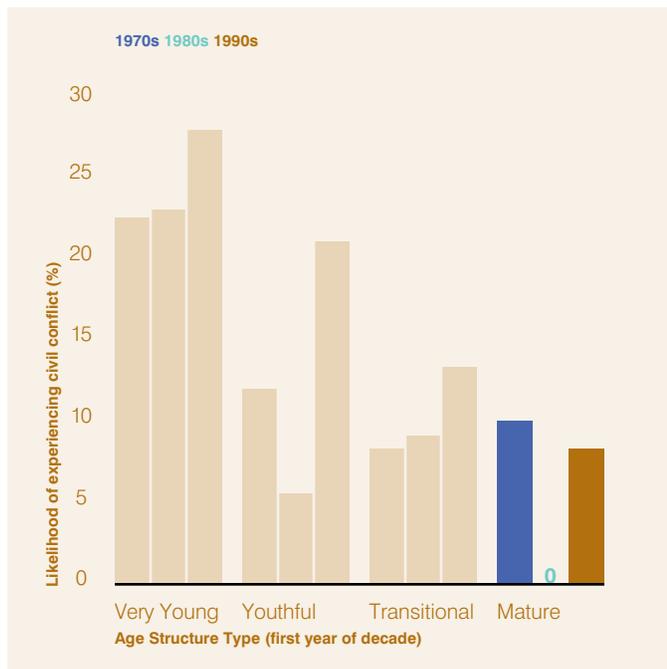
Figure 5.3
Age Structure Type and GDP Growth[63]
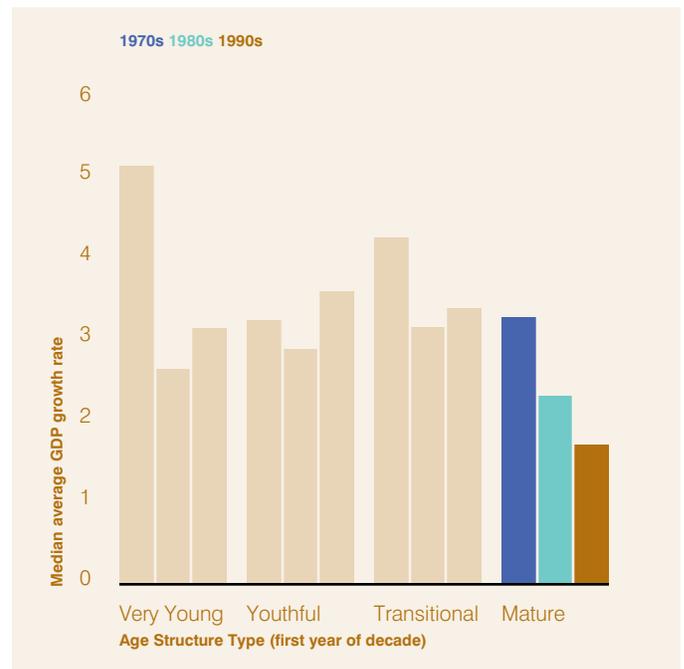
From 1970 to 1999, 83 percent of countries with a mature age structure were full democracies. The incidence of autocratic and partially democratic government among countries with a mature structure has been very low. By the turn of the century, the only countries with a mature structure that were not rated as full democracies were Russia and four Eastern European states.

Countries in Profile: Germany
Growing More Family-Friendly in Response to Aging

Germany's population trends are typical of most advanced industrial countries. The country has completed the demographic transition and now has a mature age structure type. In the late 1950s and during the 1960s, both East and West Germany experienced "baby booms," stimulated by a heightened sense of security and greater economic prosperity following the devastation of World War II. For the past 30 years, however, fertility rates have been declining, from a peak of 2.5 between 1960 and 1965, to 1.3 between 2000 and 2005.[64] Fewer babies were born in Germany in 2005 than in the final year of World War II.[65] At the same time that fertility has fallen, life expectancy has risen significantly to more than 80 years at the beginning of this century.[66]

Figure 5.4
Governance and Age Structure Type
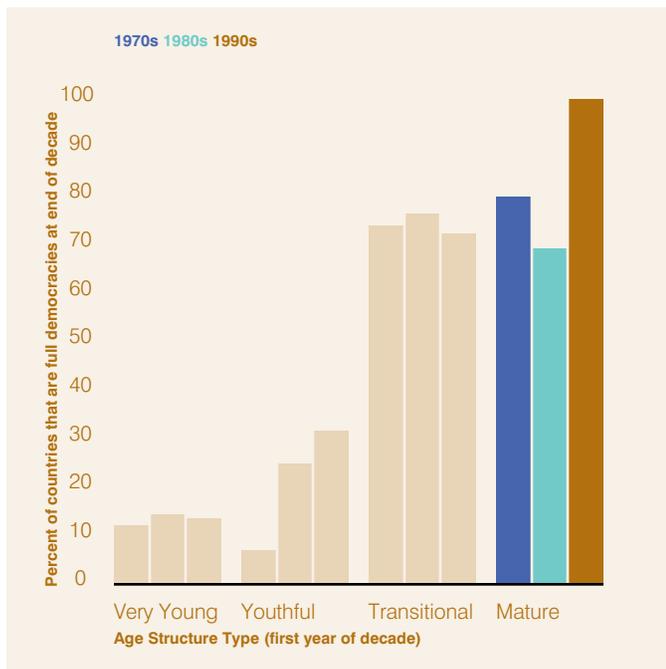
Figure 5.5
Germany's Age Structures, 1975 and 2005

Germany's fertility rates began declining in the early 1960s, and for the past 30 years the country has had a mature age structure. The very oddly shaped profile for 1975, partially an effect of the death toll in World War II, has evolved into a structure with a bulge among middle-aged adults and steadily declining proportional size among younger age groups.

Germany 1975

Males
Females

Date of Birth	Age
< 1875	100+
1876 - 1880	95 - 99
1881 - 1885	90 - 94
1886 - 1890	85 - 89
1891 - 1895	80 - 84
1896 - 1900	75 - 79
1901 - 1905	70 - 74
1906 - 1910	65 - 69
1911 - 1915	60 - 64
1916 - 1920	55 - 59
1921 - 1925	50 - 54
1926 - 1930	45 - 49
1931 - 1935	40 - 44
1936 - 1940	35 - 39
1941 - 1945	30 - 34
1946 - 1950	25 - 29
1951 - 1955	20 - 24
1956 - 1960	15 - 19
1961 - 1965	10 - 14
1966 - 1970	5 - 9
1971 - 1975	0 - 4

10 8 6 4 2 0 2 4 6 8 10
Percent of Total Population

Germany 2005

Males
Females

Date of Birth	Age
< 1905	100+
1906 - 1910	95 - 99
1911 - 1915	90 - 94
1916 - 1920	85 - 89
1921 - 1925	80 - 84
1926 - 1930	75 - 79
1931 - 1935	70 - 74
1936 - 1940	65 - 69
1941 - 1945	60 - 64
1946 - 1950	55 - 59
1951 - 1955	50 - 54
1956 - 1960	45 - 49
1961 - 1965	40 - 44
1966 - 1970	35 - 39
1971 - 1975	30 - 34
1976 - 1980	25 - 29
1981 - 1985	20 - 24
1986 - 1990	15 - 19
1991 - 1995	10 - 14
1996 - 2000	5 - 9
2001 - 2005	0 - 4

10 8 6 4 2 0 2 4 6 8 10
Percent of Total Population

Other health indicators are similar to those of wealthy developed countries, and indicative of Germany's advanced health care system. Reproductive health services, including family planning, are specifically mandated by law, and thus they are widely available and affordable. Nearly three-quarters of women who are married or in union use modern methods of contraception.[67] State health insurance, which covers 90 percent of the population, is legally required and mandates that the insured have the right to medical examinations and prescriptions for family planning devices.[68]

Germany's health care system is highly regarded by international standards. A 2000 report by the World Health Organization ranked Germany twenty-fifth out of 191 countries based on a cost-effectiveness ratio, better than both the United States and Canada. However, Germany's system is very costly and might prove unsustainable in the long term. Germany is the second-highest spender of public funds on health care as a percent of gross domestic product (GDP) in the world.[69] Currently, the system is supported by contributions from workers, who pay roughly 14 percent of their wages toward health care.[70] But Germany's high unemployment rates and the future prospect of financing support for an older population are causing concerns about the sustainability of the current health care system.

Germany's pay-as-you-go pension system is already undergoing reforms. Demographers anticipate that when the "baby boom" generation reaches retirement age, the current ratio of those paying into the pension system (roughly 2:1) is likely to shift towards 1:1.[71] For the first time since World War II, the German government has deviated from the long-held promise that government benefits alone could maintain workers' living standards in retirement. Major reforms enacted within the past six years include scaling back future public pension benefits, linking pension adjustments to the ratio of employees contributing to the scheme relative to the number of pensioners, encouraging employees to invest in private old-age insurance and raising the minimum age for early retirement.

Figure 5.6
Germany's Position Along the Demographic Transition

Germany was already near the end of the demographic transition in 1975, and has advanced further in the decades since. The range of fertility projections for 2025 all show the country continuing to progress along the transition to a point reached by few other countries, in which the share of people older than 60 will equal or surpass those younger than 30.
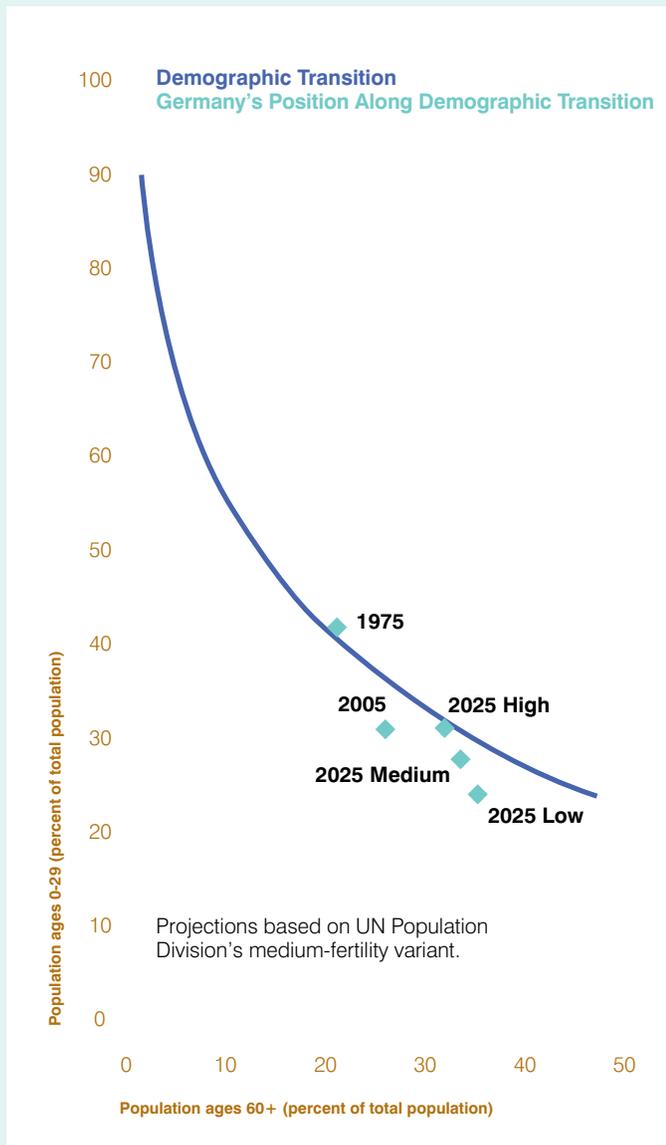
Figure 5.7
Current Demographic Statistics for Germany[72]

Population 1980 78 million
Population 2005 83 million
Population 2025 (medium term projection) 82 million
Population 2050 (medium term projection) 79 million
Median population age 42 years
Population under age 15 14%
Total fertility rate (2005-2010) 1.3
Contraceptive prevalence rate (modern methods, 1992) 72%
Unmet need for family planning no data
Life expectancy 76 years male, 82 years female
HIV prevalence rate (ages 15-49, 2005) 0.1%
GNI per capita (Atlas method, current US$, 2005) $34,580
Population living below poverty line 8%
Unemployment rate (2005) 9%
Adult literacy rate (2003) 99% female and male
Arable land (% of total, 2003) 34

Demographic Transition
Germany's Position Along Demographic Transition

1975

2005   2025 High

2025 Medium

2025 Low

Projections based on UN Population
Division's medium-fertility variant.

Population ages 0-29 (percent of total population)

Population ages 60+ (percent of total population)

Germany boasts the fifth largest economy in the world.[73] However, declining economic growth rates and relatively high unemployment combined with low fertility have made policymakers concerned about the impact of population aging. Since the end of the boom period sparked by reunification in 1990, Germany's rate of per capita GDP growth has been the third slowest of the 25 European Union member states, and one of the slowest of all the major industrial countries.[74] The fall in government revenues and the rise in expenditures have raised the external deficit to a looming $3.6 trillion.[75] Moreover, structural rigidities in the labor market have made unemployment a chronic problem.

The unemployment challenge has encouraged significant migration within Germany, especially among women, who still have a lower employment rate than men. Since reunification, approximately 1.5 million people have left East Germany, nearly two-thirds of whom were women.[77] Thus, fertility rates continue to be lower in East Germany, where young people, and women in particular, are likely to migrate to the West in search of employment. In both the East and the West, Germany is becoming increasingly urbanized, and remote rural areas are aging more quickly.

Since the 1950s, Germany has attracted millions of immigrants seeking employment, citizenship or asylum, such that roughly one in six German residents has an "immigration background."[78] Immigration could help mitigate population aging, given that fertility rates are greater on average among immigrants than among native Germans, but it is unlikely to ever completely reverse the aging effect. Immigrants are twice as likely as native Germans to be unemployed and dependent on social welfare, and 18 percent of immigrants' children do not complete school.[79] Much more needs to be done to ensure that immigrants are successfully integrated into German society – including ensuring their access to sexual and reproductive health services – and that their children can capitalize on the education system.

In efforts to bolster the country's declining birthrates, German politicians are aiming to transform Germany into a more family-friendly nation. Policymakers are particularly interested in neighboring countries, such as France and Sweden, where both the numbers of professional women and birthrates are high. While there is no doubt that numerous factors are contributing to Germany's low fertility, many experts agree that a change in values in support of family-friendly working conditions is paramount. On average, both men and women desire fewer than two children, well below the level necessary to sustain the population.[80] However, desired fertility (1.6 children for men and 1.75 for women) is higher than the actual fertility level of 1.3, signifying that changes could help couples achieve their full desired fertility.[81]

The government's response includes a variety of measures that take into account parental needs for infrastructure and time, in addition to money. Currently, mothers are allowed to take up to six months of paid maternity leave and unpaid leave of up to three years. The state is working on ways to make motherhood more attractive to women, particularly by providing monetary incentives for fathers to play a larger role in child care.[82] Germany has also set its sights on improving the country's day care offerings and providing tax relief for families.

In order to increase the birthrate and make an older society more sustainable, Germany will need to continue to experiment with a variety of policy measures in a two-pronged effort. Such measures should aim to better integrate immigrants into the education system and channel the positive impact of immigration to the job market; to improve work opportunities for young potential parents (especially women), and also for older people so that they stay in the work force longer. They should also help potential parents balance their professional and family lives to allow parents to have the number of children they desire, and perhaps in so doing also increase desired fertility.

THE MATURE CATEGORY ENCOMPASSES ALL OF THE MOST INDUSTRIALIZED COUNTRIES IN THE WORLD.

Figure 5.8
Germany's Potential Age Structures, 2025

If fertility rates decline from the current level of 1.3 to 1.05 by 2025, as in the UN's low-fertility projection, Germany will cross into the unprecedented category of aged age structures. Achieving the high-fertility projection, in which the country would remain in the mature age structure category, would require a dramatic increase in fertility to more than two children per woman. Germany's fertility rates will have to increase to 1.55 even to meet the medium-fertility projection.

Germany 2025

Low Fertility
Variant Male
Population
High Fertility
Variant Male
Population
Low Fertility
Variant Female
Population
High Fertility
Variant Female
Population

Date of Birth	Age
< 1925	100+
1926 - 1930	95 - 99
1931 - 1935	90 - 94
1936 - 1940	85 - 89
1941 - 1945	80 - 84
1946 - 1950	75 - 79
1951 - 1955	70 - 74
1956 - 1960	65 - 69
1961 - 1965	60 - 64
1966 - 1970	55 - 59
1971 - 1975	50 - 54
1976 - 1980	45 - 49
1981 - 1985	40 - 44
1986 - 1990	35 - 39
1991 - 1995	30 - 34
1996 - 2000	25 - 29
2001 - 2005	20 - 24
2006 - 2010	15 - 19
2011 - 2015	10 - 14
2016 - 2020	5 - 9
2021 - 2025	0 - 4

10   8   6   4   2   0   2   4   6   8   10
Percent of Total Population

Countries in Profile: South Korea
The Demographic Transition on Fast-Forward

In mid-2006, Korea's news media announced that 23 local governments were offering payments of up to $1,000 at the birth of a couple's second child or beyond, with additional plans under way to award supplemental payments of $1,000 a month to families with children under age five. These bonuses and other incentives to encourage childbearing are only one component of the Korean government's plan to invest more than $19 billion over five years to raise the national fertility rate.[83] South Korea's official fertility rate is 1.2 children per woman, one of the lowest in the world, although the nationally reported rate is even lower. South Korea exemplifies the few dozen countries in which population aging has become a major public policy concern, but its demographic situation today is very different than just a few decades ago.

After the Korean War ended in 1953, the following decade marked the beginning of a period of rapid development for South Korea in which demography played a key role. Education rates rose and improvements in public health were evident through declining mortality rates. In 1962 the Korean government, concerned that population growth would inhibit the country's economic development, established a national family planning program with extensive community-based education.[85] The program was scaled up further in the 1970s through campaigns aimed at eliminating families' preference for sons, more fully integrating women into society, and establishing a two-child family as a general ideal.

After the national fertility rate reached replacement level in the early 1980s, the government shifted its strategy from encouraging two children to just one as the social ideal. At the same time ultrasound technology became widely available, allowing expectant couples to determine the sex of their fetus at an early stage of pregnancy. This development, coupled with continuing cultural preference for sons, increased abortion of female fetuses. By 1993, the sex ratio at birth was 116 boys born for every 100 girls – a significant increase from a natural sex ratio of about 105 boys for every 100 girls – and the distorted ratio has continued in recent years.[86]

Today, South Korea has completed the demographic transition and is classified as having a mature age structure type. In 1970, with two-thirds of the population under age 30, Korea had a very young age structure; it progressed steadily through each of the following age structure types over the following 35 years. The country is still on the younger end of the range of mature age structures, with a relatively large proportion of people under 30 and a small share of older adults compared to other countries of that type.

Figure 5.9
South Korea's Age Structures, 1975 and 2005[84]

In 1975, South Korea's age profile was beginning to show signs of its rapid progress through the demographic transition. Though the profile still retained a pyramidal shape from historically high fertility and mortality rates, the largest age groups were older children and adolescents, and declines in birthrates were evident in the smaller proportion of younger children. Thirty years later, South Korea's age structure has moved fully into the mature type and rapid fertility declines are evident in the small share of age groups under 30.
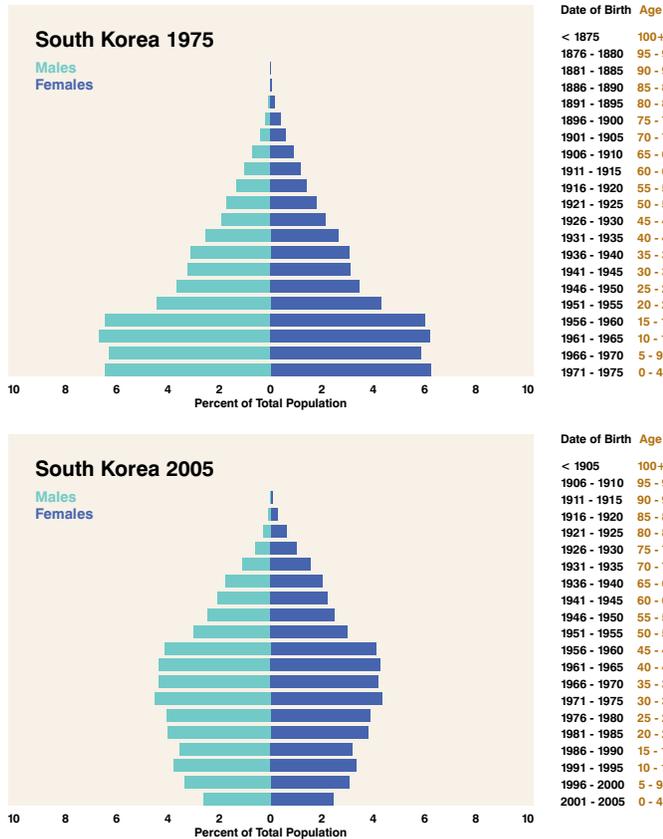
South Korea's swift progress through the demographic transition paid major economic dividends. Korea and other countries in the region are often called the "Asian Tigers" because of their rapid, dramatic economic expansion in the 1980s. As was the case in its neighbors Hong Kong, Singapore, Taiwan and Thailand, much of South Korea's economic growth can be explained by a specific shift in its population age structure known as the "demographic bonus."

Social changes in the 1960s, including investment in family planning programs, improved education and employment opportunities for girls and women, and later marriage ages, combined to reduce South Korea's fertility rate from nearly six children per woman in the early 1960s to 2.2 children per woman 20 years later. As family sizes decreased and the proportional size of children and teenagers in the population became smaller, parents and the government alike were able to invest more on a per capita basis in education. Families could also save more of their income, creating an increase in domestic investment levels. Labor force growth slowed, wages rose and the government encouraged the development of technology-based industries to take advantage of an educated work force. The impact of the demographic bonus contributed to an annual GDP growth rate in South Korea that reached seven percent in the 1960s.

Korea has been a remarkably prosperous and peaceful country for decades. The country has not experienced any recorded form of civil conflict since the end of its war with North Korea in 1953. Its governance record has been more mixed; after more than 30 years of military rule, full democracy was only achieved in the 1990s. Although, like the other Asian Tigers, South Korea experienced economic setbacks in the mid- to late-1990s, its economy has recovered and returned to its previous trend of dramatic expansion. In the first five years of the twenty-first century, the economy grew at more than five percent annually.

South Korea 1975

Males
Females

Date of Birth	Age
< 1875	100+
1876 - 1880	95 - 99
1881 - 1885	90 - 94
1886 - 1890	85 - 89
1891 - 1895	80 - 84
1896 - 1900	75 - 79
1901 - 1905	70 - 74
1906 - 1910	65 - 69
1911 - 1915	60 - 64
1916 - 1920	55 - 59
1921 - 1925	50 - 54
1926 - 1930	45 - 49
1931 - 1935	40 - 44
1936 - 1940	35 - 39
1941 - 1945	30 - 34
1946 - 1950	25 - 29
1951 - 1955	20 - 24
1956 - 1960	15 - 19
1961 - 1965	10 - 14
1966 - 1970	5 - 9
1971 - 1975	0 - 4

10   8   6   4   2   0   2   4   6   8   10
Percent of Total Population

South Korea 2005

Males
Females

Date of Birth	Age
< 1905	100+
1906 - 1910	95 - 99
1911 - 1915	90 - 94
1916 - 1920	85 - 89
1921 - 1925	80 - 84
1926 - 1930	75 - 79
1931 - 1935	70 - 74
1936 - 1940	65 - 69
1941 - 1945	60 - 64
1946 - 1950	55 - 59
1951 - 1955	50 - 54
1956 - 1960	45 - 49
1961 - 1965	40 - 44
1966 - 1970	35 - 39
1971 - 1975	30 - 34
1976 - 1980	25 - 29
1981 - 1985	20 - 24
1986 - 1990	15 - 19
1991 - 1995	10 - 14
1996 - 2000	5 - 9
2001 - 2005	0 - 4

10   8   6   4   2   0   2   4   6   8   10
Percent of Total Population

Figure 5.10
South Korea's Position Along the Demographic Transition

With its total fertility rate declining by two-thirds from six children per woman to two in about 20 years, accompanied by similarly dramatic declines in mortality, South Korea made one of the most rapid progressions through the demographic transition in history. Even assuming an increasing fertility rate, the country is still projected to have a mature population by 2050.


Demographic Transition
South Korea's Position Along Demographic Transition

1975
2005
2025 High
2025 Medium
2025 Low

Points for 2025 are based on the range of fertility projections produced by the UN Population Division.

Population ages 0-29 (percent of total population)

Population ages 60+ (percent of total population)
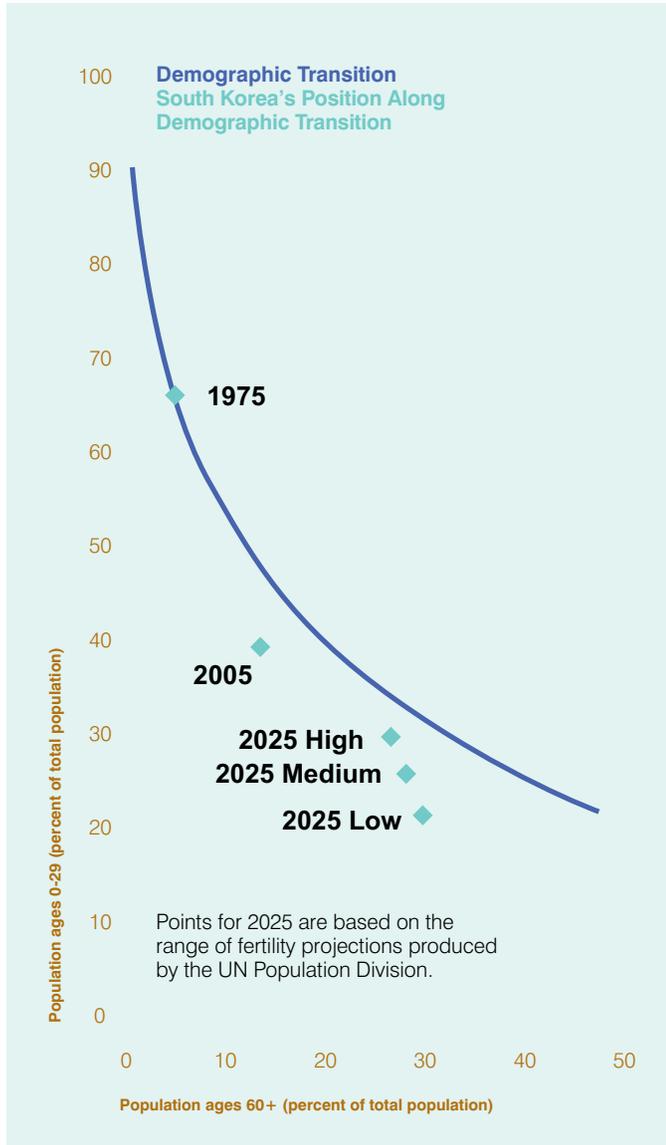
Figure 5.11
Current Demographic Statistics for South Korea[88]

Population 1975 35 million
Population 2005 48 million
Population 2025 (medium term projection) 50 million
Population 2050 (medium term projection) 45 million
Median population age 35 years
Population under age 15 19%
Total fertility rate (2005-2010) 1.2
Contraceptive prevalence rate (modern methods, 1997) 67%
Unmet need for family planning no data
Life expectancy 75 years male, 82 years female
HIV prevalence rate (ages 15-49, 2005) <0.1%
GNI per capita (Atlas method, current US$, 2005) $15,830
Population living below poverty line 15%
Unemployment rate 4%
Adult literacy rate (2002) 99% male, 97% female
Arable land (% of total) 17

South Korea is an example of how, with the support of international partners, a country can rapidly achieve a more favorable age structure through a comprehensive, education-based family planning program. However, the government's emphasis on small family size worked too well once fertility rates had reached replacement level in the mid-1980s. With one of the lowest birthrates in the world, population aging is likely to remain a major political and economic issue in Korea in the coming decades. The government is targeting its efforts toward this problem at increasing the country's birthrate, rather than other areas such as immigration. However, financial incentives are having little impact on Korea's extremely low fertility rates, and concern is rising that a shortage of new workers is already slowing the rate of business creation.

United Nations demographers, when creating their projections of future population trends, assume that extreme fertility rates (both high and low) will gradually correct toward replacement level. Thus, the UN's medium-variant population projections show South Korea's fertility rate rising 0.07 children per woman every five years, from its current very low level of 1.2 children per woman to reach nearly 1.8 by 2050. Even with this assumption, total population will decline below its current level by 2050.

Population aging in Korea has so far had little impact on the country's political and economic development, but policymakers are wise to consider its future implications. History has provided few examples of proven public policy strategies to increase birthrates on a national scale in low-fertility settings. However, improvements in women's status have been conclusively linked to population stabilization in high-fertility settings, and the same may be true in low-fertility countries.[89] In South Korea, women remain underrepresented in universities, and only six percent of corporate executives, political leaders and senior managers are women.[90] Such inequities are reflected in a continuing social preference for sons and an artificial sex ratio within the population, issues that should remain a central focus for the government.

Figure 5.12
South Korea's Potential Age Structures, 2025

If South Korea achieves the United Nations' low fertility projection of less than one child per woman in 2025, its population age structure will remain in the mature type. However, with just 24 percent of its population under age 30, the country would be nearing the aged age structure category that has not yet occurred. If the UN's high fertility projection is achieved, fertility would increase to 1.9 children per woman from today's level of 1.2, but the largest age groups in the population would still be those in their late fifties.

South Korea 2025

Low Fertility Variant Male Population
High Fertility Variant Male Population
Low Fertility Variant Female Population
High Fertility Variant Female Population

Date of Birth	Age
< 1925	100+
1926 - 1930	95 - 99
1931 - 1935	90 - 94
1936 - 1940	85 - 89
1941 - 1945	80 - 84
1946 - 1950	75 - 79
1951 - 1955	70 - 74
1956 - 1960	65 - 69
1961 - 1965	60 - 64
1966 - 1970	55 - 59
1971 - 1975	50 - 54
1976 - 1980	45 - 49
1981 - 1985	40 - 44
1986 - 1990	35 - 39
1991 - 1995	30 - 34
1996 - 2000	25 - 29
2001 - 2005	20 - 24
2006 - 2010	15 - 19
2011 - 2015	10 - 14
2016 - 2020	5 - 9
2021 - 2025	0 - 4

10 8 6 4 2 0 2 4 6 8 10
Percent of Total Population

POPULATION AGING IN KOREA HAS SO FAR HAD LITTLE IMPACT ON THE COUNTRY'S POLITICAL AND ECONOMIC DEVELOPMENT, BUT POLICYMAKERS ARE WISE TO CONSIDER ITS FUTURE IMPLICATIONS.

Summary Point Although many countries have experienced slowdowns in economic growth and upticks in unemployment, there is little evidence that population aging in countries with a mature age structure has so far caused major economic distress. However, if aging countries maintain their low fertility rates and such trends are not offset by significant immigration, the economic effects of further aging are unknown.

Policy Recommendation Countries concerned about the economic impact of aging populations could consider implementing policies already being tested, such as increasing retirement ages, reforming pension schemes, and bringing greater balance to women's professional and family responsibilities. Although these countries often focus on the needs and problems of the older segments of the population, they must continue to address the needs of their young people, including strengthening a support system for their childbearing decisions.

SUBTYPES AND A SPECULATIVE STRUCTURE
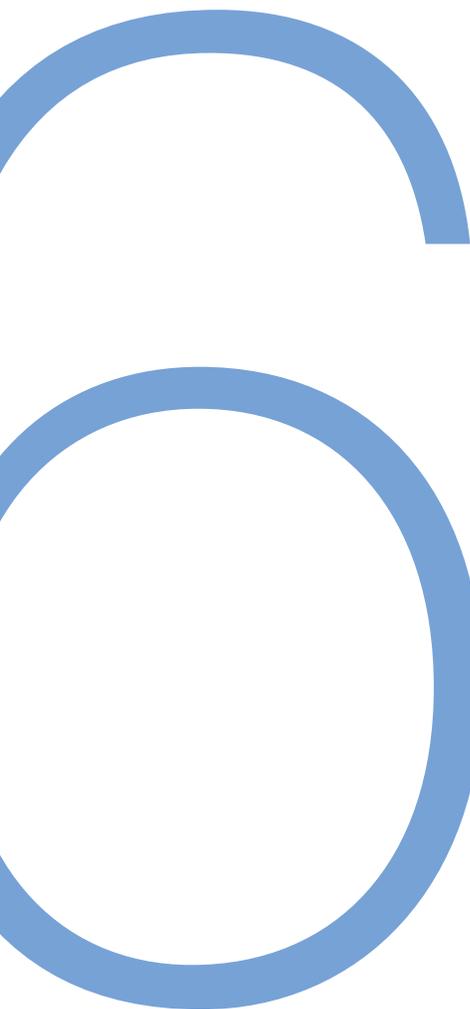
In addition to the four major profiles, this report identifies three contemporary subtypes of age structures and one future, speculative type. The first two subtypes are age structures in which the typical effects of the demographic transition on a country's population are altered by the influx of international immigrants (*immigration-youthful* structures, *immigration-mature* structures).

A third subtype, *HIV/AIDS structures*, reflects the impact of extremely high HIV prevalence rates (18 percent or above among adults) on the age structures of countries with very young and youthful populations. The speculative type, a fifth potential category of age structures, would demonstrate the impact of population aging in a few countries with the very lowest fertility rates.

United Arab Emirates 2005

Males
Females

Percent of Total Population

Bahrain 2005 — Males / Females — Percent of Total Population

Kuwait 2005 — Males / Females — Percent of Total Population

Qatar 2005 — Males / Females — Percent of Total Population
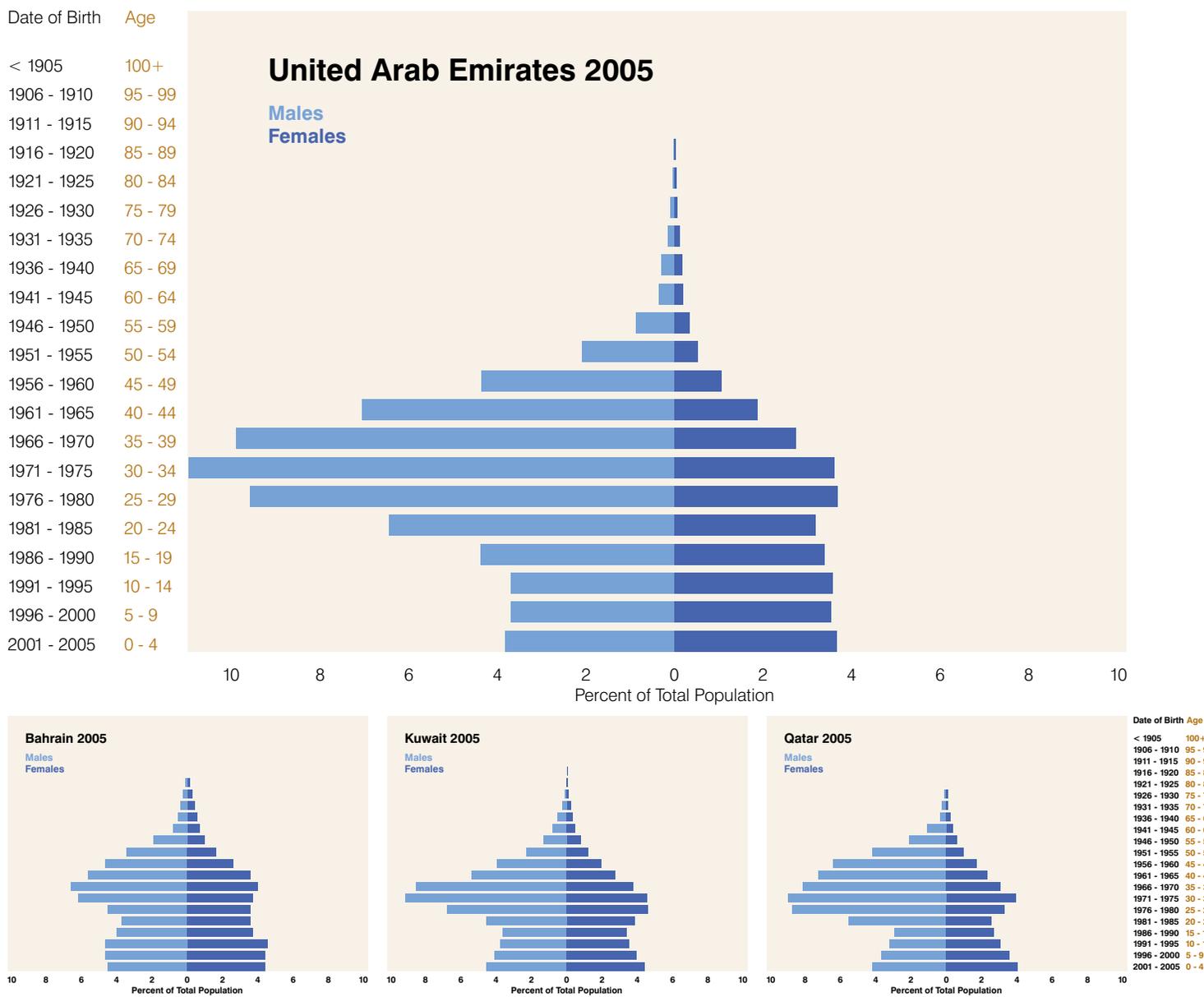
Figure 6.1
Immigration-Youthful Subtype Profiles

Youth (ages 0-29) approximately 45-55 percent of the population
Mid-Adults (ages 30-59) approximately 45-50 percent of the population
Seniors (ages 60+) approximately 1-5 percent of the population
Country count 4
Demographic character Highly aberrant compared to all other types; largest proportion of population comprised of mid-age adults with an even proportion among children and adolescents and almost no seniors. Also likely to skew unevenly towards males due to higher numbers of men migrating in for work opportunities
Population doubling time about 30 years
Regional prevalence Persian Gulf
Civil conflict risk No immigration-youthful countries experienced conflict between 1970-99
Economic performance 4.8 percent average annual GDP growth rate, 1970-99 (no data for Qatar)
Governance No immigration-youthful countries were measured as having fully democratic governance, 1970-99

67

How Immigration and AIDS Change
the Demographic Transition

At sustained high levels, international migration can have a major impact on population age structures. In countries where inward migration has averaged 0.35 percent or more over the past 25 years, age structures have been altered. In *immigration-youthful* countries, such as the small states of the Persian Gulf, immigrants – primarily men – fill both managerial and service positions in expanding economies. Labor migration to the Arab Gulf states makes their age structures, which are in the middle of the demographic transition, more mature than expected. Although mortality rates have declined in these countries, fertility rates among the native-born population remain above replacement level. Since most immigrants in this region are of working age and policies discourage or prohibit their remaining in the country after retirement, the countries' age structures contain a bulge in the middle of the population, with an extremely small proportion of older adults.

AT SUSTAINED HIGH LEVELS, INTERNATIONAL MIGRATION CAN HAVE A MAJOR IMPACT ON POPULATION AGE STRUCTURES.

Date of Birth	Age
< 1905	100+
1906 - 1910	95 - 99
1911 - 1915	90 - 94
1916 - 1920	85 - 89
1921 - 1925	80 - 84
1926 - 1930	75 - 79
1931 - 1935	70 - 74
1936 - 1940	65 - 69
1941 - 1945	60 - 64
1946 - 1950	55 - 59
1951 - 1955	50 - 54
1956 - 1960	45 - 49
1961 - 1965	40 - 44
1966 - 1970	35 - 39
1971 - 1975	30 - 34
1976 - 1980	25 - 29
1981 - 1985	20 - 24
1986 - 1990	15 - 19
1991 - 1995	10 - 14
1996 - 2000	5 - 9
2001 - 2005	0 - 4

United States 2005

Males
Females

Percent of Total Population

Australia 2005
Males
Females
Percent of Total Population

Canada 2005
Males
Females
Percent of Total Population

Greece 2005
Males
Females
Percent of Total Population
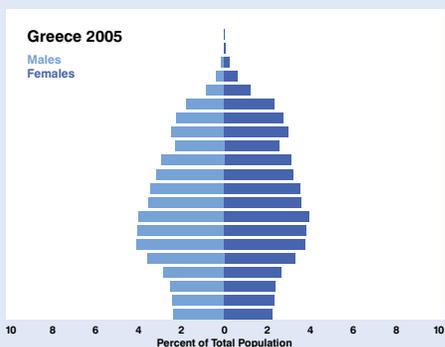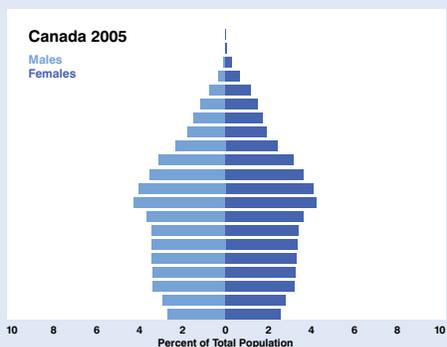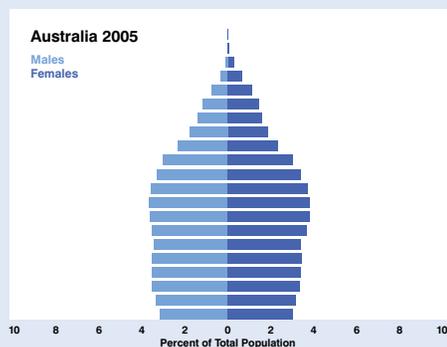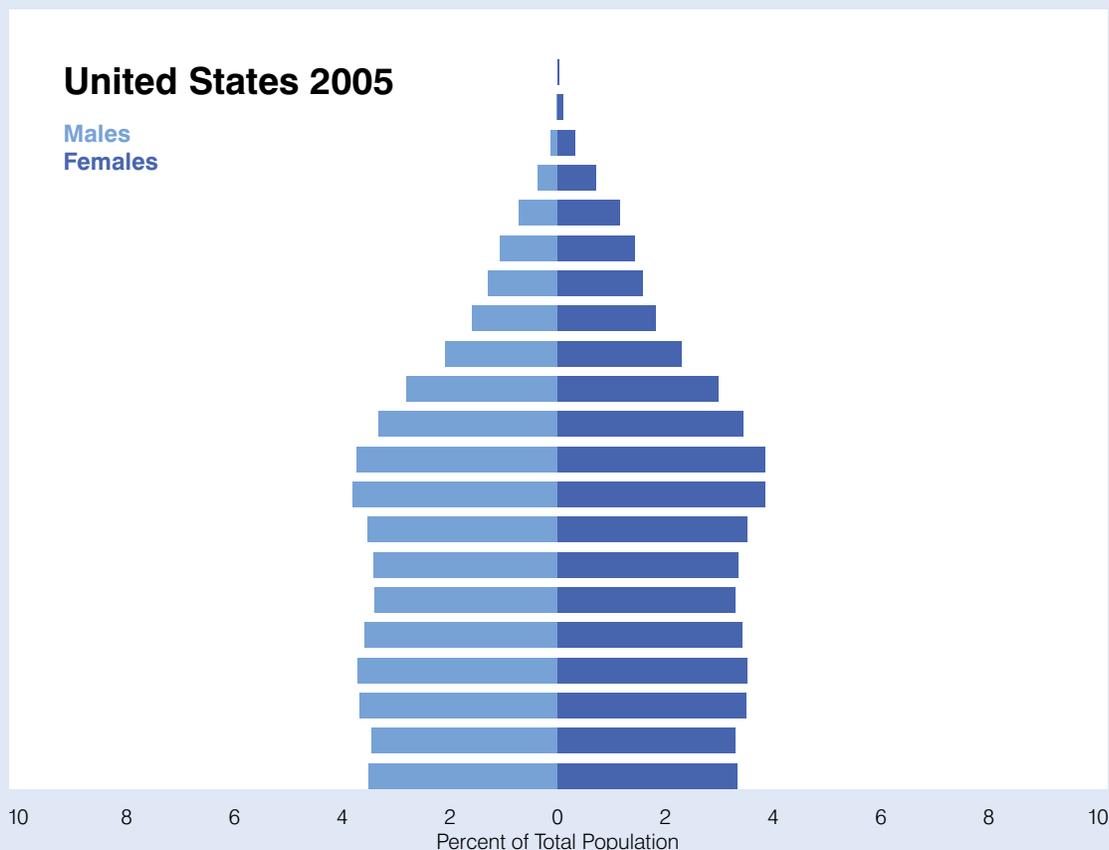
Figure 6.2
Immigration-Mature Subtype Profiles

Youth (ages 0-29) approximately 35-43 percent of the population
Mid-Adults (ages 30-59) approximately 40-50 percent of the population
Seniors (ages 60+) approximately 13-23 percent of the population
Demographic character Largest proportion of population comprised of adults age 30-55, with a slightly smaller proportion of youth and a pyramid shape for seniors.

Population doubling time 60-500 years
Country count 7
Regional prevalence North America, Australia, southern Europe
Civil conflict risk 5 percent probability of experiencing civil conflict, 1970-99
Economic performance 4.7 percent average annual GDP growth rate, 1970-99
Governance 76 percent probability of fully democratic governance, 1970-99

In *immigration-mature* countries, such as the United States and Australia, age structures are generally younger than they would be otherwise, because immigrants tend to have higher fertility rates than the native-born population.[91] Though these countries are far along the demographic transition and their mortality and fertility rates have already declined, the impact of immigration keeps most of them in the earlier stages of the mature category. Most documented immigrants to industrialized countries are between 15 and 44 years of age (Figure 6.3).[92] These immigrants have helped keep labor sectors fully employed and economies growing even as fertility rates among native-born residents decline and population growth slows.

Figure 6.3
Age Profile of Immigrants to U.S.[93]

This population profile of recent documented immigrants to the United States shows that more than half of all immigrants entering the country are 25-39 years old, the prime working ages.

Immigrants to U.S. in 2004
Males
Females

Percent of Total Immigrant Population

Botswana 2005

Date of Birth	Age
< 1905	100+
1906 - 1910	95 - 99
1911 - 1915	90 - 94
1916 - 1920	85 - 89
1921 - 1925	80 - 84
1926 - 1930	75 - 79
1931 - 1935	70 - 74
1936 - 1940	65 - 69
1941 - 1945	60 - 64
1946 - 1950	55 - 59
1951 - 1955	50 - 54
1956 - 1960	45 - 49
1961 - 1965	40 - 44
1966 - 1970	35 - 39
1971 - 1975	30 - 34
1976 - 1980	25 - 29
1981 - 1985	20 - 24
1986 - 1990	15 - 19
1991 - 1995	10 - 14
1996 - 2000	5 - 9
2001 - 2005	0 - 4

Males
Females

Percent of Total Population

Lesotho 2005 — Males, Females — Percent of Total Population

South Africa 2005 — Males, Females — Percent of Total Population

Swaziland 2005 — Males, Females — Percent of Total Population
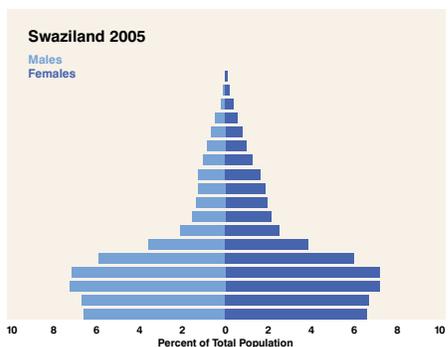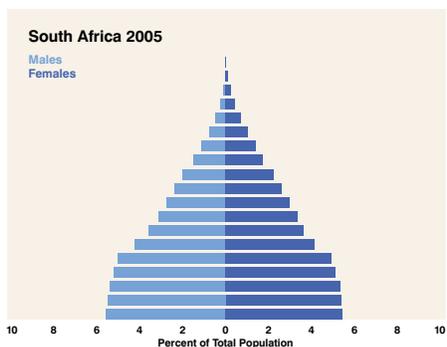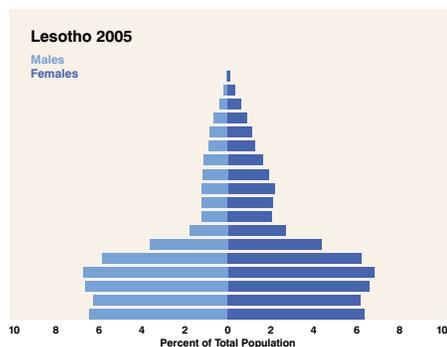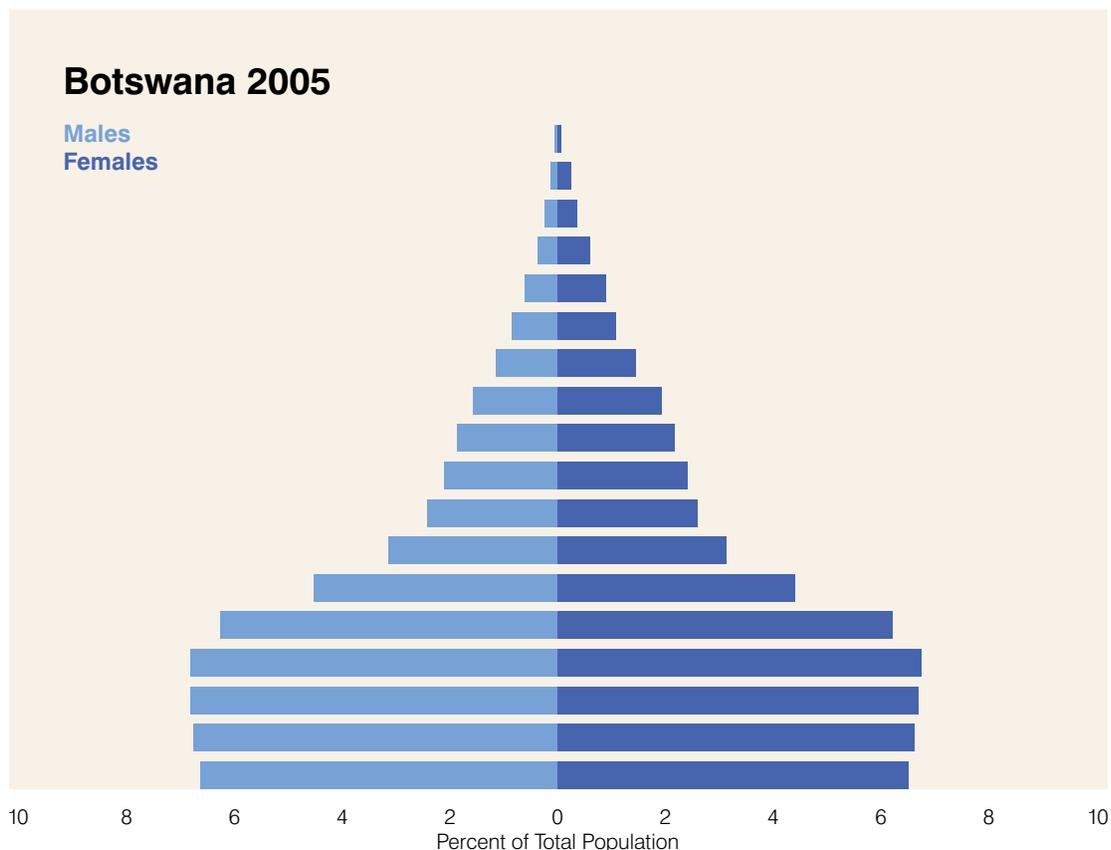
Figure 6.4
HIV/AIDS Subtype Profiles
(HIV prevalence among adults 18 percent or greater in 2005)

Youth (ages 0-29) approximately 60 to 75 percent of the population
Mid-Adults (ages 30-59) approximately 20 to 32 percent of the population
Seniors (ages 60+) approximately 5 to 8 percent of the population
Demographic character Very low proportions and classic pyramid shape among those 30 and older; rapidly increasing cohort size among consecutively younger age groups.

Population doubling time Ranges between declining populations to those with a doubling time of 75 years
Country count 6
Regional prevalence Southern Africa
Civil conflict risk 17 percent probability of experiencing civil conflict, 1970-99
Economic performance 5.5 percent average annual GDP growth rate, 1970-99
Governance 5 percent probability of fully democratic governance, 1970-99

The age structure changes caused by AIDS, which has reversed the decline of death rates in more than 30 countries, were wholly unforeseen by those who first recognized the demographic transition and projected its spread. The age structure-altering capacity of this disease is unprecedented: Some 90 percent of fatalities associated with HIV infection occur among people of working age, with the largest concentration of deaths from the age of 25 to 39 years. The impact of AIDS mortality on countries' economies has been pervasive, as skilled workers and professionals are often the hardest hit. In the countries most heavily affected by the disease, two to three percent of working-age adults die each year – more than 10 times the normal rate – leaving behind a large number of "AIDS orphans" with little adult support. Still, high fertility rates mean that AIDS mortality is not having significant impact on population growth, while straining educational opportunities for children left behind.

From the projections of future populations devised by the United Nations, a fifth major age structure type beyond completion of the demographic transition (*aged* structures) could develop by 2025. The profiles in this type, with the bulges in the share of their population older than 50, reflect the impact of continued low fertility and population aging. In the UN's medium-fertility variant for 2025, Italy and Japan would reach the aged category, and in the low-fertility variant, six other countries would join them. However, no country has yet developed this structure and demographic shifts could alter it, so it should be regarded as speculative.

IN THE COUNTRIES MOST HEAVILY AFFECTED BY THE DISEASE, TWO TO THREE PERCENT OF WORKING-AGE ADULTS DIE EACH YEAR – MORE THAN 10 TIMES THE NORMAL RATE – LEAVING BEHIND A LARGE NUMBER OF "AIDS ORPHANS."

Date of Birth	Age
< 1925	100+
1926 - 1930	95 - 99
1931 - 1935	90 - 94
1936 - 1940	85 - 89
1941 - 1945	80 - 84
1946 - 1950	75 - 79
1951 - 1955	70 - 74
1956 - 1960	65 - 69
1961 - 1965	60 - 64
1966 - 1970	55 - 59
1971 - 1975	50 - 54
1976 - 1980	45 - 49
1981 - 1985	40 - 44
1986 - 1990	35 - 39
1991 - 1995	30 - 34
1996 - 2000	25 - 29
2001 - 2005	20 - 24
2006 - 2010	15 - 19
2011 - 2015	10 - 14
2016 - 2020	5 - 9
2021 - 2025	0 - 4

Japan 2025

Males
Females

Percent of Total Population

Italy 2025

Males
Females

Percent of Total Population

Singapore 2025

Males
Females

Percent of Total Population

Slovenia 2025

Males
Females

Percent of Total Population
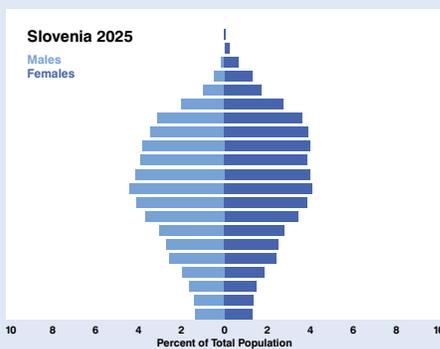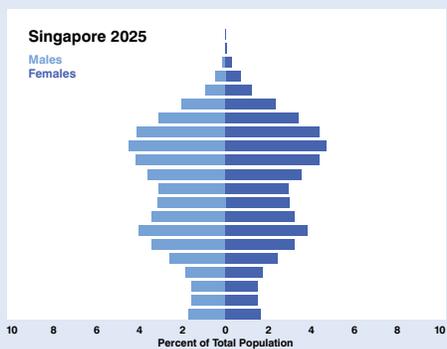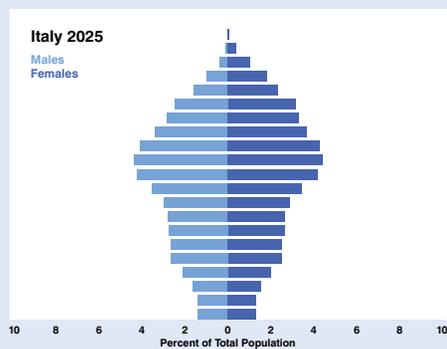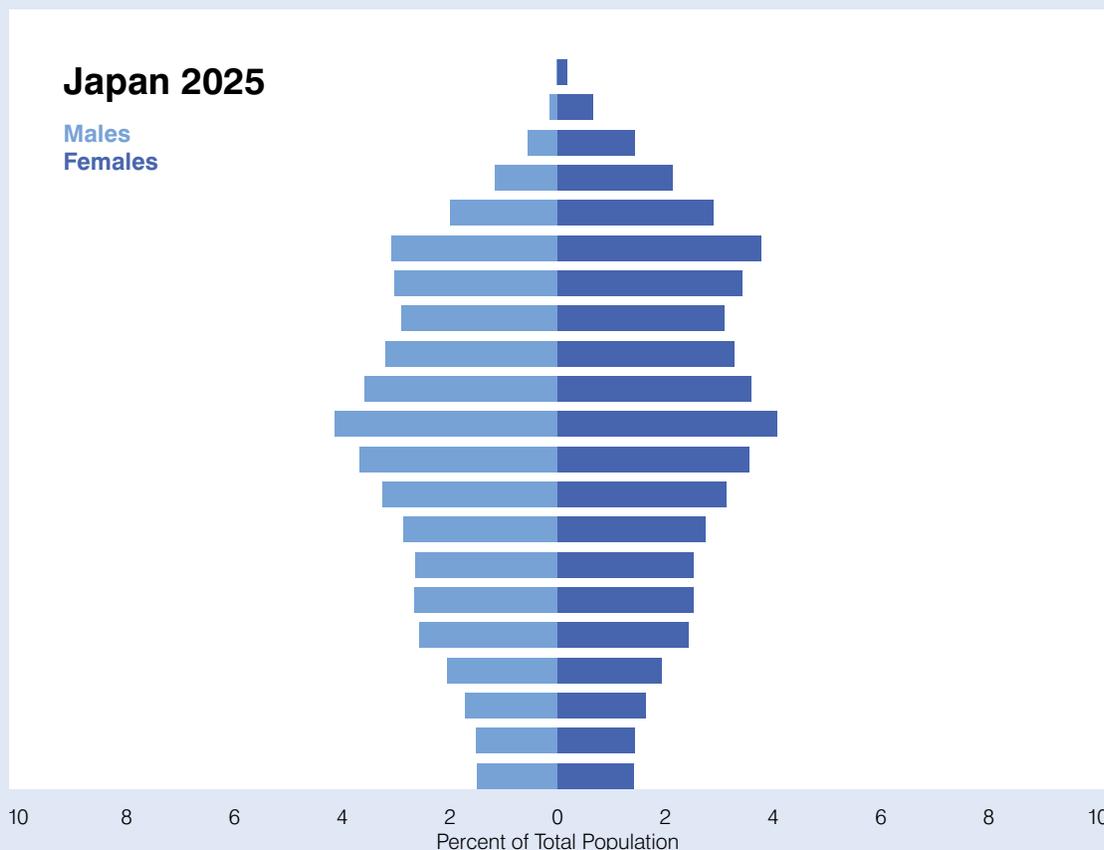
Date of Birth	Age
< 1925	100+
1926 - 1930	95 - 99
1931 - 1935	90 - 94
1936 - 1940	85 - 89
1941 - 1945	80 - 84
1946 - 1950	75 - 79
1951 - 1955	70 - 74
1956 - 1960	65 - 69
1961 - 1965	60 - 64
1966 - 1970	55 - 59
1971 - 1975	50 - 54
1976 - 1980	45 - 49
1981 - 1985	40 - 44
1986 - 1990	35 - 39
1991 - 1995	30 - 34
1996 - 2000	25 - 29
2001 - 2005	20 - 24
2006 - 2010	15 - 19
2011 - 2015	10 - 14
2016 - 2020	5 - 9
2021 - 2025	0 - 4

Figure 6.5
Aged Structure Profiles*

Youth (ages 0-29) approximately 20-27 percent of the population
Mid-Adults (ages 30-59) approximately 40-45 percent of the population
Seniors (ages 60+) greater than 30 percent of the population
Demographic character Bulges among mid- and senior adults above age 50,

steadily decreasing proportion sizes among age cohorts younger than 50.
Country count No countries in 2005; 2 countries in UN's medium-fertility population projection for 2025; 8 countries in low-fertility projection for 2025
Profiles shown are speculative, based on UN's low-fertility projection for 2025.

A FIFTH MAJOR AGE STRUCTURE TYPE BEYOND COMPLETION OF THE DEMOGRAPHIC TRANSITION (*AGED* STRUCTURES) COULD DEVELOP BY 2025.

Summary Point Countries with the highest rates of HIV prevalence – currently clustered in Southern Africa – are experiencing unprecedented age structures. High rates of mortality among adults who should be in the most productive years of their lives have resulted in costs to employers, shortages of employees in critical sectors such as education and health care, and increased dependency ratios with more children and adolescents relying on fewer adults for their survival and well-being.

Policy Recommendation All necessary steps must be taken by country governments and the international community to prevent as many new HIV infections as possible, both in countries already experiencing high prevalence and those in which the epidemic has not become entrenched. To that end, together with care and treatment of those affected, comprehensive and evidence-based HIV-education programs and provision of prevention supplies, namely condoms, should be a priority. International donors should help national governments care for the young people left behind by funding education, health and employment opportunities, and working to ensure that the infection is not continued in the next generation. Donor assistance should be as unfettered as possible by policies that restrict the autonomy of recipient countries to determine how to address their particular HIV/AIDS situation.

Summary Point Countries that receive high numbers of immigrants, particularly those seeking employment opportunities, experience changes in their age structures. In countries with developed economies, high fertility rates and a youthful native-born population, immigration concentrated among working-age adults makes countries' age structures more mature than they would otherwise be. Meanwhile, in aging countries, immigrants boost fertility rates and make age structures younger.

Policy Recommendation In the case of both youthful and aged countries, immigration that boosts the labor force can have economic benefits. Countries should determine if their current immigration rates, whether high or low, create a more or less favorable age structure and should consider tailoring their migration policies accordingly. In doing so, native and immigrant populations should be fully integrated into society, especially in their access to high-quality education and health care. Immigrants should have equal access to family planning and sexual and reproductive health programs in order to have control over their own reproductive decisions.

THINGS TO COME:
DEMOGRAPHIC POSSIBILITIES, 2025

Natural and human events influence the play of demographic forces, making the future of populations hard to predict. The findings of this report highlight trends that are likely or at least possible over the next few decades. The classification of age structures suggests policies and programs through which governments can encourage favorable and balanced age structures. Through this lens, lessons emerge from the experiences of countries that have taken steps to positively influence the direction of population dynamics.

Population projections produced by the United Nations Population Division for 2025 under a range of scenarios show overall improvements in countries' progress along the demographic transition. Both the low- and high-fertility variants show an increase in the number of countries with transitional and mature age structures. The consistent correlations between such age structures and reduced vulnerability to emerging civil conflict, as well as to higher income and democratic governance, suggest a robust linkage between these structures and development outcomes. In the low-fertility projection for 2025, which assumes further declines in their already low birth rates, eight countries would move into the aged age structure. This type of population would be characterized by unprecedently high median ages. So far, no country's population has reached this category.

Barring unforeseen developments that will shape future demographics in ways we have no way of knowing, these projections suggest both opportunities and threats. The opportunity is that more countries will move into transitional and mature age structures – assuming fertility rates continue to decline and that neither HIV/AIDS nor any unforeseen factor sharply boosts death rates. As this study has found, more balanced age structures tend generally to favor national stability and development. Countries such as Nigeria, that have stalled or reversed progress in the demographic transition and have very young age structures, face serious demographic challenges likely to undermine political and economic development and cause scarcities of natural resources.

Figure 7.1
Projections of Age Structure Types in 2025[94]

The number of countries classified in each of the four major age structure types in 2005 is compared to two different projections of populations in 2025, based on assumptions of dramatic declines in fertility rates (the low variant) and smaller, though still significant, drops in fertility (the high variant).
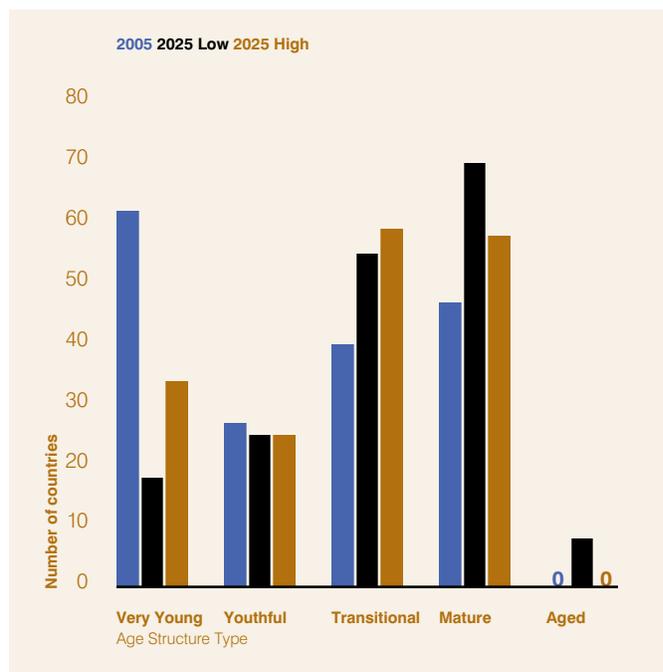
The projection that more countries will move into transitional and mature age structures in the future does not equate to certain prediction that there will be less conflict and better overall security in the world. Nor can we be assured that reduced population pressures will free up more financial resources for governments to allocate to education, employment and other investments that promote development.

Governments should be aware that even the high-fertility scenario of future population growth assumes continued strong improvements in use of contraception, provision of reproductive health care and a mitigation of the HIV/AIDS epidemic. In this scenario, the number of countries in the very young age structure type would decline from 35 percent to 20 percent of all countries. To achieve the high-fertility projection, which assumes a relatively modest decline in birthrates, 36 million additional married women of reproductive age in sub-Saharan Africa will need to be using modern methods of contraception by 2025. Meeting the low-fertility projection, a more ambitious goal, would mean that 76 million women of reproductive age in sub-Saharan Africa would be using contraceptives, nearly five times as many as today.

All of the population projections, even those suggesting the most rapid growth, assume greater future spending on contraceptive and related services than the world has ever seen. The variations in projected future family planning spending are merely differences of degree. Because of the nature of family planning and reproductive health service provision, especially in developing countries, much of this spending must come from country governments. Foreign assistance from donors is also critical. Unfortunately, funding for family planning and reproductive health has been stagnant in recent years.

Clearly, the advancements in age structure projected for 2025 will require significant progress along the demographic transition by many countries that today have very young and youthful populations. Getting past the early stages of the demographic transition requires continued declines in death and birth rates. Such declines occur when access to health care improves, diminishing the impact of infectious diseases and improving life expectancy. Next, fertility rates drop as more children survive through their earliest, vulnerable years. Parents who know they can expect most children to live generally choose to have fewer and to invest more in the nutrition, general health and education of each one.

For national governments and international donors, the costs of completing the demographic transition come in the provision of supplies and the implementation of comprehensive health systems that provide counseling and treatment. Distributed across the developing world through decades of successful family planning programs run cooperatively by national governments, NGOs and international donors, contraceptives also are key to preventing unintended pregnancies and thus reducing fertility rates. Among other supplies needed to improve reproductive health are materials to make birth safer, anti-retroviral drugs (ARVs) to prolong the lives of people infected with HIV and nevirapine to reduce the chance that HIV-positive mothers will transmit the infection to their babies during pregnancy or birth. By preventing unintended pregnancies among HIV-positive women, condoms and other contraceptives slow the spread of HIV/AIDS.

By 2015, the number of contraceptive users in the developing world is projected to grow by 28 percent, due to population growth and increased demand for – and, hopefully, better access to – family planning services. However, in 2004, the gap between funding for condoms and other contraceptives from international donors and estimated need for such supplies in the developing world was about $800 million, leaving hundreds of millions of women with an unmet need for family planning.[95] The estimated cost of meeting such need in contraceptives and other supplies would be $696 million, with personnel and capital expenses more than four times higher. However, these expenditures would save 1.5 million lives per year in countries with youthful populations, and would create significant progress along the demographic transition.[96]

Meeting current and future needs for health and education, including demand for reproductive health supplies, is a public policy challenge, but one that governments understand and have successfully addressed in many countries in recent decades. In such cases, governments, donors and civil society have worked together to expand access to health and other social programs. Over a few decades, the populations of most countries have made remarkable progress through the demographic transition and into more mature, favorable age structures. The examples of these countries' past successes, such as Mexico and Tunisia, can serve as models today for governments and institutions that recognize the importance of age structure to their development.

Completing the Transition

Age structures in which the demographically dominant groups are older than 30 lend themselves to government efforts to build and maintain political stability and legitimacy. Countries with transitional and mature population age structures as a group have historically been politically stable, democratic and wealthy. Likewise, very young age structures pose serious challenges that tend to undermine political and economic development. Responding to these challenges requires an effective national government with strong institutions and well-allocated resources, often in partnership with other countries and organizations.

Research demonstrates that women who have completed most or all of secondary school have lower fertility rates, and that large family sizes that keep women out of the work force are incompatible with sustained economic growth. However, policymakers have been slow to act on the connections between women's lives, population dynamics and broader development. This policy lapse has stunted the development of many countries and regions that remain stalled in the early stages of the demographic transition.

The education of children and employment of young adults are the foundation of a country's development. A country may be less vulnerable to political instability when young men perceive that the government is working to improve their employment opportunities and to overcome economic barriers to starting a family. Governments are better able to meet those expectations when demographic conditions such as balanced age structure support a focus on the young.

To achieve a world of more favorable and balanced age structures by 2025, a series of steps related to population change are needed:

Governments, local organizations and international partners should make voluntary access to modern contraception and sexual health information as widespread as possible, for all who seek it, including youth.

Policies should also work to increase girls' educational attainment and make it easier for women to enter and compete in the work force – while strengthening education generally. Gender issues should be mainstreamed into all development and social welfare policies.

Legal regulations must also afford women equal rights to custody of their own children, to divorce, to access to reproductive health services, to inheritance and land title, to security from gender-based violence, and to protection in schools and in the workplace. Such issues should be removed from the purview of religious courts or customary law.

National education programs should be targeted at reducing cultural discrimination of women; reducing families' preference for sons, which can lead to sex-selective abortion and neglect of female children; campaigning against sexual violence; and ending exclusive male control over decisions regarding sex and fertility.

Policies and programs should be tailored to countries' specific population dynamics in order to sustain and expand the opportunities that progress along the demographic transition has already created in many countries, and encourage their expansion to the rest of the developing world. For example, industrial countries with aging populations should not let old-age pension and health care costs take resources away from investments in youth.

The fears of runaway population growth that were widespread in the 1960s and 1970s have eased as family size has declined worldwide and population growth rates have fallen. In some regions, the fear is now that fertility decline is going "too far," threatening stability and economic security in countries with aging and declining populations. As world population adds 76 million people per year, however, the evidence of recent demographic transition supports a different conclusion: Countries tend to be less vulnerable to civil conflict, more able to resolve their economic and political problems, and better poised to face future changes and challenges when adults 30 and older outnumber those who are younger than 30 in the population.

Demographic transition has not gone too far; in fact it is not yet complete in most of the world's countries. Access to family planning and reproductive health services for all who seek them – in concert with improvements in the lives of women – contribute to more balanced age structures. Evidence suggests that these healthier, mature age structures, in turn, support secure, stable and prosperous societies. Although most governments have fallen short of their financial commitments to make family planning and reproductive health available to all, that objective remains crucial to beneficially shaping not only the population age structure, but all that the future sends our way.

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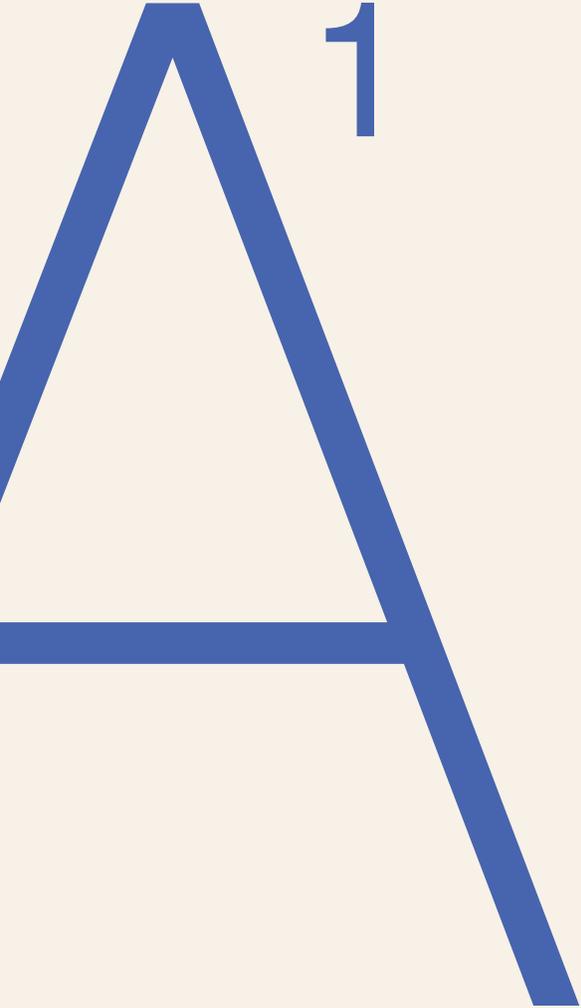
Age Structure The comparative size of specific age groups relative to others or to the population as a whole.

Civil Conflict A violently contested hostility including the use of armed force. In this report, statistics concerning civil conflict assume that it results in at least 25 battle deaths in a given calendar year and involves at least one party associated with a state.

Democracy The presence of institutions and procedures through which citizens can express preferences about policies and leaders; existence of institutionalized constraints on the power of the executive; and the guarantee of civil liberties to all citizens.[98] Autocracy is the absence of democracy.

Demographic Bonus A defined period of time during the process of the demographic transition in which working-age adults make up the largest share of the population, with relatively small groups of dependent children and older adults compared to previous generations.

Demographic Transition The transformation of a population characterized by large families and short lives into a population of small families and long lives. Varies among populations, but generally occurs as death rates decline and life expectancy increases, followed later by a decline in birthrates.

Dependency Ratio The share of those too young and too old to generally be productive workers relative to the age group comprising those likely to be in productive working years. The limits of productive working years are often given as ages 15 to 64.

Gross Domestic Product (GDP) The sum of the economic value added by all resident producers of a country, plus any product taxes not included in output. GDP per capita is total GDP divided by the midyear population of a country.[99]

Median Age The age where there are an equal number of people older in the population as there are younger.

Reproductive Age Among women, reproductive age includes the years in which childbearing is generally physically possible: ages 15 to 49.

Reproductive Health A state of complete physical, mental and social well-being and not merely the absence of disease or infirmity, in all matters relating to the reproductive system and to its functions and processes. This definition implies that men and women have the right to be informed and to have access to safe, effective, affordable and acceptable methods of family planning of their choice, as well as other methods of their choice for regulation of fertility that are not against the law, and the right of access to appropriate health care services that will enable women to go safely though pregnancy and childbirth and provide couples with the best chance of having a healthy infant, and of keeping themselves and their family free of sexually transmitted infections.[100]

Total Fertility Rate (TFR) The number of live births that a woman entering her reproductive years would experience, on average, during her lifetime, if the rates of childbearing for women of all ages remained the same during her reproductive years. TFR is a composite indicator, calculated in a population by adding the age-specific fertility rates of women across the span of reproductive years.

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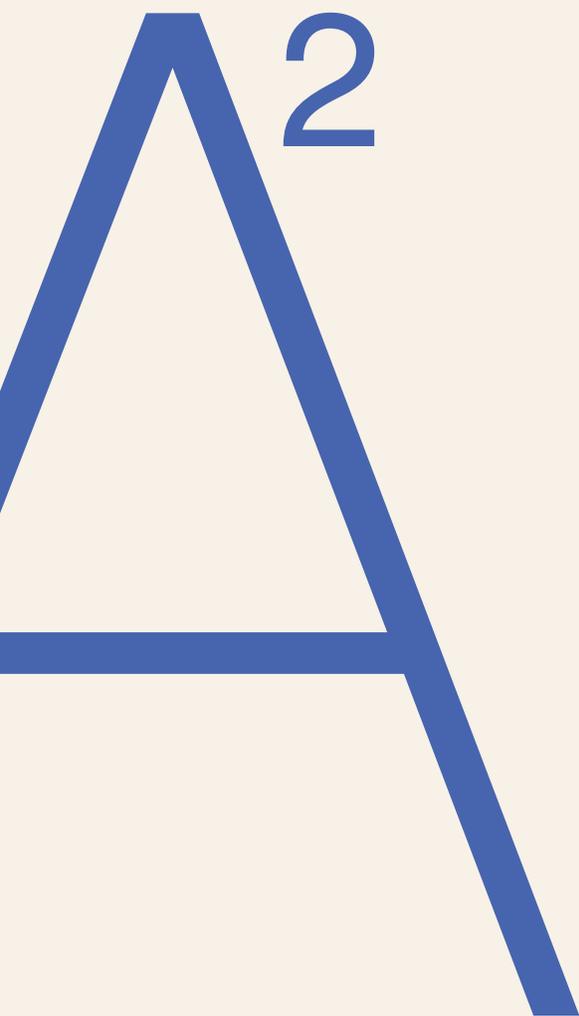
List of States

Countries were drawn from the United Nations 2005 list of states, using independent countries with a population over 100,000. Each decade of analysis includes a slightly different set of countries because of the emergence or dissolution of states, primarily connected to the breakup of the Soviet Union and renewed independence of many states in Eastern Europe in the early 1990s. The number of countries analyzed also varies by indicators (conflict, economics, governance) because some countries did not have data available for one or more indicators. This was especially true of the economic growth analysis. In order to correct for the large size and heterogeneity of their populations, five states were removed from the analysis of conflict, governance and economics: China, India, Indonesia, Russia and the United States. In these states, regional populations are larger than most country populations, and national demographic data are not representative of their variability.

Decades of Analysis

The report's analyses of civil conflict, economic performance and governance were conducted on distinct decades. The decade of the 1990s was assumed to last from 1990 through 1999; the 1980s spanned from 1980 to 1989; the 1970s spanned from 1970 to 1979.

Defining Age Structure

Within this publication, population age structures are divided into three 30-year age components: youth, from infants to 29 years of age; mid-adults, 30 to 59 years; and older adults, 60 years and older. Each component is measured as a proportion of the total population, indicated as a percentage. Because the third proportion depends on the sum of the other two, two dimensions are sufficient to describe variation in these data. In this guide, we position country age structures using the population proportions that are currently of most interest to researchers: the proportion of youth (0 to 29 years) along the vertical axis; and the proportion of older adults (60 years and older) along the horizontal axis. In these graphs, a solid line depicts the statistical center of the path of the demographic transition. Countries typically move along this transition from left to right as they advance through the demographic transition, making their age structure more mature.

Determining Age Structure Type

Countries were plotted on a graph comparing their youthful population (percent of total population ages 0-29) on the y-axis and older adult population (percent of total population ages 60 and above) on the x-axis. The function describing the demographic transition [$y = -20.47 \ln(n_{60+}) + 102.6$] was also applied to the graph. Four lines perpendicular to the slope of the demographic transition were drawn, to designate the divisions of the four age structure types. The equations for the four lines were determined to be: Very Young/Youthful divider ($y = 0.278 (x) + 65.41719$), Youthful/Transitional divider ($y = 0.391 (x) + 56.86343$), Transitional/Mature divider ($y = 0.815 (x) + 31.41875$) and Mature/Aged divider ($y = 1.695 (x) - 28.8063$). An "expected" y (percentage of population under age 30) was created for each country using its older adult proportion of the population as the x value in the above equations. The "expected" proportion of the population under age 30 was then subtracted from the actual proportion value. When the result of that subtraction was negative (meaning the country's position was below the corresponding perpendicular line on the demographic transition function), the country was determined to be in the next highest (older) age structure type. The same equations were used to calculate age structure type for each of the three decades analyzed, using population data for the first year of the decade, and for 2005. It is assumed that the same equations, used to mark progress along the demographic transition, could be used indefinitely into the future to determine countries' age structure types.

Determining Age Structure Subtypes

Three age structure subtypes were created: Two to reflect countries whose age structures have been altered by absorbing a high number of immigrants into their population, and one to reflect countries whose age structures have been altered due to high mortality rates from HIV/AIDS. Although counterfactual data are not available to determine whether these countries would be classified in a different major structure type without the influence of immigration or AIDS, the shape of their profiles and their placement within an age structure type has clearly been modified because of their unique demographic situation.

To determine the immigration subtypes, all countries with an average migration rate of 0.35 percent or greater over the period from 1980 to 2005 were initially eligible. Then, countries with less than 40 percent of their population between the ages of 30 and 59, which are prime working years, were eliminated. This was to remove countries in which migration has occurred for political or other non-economic reasons (such as Israel). When immigration occurs for non-economic reasons, it is difficult to predict or explain and such instability makes migration rates a less valuable indicator to political theorists. Finally, countries that fit both criteria – an average immigration rate over the 25-year period of 0.35 percent or greater and a mid-adult population proportion of 40 percent or greater – were classified as belonging to the immigration-youthful subtype if their major age structure type was very young, youthful or transitional (reflecting less progress along the demographic transition). Countries were classified as immigration-mature if their major age structure type was mature (reflecting greater progress along the demographic transition).

The HIV/AIDS subtype was created through a simpler formula, by grouping all countries with a 2005 HIV prevalence rate of 18 percent or greater among adults ages 15 to 49. This high prevalence rate cutoff restricted the subtype to only include those age structures that have been most intensely impacted by the epidemic. It is important to note that for the purposes of the civil conflict, economics and governance analyses, countries were classified by major age structure type (very young, youthful, transitional or mature) only. Countries with subtypes were only analyzed separately in order to determine characteristics of that subtype group. The 17 countries classified in the three subtypes only comprise 10 percent of all countries analyzed in this publication.

Graphing Population Age Structures
Each population age profile (the graphic representation of a population age structure) in this publication is composed of two sets of horizontal bar graphs: the male subpopulation on the left, females on the right. These subpopulations are divided into five-year age groups, each measured as a percentage of the total population (indicated on the horizontal axis). Percentages are scaled to a maximum of 10 percent to standardize comparison across age structure types, except for the two country populations (Uganda and the UAE in 2005) in which a cohort comprises a larger proportion. In all profiles, the youngest age group, ages zero to four years, lies on the bottom of an age profile; the oldest age group is at its top. The age profile features two vertical axes that label each group's range of ages during the year from which the profile is drawn and the range of birth years for individuals in each group.

Analysis of Age Structures' Risk of Civil Conflict
Data on armed conflicts are drawn from the Uppsala Conflict Data Project: States in Armed Conflict, Uppsala University, Uppsala, Sweden (available online: http://www.pcr.uu.se/research/data.htm).[101] Uppsala researchers define armed conflict as a "contested incompatibility which concerns government and/or territory where the use of armed force between two parties, of which at least one is the government of a state, results in at least 25 battle deaths." This definition excludes international wars, border disputes and acts of terrorism committed by individuals or organizations unaffiliated with a national government. Analyses in this report do not distinguish between the intensity of conflicts. Instead, this report is concerned with the initiation of conflict, and particularly civil conflicts (intrastate conflicts, involving a state and a non-state insurgent or between state factions).

The analysis was then narrowed to only include countries that experienced new conflict and those without any measurable conflict in each of the decades studied. Countries that experienced persistent conflict and those in which conflict had just ended in the previous five years were removed from the equation. This is because the strength of the demographic transition's effects is much less certain after soldiers have been mobilized, arms have been circulated and blood has been spilled. Countries that experienced a civil conflict within the previous five years had a more than 80 percent probability of further civil conflict during the next decade. The likelihood of civil conflict for any category in an analysis is equal to the sum of conflicts in the category, divided by the total eligible states in the category (after eliminating states with persistent or recurring conflicts). The number of countries analyzed in each decade was 177.

Analysis of Age Structure and Economic Development
By 2005, the positive correlation between national income and mature age structures was apparent, as 70 percent of countries with a very young age structure type were classified as low-income and 61 percent of countries with a mature structure as high-income by the World Bank. In contrast, the more complex relationship between population dynamics and economic growth over time has been analyzed in various ways by numerous researchers, with inconclusive results.[102]

For this analysis, countries were divided by age structure categories at the beginning of three consecutive decades: the 1970s, 1980s and 1990s. The median gross domestic product (GDP) growth rate for each age structure type in each decade was determined from the average of each country's annual GDP growth rates across the ten-year period. As long as a country had at least one year of GDP growth data during the decade in consideration, it was included in the analysis. This left 112 countries analyzed for 1970-79, 145 countries for 1980-89, and 160 countries for 1990-99.

Analysis of Age Structure and Governance
Data for the governance analysis are drawn from the Center for International Development and Conflict Management at the University of Maryland, which produces the Polity Project on political regime characteristics and transitions annually for the period between 1800 and 2004 (available online at: http://www.cidcm.umd.edu/inscr/polity/). The data assign each country an annual governance score ranging from -10 to 10 on a single-point basis. Countries with scores from -10 to 0 are classified as autocracies; scores from 1 to 7 are classified as partial democracies; and scores from 8 to 10 are classified as full democracies. The total number of countries analyzed was 131 for 1979 and 1989 and 158 countries for 1999.

Countries were classified according to their age structure type at the beginning of three successive decades (1970, 1980, 1990) and whether their governments were rated as full democracies at the end of the corresponding decade.[103] Countries that began a decade as non-full democracies and ended it as full democracies, and vice versa, were also noted, but this sample size was extremely small. In each decade, a total of fewer than 10 countries made either switch.

A3

Country	Total population, 2005 (thousands)[104]	Population ages 0-29 (% of total), 2005[105]	Population ages 60+ (% of total), 2005[106]	Age structure type 2005	Age structure type 1970	Age structure type, 2025 low-fertility variant	Age structure type, 2025 medium-fertility variant	Age structure type, 2025 high-fertility variant	Total fertility rate 2005-2010[107]	Infant mortality rate, 2000-2005 (deaths per 1,000 births)[108]	GNI per capita (US$), 2005[109]
Afghanistan	29,863	72.8	4.4	1	1	1	1	1	7.07	149	no data
Albania	3,130	52.3	12.0	3	2	4	4	3	2.18	25	2,580
Algeria	32,854	61.8	6.5	2	1	3	3	3	2.39	37	2,730
Angola	15,941	74.0	3.9	1	1	1	1	1	6.43	139	1,350
Argentina	38,747	51.9	13.9	3	3	4	4	3	2.25	15	4,470
Armenia	3,016	48.0	14.5	3	2	4	4	4	1.36	30	1,470
Australia	20,155	40.4	17.3	4	3	4	4	4	1.75	5	32,220
Austria	8,189	33.3	22.7	4	4	5	4	4	1.40	5	36,980
Azerbaijan	8,411	53.8	9.2	3	2	4	4	4	1.85	76	1,240
Bahrain	727	50.4	4.5	3	1	4	4	3	2.26	14	no data
Bangladesh	141,822	64.1	5.7	2	1	3	3	3	2.96	59	470
Belarus	9,755	39.2	18.6	4	3	4	4	4	1.22	15	2,760
Belgium	10,419	34.9	22.4	4	4	4	4	4	1.66	4	35,700
Belize	270	66.4	5.9	2	1	3	3	3	2.82	31	3,500
Benin	8,439	72.1	4.3	1	1	2	2	1	5.42	105	510
Bhutan	2,163	67.5	7.0	1	2	3	3	2	3.84	56	870
Bolivia	9,182	65.2	6.7	2	1	3	3	3	3.50	56	1,010
Bosnia & Herz.	3,907	38.0	19.2	4	2	4	4	4	1.30	14	2,440
Botswana	1,765	70.4	5.1	1	1	2	1	1	2.92	51	5,180
Brazil	186,405	55.5	8.8	3	1	4	3	3	2.25	27	3,460
Brunei	374	58.0	4.7	3	2	3	3	3	2.29	6	no data
Bulgaria	7,726	35.1	22.4	4	3	4	4	4	1.23	13	3,450
Burkina Faso	13,228	75.3	4.2	1	1	1	1	1	6.34	121	400
Burundi	7,548	74.9	4.2	1	1	1	1	1	6.80	106	100
Cambodia	14,071	66.7	5.6	2	1	3	3	3	3.72	95	380
Cameroon	16,322	70.7	5.6	1	1	2	2	2	4.08	94	1,010
Canada	32,268	37.8	17.9	4	3	4	4	4	1.47	5	32,600
Cape Verde	507	70.5	5.5	1	1	3	3	2	3.37	30	1,870
Central African Rep.	4,038	71.7	6.1	1	2	2	1	1	4.58	98	350
Chad	9,749	73.9	4.7	1	2	1	1	1	6.65	116	400
Chile	16,295	49.2	11.6	3	2	4	4	4	1.94	8	5,870
China	1,315,844	45.3	10.9	3	2	4	4	4	1.74	35	1,740
Colombia	45,600	57.7	7.5	3	1	3	3	3	2.47	26	2,290
Comoros	798	71.0	4.3	1	1	2	2	2	4.30	58	640
Congo, Dem. Rep.	57,549	74.6	4.3	1	1	1	1	1	6.70	119	120
Congo, Republic	3,999	74.3	4.5	1	1	1	1	1	6.29	72	950
Costa Rica	4,327	56.5	8.3	3	1	4	4	3	2.10	10	4,590
Cote d'Ivoire	18,154	71.5	5.3	1	1	2	2	2	4.46	118	840
Croatia	4,551	35.7	22.1	4	3	4	4	4	1.35	7	8,060
Cuba	11,269	39.6	15.3	4	2	4	4	4	1.63	6	no data
Cyprus	835	42.8	16.8	4	3	4	4	4	1.60	6	no data
Czech Republic	10,220	36.3	20.0	4	4	4	4	4	1.22	6	10,710

| Country	Total population, 2005 (thousands)[104]	Population ages 0-29 (% of total), 2005[105]	Population ages 60+ (% of total), 2005[106]	Age structure type 2005	Age structure type 1970	Age structure type, 2025 low-fertility variant	Age structure type, 2025 medium-fertility variant	Age structure type, 2025 high-fertility variant	Total fertility rate 2005-2010[107]	Infant mortality rate, 2000-2005 (deaths per 1,000 births)[108]	GNI per capita (US$), 2005[109]
Denmark	5,431	36.1	21.1	4	3	4	4	4	1.76	5	47,390
Djibouti	793	69.5	4.7	1	1	2	2	2	4.50	93	1,020
Dominican Republic	8,895	61.8	6.2	2	1	3	3	3	2.56	35	2,370
Ecuador	13,228	60.1	8.3	3	1	3	3	3	2.58	25	2,630
Egypt	74,033	62.7	7.1	2	1	3	3	3	2.99	37	1,250
El Salvador	6,881	62.8	7.6	2	1	3	3	3	2.68	26	2,450
Equatorial Guinea	504	70.8	6.0	1	2	1	1	1	5.89	102	no data
Eritrea	4,401	73.8	4.0	1	1	2	1	1	5.05	65	220
Estonia	1,330	37.9	21.6	4	4	4	4	4	1.43	10	9,100
Ethiopia	77,431	72.2	4.7	1	1	2	1	1	5.42	100	160
Fiji	848	59.7	6.4	2	1	3	3	3	2.70	22	3,280
Finland	5,249	36.1	21.3	4	3	4	4	4	1.72	4	37,460
France	60,496	37.2	21.1	4	3	4	4	4	1.85	4	34,810
Gabon	1,384	68.4	6.2	1	3	3	2	2	3.53	58	5,010
Gambia	1,517	66.5	6.0	2	1	3	2	2	4.17	77	290
Georgia	4,474	42.6	17.9	4	3	4	4	4	1.39	40	1,350
Germany	82,689	31.8	25.1	4	4	5	4	4	1.34	4	34,580
Ghana	22,113	68.5	5.7	1	1	3	3	2	3.84	62	450
Greece	11,120	34.6	23.0	4	3	4	4	4	1.25	6	19,670
Guatemala	12,599	71.0	6.1	1	1	2	2	2	4.15	39	2,400
Guinea	9,402	70.1	5.6	1	1	2	1	1	5.50	106	370
Guinea-Bissau	1,586	73.3	4.7	1	2	1	1	1	7.07	120	180
Guyana	751	58.4	7.4	3	1	4	4	3	2.11	49	1,010
Haiti	8,528	69.6	6.0	1	2	3	3	2	3.60	62	450
Honduras	7,205	68.5	5.6	1	1	3	3	3	3.31	32	1,190
Hong Kong (China)	7,041	35.1	15.4	4	2	5	4	4	0.96	4	27,670
Hungary	10,098	36.9	20.8	4	4	4	4	4	1.28	8	10,030
Iceland	295	44.1	15.8	4	3	4	4	4	1.93	3	46,320
India	1,103,371	59.2	7.9	3	2	3	3	3	2.76	68	720
Indonesia	222,781	56.4	8.4	3	1	4	3	3	2.20	43	1,280
Iran	69,515	63.7	6.4	2	1	4	3	3	2.04	34	2,770
Iraq	28,807	69.3	4.5	1	1	3	2	2	4.24	94	no data
Ireland	4,148	42.9	15.1	4	3	4	4	4	1.95	5	40,150
Israel	6,725	51.7	13.3	3	3	4	4	3	2.66	5	18,620
Italy	58,093	30.5	25.6	4	3	5	5	4	1.38	5	30,010
Jamaica	2,651	57.3	10.2	3	1	3	3	3	2.31	15	3,400
Japan	128,085	31.8	26.3	4	3	5	5	4	1.37	3	38,980
Jordan	5,703	66.0	5.1	2	1	3	3	3	3.13	23	2,500
Kazakhstan	14,825	51.0	11.3	3	2	4	4	4	1.86	61	2,930
Kenya	34,256	74.0	4.1	1	1	2	2	1	4.96	68	530
Korea, North	22,488	48.1	11.2	3	2	4	4	3	1.93	46	no data
Korea, South	47,817	41.1	13.7	4	1	4	4	4	1.21	4	15,830

Country	Total population, 2005 (thousands)[104]	Population ages 0-29 (% of total), 2005[105]	Population ages 60+ (% of total), 2005[106]	Age structure type 2005	Age structure type 1970	Age structure type, 2025 low-fertility variant	Age structure type, 2025 medium-fertility variant	Age structure type, 2025 high-fertility variant	Total fertility rate 2005-2010[107]	Infant mortality rate, 2000-2005 (deaths per 1,000 births)[108]	GNI per capita (US$), 2005[109]
Kuwait	2,687	51.1	3.1	3	1	4	3	3	2.26	10	no data
Kyrgyz Republic	5,264	60.5	7.6	2	2	3	3	3	2.47	55	440
Lao PDR	5,924	68.9	5.3	1	1	3	2	2	4.28	88	440
Latvia	2,307	37.1	22.5	4	4	4	4	4	1.29	10	6,760
Lebanon	3,577	55.3	10.3	3	2	4	3	3	2.21	22	6,180
Lesotho	1,795	72.2	7.5	1	1	2	1	1	3.27	67	960
Liberia	3,283	74.6	3.6	1	1	1	1	1	6.77	142	130
Libya	5,853	62.3	6.5	2	1	3	3	3	2.72	19	5,530
Lithuania	3,431	38.9	20.7	4	3	4	4	4	1.26	9	7,050
Luxembourg	465	36.4	18.3	4	4	4	4	4	1.74	5	65,630
Macedonia	2,034	43.6	15.5	4	3	4	4	4	1.45	16	2,830
Madagascar	18,606	71.0	4.8	1	1	2	2	1	4.89	79	290
Malawi	12,884	75.0	4.7	1	1	1	1	1	5.67	111	160
Malaysia	25,347	58.6	7.0	3	1	3	3	3	2.62	10	4,960
Maldives	329	70.3	5.1	1	2	3	3	2	3.78	43	2,390
Mali	13,518	75.9	4.2	1	1	1	1	1	6.58	133	380
Malta	402	39.7	18.8	4	3	4	4	4	1.50	7	13,590
Mauritania	3,069	70.0	5.3	1	1	2	2	1	5.45	97	560
Mauritius	1,245	49.4	9.6	3	1	4	4	4	1.94	15	5,260
Mexico	107,029	58.9	7.8	3	1	4	3	3	2.15	21	7,310
Micronesia	110	67.9	4.9	1	1	3	2	2	4.18	38	2,300
Moldova	4,206	45.7	13.7	3	3	4	4	4	1.21	26	880
Mongolia	2,646	62.0	5.7	2	1	3	3	3	2.21	58	690
Morocco	31,478	60.8	6.8	2	1	3	3	3	2.58	38	1,730
Mozambique	19,792	71.8	5.2	1	1	1	1	1	5.11	101	310
Myanmar	50,519	58.3	7.5	3	2	4	3	3	2.08	75	no data
Namibia	2,031	70.1	5.3	1	1	2	2	2	3.47	44	2,990
Nepal	27,133	66.9	5.8	2	1	3	3	2	3.30	64	270
Netherlands	16,299	35.7	19.2	4	3	4	4	4	1.72	5	36,620
New Zealand	4,028	42.2	16.7	4	3	4	4	4	1.95	5	25,960
Nicaragua	5,487	69.7	4.9	1	1	3	3	3	2.94	30	910
Niger	13,957	75.5	3.3	1	1	1	1	1	7.51	153	240
Nigeria	131,530	72.5	4.8	1	1	2	1	1	5.32	114	560
Norway	4,620	37.8	20.0	4	3	4	4	4	1.80	4	59,590
Oman	2,567	65.4	4.2	2	1	3	3	3	3.22	16	no data
Pakistan	157,935	67.4	5.8	1	1	3	3	3	3.73	79	690
Palestinian Terrs.	3,702	72.2	4.5	1	1	2	2	1	5.00	21	no data
Panama	3,232	56.5	8.8	3	1	3	3	3	2.56	21	4,630
Papua New Guinea	5,887	67.8	3.9	1	1	3	3	2	3.60	71	660
Paraguay	6,158	65.7	5.6	2	1	3	3	3	3.54	37	1,280
Peru	27,968	60.2	7.8	2	1	3	3	3	2.66	33	2,610
Philippines	83,054	63.9	6.1	2	1	3	3	3	2.84	28	1,300

Country	Total population, 2005 (thousands)[104]	Population ages 0-29 (% of total), 2005[105]	Population ages 60+ (% of total), 2005[106]	Age structure type 2005	Age structure type 1970	Age structure type, 2025 low-fertility variant	Age structure type, 2025 medium-fertility variant	Age structure type, 2025 high-fertility variant	Total fertility rate 2005-2010[107]	Infant mortality rate, 2000-2005 (deaths per 1,000 births)[108]	GNI per capita (US$), 2005[109]
Poland	38,530	40.9	16.8	4	3	4	4	4	1.24	9	7,110
Portugal	10,495	35.8	22.3	4	3	4	4	4	1.47	6	16,170
Qatar	813	47.6	2.6	3	1	4	3	3	2.79	12	no data
Romania	21,711	39.4	19.3	4	3	4	4	4	1.26	18	3,830
Russia	143,202	39.9	17.1	4	3	4	4	4	1.40	17	4,460
Rwanda	9,038	75.0	3.9	1	1	2	2	1	5.20	116	230
Samoa	185	65.1	6.5	2	1	3	3	3	3.93	26	2,090
Sao Tome & Prin.	157	72.5	5.7	1	1	3	3	2	3.57	82	390
Saudi Arabia	24,573	64.6	4.6	2	1	3	3	3	3.58	23	11,770
Senegal	11,658	71.8	4.9	1	1	2	2	2	4.46	83	710
Serbia & Mont.	10,503	40.8	18.5	4	3	4	4	4	1.58	13	3,280
Sierra Leone	5,525	69.0	5.5	1	2	1	1	1	6.47	165	220
Singapore	4,326	38.3	12.2	4	2	5	4	4	1.30	3	27,490
Slovak Republic	5,401	41.3	16.2	4	3	4	4	4	1.19	8	7,950
Slovenia	1,967	34.8	20.5	4	3	5	4	4	1.21	5	17,350
Solomon Islands	478	70.1	4.2	1	1	3	2	2	3.79	34	590
Somalia	8,228	71.3	4.2	1	1	2	1	1	6.04	126	no data
South Africa	47,432	61.2	6.8	2	1	3	3	3	2.64	43	4,960
Spain	43,064	35.0	21.4	4	3	4	4	4	1.35	5	25,360
Sri Lanka	20,743	50.7	10.7	3	1	4	4	4	1.86	17	1,160
St. Lucia	161	56.9	9.7	3	1	4	3	3	2.18	15	4,800
St. Vincent & Gren.	119	60.2	8.9	3	1	4	3	3	2.16	26	3,590
Sudan	36,233	67.5	5.6	1	1	3	3	2	3.95	72	640
Suriname	449	57.2	9.0	3	1	4	3	3	2.45	26	2,540
Swaziland	1,032	74.6	5.4	1	1	1	1	1	3.48	73	2,280
Sweden	9,041	35.9	23.4	4	4	4	4	4	1.72	3	41,060
Switzerland	7,252	34.2	21.8	4	3	5	4	4	1.40	4	54,930
Syria	19,043	68.8	4.7	1	1	3	3	3	3.08	18	1,380
Tajikistan	6,507	68.7	5.1	1	2	3	3	3	3.35	89	330
Tanzania	38,329	72.1	5.1	1	1	2	2	2	4.45	104	340
Thailand	64,233	49.1	10.5	3	1	4	4	4	1.87	20	2,750
Timor-Leste	947	70.0	5.0	1	1	2	1	1	7.17	94	750
Togo	6,145	72.0	4.9	1	1	2	2	2	4.80	93	350
Tonga	102	64.3	8.8	2	1	3	3	3	3.17	21	2,190
Trinidad & Tobago	1,305	51.1	10.7	3	1	4	4	4	1.61	14	10,440
Tunisia	10,102	56.1	8.6	3	1	4	4	3	1.87	22	2,890
Turkey	73,193	56.6	8.0	3	2	3	3	3	2.31	42	4,710
Turkmenistan	4,833	61.8	6.2	2	2	3	3	3	2.50	78	no data
Uganda	28,816	78.2	3.8	1	1	1	1	1	7.10	81	280
Ukraine	46,481	37.8	20.9	4	3	4	4	4	1.15	16	1,520
UAE	4,496	52.7	1.6	3	2	3	3	3	2.36	9	no data
United Kingdom	59,668	37.2	21.2	4	4	4	4	4	1.66	5	37,600

Country	Total population, 2005 (thousands)[104]	Population ages 0-29 (% of total), 2005[105]	Population ages 60+ (% of total), 2005[106]	Age structure type 2005	Age structure type 1970	Age structure type, 2025 low-fertility variant	Age structure type, 2025 medium-fertility variant	Age structure type, 2025 high-fertility variant	Total fertility rate 2005-2010[107]	Infant mortality rate, 2000-2005 (deaths per 1,000 births)[108]	GNI per capita (US$), 2005[109]
United States	298,213	41.7	16.7	4	3	4	4	4	2.04	7	43,740
Uruguay	3,463	47.0	17.4	3	3	4	4	4	2.21	13	4,360
Uzbekistan	26,593	63.1	6.2	2	2	3	3	3	2.49	58	510
Vanuatu	211	67.5	5.1	1	1	3	3	2	3.69	34	1,600
Venezuela	26,749	59.0	7.6	3	1	3	3	3	2.55	18	4,810
Vietnam	84,238	59.1	7.5	3	2	4	3	3	2.14	30	620
Yemen	20,975	75.0	3.6	1	1	2	1	1	5.65	69	600
Zambia	11,668	75.6	4.6	1	1	1	1	1	5.18	95	490
Zimbabwe	13,010	73.9	5.4	1	1	2	2	1	3.19	62	340

"DEMOGRAPHIC BONUS:" WHEN WORKING-AGE ADULTS MAKE UP THE LARGEST SHARE OF ITS POPULATION, AND THERE ARE RELATIVELY SMALL GROUPS OF DEPENDENT CHILDREN AND OLDER ADULTS COMPARED TO PREVIOUS GENERATIONS.

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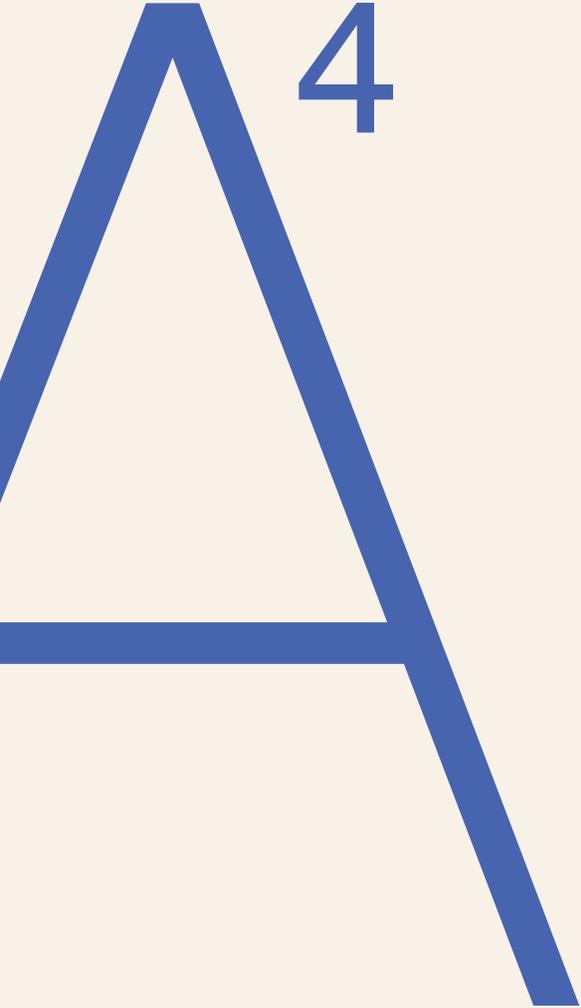
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