Graying of the Global Population

Adele M. Hayutin

Imagine a world with fewer and fewer children and more and more old people, a world with a shrinking workforce and a shrinking total population. Countries with older populations such as Japan and Germany are already experiencing these demographic developments. What may be surprising, though, is that a less extreme version of this picture of aging is already beginning to unfold in most developing countries. Fewer children, slower workforce growth, and a rapidly growing share of older people will soon be the norm in all but the least developed countries.¹

Increased longevity over the last century is a great success story, but the harsh reality is that few, if any, countries can afford to continue their current age-related policies and entitlement programs for the elderly; many policies are inadequate, and others will soon become too expensive. The dramatic changes in age structure already underway will require major policy adjustments to accommodate changing needs and resources. Fortunately, we still have time to address the challenges of global aging and to develop policies that can avert negative consequences—but the sooner, the better.

Global aging, the increasing share of old people throughout the world, reflects the demographic transition from high-fertility, rural agrarian societies to low-fertility, urban industrialized societies. More developed countries have generally completed this transition, while less developed countries are in different stages of transition. As a result, demographic changes are projected to unfold differentially across countries, reflecting variations in their underlying demographics, particularly the timing and pace of their fertility declines and longevity gains.

Three key challenges are associated with global aging: 1) Increasingly fewer workers will support an increasing share of old people. This will place enormous stress on public budgets and will require changes in employment policies and practices as well as changes in international trade and investment. 2) All parts of the world are becoming increasingly urbanized, with urban populations expected to double in developing countries over the next 30 years. This will demand at least a doubling of urban infrastructure, including education, jobs, and housing. 3) The youth bulge, or predominance of young adults, in Africa and the Middle East will further threaten political stability as young, poor economies struggle to provide jobs, education, and housing for growing numbers of young people. The increasing integration of national economies into a global economy makes the economic, social, and political stability of each nation increasingly important to all nations worldwide. Understanding the demographic differences that give rise to these challenges is critical for managing these developments wisely.

As the impacts of population aging are more keenly felt, having an accurate understanding of the demographic characteristics of our trading partners, allies, and adversaries will become increasingly important. Anticipating how demographic shifts affect their culture and their economic and political behavior is critical for everyone’s well-being.

More Old People Everywhere

The world’s population is graying rapidly. Globally, the percentage of people age 65 and older (%65+) is projected to more than double within this half century, increasing from 7% in 2005 to 16% in 2050. The number of old people has already tripled since 1950 and will triple again by 2050, when 1.5 billion people will be 65+. The aging of a population results from declining fertility, which reduces the number of children, and increasing longevity, which increases the number of old people. Population aging is a global phenomenon, but tremendous variation will occur in aging patterns across countries and regions.²
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**Age mix varies by region.** In the more developed countries, the number of old people will increase steadily while the number of children will decline (Figure 1). By 2015, old people will outnumber children as they already do in Japan and Germany. By 2010, the working-age population of developed countries will start shrinking; by 2035, the total population will begin shrinking. In contrast, today’s less developed countries will face large increases in their working-age population, a quadrupling of their old population, and only a slight decrease in their number of children.

**The share of old people will increase sharply.** The pace of aging will accelerate everywhere. In the more developed countries, old people already comprise 15% of the population and will increase to 26% by 2050. Japan and Italy, which currently have the world’s oldest populations—nearly 20% of their populations are 65+—will see steep increases in their proportion of old people, pushing the share to over 30% by 2050. Due to a precipitous drop in fertility following World War II, Japan is among the most rapidly aging countries; by 2050, 38% of its population will be 65+. The United States, with only 12% of its population currently age 65+, is “young” relative to other advanced economies and will remain so despite aging of the baby boom; its proportion of people 65+ will start increasing around 2010 when the first boomers reach 65 but will level off at around 20% after the last boomers turn 65 (Figure 2).

In contrast to the already aging populations in the advanced economies, population aging in the less developed countries is just beginning and will sharply accelerate around 2015, reflecting the impact of fertility declines that occurred in the late 1960s and early 1970s. In the less developed countries, the share of people 65+ will almost triple, from 5.5% in 2005 to 15% in 2050. The successive age waves shown in Figure 2 reflect the successive fertility declines described below. South Korea, one of the most rapidly aging countries, has seen its share of people age 65+ increase from 5% to almost 10% over the last 15 years. With an increase to 35% projected for 2050, South Korea will then replace Italy as the world’s second-oldest population. In many countries, including China and Mexico, the pace of aging accelerates especially sharply after 2015, reflecting steep fertility declines and longevity gains of the late 1960s. China’s population, with its share of people age 65+ increasing from 8% to 20% in just 30 years, will age nearly three times faster than the U.S. population, where the same increase in share of old people occurs over about 85 years.

By 2050, the less developed countries, which will have a 15% share of people 65+, will be as old as the more developed countries are today. The rapid pace of aging in the less developed countries will require them to adjust much faster than has been necessary in more developed countries. Moreover, the sheer size of their populations will make their adjustments even more challenging. The numbers are staggering: populations of people age 65 and older in less developed countries will quadruple from 300 million in 2005 to 1.2 billion by 2050.

**Median age is rapidly increasing.** Median age provides another useful perspective on shifts in age distribution. Globally, median age—the age at which half the population is younger and half is older—is projected to increase from 28 years in 2005 to 38 years by 2050. Many rapidly aging Asian countries face especially steep increases in median age, owing to their early fertility declines. China’s population, with a current median age of 33, is about seven years older than that of other developing countries. South Korea is even older and faces a more accelerated increase in median age. By 2050, median age will have increased 12 years to 45 in China and 20 years to 55 in South Korea. Mexico will also age rapidly, largely due to a projected 30% decline in the population’s number of children over the next 45 years. By 2050, half of Mexico’s population will be over 43, an 18-year increase in median age. Other rapidly aging countries with large projected gains in median age include Iran and Vietnam. In contrast, many “young” countries, such as those in sub-Saharan Africa, will show little increase in median age. The projected median age in 2050 for all less developed countries is 37, up from 26 in 2005.

While less developed countries are projected to gain 11 years in median age by 2050, aging in the older, more developed countries will generally be
more gradual, with an average gain of 7 years. Two
exceptions are Japan, with a projected 12-year gain, and
Spain, with an 11-year gain. Aging in the United States
will be more gradual, with median age increasing only
5 years from today’s 36 years to 41 in 2050.

Demographic Drivers

**Fertility is declining.** The divergent patterns
of growth worldwide stem from large variations in
two key demographic drivers: declining fertility and
increasing longevity. The number of births per woman
worldwide has dropped by about half, from 5.0 in 1955
to 2.7 in 2005. In the industrialized world, the already
low fertility has dropped from 2.8 in 1955 to just 1.6 in
2005, well below the replacement rate of 2.1 births per
woman. In the less developed countries, fertility has
dropped by more than half, from 6.2 in 1950 to 2.9 in
2005, but patterns of fertility decline show significant
variation. China experienced one of the world’s
sharpest declines, with fertility dropping to less than 2.0
in 1995. South Korea’s steep fertility decline began ten
years before China’s and has continued longer, dropping
to 1.2, one of the world’s lowest rates. In contrast,
India’s fertility, currently at 3.1, has been declining
more gradually. In the world’s youngest countries,
however, fertility remains high and has only recently
begun to decline. The timing and pace of countries’
fertility declines will largely determine their pace of
population growth and population aging.

**Longevity is increasing.** Longevity has increased
significantly almost everywhere in the world, with
especially dramatic gains in developing regions. Life
expectancy worldwide increased from 46 years in
1955 to 66 in 2005, with an increase to 75 projects
for 2050. Since 1950, developing countries have
enjoyed a 23-year gain in life expectancy, from 41 to
64, with continued gains to 74 projected for 2050. In
several countries, including China, the increase in life
expectancy was especially sharp during the late 1960s
and early 1970s, while gains in other countries were
more gradual. In the more developed countries, the
already high life expectancy has steadily increased,
reaching 76 in 2005 with 82 projected for 2050. Life
expectancy in Japan, now the world’s highest at 82
years, surpassed the U.S. rate in the late 1960s. There
are several exceptions to this upward trend: the HIV/
AIDS epidemic has reduced life expectancy in many
African countries, and failing health care systems have
reduced life expectancy in Russia and several other
former Soviet republics.

**Population shift toward Asia and Africa will continue.** With developing countries accounting
for 99% of the projected population gains over the
next fifty years, the global population distribution
will continue to shift toward Asia and Africa. World
population increased from 2.5 billion in 1950 to about
6.5 billion in 2005, growing at an average annual
rate of 1.8%. Over the next half century, growth will
slow to less than half that pace, but another 2.7 billion
people will be added, bringing global population to
9.2 billion. Asia will account for half the increase,
with 1.3 billion more people enrolling its population
by one third. Africa will account for more than 40%
of the increase, adding 1.1 billion people and more
than doubling its current population. Latin America’s
population will increase by one third to almost 800
million.

In contrast to these rapidly growing regions,
total population of the more developed regions will
remain largely stable at 1.2 billion over the next half
century, even though population will decline in many
countries. Notably, two of the world’s three largest
economies will see population declines, Japan by 20% (a
loss of 25 million) and Germany by 10% (a loss of
16 million). In contrast, the U.S. population will grow
by a third, with the addition of 100 million. Although
Europe’s overall population is projected to decline by
9%, several countries, including France and the United
Kingdom, will see population gains.

Three Challenges of Global Aging: Why
Aging Matters

Challenge #1: Slower workforce growth may
threaten economic well-being.

The shift in age mix is the first challenge.
Declining fertility rates will eventually reduce the
number of children, which, in turn, will slow the
growth in working-age populations. In countries with
below-replacement fertility, working-age populations
will actually begin to shrink. As populations age,
proportionately fewer workers must support more
retirees: fewer workers will pay taxes to support
public entitlement programs, and fewer workers will
produce the goods and services demanded by the
total population. While increased productivity will
likely offset some of the impact, the potential decline
in economic output associated with changing age mix
threatens the well-being of both the young and old.

Declining number of workers per retiree: The
fiscal implications of declining ratios of workers per
retiree are enormous. Although national policies differ,
for this comparative analysis, working age is defined
as age 15 to 64, and retirement age as 65 and older.
National budgets will feel increasing stress as fewer
and fewer workers fund pension and health care costs
of increasing numbers of retirees. Globally, over the
next 45 years, the ratio of working-age population to retirement-age population will fall from 9 to 4. For more developed countries, the ratio falls from 4 to 2; and for less developed countries, from 12 to 4. The fiscal challenge of a decreasing worker/retiree ratio is particularly burdensome for young but rapidly aging countries facing steep declines in their support ratios. Said to be “getting old before they get rich,” such countries will have to adjust rapidly. As the demographic transition proceeds, the ratio of workers per retiree will continue to fall and the economic challenge will become increasingly daunting. Policy changes stimulating longer working lives and later retirement will be needed to improve the support ratio of workers to retirees.

**Workforce growth will slow almost everywhere and, in some places, workforces will shrink.** Several patterns of working-age population growth are projected (Figure 3). Young, mostly low-income countries, which still have high fertility, are projected to see continued but slowing growth in their working-age populations. For example, India is projected to have a 46% gain in working-age population over the next 25 years but much slower growth of only 9% over the subsequent 20 years. Some countries with moderate workforce growth over the next 25 years will subsequently see workforce growth slow or decline. The United States and United Kingdom will likely see continued growth, while China and Mexico are projected to see absolute declines from 2030 to 2050. Many large economies face declines in their working-age populations; some already have shrinking workforces. Japan, for example, is projected to have a 19% drop in working-age population over the next 25 years, followed by a 24% drop over the subsequent 20 years. Italy’s working-age population will decline by 10% over the next 25 years and by a further 16% from 2030 to 2050. Shrinking labor forces will be the norm throughout Europe with only a few exceptions. Of the large economies, only the United States will see growth in its working-age population.

**Demographic dividend from a labor bulge:** Many young countries with falling fertility will benefit from disproportionate growth in their working-age populations. With fewer children, the working-age population will temporarily grow faster than total population and consequently comprise a growing share of the total population. The boost in economic output stemming from growth in share of working-age population has been called a “demographic dividend.” Recent literature suggests that movement of the labor bulge into peak savings and investment years may create a second and potentially larger demographic dividend. Efforts are underway to estimate the economic impacts of such age mix changes. As countries age, their support ratios will change, so countries may have a limited period to capitalize on their demographic dividends. Moreover, realizing economic dividends depends not just on demographic characteristics but also on salutary economic and social conditions that help countries exploit those dividends. Understanding the differential timing and impacts of the age shifts is critical for developing policies that capitalize on demographic shifts.

**Policy solutions to address workforce declines and improve the worker/retiree ratio:** Increased productivity of existing workers and increased labor supply are two direct means for offsetting the impacts of declining working-age populations. While many changes in labor and regulatory policies have thus far been politically unacceptable in many countries, as the economic consequences of shrinking labor supply become evident, renewed interest in productivity-enhancing policy changes is likely. Similarly, policies to increase labor supply by raising retirement age and increasing labor force participation and hours worked at all ages will become increasingly attractive as economic consequences of workforce shifts are felt. Workplace amenities that could boost labor force participation and total labor supply include improved housing opportunities, transportation, and workplace flexibility that accommodate an aging workforce.

Increased immigration to more developed countries, often suggested as a remedy for declining workforces, is not a likely solution. Current policies and cultural attitudes in many countries make increased immigration politically infeasible, and recent reports...
suggest that to fill worker deficits, immigration rates would have to be implausibly high.

**Challenge #2: Increasing urbanization exacerbates infrastructure demands**

All parts of the world are becoming increasingly urbanized, reflecting the continuing demographic transition from high-fertility agrarian societies to low-fertility industrialized ones. Migration to cities occurs as young workers seek jobs in economic centers and employers seek the competitive advantages typically found in urban locations. The growth and transformation of previously rural areas also increases urbanization.

Half the world's population currently lives in cities, up from just 30% in 1950. Over the next 25 years, cities in developing countries are expected to absorb 95% of the world's total population growth. Thus, by 2030, 4.9 billion, 60% of the world's projected 8.2 billion people, will live in cities, and—even more striking—nearly half, 3.9 billion, will live in cities in developing countries. The poorest areas will see especially high urban growth rates: urban population in the 50 poorest countries will more than double from 200 million to 520 million by 2030, increasing pressure on already weak urban infrastructures.

The implications of urbanization for infrastructure are huge. Providing services for their rapidly growing populations will be an enormous challenge for developing countries and may require new ways to manage population and economic growth, with appropriate incentives for attracting business and residents. With a doubling of their urban population from 2 to 4 billion, the additional pressure to provide education, housing, and jobs will be enormous. The speed of aging and the absolute magnitude of their populations make urbanization in the less developed regions especially challenging. Owing to its increased stress on urban infrastructures, rapid urban growth is a source of instability and social unrest. The current 43% level of urbanization in the less developed countries is projected to increase to 56% by 2030. Africa is the least urbanized region; but with more than 70% of its population growth projected to occur in urban areas, urbanization will increase to 51% by 2030. Urbanization in Asia will increase even faster, as its rural population declines by 5% and more than 100% of its projected total population gain is absorbed in urban areas. Similarly, due to a fall in rural population and gain in urban population, Latin America's already high level of urbanization will increase from 77% in 2005 to 84% by 2030.

The more developed regions are already heavily urbanized, with 74% of their populations in urban areas, many of which already suffer from increased congestion and inadequate and deteriorating infrastructure. The infrastructure demands will increase, and the fiscal burden will fall more heavily on a relatively smaller working-age population. Additional demands will stem from the need to provide aging populations with special services, including health care, senior housing, and transportation. Although the total population of developed regions is expected to remain stable, population migration from rural to urban areas will push the level of urbanization to 81% by 2030. Urbanization in Northern America will increase to 87% as its urban population increases by 80 million and its rural population drops by 11 million. Europe, the only region to see a decline in total population, will nevertheless see increasing urbanization, with its urban population growing by 20 million.

**Challenge #3: The youth bulge heightens risk of political instability**

Although global aging is most often associated with more developed regions, over the next half century, the most youthful countries face a quadrupling of their older populations. At the same time, they face dangerously fast growth in their young working-age populations. The predominance of young adults in these countries has been identified as a source of political instability, given the association of youth predominance with political violence and warfare. Youth predominance, the share of young adults among all adults, is particularly high in Africa and the Middle East where the youth bulge in most countries exceeds 45%. In addition to youth predominance, three other key demographic characteristics are identified by Population Action International as increasing the risk of civil conflict: rapid urban population growth, diminishing per capita supplies of cropland and fresh water, and high rates of death among working adults, largely because of HIV/AIDS. Consequently, the potential for civil unrest is greatest in Africa and the Middle East, currently the most youthful areas.

The still high fertility rates in Africa and parts of the Middle East will result in continued rapid population growth, exacerbating the demographic
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risks of political instability. Although improving the economic and political stability of these volatile regions is vital for well-being in all regions, resources will be stretched. Civil unrest and political violence in these areas will continue to demand worldwide attention and resources at a time when wealthier nations face increased demands from their own aging populations and may be unable to muster sufficient political will to address global issues.

Conclusion: Strategic Demographic Policies Can Help Avert Disaster

Population aging has been accompanied by increased economic integration—evidenced by increasing trade and investment flows—and by a shift in the economic balance of power toward emerging markets. Demographic shifts will continue to alter political, economic, and social conditions in fundamental ways, so it is essential to understand the divergent demographic drivers and their consequences. Population aging is a global phenomenon with global ramifications that requires global solutions. Ongoing debates about immigration, free trade, and outsourcing all point to our increasingly interdependent and competitive economic environment. Differential patterns of aging and population growth will only intensify our interdependencies. Understanding and adapting to divergent and potentially complementary demographics is crucial if we are to avert negative consequences of global aging.

Adele M. Hayutin, PhD, is senior research scholar and director of the Global Aging Program at the Stanford Center on Longevity (SCL).

Endnotes
1. This article builds on two of the author’s previous reports: Stanford Center on Longevity. 2007. “How Population Aging Differs Across Countries: A Briefing on Global Demographics” and Pension Real Estate Quarterly. 2007. “Global Demographic Shifts Create Challenges and Opportunities.”


3. According to the United Nations definitions, Mexico is included in Latin America, not in Northern America.