

How the world's changing demographics may sway the economy

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Our position in brief

If demographics is destiny, then we think it helps shape economic destiny in this way: when a nation has more working-age adults than it does elderly adults, its economy tends to grow at superior rates. We think that in the long term the developed nations of the United States, Australia, and Canada and the developing nations of Argentina, India, and Malaysia may have relatively favorable ratios of workers to the elderly, which augurs well for their economic prospects.

But the world in general is aging fast and, contrary to popular stereotypes, may actually decline in population over the next 60 years. Consequently, the ratios of workers to the elderly are likely to narrow, and the cost of supporting a rapidly growing elderly population may exert enormous pressures on government budgets everywhere. As we see it, the fiscal pressures may be greatest on France, Germany, Italy, Japan, and Spain.

Also, we think demographics will help determine which industries prosper in the years and decades ahead. We think an aging population will be a growth market globally for the health-care industry, the developing nations will be a prime market for infrastructure-related industries, and young people the world over will be a robust market for industries such as consumer electronics, Internet services, apparel, wireless communications, banking, insurance, investment management, and housing.

It's one of the great underreported stories of our time: the rate at which the world's population is growing has actually *slowed* by more than 40% since the late 1960s. What's more, the number of people in the world could actually start to *decline* over the next 60 years, according to the United Nations Population Division. Under this scenario, the world's population, now 6.8 billion, may peak at 9 billion by 2070 and then start to diminish. Long before then, some nations' populations will already be shrinking, as the world's fertility rate

falls below replacement levels, which is 2.1 children per family.

We consider these population trends a social change with potentially profound repercussions for the global economy. These trends are important because, as has often been observed, demographics is destiny. We think that demographics especially influences destiny in this way: when a nation has more working-age adults than it has elderly adults, its economy tends to grow at above-average rates.

Conversely, when a nation has a large number of seniors relative to working-age people, its economy tends to be constrained.

So, contrary to popular stereotypes, the world's biggest demographic problem over the next 40 years is unlikely to be overpopulation, but the opposite: a decreasing (and aging) population, which presents complicated and subtle quandaries of its own. And as the world ages, the economic prospects are likely to be brightest for those nations aging the most slowly.

Age distribution matters

In studies such as *Economic Growth and Demographic Transition*, published by the National Bureau of Economic Research, it's been shown that the way the population of a nation is distributed across different age groups can have a great impact on that nation's economic performance.

For instance, nations with a high proportion of children are likely to devote a high proportion of public and private money to their care, which may gladden the hearts of parents but tends to depress the pace of economic growth. In contrast, if most of a nation's population is of working age, productivity tends to rise, producing what's called a "demographic dividend" of economic growth. If favorable public policies are in place to promote business competitiveness, an ample working-age population can create virtuous circles of wealth for a nation. However, if a large proportion of a nation's population consists of seniors, the effect

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The world will continue growing older over the next 40 years, but the developing nations will age at the slowest rate

Median ages in years

	1950	2010	2050
World	23.9	28.7	37.8
More developed regions	29.0	38.6	45.5
Less developed nations	21.4	25.6	36.6
Least developed nations	19.6	18.9	27.3
Africa	19.0	18.9	27.4
Asia	22.0	27.7	39.9
Europe	29.7	39.0	47.1
Latin America and the Caribbean	20.2	25.9	39.9
North America	29.8	36.3	41.5
Oceania (Australia, New Zealand, New Guinea, Malay Archipelago)	28.0	32.3	40.5

Source: United Nations Population Division

can be similar to that of a nation with lots of children: a large share of public and private resources are allocated to a relatively less productive segment of the population, which in turn tends to dampen economic growth.

For nations, population growth per se is not as important to economic growth as the *ratio* of workers to seniors. In fact, in China and India a *declining rate* of population growth has contributed to their own much-chronicled economic success story of the past 15 years. What helped both China and India was the multitude of workers relative to the number of seniors. When the fertility rate of China and India fell, legions of people born previously were working, and the demographic dividend kicked in: there were fewer children to feed, clothe, and educate, which left more resources for the working adults to use to boost productivity and living standards.

Danger: fewer workers ahead

For a nation, an ample number of workers can be a nearly unqualified economic good -- until the demographic dividend begins to diminish when

fertility drops beneath the replacement rate of 2.1 for a substantial length of time. The result: the number of productive workers eventually drops as well. When that happens, there are proportionately more dependent elderly, since people are living longer than ever. Population aging, once it begins creating more seniors than workers, puts severe strains on government budgets and, most significantly, the potential for economic growth.

Alas, population aging may be the reality for most nations in the decades ahead. The median age of the world's citizens will climb markedly, from 29 today to 38 in 2050, according to the United Nations (*see table, above*). So between now and then, the percentage of the population aged 25-64 -- the pool of working adults -- in the largest nations will decline by these amounts:

- Australia, from 53.6% to 48.1%;
- Canada, from 56.3% to 48%;
- China, from 55% to 51.1%;

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Argentina, Australia, Canada, India, Malaysia, and the U.S. seem to have the best long-term economic potential among developed and developing nations, based on a combination of relatively high ratios of workers to seniors and relatively high population growth

	Ratio of workers to seniors		Population	Projected population growth
	2010	2050	2010	2010-2050
Argentina	2.13	1.36	40.7 million	25%
Australia	2.07	0.97	21.5 million	34
Brazil	3.67	1.22	195.4 million	12
Canada	2.25	0.90	33.9 million	31
China	3.69	1.12	1.4 billion	5
France	1.62	0.78	62.6 million	8
Germany	1.47	0.65	82.1 million	(14)
India	4.13	2.23	1.2 billion	33
Italy	1.51	0.59	60.1 million	(5)
Japan	1.31	0.48	127.0 million	(20)
Malaysia	4.69	1.72	27.9 million	42
Russia	2.58	1.08	140.4 million	(17)
Spain	1.92	0.61	45.3 million	13
United Kingdom	1.68	1.05	61.9 million	17
United States	2.13	1.14	317.6 million	27

Source: United Nations Population Division

- France, from 52.4% to 45.8%;
- Germany, from 54.9% to 45.9%;
- Italy, from 55.6% to 44.2%;
- Japan, from 54.3% to 42.8%;
- Russia, from 57.7% to 50.2%;
- Spain, from 57.5% to 44%;
- the United Kingdom, 52.8% to 49.1%; and
- the United States, from 52.7% to 49.6%.

Four nations graying less

Among the developed nations, the U.S., Canada, Australia, and the U.K. seem destined to have the highest percentage of population of working age

-- a percentage that, believe it or not, should rival that of the biggest economic mover and shaker of recent years, China. The U.S., Canada, Australia, and the U.K. may be graying, but they're graying *less* than most of the developed world. The prospect of a relatively high percentage of U.S., Canadian, Australian, and U.K. workers reflects above-average fertility and immigration rates, which could in turn bode well for the nations' economic vitality.

Here's yet another great underreported story of our time: 40 years hence, the U.S. is likely to have fewer seniors as a percentage of total population than China will. The share of the U.S. population aged 65 and older will be 21.6%, compared with 23.3% for China. As we see it, China's fast-growing demographic of seniors may present the greatest challenge to its ability

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to sustain the superior rates of economic growth of recent years.

Unlike some developing nations, where the median age of the population is relatively young and stable, China is aging fast. That's mainly because China's social programs to rein in population growth over the past 30 years have been effective. The problem is that even with the spectacular economic progress of recent years, China could well be growing old before it grows rich. As a result China may be hard-pressed to absorb the social costs of a rapidly aging population.

On the other hand, some developing nations are in a demographic sweet spot; their economic prospects are brightest because they're aging the most slowly. Among the more prominent developing nations in that category are Argentina, Brazil, India, and Malaysia. They have a big potential demographic dividend from a rising percentage of workers relative to total population. From 2010 to 2050 the percentage of the workforce will expand from 47.8% to 51% in Argentina, from 50.3% to 52.4% in Brazil, from 45% to 55.3% in India, and from 47.4% to 53% in Malaysia, according to the United Nations.

Demographic opportunity knocks

What's more, eight other developing nations are projected to have median ages below 24 in 2050: Afghanistan, Angola, Burundi, the Democratic Republic of the Congo, Guinea-Bissau, Liberia, Niger, and Uganda. They are among the world's poorest countries, but as their workforce grows and matures, they have an extraordinary opportunity to reap a demographic dividend and make great strides in economic growth. They can do that if -- and it's a big if -- they cultivate business-friendly policies, retain their best and brightest young people, reduce political corruption, compete in industries in which they can offer quality or price advantages, and have access to capital and a little bit of luck.

The good news is that developed nations like the U.S., Canada, and Australia and developing nations like Argentina, India, and Malaysia have perhaps the most favorable long-term economic potential, what with their relatively high percentage of workers versus seniors and prospective rates of population growth exceeding 25% (*see table, page 3*). The bad news is that most nations -- both developed *and* developing nations alike -- have rapidly growing numbers of the elderly and thus must cope with enormous potential liabilities on their government balance sheets.

The prospective fiscal burdens are perhaps the most onerous for France, Germany, Italy, Japan, and Spain. Over the next 40 years they may suffer losses in population of 20% and pay social benefits to the elderly that absorb 25% of their national output. Incredibly, their collective population loss could be of a magnitude equivalent to that of medieval Europe during the Great Plague, says one demographer, Hideo Ibe. As their populations and workforce shrink and their contingent of seniors multiplies, the reallocation of resources to the elderly could reduce their economic growth by as much as 33% in the next 30 years versus the previous 30 years, the Organization for Economic Cooperation and Development warns.

Increasingly, over the next three decades, many nations, especially those in Europe, will become, in the words of *The Wall Street Journal*, "veritable old-age homes." Overall, the percentage of the world's population over the age of 60 should double, from 11% today to 22% in 2050.

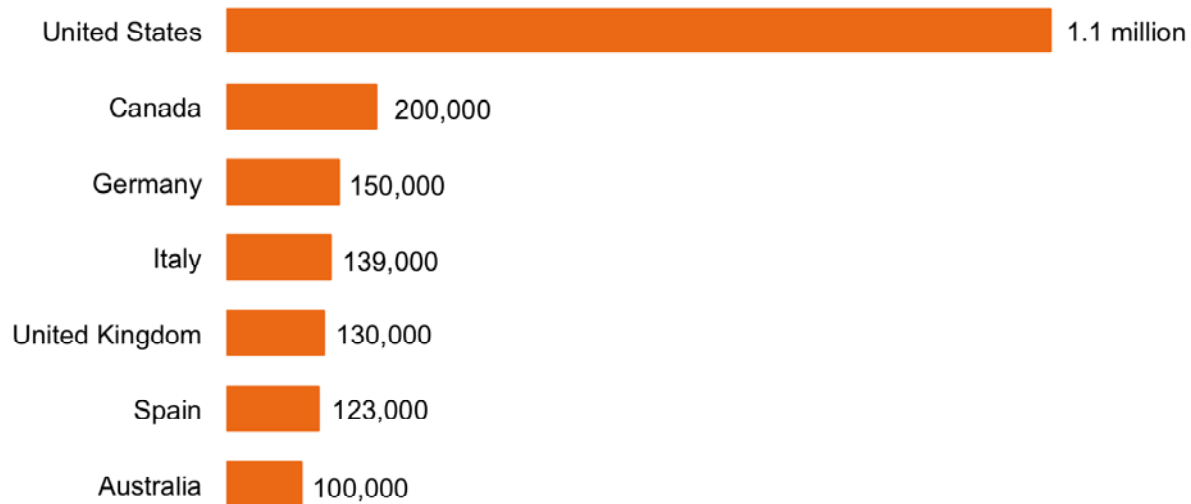
The immigrants are coming

The developed nations can reverse this aging process to some extent by attracting young immigrants. And we think unprecedented waves of immigration may indeed wash over much of the world, especially the U.S. The United Nations estimates that the number of immigrants to developed countries will total 103 million

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The developed nations generally and the U.S. particularly may benefit from a constant infusion of immigrants, who should help offset declining birth rates and enhance economic growth in their new homelands

Annual immigration rates: 2005-2009



Source: United Nations Population Division

from 2005 to 2050, which could at least offset some of the decline in birth rates. During that time, annual immigration rates are expected to reach 1.1 million in the U.S., 200,000 in Canada, 150,000 in Germany, 139,000 in Italy, 130,000 in the United Kingdom, 123,000 in Spain, and 100,000 in Australia (*see chart, above*).

But even if the developed nations fail to attract enough immigrants, all is not lost; their prospects for economic growth still wouldn't necessarily be as bleak as the cold, hard demographic projections might suggest. The developed nations could capitalize on the other key source of economic stimulus: productivity. For instance, in Japan, whose sharply declining population most epitomizes *The Incredible Shrinking World of tomorrow*, productivity growth has averaged 2% annually over the past three decades. (In comparison, U.S. productivity has grown at a 2.3% annual rate since 1961, according to the Bureau of Labor Statistics.) If that pattern continues, says *BusinessWeek*, Japan's output per worker can rise by a

compounded 169% by 2050, and Japan's gross domestic product (GDP) can grow by 72%. We think similar growth in GDP is possible for all developed nations, thanks to the modern loaves-and-fishes miracle of technology-driven productivity gains.

Economic considerations aside, demographics matter in another important respect: they can help determine which industries are likely to prosper. For instance, the biggest growth market worldwide is likely to be seniors, who will engender an increase in all of the maladies that normally accompany old age, such as heart disease, cancer, dementia, lung disease, stroke, and arthritis. That in turn should fuel greater demand for drugs, medical devices, and all manner of health-care services around the globe.

A baby boomlet?

Moreover, not *all* the world will be old, just a greater slice of it. For instance, we think the U.S. is likely to benefit from a rising birth rate when the "echo boomers" -- the children of the

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baby boomers -- start having their own children in sizable numbers at the end of this decade.

As a result, the beneficiaries of this new baby boom, which would eventually expand the workforce and bolster consumer spending, could include industries such as consumer electronics, Internet services, apparel, wireless communications, banking, insurance, investment management, and housing. That's right, we said *housing*. The more than 3 million U.S. homeowners who are currently trying to sell their abodes may find this hard to fathom, but the demand for housing may not stay anemic forever. We think the housing market is likely to grow at a rate at least equal to that of the U.S. population over the next 40 years: 27%.

We foresee a similar phenomenon playing out in China, which, despite its swelling ranks of seniors, will still have plenty of young people -- 359 million between the ages of five and 24 in 2020, as estimated by the United Nations. To put that 359-million figure into a context: in 2020, China's young people will number more than 16 times the entire current population of Australia. As we see it, China's massive young population, just like their contemporaries the world over, should be voracious consumers of digital products and services. We see China as one of the great growth markets for video games, smart phones, and Internet services in particular.

Market not saturated

For instance, our research indicates that 485 out of every 1,000 Chinese own cell phones, which suggests the market is far from saturated. In fact, IE Market Research expects the number of Chinese cell-phone users to increase 18% next year, to 873 million. We think China's market for Internet services could increase at an even more accelerated pace. The fastest-growing online applications in China last year were paying bills, with 80.9% year-over-year growth; booking travel, 77.9%; trading stocks, 67%; and shopping, 45.9%.

Also, in our judgment, if Argentina, India, and Malaysia grow in line with demographic projections, they would need to upgrade their infrastructures, including bridges, highways, water and sewer systems, communications networks, and bus and rail transit, which *The New York Times* characterizes as "the sinews of any economy." For India, Malaysia, and its Asian neighbors alone, more than \$8 trillion in infrastructure projects and \$290 billion in cross-border projects are needed to fortify those economic sinews between 2010 and 2020, a report by the Asian Development Bank estimates. That spending would foster demand in industries such as steel, concrete, heavy equipment, telecommunications, and civil-engineering and construction services.

To our way of thinking, those kinds of demographic-related statistics can be, among other things, a valuable investment tool, a tool of fundamental analysis that we use in managing our stock portfolios. But at the same time we realize that demographic projections are by no means infallible. Demographic trends can change suddenly, illogically, and unpredictably, and demographic analysis can prove as utterly wrong as those intrepid pundits who pick the winners of National Football League games in the fall on the ESPN TV network.

Past forecasts awry

Take the case of the two baby busts and the baby boom that have occurred in the U.S. since the 1920s. Between 1925 and 1935 the U.S. birth rate declined nearly 50%, and the federal Commission on American Population forecast then that the U.S. population would peak in 1945 and start declining. The commission's prediction was utterly dashed by the baby boom beginning in the late 1940s. Then, in the late 1960s and 1970s, the first baby boomers reached adulthood, and a second wave of births was widely expected by demographers. But the opposite actually happened: between 1961 and 1975 the fertility rate *fell* from 3.7 to 1.8. The next big surprise was the spike in births in the late 1980s and early 1990s. In 1990, for

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example, 4.2 million babies were born in the U.S., nearly equaling the all-time peak of 4.3 million births in the U.S. in 1957, during the baby-boom era.

Nobody has yet explained the causes of the baby busts and the baby boom satisfactorily. *The Economist*, which has written extensively on demographics, points out that “we simply do not understand what determines birth rates in modern societies. So demographics will not only be the most important factor in the next society, it will also be the least predictable and controllable one.”

Be that as it may, we believe that demographics can have at the very least some predictive value in discerning how tomorrow's world will be different from today's. The foresight that demographic analysis offers can be especially critical in our business of investing, which boils down to a business of anticipating the future. If nothing else, demographic analysis encourages us to view things through a long lens, to think in increments of 10 years or more; we think there's something to be said for that kind of a perspective in a business where the mentality at times seems to equate the long term with the next three hours.

In all, the world is a complicated, messy, and confounding place, and demographic analysis, although not perfect, can help make sense of how the world is changing -- of how population shifts may affect industries, nations, and the world and vice versa. We think that in light of the important and somewhat unheralded demographic trends now unfolding, the world is getting older much faster than before and, happily, can on balance end up stronger economically for it.

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