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Economic Perspectives on Global Population Aging:
Demography is Not Destiny

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Economic Perspectives on Global Population Aging: Demography is Not Destiny^a

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Global population aging presents unprecedented challenges, including a shifting disease burden, increased expenditure on health and long-term care, labor force shortages, dissaving, and old-age income insecurity. Economies must meet these challenges by changing their institutions and social arrangements to suit the needs of aging populations.

I. Historical and Comparative Facts and Figures

The world's population is aging rapidly, and older adults comprise a larger proportion of the world's people than ever before. As of 2015, an estimated 8.3% of the world's population (more than 600 million people) was age 65 or older and about 1.7% (more than 125 million) was 80 or older. By 2050, these proportions are predicted to increase dramatically, to 15.8% (1.5 billion people) for adults 65 and older and 4.3% (420 million people) for adults 80 and older.¹ Three major factors are driving this transition: decreasing fertility, increasing longevity, and the aging of large population cohorts.

Falling fertility rates are a major determinant of population aging. Thanks to accessible and effective birth control, increased child survival, and cultural changes, birth rates have dropped dramatically in the past century. In 1950, the global total fertility rate (TFR), or average number of children per woman, was about 5; by 2015, that number had dropped by 50%. By 2050, the TFR will have dropped even further, to around 2.20 children per woman. In many countries fertility rates are now well below the long-run replacement rate of just more than two children per woman.

Increased longevity also drives population aging. On average, a child born in 1950 had a life expectancy of 47 years, while an adult who survived to 65 could expect to live another 11 years. By 2015, however, life expectancy at birth had increased to 72 years, and life expectancy at 65 had increased to 17 years. Recent increases in longevity have largely resulted from falling rates of tobacco consumption and improvements in quality of and access to medical care.² By 2050, life expectancy at birth is expected to rise to nearly 77 years, while life expectancy at age 65 will increase to 19 years.

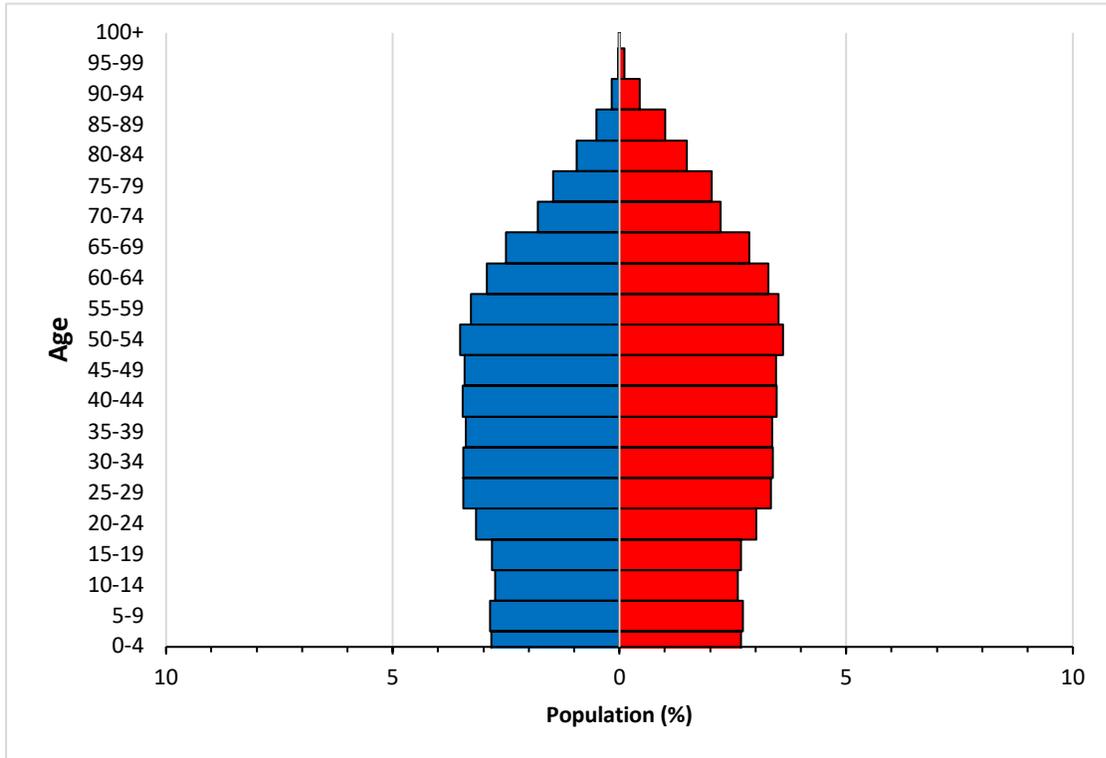
Meanwhile, large population cohorts, such as the United States' post-war baby boom generation, are moving through middle age and older adulthood. Figure 1 shows this movement, depicting the population of more developed countries broken down by sex and age group. Males are on the left side of the pyramid, and females are on the right. The shifting shape of the population pyramid between 2010 and 2050 illustrates the baby boom cohort's movement from middle into older ages.

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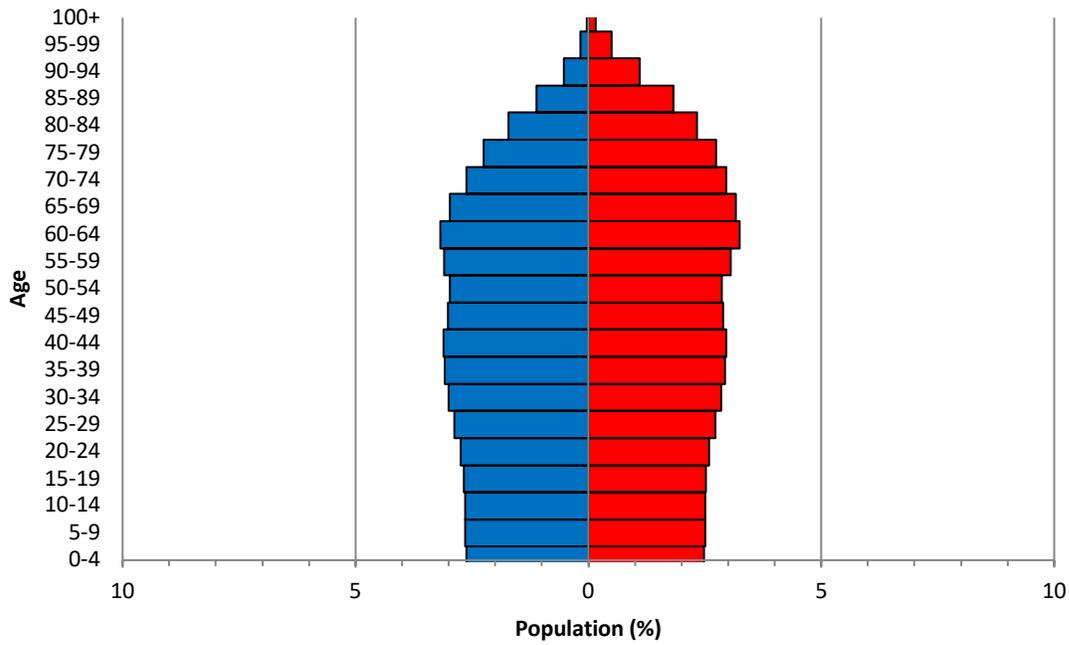
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Figure 1. Population pyramids for more developed countries, 2010 and 2050¹

2010



2050



Combined, decreasing fertility, increasing longevity, and the aging of large birth cohorts drive up the percentage of older adults as a share of the global population. In 1950, only 5% of the world's population was 65 years or older; this number increased to 8% by 2015. Over the next several decades, this proportion is expected to rise dramatically, reaching a projected 16% by 2050. The change is even more dramatic for the share of the world's population aged 80 years or older. This proportion climbed from just 0.6% in 1950 to 1.7% in 2015 and is projected to comprise 4.3% of the global population by 2050.

While nearly every country's population is aging rapidly, considerable variation exists at region, country, and income levels. The aging of large population cohorts primarily drives population aging in higher-income countries, while declines in fertility, which vary widely across the globe, primarily drive population aging in lower-income countries.³ At the low end of the fertility range are the more developed countries of Europe and East Asia, with Moldova and Taiwan nearly tied for the lowest TFR with 1.22 and 1.23 children per woman, respectively. Meanwhile, Sub-Saharan Africa has a TFR of 4.75, with the highest country-level fertility rates found in the Democratic Republic of the Congo (5.96), Somalia (6.12), and Niger (7.15). Japan leads in longevity, with a current life expectancy at birth of nearly 84 years, starkly contrasting Sierra Leone, which currently has the world's lowest life expectancy at birth of about 52 years.

Figure 2 compares aging in the world's most and least population-aged countries at present (estimates from 2015) and projected into the future (2050). The 2050 figures are based on a medium fertility projection, which assumes that fertility in all major areas will stabilize at replacement level (slightly more than two children per woman). This comparison reveals stark country-level differences in age profiles. For example, 26% of Japan's population is currently aged 65 years and older, while the corresponding figure for the United Arab Emirates, with their large expatriate worker population, is just 1%. These rankings are projected to shift in the next several decades, with the most population-aged countries approaching 40% of their total populations 65 and over in 2050 (for example, Spain, currently the thirteenth most population-aged country with 18.9% aged 65 and older and 6% aged 80 and over, will trail just behind Japan at 36.3% of the total population aged 65 and over and 14.1% aged 80 and over).

Figure 2. Most and least population-aged countries, 2015 and 2050

2015, actual population percentages

Country	Percent of population aged 65+	Percent of population aged 80+
Top 5		
Japan	26.0	7.6
Italy	22.4	6.7
Germany	21.1	5.7
Portugal	20.7	5.8
Finland	20.3	5.1
Bottom 5		
Gambia	2.3	0.2
Uganda	2.2	0.3
Kuwait	2.1	0.2
Qatar	1.1	0.1
United Arab Emirates	1.0	0.1

2050, projected population percentages (medium fertility model)

Country	Percent of population aged 65+	Percent of population aged 80+
Top 5		
Japan	36.4	15.0
Spain	36.3	14.1
Portugal	35.6	13.5
Greece	35.5	13.0
Republic of Korea	35.3	14.3
Bottom 5		
Uganda	3.7	0.5
Mali	3.6	0.3
Chad	3.5	0.4
Somalia	3.3	0.4
Niger	2.6	0.3

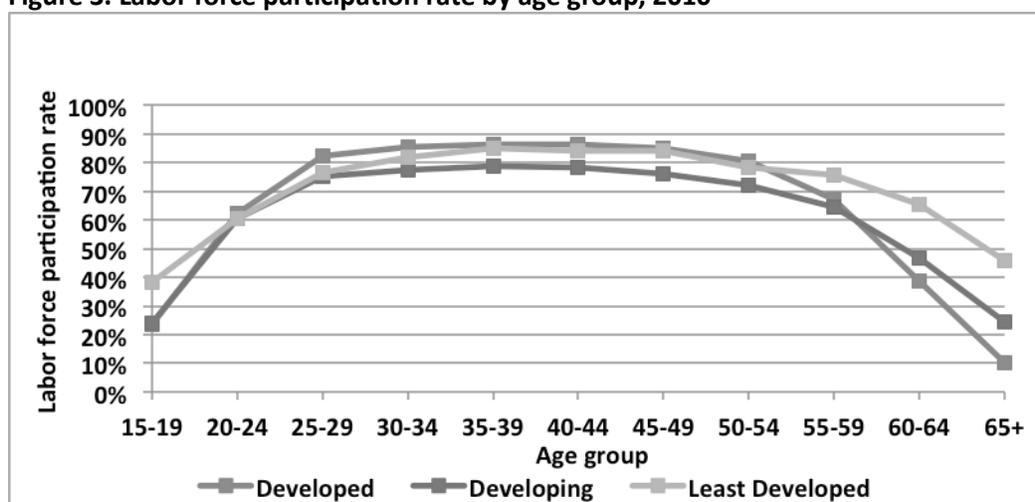
II. Challenges of Population Aging

At all country-income levels, several health and economic growth challenges accompany rapid population aging. Nations with swiftly aging populations may find themselves with a growing disease burden; nearly one quarter of the world's disease burden is attributable to illness in adults aged 60 and over. The majority (nearly 70%) of this older-adult disease burden is due to noncommunicable diseases (NCDs), such as heart disease, cancer, chronic respiratory disease, musculoskeletal conditions, and mental and cognitive disorders.⁴ Complicating the concerns posed by NCDs is the issue of multimorbidity, which affects most older adults with NCDs.⁵

The growing NCD burden could also slow economic growth. Treatment and care for people with NCDs weigh heavily on government expenditures and household wealth, resulting in decreased investment. Where losses are quantifiable, the projected economic cost of NCDs is staggering, particularly in low-

and middle-income countries. For example, India stands to lose US\$4.58 trillion and China US\$23.03 trillion due to NCDs in the period between 2012 and 2030.⁶ On an individual level, NCDs prevent people from working as long and productively as they otherwise might, which is reflected in decreased labor participation rates at older ages (see Figure 3).

Figure 3. Labor force participation rate by age group, 2010⁷



Another economic challenge population aging presents is decreased labor supply. In many countries, labor force participation falls off drastically at older ages (see Figure 3). As a result, population aging may slow economic growth, reduce asset values, and strain existing pension and health care systems. In the United States, labor force participation rates for both sexes peak between the ages of 40 and 44—in 2010, the rate for this group was 82.3%. From there, rates drop gradually with age, until falling precipitously from 72% for 55–59 year olds to 55% for 60–64 year olds (after age 65, labor force participation rates are generally no longer available in five-year bands).⁸ Similar drops occur in less developed countries. In India, the participation rate of the 60–64 age group is nearly 50%, a dramatic drop from the 64% participation rate of those aged 55–59.

The elderly’s low labor force participation means that personal savings, government pensions, or family transfers finance their consumption. Pensions or informal child-parent transfers may become unsustainable as the ratio of elderly to working-age population increases. This can be avoided if people save real assets for retirement, but many government pension systems promise pensions based on future tax receipts, rather than accumulating real resources. Meanwhile, large transfers in the form of publicly provided access to health care must be funded through taxes on younger workers. Population aging may result in economies having to pay the “demographic dividend” back in the form of reduced labor supply, increased spending on health and long-term care, and capital de-accumulation as the elderly seek resources to finance their consumption in retirement. Increased social protection expenditures may also burden economies. Indeed, public pension expenditure as a share of gross domestic product (GDP) is projected to rise steeply in the coming decades due to population aging and to earlier changes in pension coverage and benefit rates.⁹

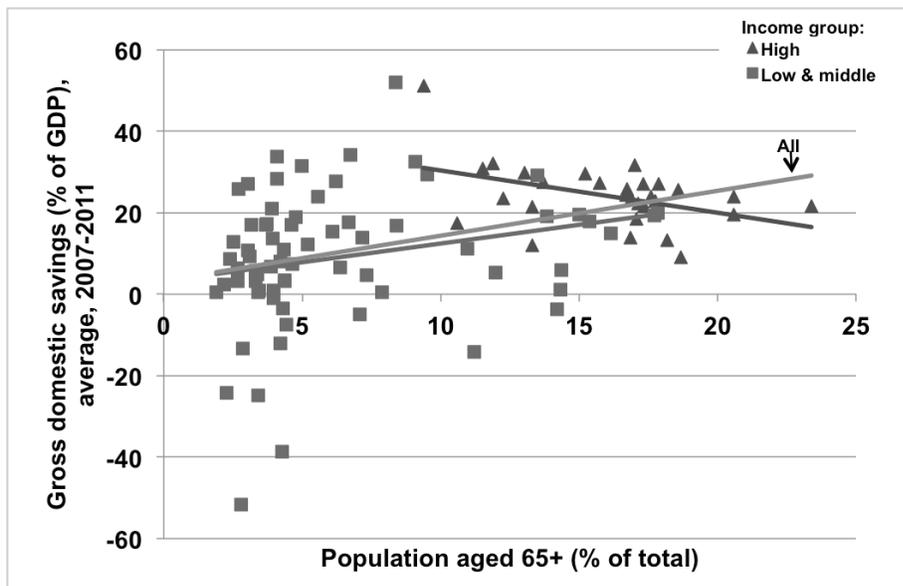
III. Solutions to the Challenges of Population Aging

Accompanying demographic developments may offset these problems. For example, one challenge population aging poses is an altered age-dependency ratio, the ratio of working-age individuals (ages

15–64) to young children and older adults in a population. However, in many economies a reduced youth dependency ratio will offset the increased elderly dependency. The elderly dependency ratio in the United States, for example, grew from 17 adults aged 65 and older per 100 working-aged adults in 1980 (17:100) to a ratio of 21:100 in 2013. In the same time period, the ratio of children under age 15 to working-age adults decreased from 34:100 to 29:100.¹⁰ Between 1980 and the present, the United States’ overall age dependency ratio has remained relatively constant, going from 51% to 50%.¹¹ With a lower youth dependency burden, investment can be redirected from social spending on children to investment in physical capital, research and development, and infrastructure, all classic drivers of economic growth.

Individuals may also respond to population aging through behavioral changes, such as increased saving, higher educational investment in anticipation of longer lives, and increased labor force participation from women and the elderly. The typical “working lifespan” between the ages of 15 and 59 is the prime period for saving, and people may respond to population aging during this period. Greater longevity leads to longer retirements, and increased incentives to save during working years in anticipation of retirement; in turn, savings translates into investment, which fuels the accumulation of physical and human capital and technological progress. Some evidence indicates that people in some—though not all—aging societies have already adjusted to this reality. Figure 4 shows that while, in aggregate, savings as a percentage of GDP rises along with the share of a countries’ population aged 65 years or older, the reverse trend is true among high income countries, implying that more robust policy responses may be necessary to further incentivize saving, particularly once population aging progresses past a certain threshold.

Figure 4. Savings by age in developed and developing countries¹⁷



Individuals and households may also respond to population aging through increased investment in human capital, such as education and training. Even as an older population can reduce the workforce, investment in education can make this workforce more effective. Lower fertility leads to fewer children per family, and these children are typically healthier and better educated. A workforce with higher human capital has the potential to realize increased productivity, wages, and standards of living.¹² Other

human capital investments in health will also lead to more productive working adults, offsetting the reduction in the labor force.

While reduced fertility rates have shrunk the workforce in some countries, lower fertility has also facilitated greater labor force participation by women. In that sense, lower fertility is tantamount to an increase in the effective labor force. This will further offset population aging's negative effect on workforce numbers. Older people may also choose to work beyond the statutory retirement age, further mitigating this effect. In the United States, labor force participation rates of older individuals have been increasing for the past two decades, especially among those with higher levels of schooling.¹³

People naturally respond to longer and healthier lifespans by planning on longer working lives. However, public policy has been sluggish in adapting to new demographic realities, as most of the world's social security systems create strong incentives for retirement between the ages of 60 and 65. For example, while male life expectancy in 23 European countries increased by an average of seven years between 1965 and 2005, the mean legal retirement age did not change during that time.¹⁴ Since then, several countries have adjusted their pension systems to account for longer life expectancies and working lifespans. For example, France, Ireland, Greece, Sweden, and the United Kingdom have all raised the normal legal retirement age or increased incentives to delay retirement, while in Norway, new cohorts of older people will receive a pension calculated as the accumulated entitlement divided by a life expectancy indicator so that annual pension will decrease as life expectancy increases.¹⁵ In addition, some countries are moving toward fully funded systems where contributions are saved in real assets that generate future pension income, rather than using current contributions of the young to finance current pension receipts of the old. Countries could also encourage and complement behavioral shifts by making investments in schooling that will enlarge the effective labor force, or by emphasizing healthy living and disease prevention throughout life.¹⁶

Health system reform may also mitigate the negative effects of population aging. In 2002, the United Nations' Madrid International Plan of Action on Ageing called on governments to recognize "the growing needs of an ageing population" by way of new policies geared toward the health of older adults.¹⁶ In developing countries, especially those where family and social structures are undergoing rapid transformations, a great need exists for basic packages of cost-effective health services for older people, which realign primary health care programs to match changing demographic and epidemiological patterns.¹⁷ Opportunities also exist to reform health care financing mechanisms to ensure greater fairness and sustainability, while promoting risk pooling and increasing efficiency. This has the potential to reduce the fiscal pressures associated with an older population and will improve the lives of individual older people by providing access to more and better services. In more developed countries, a greater concern is securing coverage for the costs and services associated with long-term care. Governments could consider reducing reliance on costly institutional care by promoting self-care, in-home caretaker training, and other services that would enable older people to remain in their own homes.

On a larger scale, international migration has the potential to ameliorate the economic effects of population aging. The bottom-heavy population pyramids of Africa and the top-heavy pyramids of Europe fit together hand in glove. However, integrating the two over the next 25 years would require immigrant flows from Africa to Europe that are more than 10 times higher than current levels.¹⁸ This appears unlikely given that many countries have recently instituted additional barriers to immigration, largely in response to anti-immigrant sentiments among their populations. Easing these restrictions has

the potential to meet both the employment demands of young workers from developing countries and the care needs of older people in developed countries.

Finally, workforce automation and digitalization represents a wildcard in the mix of factors that will determine how population aging will affect global economic growth in the years to come. Stagnating labor force growth may prompt greater investment in automation and digitalization technologies; however, the supply of these technologies may end up quickly outstripping the demand created by a smaller workforce, resulting in the displacement of many workers and the suppression of wages for others, particularly those in the manufacturing and industrial sectors in high-income countries.^{19,20} Depending upon the pace and extent of automation and digitalization in the workforce, spurred on in part by population aging, the global economy may experience increased volatility and inequality over the next two to three decades, and businesses and governments would do well to increase the resiliency of their institutions in order to absorb any coming shocks.^{21,22}

IV. The Bottom Line on Population Aging

Counteracting the potential negative consequences of population aging will involve behavioral and policy changes. These may include increased rates of savings during the working years; increased labor supply from women, older people, and immigrants; increased retirement ages; and other adjustments. The interventions chosen will determine how costs are divided among current and future generations of older people. Countries can ensure a smoother transition to an older population by initiating policy and institutional reforms sooner rather than later. Individuals, businesses, and governments can adapt in the face of change, and many solutions are within reach. The bottom line is that demography is not destiny.

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