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The Long, Good Life

Demographics and Economic Well-Being

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THE LONG, GOOD LIFE

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Demographics and Destiny

WHEN I VISIT my home country, India, I am always struck by how young it looks. From the big cities to the tiny villages, one can see the hopes and aspirations of twenty-somethings, many in search of work. In Japan, demographic trends have been moving in the opposite direction. Homes sit vacant, and villages are vanishing, as people have fewer children. In response, the Japanese are embracing technology to fill the gaps through innovations like robot chefs and automated medical services.

Changes in the size and structure of a nation's population affect how we work, age, and live. In many advanced and emerging market economies, a shrinking pool of working-age people will have to support a growing number of retirees. Other countries—in Africa and elsewhere—will need to generate a staggering number of new jobs just to keep pace with the youth joining the job market.

Changing age dynamics have profound implications for growth, social stability, and geopolitics. They influence how people save, spend, and invest, with consequences for everything from marriage to retirement to migration.

This issue brings together leading thinkers in their fields to explore the many facets of population trends and consider what they mean for our future.

David Bloom focuses on the main drivers of demographic transitions, including life expectancy, fertility, and migration. Vitor Gaspar and coauthors look at the fiscal sustainability of health and pension financing. Other contributors highlight novel approaches, the role of incentives, and tried-and-tested policy solutions, such as using technology to boost productivity, raising the retirement age, opening up to immigration, and increasing women and older workers' labor force participation.

Demographics can shape a country's destiny. But policy choices matter, from encouraging technological innovation and institutional reform to investing in people, both young and old. With wise policies, more of us will enjoy the long, good life. FD

GITA BHATT, editor-in-chief

ON THE COVER

Our March 2020 issue focuses on demographic shifts taking place globally and how the right policies can help people live longer, happier, and more productive lives. Illustrator Davide Bonazzi's cover is a whimsical depiction of the path to a long, good life.

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POPULATION 2020

Demographics can be a potent driver of the pace and process of economic development

David E. Bloom

"Demography is destiny" is an oft-cited phrase that suggests the size, growth, and structure of a nation's population determines its long-term social, economic, and political fabric. The phrase highlights the role of demographics in shaping many complex challenges and opportunities societies face, including several pertinent to economic growth and development.

Nevertheless, it is an overstatement to say that demography determines all, as it downplays the fact that both demographic trajectories and their development implications are responsive to economic incentives; to policy and institutional reforms; and to changes in technology, cultural norms, and behavior.

The world is undergoing a major demographic upheaval with three key components: population growth, changes in fertility and mortality, and associated changes in population age structure.

Population growth

It took more than 50,000 years for world population to reach 1 billion people. Since 1960, we have added successive billions every one to two decades. The world population was 3 billion in 1960; it reached 6 billion around 2000, and the United Nations projects it will surpass 9 billion by 2037. The population growth rate has been slowing, however, from peak annual rates in excess of 2 percent in the late 1960s, to about 1 percent currently, to half that by 2050.

Although global income per capita more than doubled, life expectancy increased by 16 years, and primary school enrollment became nearly universal among children during 1960–2000, rapid population growth poses myriad challenges that are both privately and publicly daunting. These challenges include the need for more food, clothing, housing, education, and infrastructure; the absorption of sizable numbers into productive employment; and more strenuous environmental protection. Although the explosive nature of global population growth is abating in relative terms, decade-on-decade increases remain sizable and are taking place from ever more populated starting points.

Earlier concerns about a global population explosion have, to some extent, yielded to concerns about rapid population growth in particular countries and regions (see "Coming of Age" in this issue of *F&D*). Indeed, the overall slowdown in the rate of world population growth masks significant shifts in the distribution of world population by development status and geographic region.

Countries the United Nations classifies as less developed encompassed 68 percent of world population in 1950; today they represent 84 percent. That share will continue to rise, because virtually all of the nearly 2 billion net additions to world population projected over the next three decades will occur in less developed regions. This is a major concern, because less developed regions tend to be more fragile—politically, socially, economically, and ecologically—than their more developed counterparts.

With 1.44 billion people, China currently has the largest national population in the world, followed by India, with 1.38 billion. But by the end of this decade, India will be the most populous country, with a projected 1.50 billion people, compared with China's peak population of 1.46 billion. Between 2020 and 2050, Nigeria (projected to overtake the United States to become the world's third-most-populous nation) and Pakistan—already among the 10 most populous—will surge forward. Asia will continue to be home to a dominant but declining share of the world's population (60 percent today and 54 percent in 2050).

Finally, notwithstanding continued global population growth, in 61 countries and territories that are currently home to 29 percent of the world's people, population growth in 2020–50 is projected to be negative, with the sharpest decline (–23 percent) projected for Bulgaria (see "Eastern Europe's Exodus" in this issue of *F&D*).

Mortality, fertility, and migration

Population size and growth reflect the underlying forces of mortality, fertility, and international migration. These forces vary considerably across countries and can help account for key differences in economic activity and performance, such as physical capital, labor, and human capital accumulation; economic well-being and growth; and poverty and inequality.

These forces generally respond to economic shocks; they may also respond to political developments such as the beginning and ending of wars and governance crises. In many developing economies, population growth has been associated with a phenomenon known as the "demographic transition"—the movement from high to low death rates followed by a corresponding movement in birth rates.

For most of human history, the average person lived about 30 years. But between 1950 and 2020, life expectancy increased from 46 to 73 years, and

In the coming decades, demographics will be more favorable to economic well-being in the less developed regions than in the more developed regions.

it is projected to increase by another four years by 2050. Moreover, by 2050, life expectancy is projected to exceed 80 years in at least 91 countries and territories that will then be home to 39 percent of the world's population. Increased longevity is a colossal human achievement that reflects improvements in survival prospects throughout the life cycle, but especially among infants and children.

Cross-country convergence in life expectancy continues to be strong. For example, the life expectancy gap between Africa and North America was 32 years in 1950 and 24 years in 2000; it is 16 years today. Historic and anticipated reductions in cross-country health disparities reflect gains in income and nutrition among low- and middle-income countries, the diffusion of innovations in health technologies and institutions, and the distribution of international aid.

In the 1950s and 1960s, the average woman had roughly five children over the course of her childbearing years. Today, the average woman has somewhat fewer than 2.5 children. This presumably reflects the growing cost of child-rearing (including opportunity cost, as reflected mainly in women's wages), increased access to effective contraception, and perhaps also growing income insecurity.

The social and economic implications of this fertility decline are hard to overstate. Among other things, lower fertility has helped relieve many women of the burden of childbearing and child-rearing. It has also contributed to the empowerment of women in their households, communities, and societies and has allowed them to participate more actively in paid labor markets. All these factors reinforce the preference for low fertility.

Between 1970 and 2020, the fertility rate declined in every country in the world. Fertility tended to decrease more in countries with high initial fertility, another facet of demographic convergence. Among geographic regions, Africa and Europe are currently homes to the highest (4.3) and lowest (1.6) fertility rates, respectively.

If the population's age structure is sufficiently weighted toward those in prime childbearing years, even a fertility rate of 2.1 can translate into positive population growth in the short and medium term, because low fertility per woman is more than offset by the number of women having children. This feature of population dynamics is known as population momentum and helps explain (along with migration) why the populations of 69 countries and territories are currently growing even though their fertility rates are below 2.1.

Cross-country migration is also relevant to population growth. The effects are quite important in some countries, such as Guyana, Samoa, and Tonga, where net emigration in the past 30 years has been appreciable. Bahrain, Qatar, and the United Arab Emirates have had the highest rates of net immigration. Among the world's 10 population super powers, migrants have the largest relative presence in the United States (15 percent in 2019). For most countries, though, international migration has not been a dominant demographic force, because more than 96 percent of the world's population currently live in their countries of birth (see "Immigrant Swan Song" in this issue of *F&D*).

Age structure dynamics

The age structure of a population reflects mainly its fertility and mortality history. In high-mortality populations, improved survival tends to occur disproportionately among children. This effectively creates a baby boom. Eventually, the boom ends when fertility abates in response to perceptions of improved child survival and as desired fertility declines with economic development. But as the relatively large baby-boom cohorts proceed through adolescence and into their adult years, the population share at the peak ages for work and saving swells.

This enhances the productive capacity of the economy on a per capita basis and opens a window of opportunity for rapid income growth and poverty reduction. Events of the past decade, ranging from the Arab uprisings to more recent mass protests in Chile and Sudan, also show that countries that fail to generate sufficient jobs for large cohorts of young adults are prone to social, political, and economic instability.

The "demographic dividend" refers to the process through which a changing age structure can

spur economic growth. It depends, of course, on several complex factors, including the nature and pace of demographic change, the operation of labor and capital markets, macroeconomic management and trade policies, governance, and human capital accumulation. Nonetheless, the demographic dividend model can account for much variation in past economic performance among different countries and regions (e.g., East Asia vs. Latin America vs. sub-Saharan Africa) and helps identify more- and less-promising country settings for future economic growth. For example, from 2020 to 2030, Nepal, Jordan, Bhutan, and Eswatini are projected to experience the largest gains among countries in the ratios of their working-age to non-working-age populations.

The dependency ratio—the inverse of the working age to non-working-age ratio—measures the economic pressure working-age individuals face to support, in addition to themselves, those who are not of working age. In 1990, the ratio in more developed regions was appreciably lower than in less developed regions (0.68 versus 1.04).

But by 2020, as a result of different patterns of fertility decline and population aging, the ratio had increased to 0.70 in more developed regions and decreased to 0.75 in less developed regions. And by 2050, the dependency ratio is projected to be greater in more developed regions (0.89) than in those that are less developed (0.77). This switch suggests that in the coming decades, demographics will be more favorable to economic well-being in less developed regions than in more developed regions. This will be especially true in Africa, the only region in which this ratio is projected to decline by 2050.

For countries that have yet to experience appreciable demographic transitions (like Chad, the Central African Republic, Somalia, and Sierra Leone), policies are appropriately oriented toward catalyzing those transitions. Such policies include investment that promotes infant and child survival, such as expanded vaccine coverage as well as wider access to well-provisioned and appropriately staffed primary health care systems.

For populations that have experienced health and survival gains, countries could benefit from policies to enable a decline in fertility, such as promoting girls' education and access to reproductive health and family planning services.

And countries with relatively sizable portions of the population concentrated in the high-work and high-savings part of the life cycle need policies to realize the potential benefits of favorable demographics. Such policies include support for the operation of competitive labor and capital markets, equipping workers with human capital, building infrastructure, sound macroeconomic management, carefully designed trade policies, and good governance. Such policies are always desirable, but a large working-age population share raises the stakes.

In some countries, making investments in these various sets of policies could be challenging, as per capita income is currently lower in real terms than it was in some of today's advanced economies when they were at a comparable demographic stage.

Global graying

Population aging is the dominant demographic trend of the twenty-first century—a reflection of increasing longevity, declining fertility, and the progression of large cohorts to older ages. Never before have such large numbers of people reached ages 65+ (the conventional old-age threshold). We expect to add 1 billion older individuals in the next three to four decades, atop the more than 700 million older people we have today. Among the older population, the group aged 85+ is growing especially fast and is projected to surpass half a billion in the next 80 years. This trend is significant because the needs and capacities of the 85+ crowd tend to differ significantly from those of 65-to-84-year-olds.

Although every country in the world will experience population aging, differences in the progression of this phenomenon will be considerable. Japan is currently the world leader, with 28 percent of its population 65 and over, triple the world average. By 2050, 29 countries and territories will have larger elder shares than Japan has today. In fact, the Republic of Korea's elder share will eventually overtake Japan's, reaching the historically unprecedented level of 38.1 percent. Japan's median age (48.4) is also currently the highest of any country and more than twice that of Africa (19.7). But by 2050, Korea (median age 56.5 in 2050) is also expected to overtake Japan on that metric (54.7).

Three decades ago, the world was populated by more than three times as many adolescents and young adults (15- to 24-year-olds) as older people. Three decades from now, those age groups will be roughly on par.

By income group, the sharpest growth in the numbers of older people will occur in countries currently

Among the older population, the group aged 85+ is growing especially fast and is projected to surpass half a billion in the next 80 years.

classified as middle income. This is unsurprising, as these countries make up 74 percent of the world population. What may be surprising is that the older-population share in middle-income countries is increasing at a much faster rate than in their low- and high-income counterparts. Moreover, in comparison with high-income countries, today's middle-income countries are projected to have appreciably greater real incomes when their older-population shares reach comparably elevated levels. This contradicts the common claim that developing economies are getting old before they get rich.

The challenge middle-income countries face is not predominantly insufficient income to take care of their older people. Rather, it is how well institutions and policies can promote economic and social security among older people in a financially sustainable way.

Population aging is sounding alarms worldwide. Whether increased longevity is associated with more or less of a person's life lived in frailty is among the most salient unresolved questions public and private policymakers throughout the world face (see "The Long, Good Life" in this issue of *F&D*).

Economists continue to express concerns. These relate to downward pressure on economic growth due to labor and capital shortages and falling asset prices in the future as a growing and more aged cohort of older people seeks to support itself by liquidating investments. Another major issue has to do with fiscal stress. Government coffers will be strained by rising pension liabilities and the cost of health and long-term care associated with the expected growth in the incidence and prevalence of chronic diseases such as cancer, among others. These challenges will, however, be partially offset by the increasing, but typically neglected, value older people create through productive nonmarket activities like volunteer work and caregiving.

Without historical lessons from a world with such large numbers of older people, there is even more uncertainty about our collective future. However, adopting a business-as-usual approach to the challenges of population aging would be irresponsible.

Various responses could cushion the economic burden of population aging. These include policy reforms to promote the financial sustainability and intergenerational equity of health and pension financing. Raising the legal age of retirement, which has been relatively stable in nearly all countries for the past several decades (see "Getting Older but Not Poorer" in this issue of *F&D*) would also ease the burden. Pronatalist tax incentives are also a policy option for the long term, but their effect on fertility is thus far unproven.

Additional approaches include efforts to increase health systems' emphasis on early detection and on prevention of disease through, for example, better awareness of the benefits of physical activity and subsidization of such activity. Relaxing the institutional and economic barriers to international immigration from regions with relatively large working-age populations could alleviate labor shortages.

Finally, technological innovations are likely to ameliorate the effects of population aging. New drugs to slow the process of aging and add healthy years to people's lives and the invention and deployment of assistive devices such as robots are two among many such improvements. Institutional innovations like new models of home health care, public transportation systems, the design of urban layouts, and financial instruments are also on the horizon.

The bottom line

Global, regional, and country demographic indicators have changed dramatically since the early 1950s and are poised for equally dramatic changes in the coming decades. Population aging continues to displace population growth as the focal point of interest among global demographic phenomena. Nonetheless, both phenomena and their underlying drivers have had, and will continue to have, profound repercussions for myriad indicators and determinants of economic well-being and progress. Demographics are not, however, set in stone. Nor are their implications for individual and collective well-being. FD

DAVID E. BLOOM is a professor of economics and demography at Harvard University's T. H. Chan School of Public Health.

THE LONG, GOOD LIFE

Longer, more productive lives will mean big changes to the old rules of aging

Andrew Scott

The past 150 years have witnessed one of the greatest of human achievements. In 1870 average global life expectancy was about 30 years; today it is 73 and rising (Deaton 2015). Further, the proportion of life lived free of frailty or illness has remained broadly unchanged, so people spend most of these extra years in good health.

The implications of this development for individuals are profound. For instance, in 1960 the average Chinese newborn had only a 27 percent chance of making it to age 65; today that probability is 83 percent and rising. Around the world, on average, people can now expect to live longer, healthier lives than in previous generations.

The new frontier of aging

While for individuals this is good news, at an aggregate level there is concern over an aging society. In 1965 there were 129 million people over 65 in the world; today there are nearly 750 million, and this figure is expected to reach 2.5 billion by 2100. The number of centenarians is also rising—from 20,000 in 1965 to a projected 19 million by 2100.

The fear is that this phenomenon will weaken economic growth as the number of people of working age declines and that governments' fiscal burden will worsen because of higher pension and health care costs.

The chart shows the changing size and structure of the global population. The vertical axis shows the world's population broken down by age, the horizontal axis the split between men and women.

Horizontally the chart shows a staggering increase in the proportion of people over 65. From representing only 5 percent of the population in 1950 to 9 percent today, this cohort is expected to reach 23 percent by 2100. Supporting this population shift will require profound changes in policies, institutions, and practice.

Vertically, however, the chart tells a different story, highlighting not aging, but longevity. From this perspective, children born today have much more time ahead of them than past generations. The likelihood of living into old age has increased, as has the peak of the pyramid, changing what constitutes "old."

Longevity represents an extension of the duration of life and requires, in the words of Stanford professor Laura Carstensen, a "new map of life." Longer lives mean changes to when we are educated or married, when we have children, how long we work, and how we spend not just old age, but also youth and middle age (Gratton and Scott 2016). From this perspective the question is not "How do we afford an aging society?" but "How do we restructure behavior to make the most of longer lives?"

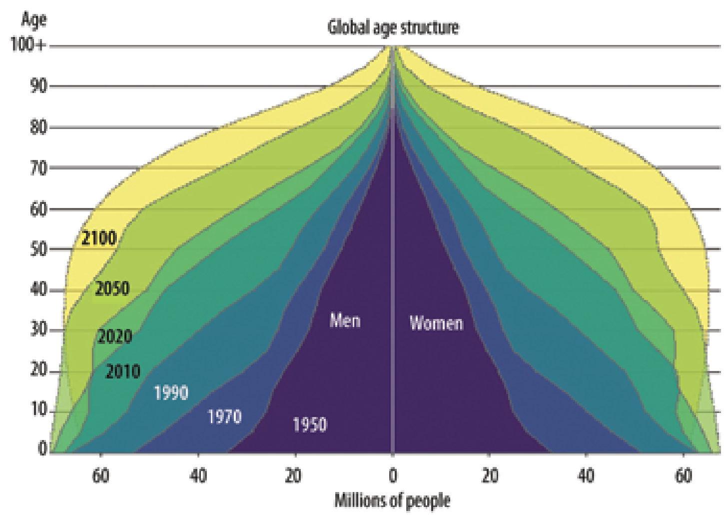
Underpinning these changes is the fact that age has become, to a degree, malleable. Nutrition, education, behavior, public health, the environment, and medical practice can influence the pace at which we age. Across a variety of measures (incidence of diseases, mortality rates, cognitive function, physical strength) people are in effect not aging *more* but aging *more slowly*.

This malleability requires drawing a distinction between chronological age (how many years since you were born) and biological age (how fit and healthy you are). By defining "old" chronologically, the aging society narrative does not take into account whether people are aging better and rules out

Aging into the future

The huge global increase in the number of people over 65 has big implications for the quality of aging and public policy.

(distribution and projection of world population by sex, 1950–2100)



Source: United Nations Department of Economic and Social Affairs, World Population Division.

ART: ISTOCK / NESELENA; ANASTASIIA BORIAGINA

structural changes in the course of life. As a result, it focuses only on the negatives of an aging society: more older people who require care and support. This omits the potential gains from a longevity agenda that supports longer, healthier, and more productive lives.

Myths

There are then two forces at work: an aging society, reflecting a changing demographic structure, and a longevity effect, driven by improvements in how we age. Viewing demographic change only through the lens of an aging society risks missing the bigger story.

Myth #1 *Aging is best measured chronologically*
In the twentieth century our concepts of age solidified around chronological measures as government birth and death records became more reliable and formed the basis of increasing regulation. The apotheosis of this chronological measurement was the definition of old age as starting at 65, enshrined in the concept of an "old-age dependency ratio." In contrast, age malleability requires distinguishing between chronological and biological measures of age, which makes for a much smaller rise in the older population (Sanderson and Scherbov 2019).

Myth #2 *All countries are aging*
Over the past two decades the median age in France, the United Kingdom, and the United States has increased, but average mortality (as measured by population deaths per thousand) has nonetheless declined. The lower the average mortality rate, the longer the average citizen can expect to live. If we measure old age as years from birth, the citizens of these countries have been getting older, but if we think of old age as proximity to death, these nations are now in a sense younger and possess a larger future. That does not seem unambiguously best described as an aging society.

Myth #3 *Japan is a harbinger*
Japan has the highest life expectancy in the world and is often seen as leading the way in terms of an aging society. Japan's demographic transition has produced the largest increase in life expectancy and the deepest decline in fertility among the Group of Seven (G7) countries since 1950. As a consequence, the aging society effect is much more pronounced in Japan than in its G7 peers. The balance of an aging-society versus the benefits of longevity varies across countries and so, too, will the impact on economic growth and required policies.

Myth #4 *Aging is a rich-country problem*
Given the population's young average age in many low-income countries, it is often assumed that aging is a rich-country problem. However, these young populations will age in the years ahead. Countries need to support 15-year-olds now to ensure that when they reach 65, in 2070, they are aging as well as possible. Aging does not begin at 65, and governments should recognize this by putting in place policies to help the elderly, both in the future and today.

Policies for longevity

The longevity agenda aims to address the whole life course and help people seize the opportunities longer lives present. The agenda covers all aspects of life, but employment, education, and health are central areas of focus and those in which governments have a key role to play.

Supporting older workers. Crucially important is finding ways to help older workers remain productive. This topic covers more than just retirement age, since withdrawal from the workforce starts at about age 50 and is often involuntary.

The importance of this topic is evident in employment statistics. Between 2008 and 2018 people over 55 accounted for 79 percent of employment growth across Organisation for Economic Co-operation and Development countries and 103 percent in G7 countries. Further, the most important driver of cross-country variations in employment of older workers is not changes in the size of the older population, but changes in their likelihood of working.

Policies to promote higher labor force participation among older workers will depend on the generosity and availability of pension plans, the health and support available to workers, and the industrial structure and types of jobs offered. The use of robotics and artificial intelligence should also help support employment among this group. Older workers tend to value flexible and part-time work arrangements highly, often despite lower wages—something that Japan and Singapore have put to use.

Supporting older workers also requires tackling deep-seated corporate ageism that makes it hard for older workers to get new jobs and more likely for them to be fired. Governments need to be proactive in extending disability rights as well as enacting diversity legislation to support and protect older workers.

Supporting longer productive lives. Longer lives will require a greater focus on lifelong learning. Currently education is front loaded in a three-stage model of life consisting of "learn, earn, and retire." However, longevity and technological change will lead to a major increase in the need for adult education, requiring key changes in education systems.

Longer careers will demand more flexibility for workers of all ages. Taking time out to retrain; for family support (both of children and of aged parents); and for reorientation, recuperation, and repurposing as individuals ramp up and ramp down their work commitments will all be necessary in a multistage life.

All's well that ages well. As populations age, the disease burden shifts toward noncommunicable diseases, such as heart disease, cancer, diabetes, and dementia. In 2016 these diseases accounted for 71 percent of deaths globally, with 78 percent occurring in low- and middle-income countries. Noncommunicable diseases are expensively and poorly managed through intervention, so to reduce their impact, health care providers should consider a major shift toward preventive health care. As with past health improvements, this will require public education aimed at changing people's behavior when it comes to activity, diet, engagement, and purpose. New monitoring and predictive technologies, such as artificial intelligence and big data, will be needed as well.

The dominant cause of many noncommunicable diseases is age itself. This suggests that efforts to slow the aging process should play a more prominent role in treatments rather than targeting particular diseases, such as cancer (Ellison, Sinclair, and Scott 2020). A growing research program is focusing on understanding why we age and developing treatments that, if successful, could lead to dramatic changes in the malleability of age (Sinclair 2019).

Supporting diversity. Age malleability means that there is considerable diversity in how people age. As many more millions live beyond 65, this will become ever more apparent, causing problems for policies couched purely in terms of chronological age, such as raising the state pension age. Governments need policies that provide support for those who are unable to continue working while providing incentives to work for those who can. As is done with with other age groups, policymakers should recognize that chronological age is a weak predictor of people's needs and abilities and should establish more nuanced policies with different options depending on circumstances.

Targeting longevity. There is a growing debate around alternatives to GDP as a way of measuring welfare. One potential alternative is healthy-life expectancy. Given that improvements in healthy-life expectancy depend not only on income and job security. but also on broader social purpose—as well as on environmental quality and inequality—longevity usefully connects to a broad range of agendas. Longevity councils (like Japan's Council for Designing 100-Year Life) would help monitor progress toward these targets and improve coordination across government departments.

By defining "old" chronologically, the aging society narrative does not take into account whether people are aging better.

How we are aging is changing, undermining nineteenth-century French philosopher Auguste Comte's assertion that "demography is destiny." Individuals are living longer, healthier lives—and that should be good news for people and the economy. Designing policies to maximize the number of people of all ages who benefit from this longevity effect while seeking to boost productivity over a longer life is the goal. FD

ANDREW SCOTT is professor of economics at the London Business School and cofounder of The Longevity Forum. He is the author (along with Lynda Gratton) of the 2016 book *The 100-Year Life: Living and Working in an Age of Longevity*.

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Planet sculpture (2008) by Marc Quinn in the sunset at the Gardens by the Bay, with Singapore's skyline in the background.

Reversing Demographic Decline

Singapore's experience in trying to raise its fertility rate offers lessons for other countries

Poh Lin Tan

Globally, fertility is on the decline. While a total fertility rate below the replacement level of 2.1 is now the norm for advanced economies, the very lowest rates are found in Japan, the Republic of Korea, Singapore, Taiwan Province of China, and higher-income Chinese cities, including Shanghai and Hong Kong SAR. As a result, in the absence of immigration, this region is set to experience the most rapid population aging and decline.

In the case of Singapore, the government has grappled with the relentless downward trend in fertility since the 1980s. After a public campaign and limited programs failed to produce results, a package of pronatalist incentives was introduced in 2001 and enhanced over the years. Currently, the package includes paid maternity leave, childcare subsidies, tax relief and rebates, one-time cash gifts, and grants for companies that implement flexible work arrangements. Despite these efforts, the fertility rate deteriorated from 1.41 in 2001 to a precarious 1.16 in 2018.

What can we learn from Singapore?

Lesson 1: *Address the rising age at childbearing*

The mean age of childbearing has increased by approximately one year a decade among Organisation for Economic Co-operation and Development countries, according to calculations by Oxford University's Melinda Mills and colleagues (Mills and others 2011). In Singapore, changes in the age composition of women giving birth have been especially dramatic. Women ages 20–24 are now as likely to give birth as women ages 40–44 and far less likely than women ages 35–39. Moreover, unlike in a number of European countries, the steep decline in fertility among women in their 20s has not been offset by higher birth rates among women in their 30s. Instead of merely being delayed, these missing babies have vanished permanently.

The rising age at childbearing is the lowest-hanging fruit from a policy perspective. It is far easier to help couples who are already married and desire at least two children to achieve their fertility goals than to attempt to match singles in the marriage market or persuade couples who do not want more children to change their minds. While the two-child-family ideal continues to hold in Singapore, the phenomenon of higher ages at parenthood reduces the probability that families will achieve it, because of either unforeseen changes in circumstances such as divorce, health, or income shocks, or reduced ability to conceive and carry a child to term.

The Singaporean policy approach aims to create a more conducive environment for marriage and fertility for all groups—in particular to help married women reconcile labor participation with motherhood. However, few if any of the instruments are designed specifically to allow women to become mothers at peak childbearing ages, either to stem the decline among women in their 20s or to boost fertility rates among women in their early 30s. As a result, the lack of age sensitivity represents a lost opportunity to cater to the most receptive group of prospective parents.

Lesson 2: *Reproductive technologies are not a panacea*

One reason for older childbearing in advanced economies is the public's misplaced faith in reproductive technologies' effectiveness. According to Judith Daniluk and colleagues at the University of British Columbia, common fertility myths include the belief that good health and in vitro fertilization (IVF) can offset the effects of age-related infertility (Daniluk, Koert, and Cheung 2012). Few people are aware that IVF poses health risks to women or that delayed childbearing can lead to more complications during pregnancy or birth and more birth defects. Men and women thus tend to underestimate the risks associated with delaying marriage and childbearing.

As part of the package of pronatalist incentives, the Singaporean government subsidizes up to 75 percent of assisted reproductive technology treatment costs for qualifying married couples and allows them to tap into their medical accounts under the national savings program to pay for the procedures. Singapore's fertility experience suggests that access to IVF and other reproductive technologies is not sufficient to ensure that older women have enough babies to compensate for fertility decline among younger women. Japan, another excellent example, has the world's highest percentage of babies born through IVF (about 5 percent), as well as one of the lowest fertility rates.

Lesson 3: *Household production cannot be fully outsourced*

Singapore's low fertility also demonstrates the limitations of formal sector provision of childcare

PHOTO: DREAMSTIME.COM / ANDREI IANCU

and housework. Peter McDonald at the Australian National University argues that even though women have more educational and labor market opportunities than ever, gender inequality at home, which places the burden of caring for children and household chores on women, results in very high opportunity costs of childbearing and hence very low fertility (McDonald 2006).

Singapore provides insight into this issue because of the unusually robust range of options its formal sector provides. The government is heavily involved in the provision of low-cost and high-quality formal childcare. Working mothers receive childcare subsidies of S$300 a month for formal childcare; lower-income families receive more. Moreover, unlike in most other advanced economies, families can (and many do) hire relatively low-cost domestic workers from neighboring Southeast Asian countries such as Indonesia and the Philippines. Hence, it is relatively easy for women to outsource childcare and housework in Singapore.

Singapore's low fertility rates suggest that formal sector provision cannot substitute for parents' spending quality time with children. While access to excellent childcare options and domestic workers may help, institutional support—parental leave and flexible work arrangements that allow families to spend more time together— is needed as well.

Lesson 4: *Acknowledge human capital's true cost*

It is no coincidence that Japan, Singapore, and other very low fertility countries also tend to score very well in human capital rankings, from Program for International Student Assessment tests to the new World Bank Human Capital Index. Economists have long noted a trade-off between quantity and "quality" of children (in terms of resources devoted per child). My coauthors and I argue (Tan, Morgan, and Zagheni 2016) that the East Asian institutional emphasis on early life achievements increases returns from investing in children's human capital, which means more children, more expense.

The other side of the coin is the serious consequences of being less successful than others, both for parents and their children. Local surveys suggest that a large proportion of singles wish to be married someday but choose to pursue educational or career success over dating. The majority of married couples have children, but most stop at one or two, owing to high education-related expenses and the desire to invest more in each child. Couples who might otherwise want children voice concern over the ethics of a stressful childhood and upbringing or worry that they would lack the energy or ability to help their children compete effectively.

Singapore's human capital success story, which has propelled it to the top of international rankings, thus comes at a cost to its people's willingness and ability to build families. The inability to raise the fertility rate is hence not so much a testimony to ineffective pronatalist policies as to the overwhelming success of an economic and social system that heavily rewards achievement and penalizes lack of ambition. Tackling the fertility rate may therefore require confronting some of the weaknesses of the underlying system, which means not only addressing demographic challenges, but also potentially helping build social cohesion or healthy cultural attitudes toward risk taking.

At the end of this year's Forbes Global CEO Conference, Singaporean Prime Minister Lee Hsien Loong noted that with help from immigration, a fertility of rate of 1.3–1.4 may be enough to meet the country's needs (Yong 2019). As long as there is tension between human capital and fertility, raising birth rates in Singapore to replacement levels will take more than just policy updates and patches. However, a mix of age-sensitive policies and enhancements of pronatalist incentives may push fertility to a more modest target of 1.4. Singapore has little time to lose: as the population ages, fewer and fewer couples will be of childbearing age, and a higher fertility rate will deliver less bang for the buck. It's now or never. FD

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Accepting the Reality of Secular Stagnation

New approaches are needed to deal with sluggish growth, low interest rates, and an absence of inflation

Lawrence H. Summers

PHOTO: RALPH ALSWANG

A FUNDAMENTAL DIFFERENCE between natural science theories and social science theories is that natural science theories, if valid, hold for all times and places. In contrast, the relevance of economic theories depends on context. Malthus's theory of food availability was valid for the millennia before he formulated it, but not after the industrial revolution. Keynes's ideas were much more valid during the Great Depression than during the inflationary 1970s.

I am increasingly convinced that current macroeconomic theories, with their premise that monetary policy can determine the rate of inflation, may be unsuited to current economic reality and so provide misguided policy prescriptions. They failed to anticipate Japan's deflationary slowdown that began in 1990, or the global financial crisis, slow recovery, and below-target inflation during a decade of recovery, or the sustainability of high levels of government debt with very low real interest rates.

Understanding these developments and crafting policies that respond effectively will likely require that economists develop what might be called a "new old Keynesian economics" based on Alvin Hansen's Depression-era idea of secular stagnation. This article summarizes the case for new approaches to macroeconomics by highlighting important structural changes in the economy of the industrial world, explains the secular stagnation view, and draws some policy implications.

The investment dearth

Barring a change in current trends, the industrial world's working-age population will decline over the next generation, and China's working-age population will decline as well. At the same time, trends toward increased labor force participation of women have played out with, for example, more women than men now working in the United States.

These demographic developments eliminate the demand for new capital goods to equip and house a growing workforce. This trend is reinforced by the observation that the amount of saving required to purchase a given amount of capital goods has declined sharply as the relative price of equipment, especially in the information technology (IT) space, has sharply declined. A $500 iPhone today has more computing power than a Cray supercomputer did a generation ago. In addition to capital goods' having lower prices, the downward trend in their prices encourages delaying investment.

Moreover the IT revolution has been associated with a broader demassification of the economy. E-commerce has reduced the demand for shopping malls, and the cloud has reduced the demand for office space by eliminating the need for filing cabinets, allowing offices to be personalized with a flick of the switch, down to family photos on the walls.

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Fracking for oil and natural gas requires far less capital than traditional drilling techniques, and IT makes targeting of exploration much easier, further reducing investment demand.

Technology now permits sharing of everything from apartments (Airbnb) to planes (NetJets) and dresses (Rent the Runway) to cars (Uber) in ways that would not have been imaginable a decade ago. Rising generations look to live in sparsely furnished apartments rather than large homes.

Many argue that monopoly power has increased—at least in the United States—tending to discourage new investment. And increasingly promiscuous distribution of the veto power has slowed public infrastructure investment, which on a net basis is running in the United States at less than half of previous levels.

The upshot of all these developments is that investment demand has been substantially reduced, regardless of interest rate levels.

The savings glut

At the same time that investment demand has fallen off, a number of factors have combined to increase saving. A larger amount of income is accruing to higher-income people who have a greater propensity to save. Increased corporate profitability, coupled with lower interest rates, means more corporate retained earnings.

Increases in uncertainty associated with growing doubts about government's ability to meet pension obligations and more risk of future tax increases also raise saving. Similarly, reductions in expected future income growth increase the need for future saving.

Strengthened financial regulation and its legacy mean households find it more difficult to borrow and spend, leading to an increase in aggregate saving. This can happen either because of consumer protection—as when, for example, higher down payment requirements reduce mortgage borrowing—or because of regulatory burdens on financial intermediaries, through, for example, higher capital requirements.

So structural changes in the economy have operated both to raise saving and to reduce investment.

Secular stagnation

With a somewhat different list of factors in mind, the Harvard economist Alvin Hansen labeled the failure of private investment to fully absorb private savings "secular stagnation" because of the threat that it would mean insufficient demand.

There are a number of things we would expect to see if secular stagnation has been taking hold in recent years. First, a high supply of savings and a low level of demand should mean low interest rates. Indeed, real rates by almost any measure have been trending downward over the last 20 years, even as budget deficits have increased. This is what we have seen with real-term interest rates negative in the industrial world despite major run-ups in government debt.

Second, one would expect that difficulties in absorbing savings would lead to reduced growth and difficulty in achieving target inflation. This is what has been observed. At present markets do not expect any country in the industrial world to hit a 2 percent inflation target. Despite unprecedentedly low interest rates and deficits at record levels after more than a decade of recovery, growth has been tepid. Notably—contrary to the views of those who explained low rates after the recession by pointing to "headwinds"—central banks have found it impossible to raise rates and still count on the momentum of recovery.

Third, disappointing growth has coincided with inflation's surprising again and again on the downside. Economists teach beginning students that reduced quantity and reduced price suggest a decline in demand. If, as many suggest, the dominant reason for stagnation is disappointing productivity performance, we would expect to see prices rise rather than fall. Absent extraordinary policy settings, deflation might be setting in.

Fourth, a period of slow growth and deflation has also been a period of asset price inflation. US stock markets have risen fourfold since the crisis, and real housing prices are almost back to previous peak levels. This is as one would expect with secular stagnation, as abundant savings pushed into existing assets, increasing, for

example, price-to-earnings ratios on stocks and price-to-rent ratios on real estate and decreasing term premiums on long debt.

I am not aware of any other theory that can explain sluggish growth in the face of hyperexpansionary policies and rapid acceleration in private sector credit growth. Lack of productivity growth would be expected to lead to increased product price inflation and reduced asset price inflation. Increased risk and uncertainty would tend to lead to decreased rather than increased asset price multiples. Any temporary consequence of the financial crisis would lead to reduced credit expansion and a steep yield curve rather than what we have observed.

What is to be done?

Demography can be destiny. Much else is moving with demography to create an environment of abundant savings with an absorption problem. This is the mirror image of the macroeconomic problems we have dealt with for decades.

Central banks, to be true to their mandates, need to raise rather than lower inflation. Ensuring that economies fulfill their potential is a challenge that logically comes before increasing their potential. Financial stability is as much at risk from low rates as high rates. The medium-term issue is the full absorption of savings rather than the crowding-out of investment.

At the same time, central banks are unlikely—with rates already negative in Japan and Europe and below 2 percent in the United States—to have much room at least by historical standards to respond to adverse shocks. Typically recessions in the industrial world have been addressed by decreases in rates on the order of 5 percentage points.

The beginning of meeting new challenges is recognizing them. That means accepting the reality of secular stagnation and focusing policy debates on the challenges it poses. FD

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SHRINKONOMICS

Lessons from Japan

Japan is the world's laboratory for drawing policy lessons on aging, dwindling populations

Gee Hee Hong and Todd Schneider

PHOTO: ALAMY STOCK PHOTO / DAVID CHEREPUSCHAK; ART: ISTOCK / EBLIS

Demographic change is having a fundamental impact on the global economy—but not in the way we once thought it would.

A mere five decades ago, some observers were predicting that the human population was too big and would soon strip the world of resources, leading to mass starvation, collapse of the global economy, and a host of other ills. But the doomsday scenario of mass overpopulation did not materialize. Rather, for the first time in modern history, the world's population is expected to virtually stop growing by the end of this century, owing in large part to falling global fertility rates.

Japan's unique population, fertility, and immigration history make it a leading exemplar of this trend. The impact of an aging and shrinking population is already visible in everything from economic and financial performance to the shape of cities and public policy priorities (such as the long-term solvency of public pension, health care, and long-term care systems).

With demographics having such a clear and accelerating impact, Japan is the test kitchen for "shrinkonomics"—a laboratory from which other countries are beginning to draw lessons.

The IMF's work on the Japanese economy has focused heavily on demographics in recent years—mirroring the intense debate within Japan on how best to respond to the pressures from a rapidly aging and shrinking population. While each country's experience will be different—and prompt different solutions—some of the key macroeconomic and financial effects can be identified from Japan's recent experience.

What Makes Japan Different?

On the one hand, Japan is in good company with respect to broad demographic trends. Looking across Organisation for Economic Co-operation and Development data, there are many countries with declining populations, and likely more to come. Japan is also not alone—in the region or compared with other advanced economies—with respect to having a low fertility rate, which is common across most of the Group of Seven (G7). Japan also shares with other countries an improvement in health and average lifespan. This is a common trend across most advanced economies, though Japan is certainly doing better than average.

But this is not the whole story. Japan's unique characteristics put demographic trends (and their macroeconomic and financial impact) in sharper relief than in other countries:

- ***Japan's postwar baby boom was short***—only about three years, compared to other G7 members, where such periods stretched anywhere from nine to twenty years. This means that Japan's demographic structure will shift dramatically in just a few years—particularly as the boomers hit retirement age and become eligible for public pension and health care benefits.
- ***Japan leads the world in terms of life expectancy***—surpassing all Group of Twenty economies as early as 1978. Extended life expectancy, combined with low fertility, accentuates demographic change in Japan and is manifested in a steady increase in the old-age dependency ratio (the number of retired people relative to the working-age population).
- ***Immigration flows are too small to make an impact***—on aging and shrinking demographics. In comparison with other G7 economies, Japan is an outlier in terms of its very limited use of imported labor. Foreign workers accounted for only about 2.2 percent of Japan's total labor force in 2018, compared with an estimated 17.4 percent in the United States and 17 percent in the United Kingdom.

Vanishing labor

First, aging and dwindling populations can have a direct impact on a country's labor force and labor markets—particularly the size of the working-age population. Demographic change has been a driving force in Japan's labor market for several decades. Japan's potential labor force—those between ages 15 and 64 as a share of the total population—peaked in 1991–93 at just under 70 percent. Since that time, however, the potential labor force has fallen quickly to just above 59 percent, the lowest level among the Group of Seven countries and well below levels seen in the mid-1950s.

Given current low fertility and accelerating death rates, this ratio is expected to continue to decline well into the medium term. With a limited inflow of foreign workers, this implies insufficient workers to maintain current levels of economic activity. Such a linear view of the future is more dire than Japan's experience, however. The continued demand for labor has spurred both more women and more elderly (those outside the traditional 15–64 working age) to join the labor force. Automation, artificial intelligence, and robotics (including technology to increase productivity per worker) will also be critical to Japan's response to shrinkonomics.

An older and smaller population also has implications for productivity and long-term economic growth—and IMF research suggests Japan is a valuable case in point (Westelius and Liu 2016). First, older workers may enjoy higher productivity because of their accumulation of work experience, while younger workers benefit from better health, higher processing speed and ability to adjust to rapid technological changes, and greater entrepreneurship, leading to more innovation. These two counterforces suggest an inverted U-shaped relationship between age and productivity, with productivity lowest at the beginning and ending phases of a career. Second, aging is likely to increase the relative demand for services (e.g., health care), causing a sectoral shift toward the more labor-intensive—and less productive—service sector. Third, the size or density of the population may also have an impact on productivity (i.e., productivity rises with greater size and density of a working population).

A more elderly and reduced population—which means relatively more retirees, a smaller labor force,

The continued demand for labor has spurred both more women and more elderly to join the labor force.

and a shrinking labor-based tax pool—also points to the challenge of financing social security frameworks. As the population ages, public expenditure on health care, long-term care, and pensions naturally rises. But in a shrinkonomics context, in which the active, taxpaying labor force is in decline, financing this rise in public spending can be problematic. Japan's challenges are particularly severe, given that the entire baby-boom population is passing the 75-year milestone in just three years (starting in 2022 and ending in 2025) and the country's public debt as a share of GDP is already the highest in the world.

Meeting social security–related obligations while maintaining a sustainable fiscal position and intergenerational equity is a thorny task for Japan's authorities and will likely require important changes to both the benefits framework and its financing structure. IMF studies on Japan have explored possible policy options.

Among options related to financing, a continuous and gradual adjustment of the consumption tax dominates other potential measures to finance the cost of aging, including higher social security contributions, delaying fiscal adjustment (with an implied prolonged period of debt financing), and increased health copayment rates. Relative to these options, increases in the consumption tax—which apply across age groups—have smaller adverse effects on long-term GDP and welfare, according to one IMF study (McGrattan, Miyachi, and Peralta-Alva 2018). This study also suggests that postponing adjustment through debt financing results in a large crowding-out of private sector investment—by up to 8 percent—with detrimental effects on long-term GDP and welfare. Finally, a uniform increase in health copayment rates for the elderly—which would imply shifting a part of aging costs to current generations—would have regressive consequences.

Demographic trends may also exacerbate income inequality between generations. Growing income inequality between young and old is a concern in Japan, particularly as an increasingly smaller share of the population is asked to shoulder the financing costs for rising social security transfers.

Older generations, who benefit most from fiscal redistribution (via taxes and transfers), are significantly wealthier than younger generations. Wealth poverty is significantly lower for older generations. Moreover, the wealth ratio of older to younger cohorts is relatively high in Japan compared with Germany and Italy, though lower than in the United States. The evidence thus points to significant wealth inequality across generations.

The relative wealth of older generations in Japan calls into question the costly fiscal redistribution mechanism in place that aims to reduce elderly income inequality mainly via pensions. These and other aspects of public social security frameworks are being actively debated in Tokyo policy circles.

Monetary policy effectiveness

Demographic change may put pressures on a country's monetary policy space by lowering the natural rate of interest: the interest rate that supports the country's economy at full employment and maximum output while keeping inflation constant. This dampening effect is particularly problematic for monetary policy in countries that are already experiencing "low for longer" interest rates and inflation dynamics and can impinge on the effectiveness of monetary policy.

Japan is again a case in point. IMF studies in this area find that demographic change in Japan has had a significantly negative impact on the natural rate of interest in recent years (e.g., Han 2019). The results of these studies also suggest that Japan's natural rate has already fallen into negative territory, highlighting the need to move forward with structural reforms to boost potential growth and lift the natural rate. With working-age population growth projected to decline further by 2040, the negative demographic impact on the natural rate in Japan is likely to increase, which may further limit monetary policy's role in reflating the economy. These findings highlight the importance of boosting potential growth by, for example, accelerating labor market and other

structural reforms—including more active immigration policies—to offset the increasingly adverse demographic impact on the natural rate.

Closely related to the dilemmas that shrinkonomics poses for monetary policy is how aging and shrinking populations can affect the financial sector—specifically in how these forces affect financial intermediation by banks. Because demographic trends are likely to influence saving and investment behavior, they can have important implications for demand and supply of lendable funds.

Japan's demographic headwinds constitute a challenge for all Japanese financial institutions, but particularly for regional financial firms. Because of their dependence on local deposit-taking and lending activities, Japan's regional banks are sensitive to changes in the local environment. Shrinking and aging populations at the prefectural level are perhaps the most daunting challenge in this respect, particularly for regional banks in rural prefectures. Even metropolitan prefectures, however, will begin to experience declining and aging populations in a more dramatic fashion. More important, while shifts in the age distribution and population growth have to some degree offset one another in the past, this is likely to change over the next decade, creating a potential demographic cliff.

Unless Japan's regional banks find alternative sources and uses of funds, the country's shrinking populations will necessarily lead to smaller balance sheets and declining loan-to-deposit ratios. This, in turn, will continue to put downward pressure on already low levels of profitability. Moreover, the trend of regional banks shifting to a more securities-oriented and fee-based banking model is likely to accelerate in the near future.

The world's policy laboratory

Cross-country differences in starting conditions and the structure of demographic transitions will affect how much and how fast countries will have to adapt to maintain positive economic outcomes in the face of aging and shrinking populations. Japan—arguably the farthest along among the Group of Twenty in its struggle with shrinkonomics—is effectively the world's policy laboratory. Policy solutions found there may have broader application, particularly as other advanced and systemically important countries encounter the same demographic trends. The best medicine must fit the patient, but some common policy recommendations apply (IMF 2020a, 2020b):

- A long-term view on public finances is needed that fully incorporates the impact and cost of an aging population and shrinking workforce. Early adjustment—particularly for such sensitive areas as public pensions, health care, and long-term care—is critical.
- The potential negative impact of shrinkonomics on productivity and growth highlights the need for structural reform and innovation. Labor market flexibility and strategies to ensure high productivity growth (including the use of automation, robotics, and artificial intelligence) are key, as well as a more flexible view with respect to aging and retirement (Colacelli and Fernandez-Corugedo 2018).
- Maintaining intergenerational equity may become increasingly difficult under a "business-as-usual" approach—with important implications for social security and public transfer programs.
- Monetary policy may be blunted by the impact of demographics—lessening its potential role in facilitating a smooth adjustment to the business cycle or responding to shocks—placing more of the burden on fiscal policy and structural reform.
- The potential for pockets of financial sector instability needs to be incorporated into supervision and oversight as demographic trends impose significant changes to the business environment on banks and other financial institutions. FD

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This article draws on the forthcoming IMF book Economic Policies for Japan's Aging and Shrinking Population *edited by Paul Cashin and Todd Schneider.*

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Eastern Europe's EXODUS

In Europe's newest states, emigration compounds the problem of aging populations

Maria Petrakis

Chris Topalov's family has navigated the choppy waters of Europe's embattled economies for decades. His parents left their homeland of Bulgaria to escape financial chaos in 1997; chaos caught up with them in Greece, where Chris was born. In 2016 the family left for better prospects in the United States.

The odyssey has prompted Chris to study economics to make some sense of Europe's travails when he heads to college this year. But though he feels Bulgarian, it's an open question whether he would ever move back.

That's a problem for Bulgaria and the other, mostly former socialist countries of central, eastern, and southeastern Europe. Nine of the ten fastest-shrinking countries in the world are in eastern Europe, according to United Nations projections, with consequences for economic growth and a chance at the European prosperity that the fall of the communism promised.

Life expectancy has risen to 74 years from 67 in 1995, and GDP per capita has more than doubled. But longer lives, smaller families, and the ease of emigration have combined to exert demographic pressures that will increasingly weigh on economic growth, undermining the gains achieved since the fall of the Berlin Wall. Countries in the region are at risk of getting old before they get rich, IMF Deputy Managing Director Tao Zhang warned last year.

It is no surprise, then, that many from eastern European countries are seeking opportunities elsewhere. Membership in the European Union has made it easier to boost trade and foreign investment and has brought with it an exceptional pace of per capita income convergence to western European levels. But it has also kept up the pressure on the exodus of young, skilled professionals that began with the fall of communism in 1989.

Between 1995 and 2017, central, eastern, and southeastern European (CESEE) countries lost about 7 percent of their workforce, mostly young and educated workers, like Topalov's parents. The United Nations expects that the population of the region will decline by 12 percent by 2050 as a result of aging and migration. The workforce will fall by a quarter in the same period.

"Population aging concerns more than just public pensions," says Alasdair Scott, an IMF economist who coauthored a recent study of demographics in

central and eastern Europe. "It has serious implications for health care and social services and profound implications more generally for growth and the aspirations of these countries to converge to western European incomes."

The research indicates that a shrinking labor supply and lower productivity of older workers, together with greater pressure on the public purse for health care and pensions, could cost these countries about 1 percent of GDP per year for the next 30 years. That will put the brakes on incomes rising to western European levels: per capita GDP for these countries will still be only 60 percent of western European levels in 2050. Although that represents an increase from 52 percent now, without the demographic challenge, it could have been 74 percent.

Some governments in the region are betting on financial incentives to raise birth rates. In Hungary, where the government has been vocal in its opposition to immigration, women with more than four children have been exempted from income tax, and couples requiring fertility treatment will receive it free.

But fertility rates aren't the big story, says Scott. What makes the demographics in the region so dramatic is the extent of the difference in emigration and mortality rates, which are much higher than those in western Europe.

"Financial incentives in other countries don't seem to have had much effect on birth rates. But even if they could, immmediately, it would be two decades before a difference were seen in the working-age population—whereas the demographic pressures are here and now," he said.

The region needs quick footwork. More women need to be brought into the workforce and older workers convinced to keep working and trained so that they can do so. And CESEE countries need to deter people from leaving. That would entail strengthening institutions and improving the overall economic environment and investment climate.

"The world is a highly competitive place," says Maria Topalova, Chris's mother, a journalist. If countries like Bulgaria "want to keep young, hard-working, smart people, they have to offer things in return."

Globally, 54 percent of companies say they struggle to find qualified people for vacancies, the highest rate in a decade, according to Manpower Group's Talent Shortage survey for 2019. At the Bucharest headquarters of Dacia, the iconic car created under communism and now owned by Groupe Renault, employees get massages and use of a gym and can telework two days a week as part of the company's campaign to attract and keep qualified people, according to Managing Director Christophe Dridi. "We need to provide those things in order to persuade them to stay with us," he told a conference last year.

Otherwise, countries need to look at inward migration. Fast-food giant McDonald's imported 30 workers from Sri Lanka to fill the labor shortage in three of its Bucharest stores, part of a two-year pilot project. The company serves about 230,000 customers per day in its 84 restaurants in Romania. It opened four new outlets in 2019 and plans to open another eight this year.

The key, ultimately, is education—not just before adulthood, but throughout working lives.

Much has been said about automation: in principle, it could free workers for more valuable activities, such as spending more time teaching than on administrative work. But it could also push out workers with lower skill levels. The key, ultimately, is education—not just before adulthood, but throughout working lives.

In Bulgaria, Rails Girls Sofia has been singled out as an example of building skill sets for the future. The organization has trained about 1,000 women in web programming since 2013.

Maria Topalova agrees that Bulgaria has come a long way from the country she left when it was on the verge of economic collapse, with unstable institutions that drove her to that decision. The country's institutions are improving, something the IMF research suggests can draw skilled migrants back to the country and stanch the brain drain. However, more needs to be done to dissuade a new generation from leaving.

"Now Bulgaria is a member of the EU and NATO, it has a stable economy, its macroeconomic indicators are excellent, it is a functioning democracy," she says. But "if you want to fly in space or to find a cure for cancer, you go to countries that have already found ways to fund this research." FD

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PHOTO: ISTOCK / BORCHEE

Immigrant Swan Song

Immigration can solve the demographic dilemma—but not without the right policies

Giovanni Peri

The immigration debate often focuses on culture, identity, and the economy. In countries such as the Australia, Canada, and the United States where many immigrants—especially those who have moved for economic reasons—assimilate into the labor force quickly, the case for more immigration is built on its potential economic benefits. Research shows that immigration does not reduce the capital intensity of the economy, but rather it allows firms to expand and investments to adjust, and it also promotes innovation and growth—especially when highly skilled immigrants are admitted. There is also little evidence that immigration displaces jobs or depresses wages in the receiving countries (see, for example, Lewis and Peri 2015 and Peri 2016).

Yet the discussion over immigration often pays insufficient attention to the Achilles' heel of the global North: its demographics. Fertility in these countries currently stands at 1.7 and fell below replacement—that is, the level at which a population exactly replaces itself from one generation to the next—around 1980. Consequently, the difference in births and deaths would produce population declines and substantial increases in average ages in the North, both of which could disrupt labor markets, threaten the fiscal sustainability of pension systems, and slow down economic growth, unless total net immigration offsets such declines.

The persistent historical trends mentioned have inescapable consequences in terms of population. Between 1950 and 2010, the populations of the rich regions of the North increased through net immigration, and since 1990 immigration has been the North's primary source of population growth. In Europe, immigration accounted for 80 percent of the population growth between 2000 and 2018, while in North America, it constituted 32 percent in that same period.

The bottom line is that only net immigration can ensure population stability or growth in the aging advanced economies of the North—and this will happen only if we promote forward-looking immigration policies that allow larger numbers of immigrants and consider their long-run impact, rather than focusing only on the short-term calculations of their (mostly political) costs.

Immigrants replacing natives?

While these broad trends suggest an important role for international migration in reducing demographic disparities, one could ask whether they act systematically to slow population declines in the North. In other words, are immigrants replacing the declining number of natives across countries? A closer look suggests that they are not.

For international migration to respond to population pressures and act as an automatic demographic stabilizer, people would need to move from young countries with fast-growing populations to aging countries with slow-growing populations. Chart 1 shows the correlation between the fertility rate in 2000 and subsequent net immigration rates from 2000 to 2019 (net inflow of foreign born divided by population in 2000) across 191 countries for which data are available. The size of a country's bubble is proportional to its population in 2000. For migration to act as a demographic stabilizer across countries, there would have to be a negative correlation between these two variables across countries.

The chart instead shows no correlation at all, implying that countries with low fertility rates

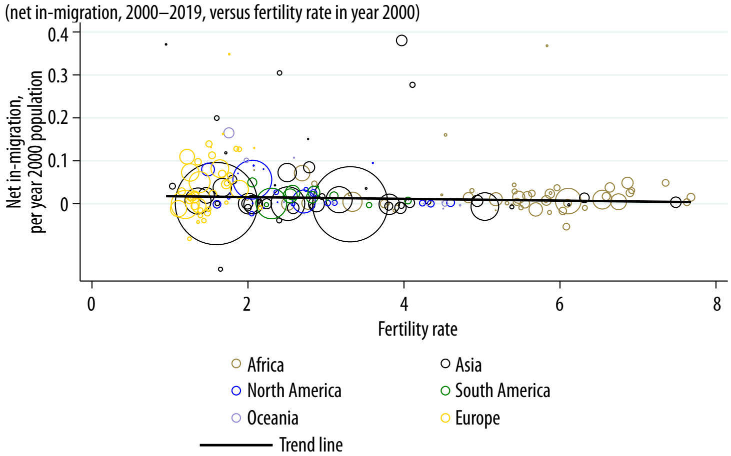
ART: ISTOCK / AAGGRAPHICS

Chart 1

Fertility and immigration

Countries with low fertility rates in the year 2000 did not experience a larger immigration rate in the following 20 years.

(net in-migration, 2000–2019, versus fertility rate in year 2000)



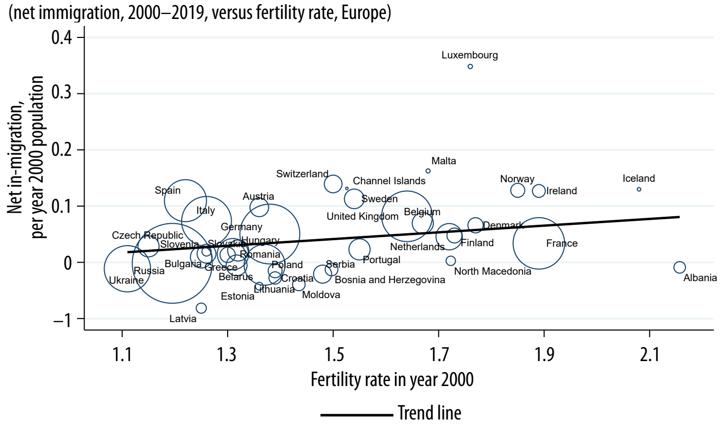
Source: United Nations Department of Economic and Social Affairs, World Population Division.

Chart 2

Spotlight on Europe

Several of the lowest fertility countries experienced low immigration rates between 2000 and 2019.

(net immigration, 2000–2019, versus fertility rate, Europe)



Source: United Nations Department of Economic and Social Affairs, World Population Division.

in 2000 did not experience a higher immigration rate in the following 20 years. Immigration thus did not play a role in balancing population growth across world countries.

Chart 2 focuses on the countries of Europe, which include some of the richest and lowest-fertility countries in the world. Even in this case, the relationship between fertility and immigration, if anything, is positive. The figure shows that several of the lowest-fertility countries (mostly in eastern and southern Europe) experienced low immigration rates. Some of these countries, such as Hungary and Poland, have recently elected governments decidedly hostile toward immigrants. It is quite clear that in the rich North, lower fertility rates do not, by themselves, facilitate higher immigration. In the region with the highest fertility rates, Africa, there is also no correlation between fertility and immigration rates.

It does not appear, therefore, that at a country level international migration is acting as a population stabilizer. This is because lacking forward-looking policies, there is no clear channel through which aging societies—which become economically stagnant and less innovative and whose citizens are likely to fear international migrants for the change they bring—will attract more immigrants. This implies that immigration will not automati-cally solve the demographic dilemma in the global North but that policy needs to play an active role if it is to do so.

Economic benefits

Not only would the flow of immigrants into countries whose population is declining serve the purpose of avoiding depopulation, it would also help with the countries' age structures. Migrants are usually younger than natives in the receiving country. Relative to natives, a larger proportion of immigrants are of working age. Therefore, new immigrants increase the size of the labor force, countering its natural decline in the advanced economies of the North, where people are aging out of the group at a faster rate than the young are entering.

Similarly, a larger share of immigrants of working age may reduce the age dependency ratio (the number of people over 65 divided by those between 15 and 64), which is growing fast in advanced economies. In the United States, this ratio has increased from .126 in 1950 to .223 in 2018. In Japan, this ratio has risen from .09 in 1960 to .46 in 2018.

It is also increasingly difficult to sustain pay-as-you-go pension systems in these rapidly aging countries, which in only a few decades have gone from having 10 working people per retiree to just 3 or 4. More immigration, especially in rapidly aging countries, would help slow the growth of the age dependency ratio. While immigrants will eventually age, a significant inflow of young working-age people

during the years of greatest native decline will allow a gradual and more manageable transition.

The fact that people migrate when they are young is also the reason that several studies find that immigrants have a positive fiscal contribution over their lifetimes (Orrenius 2017). Clearly, a positive net fiscal effect depends on the ability of immigrants to integrate into the labor market and offer sought-after skills. The potential, however, for immigrants to improve the fiscal balance of a receiving country is real. In the United States, for instance, where immigrants' employment rates are high and a large share are highly educated, the average lifetime fiscal contribution of an immigrant who arrived in the last 10 years has been calculated at $173,000.

Immigrants also support the demographics of advanced economies because their fertility rate is higher than that of natives. In the United States, the total fertility rate of natives was 1.76 children per woman in 2017, whereas that of immigrants was 2.18. The presence of immigrants helps to keep U.S. fertility at levels closer to the replacement rate.

From the perspective of the South, policies allowing higher migration to the North would help reduce demographic pressures in high-fertility countries. While the emigration of highly educated people (the so-called brain drain) could have negative effects on sending countries, several studies show that remittances, return migration, and "brain gain" are channels of potential beneficial effects. Research shows that emigration rates are highest in intermediate-income countries and not in the poorest ones. When people are trapped in subsistence, they lack even the basic liquidity to invest in migrating or to learn about outside opportunities. Increased immigration to the North would, therefore, likely benefit intermediate-income countries whose people are more likely to take advantage of these opportunities.

Aging gracefully

From a demographic point of view, therefore, an increase in immigration flows, especially of young people, to advanced economies in the North seems desirable. It would reduce population decline, keep the size of the labor force from shrinking, improve age dependency ratios, and produce positive fiscal gains. From a policy standpoint, this means increasing the number of immigrants allowed, reducing other constraints on immigration, and planning for future inflows.

However, in recent years, Europe and the United States have, if anything, tightened their immigration policies and shown growing skepticism toward immigrants. Interestingly, one reason for this opposition on immigration may be found in demographics itself.

There is increasing evidence that aging societies are becoming more averse to open immigration policies, and older people have systematically more negative attitudes toward immigrants than younger people (Schotte and Winkler 2014). This is paradoxical, as they are the group that stands to benefit the most from immigration: the pension system would be on a more sustainable trajectory, working immigrants do not threaten their jobs, and immigrants work in services often targeted to them, such as caregiving.

Yet the good news is that it appears that such negative attitudes are due more to generational differences than to a simple effect of "aging." A relative lack of exposure to immigrants among the currently old generations in Europe and the United States may be the reason for such attitudes. In Europe, for instance, surveys suggest that millennials and Generation Z have more positive opinions of immigration than do older generations. As the current younger generations are exposed to more immigration, if they maintain such attitudes as they become older and see their voting power increase, they may support more open immigration policies. Then the positive demographic returns from immigration may be more fully realized. FD

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GETTING OLDER BUT NOT POORER

As societies age worldwide, pensions and public policies must adapt

David Amaglobeli, Era Dabla-Norris, and Vitor Gaspar

Unless you live in France, you might not think recent mass strikes over the proposed pension reforms in that country have anything to do with you. But given how fast demographics are changing around the world, that would be a mistake. If you live in Europe and your parents are getting ready to retire at the age of 65 (the statutory retirement age in many countries), you should know that today there are, on average, 3.4 working-age people to support the retirement of every person 65 and older. By 2050, the year when you might be expecting to retire, that number is projected to dwindle to just 2.

Japan is already nearly at that point. By 2050, more than 35 other countries (about 7 percent of the world population) will join Japan. This implies a significantly higher burden on workers to support retirees. This dramatic change will have important economic and social implications that cannot be ignored either by governments or by individuals.

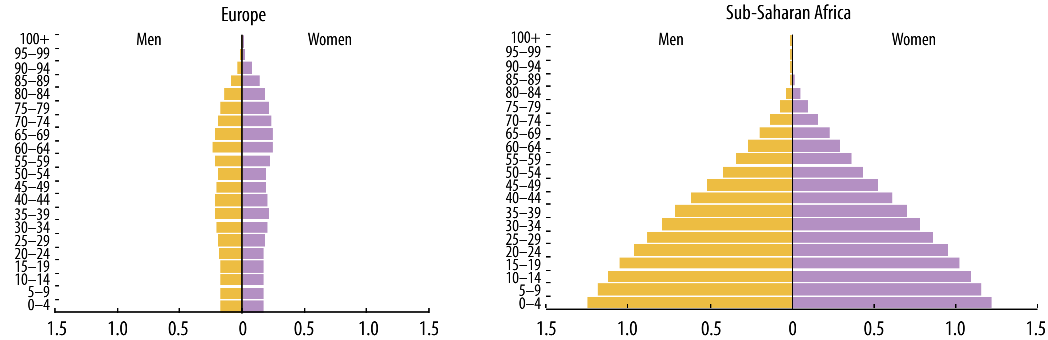
This phenomenon is not confined to Europe or advanced economies more generally. Aging is affecting all parts of the world, but to varying degrees. Two main factors are contributing to this shift in the age composition of the population: people are living longer and having fewer children. Many countries in the Northern Hemisphere, particularly Japan, find themselves in a more advanced stage of this demographic transition. Others, mostly in Africa, are in the early stage.

Chart 1

Top-heavy

By 2050, Europe's population will shrink and age, while sub-Saharan Africa's will double in size and be much younger.

(population by age group, hundreds of millions)



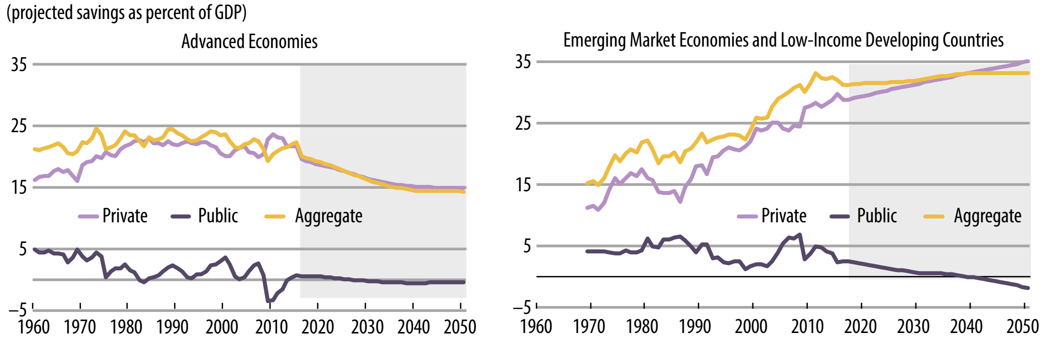
Source: UN World Population Prospects (2019).

Chart 2

Future of saving

Aggregate savings in advanced economies are projected to decline by 2050 as governments spend more on pensions while an aging population saves less.

(projected savings as percent of GDP)



Sources: IMF, *World Economic Outlook*; and authors' calculations.

Countries in advanced stages of transition face a shrinking labor force, meaning fewer people to pay into pension systems, while still needing to ensure that people have decent living standards in retirement. On the other hand, countries in the early stage of demographic transition need to create a large number of new jobs every year to absorb a rapidly growing working-age population. By 2050, there will be a stark contrast between, for example, Europe and sub-Saharan Africa (see Chart 1).

Impact on savings

The ongoing aging process in large parts of the world implies less saving, all else equal. Generally, saving behavior follows a life cycle pattern: in their early years of employment, people tend to borrow; during their prime working-age years, people save; and once they are out of the labor force, they spend some of their savings. While this pattern may not be as pronounced in lower-income countries, it means that societies at a more advanced stage of aging are likely to see lower aggregate savings.

Indeed, recent IMF research (Amaglobeli and others 2019) shows that in advanced economies, both private and public savings (effectively the government fiscal balance) are projected to decline as a result of more pension spending during the next 30 years (all else equal). This will need to change if younger people in these countries are to enjoy pension benefits similar to those of today's retirees: longer life spans will require that they save significantly more and postpone retirement by a number of years.

Longer life spans will require that younger people save significantly more and postpone retirement by a number of years.

In contrast, in emerging market economies and low-income developing countries collectively, relatively young populations will lead to higher private saving (see Chart 2). This increase will outweigh an expected decline in public savings as public spending on pensions rises from current levels in these countries.

However, these broad aggregates mask significant variation across countries. This is true even for countries that are at the same stage of demographic transition, because design features of the pension systems matter. Two important characteristics, which affect future saving trends, are the generosity of the public pension system and the presence or absence of a pension plan that offers dedicated pension savings accounts. These accounts are known as defined-contribution plans, as opposed to defined-benefit plans, which promise a specified pension amount for each retiree based on a formula.

Overly generous public pensions lower both public and private savings, all else equal. Countries that provide relatively more generous public pensions (in terms of average pension spending per elderly person) will end up with relatively higher government spending as the number of retirees increases. This implies lower public savings, unless these countries manage to make spending adjustments elsewhere (for example, by reducing spending for government employee wages or public procurement). The promise of a generous public pension also affects the behavior of individuals, who will be less inclined to save on their own. Conversely, less generous public pensions can drive up private saving because they induce people to save more for their mainly self-funded retirement.

On average, countries with defined-contribution plans are expected to see their private savings increase compared with countries without them. For example, individual retirement accounts in the United States make it easier to save for retirement through dedicated pension savings accounts. Hence, they help increase private saving.

New models

Public policies play an important role in supporting efforts to provide adequate income in retirement while ensuring the sustainability of pension systems. These policies can be grouped into pension system, financial, and labor market policies. We will explore each of these areas separately.

Realizing challenges brought about by the ongoing demographic transition, many countries have enacted significant pension reforms in recent years. These reforms aim to contain the growth in the number of pensioners. Typically, this is achieved by changing key parameters of the pension system, such as increasing the statutory retirement age and tightening eligibility rules. For example, the recent reform proposal in France aims to raise the full-pension retirement age to 64; the reform adopted in Brazil in October 2019 increases retirement ages to 65 for men and 62 for women from 56 and 53, respectively. In some countries, such as Cyprus, Denmark, the Netherlands, and Portugal, the statutory retirement age is legislated to increase in line with rising life expectancy.

Reforms have also attempted to target the size of pension benefits by reducing their generosity. This can be done by modifying the benefit calculation formulas, such as the inflation indexation component; rewriting valorization rules (the adjustment applied to past earnings to account for changes in living standards between the time pension rights are earned and when they are claimed); and changing the accrual rate (the rate at which pension benefits build as member service is completed in a defined-benefit plan).

While reducing public pension generosity and limiting the inflow of new retirees attenuate long-term fiscal vulnerabilities and moderate the decline in aggregate saving, such reforms also have distributional consequences. Therefore, they need to be carefully calibrated. For example, linking further increases in the statutory retirement age to improvements in life spans would help slow

Financial literacy could foster a culture of saving and help people better plan for retirement.

the inflow of new retirees and encourage older workers to remain in the labor force. It would also be important to include effective provisions to prevent old-age poverty.

In countries with inadequate retirement systems, there is a need to increase pension generosity as well as coverage. China and the Republic of Korea are examples of countries with high saving rates and social security systems with low coverage and generosity. Policymakers in these countries should therefore aim to redirect resources to reduce old-age poverty by expanding coverage of social security systems, raising social pensions (that is, pure cash transfers to the elderly), and enhancing targeted social assistance transfers. These actions would reduce households' need for precautionary saving while ameliorating inequality and old-age poverty.

In addition to reforms such as those discussed in this article, countries need to rethink their overall pension system architecture. For example, countries could consider instituting public defined-contribution programs—the kind that encourage people to save for retirement through dedicated individual retirement plans—assuming there are the necessary preconditions (Rudolph and Rocha 2009).

Stimulating voluntary saving for retirement through the development of financial sector instruments is another important avenue. Countries that have less developed financial systems should focus their efforts first on increasing financial inclusion. Globally, 31 percent of adults still do not have bank accounts; the majority of the unbanked population lives in sub-Saharan Africa (Demirgüç-Kunt and others 2018).

Financial literacy could foster a culture of saving and help people better plan for retirement. Countries with more developed financial sectors could institute policies that support voluntary private saving for retirement. For example, the United States provides tax-preferred retirement saving vehicles, such as 401(k) plans. Tax-preferred general or education savings accounts could also be considered. Participation of middle-income households would be essential for these plans to generate additional saving rather than simply displacing existing saving elsewhere.

Countries could adopt policies to counteract the expected decline in the labor force. For example, reforms should focus on closing gender gaps in labor force participation, as Italy and Spain have done. The potential here is significant, as only 50 percent of women participate in the labor force globally, compared with 80 percent of men (Dabla-Norris and Kochhar 2019). Promoting access to high-quality, affordable childcare could support an increase in young mothers in the labor market. Since labor force participation rates tend to decline for age groups closer to retirement, countries could adopt policies that encourage older workers to keep working, especially given the increase in longevity. Governments could make this easier by reconsidering taxes and benefits that favor early retirement.

Taken together, these policies can dampen projected declines in national saving while improving the sustainability of pension systems and ensuring that people have decent living standards in retirement. FD

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YOUTH RISING

Three under thirty forge their own futures

In most of Africa and in parts of Asia and Latin America and the Caribbean the working-age population is growing faster than any other segment of society. In India, half of the country's 1.3 billion people are under the age of 27, and 1.3 million young people reach working age every month.

A large, young population can be a country's most valuable asset, opening the door to higher incomes and a reduction in poverty—the so-called demographic dividend. But it can also pose pressing challenges. Countries that fail to generate sufficient jobs for large numbers of youth are vulnerable to social, political, and economic instability.

Youth in many of these countries with fast-growing populations face a daunting labor market. About 20 percent of young people in the average emerging market and developing economy are neither in school nor employed, according to IMF research. Those who do work are often in jobs that are part time, poorly paid, and offer no legal protection.

What can be done? Developing countries have made dramatic progress in school enrollment rates in recent years. The challenge now is to better align education with the skills needed in today's marketplace.

Technology also offers hope. While it will likely displace some jobs, it may also boost connectivity and the potential for innovation, generating new jobs that give young people an advantage.

And governments can do more to make it easier for youth to enter the labor market. Young people everywhere have a hard time getting started. Policies that limit flexibility and mobility across sectors—such as overly rigid employment protection laws or excessively high minimum wages—tend to penalize them more than older workers.

Nonetheless, many members of the next generation are managing to thrive. The following pages offer an intimate look at three young people navigating the daily challenge of making a life for themselves—with varying degrees of success.

Dhara Shah, 27, is the cofounder of an information design studio in New Delhi, India, a country where women entrepreneurs face serious cultural obstacles. Abdel Illah Safi, 21, is an aspiring performing artist in Fez, Morocco, who dabbled in construction work and pottery sales before enrolling at a vocational center in the hope of landing a decent job. Faith Aweko, 26, is an entrepreneur in Uganda who escaped from the slums of Kampala to start a business that converts plastic waste into fashionable handbags.

Ambitious, socially aware, and open to change, these youth are not sitting back and waiting for opportunity to come to them. Here are their stories.

ART: ISTOCK / AJWAD CREATIVE

Dhara Shah, *India*

AT PRESENT, only 14 percent of businesses in India are run by women. The lack of access to financing—reinforced by cultural bias—is a major obstacle for women entrepreneurs. Despite the odds, however, some women are shattering stereotypes as they advance in the field of information technology.

One such woman is Dhara Shah, 27, cofounder and managing partner of Pykih, a company that designs and builds web-based interfaces for content and data. In a typical day, she cycles through many roles, ranging from mother of a toddler to head of a start-up focusing on data visualization and software design.

Juggling family and her own business, Shah sometimes worries that people view her as either a bad mother or insufficiently committed to her work. Indian women are expected to build families, not companies—especially not tech companies, she says.

She has learned a lot. "After motherhood, my outlook changed," she says. "Now I look at things around me and ask myself, would I want my daughter to go through the same sort of ordeals I face? If not, then what I can do right now to start to change things?"

A member of Global Shapers, an initiative backed by the World Economic Forum, Shah believes there is a need to stop celebrating public personalities from sports and entertainment and start celebrating people who create jobs and make a real, substantive difference.

With Pykih, Shah aims to take data, evidence, and research from think tanks and academia and make it accessible to ordinary people—a goal she sees as especially vital in this era of low trust in mainstream media.

Photography and reporting by **SAHIBA CHAWDHARY**, New Delhi, India

1. Dhara Shah
2. Mentoring a young employee at Pykih
3. Walking past Nehru Place market
4. Starting the day out right: yoga with daughter Sabi


SBI


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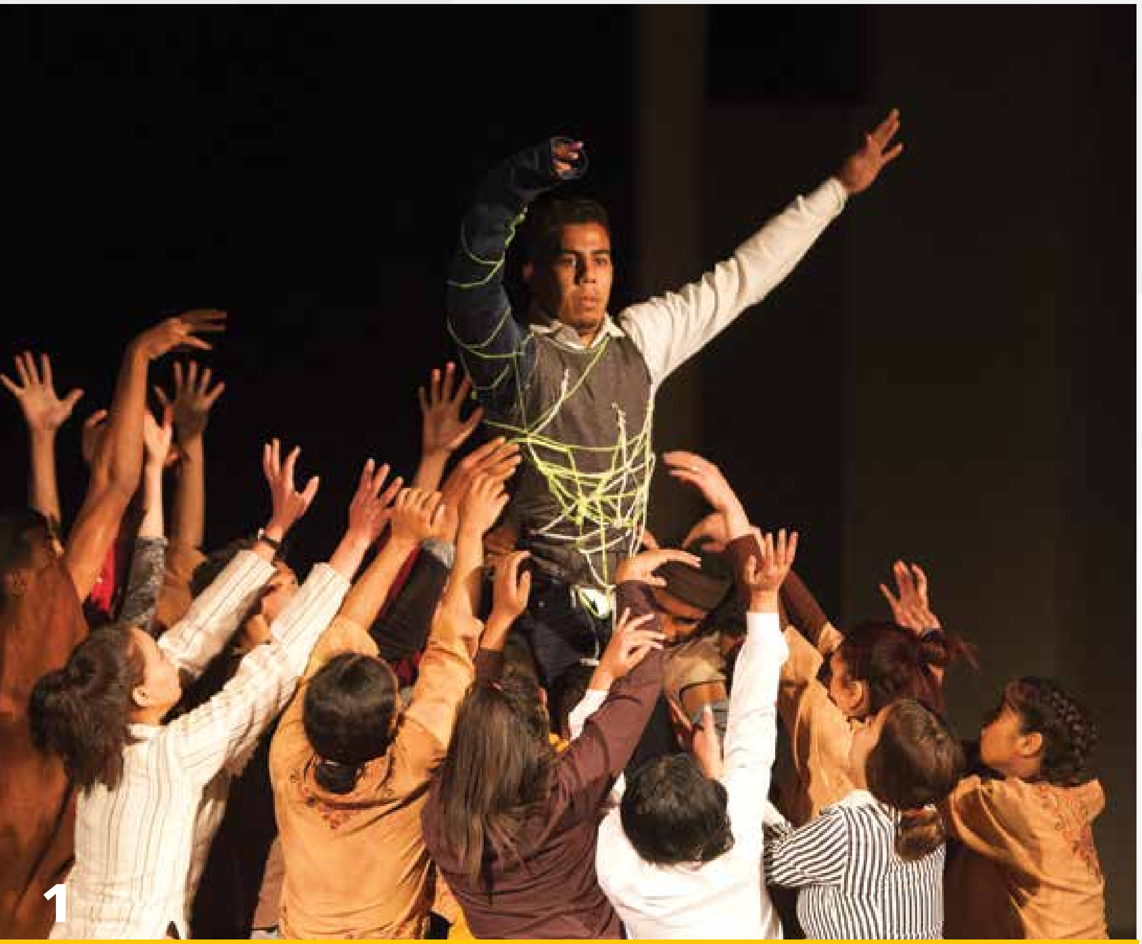

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Abdel Ilah Saffi, *Morocco*

SINCE LEAVING SCHOOL three years ago, Abdel Ilah Saffi has been searching for a purpose in life. With no degree, his options are limited. The Fez native has tried his hand at various things—working in construction, selling pottery, and other temporary jobs.

At a teacher's suggestion, he signed up for classes at the Moulay Ali Cherif School, a center in Fez that provides vocational skills, with a special focus on the performing arts. The school teaches technical skills, such as computer coding and light and sound design, along with acting and contemporary dance.

Saffi was immediately taken with the center's performance arts courses. "They really resonated with me," he says. He is inspired by Rachid Ouahman, one of his mentors at the center who is also a leading young performer in Morocco.

Saffi sometimes thinks about going abroad, as do his four out-of-work brothers. Youth unemployment tops 25 percent in Morocco, and people on the cusp of adulthood wonder, understandably, if the grass is greener somewhere else.

An oft-cited problem with Morocco's educational system is the mismatch between the skills it teaches and those needed in the labor market. To reduce such mismatches, the country has increasingly relied on extending the vocational training system, resulting in a proliferation of centers like the one Abdel frequents. Morocco has more vocational trainees than average for countries in the region, which should help boost employment over time.

For Saffi personally, it has proved a lifesaver. He finds that the vocational center provides more valuable guidance on skills for the future than a conventional school. "I am finding both my passion and my profession," he says.

Photography and reporting by **OMAR CHENNAFI**

1. Saffi plays the lead in a dramatic performance
2. At a part-time job selling pottery
3. Enjoying "Couscous Friday" at the center
4. Learning to code

4

Faith Aweko, *Uganda*

GROWING UP in a low-lying slum area in Kampala, Faith Aweko, 26, had to contend with routine flooding caused by plastic trash that the rain had washed into water channels and roadside trenches. This experience instilled in her a deep aversion to pollution, setting the stage for her future calling.

In 2016, after dropping out of the university in her third year, Aweko needed to find a way to support herself. People under the age of 30 make up about 75 percent of Uganda's population, and many of them are jobless. The situation in this patriarchal society is more dire for women, who are three times as likely as men to have difficulty finding sustainable employment.

Refusing to become a statistic, Aweko decided to join the Social Innovation Academy, an organization that works with former orphans, refugees, and other disadvantaged youth to create social enterprises. There, she crossed paths with others who shared her dream of tackling Uganda's plastic waste problem.

With Mema Rachel, a refugee from Democratic Republic of the Congo, and Naluyima Shamim, she founded Reform Africa, a plastic recycling group that collects plastic waste and converts it into beautiful bags.

They source the plastic waste directly from landfills and collection points around Kampala. Workers deliver it to the main collection point where the plastic bags are sorted, cleaned, and hung on clotheslines to dry. The material is then sent on to tailors who heat-press it to create the sturdy material that is fashioned into colorful handbags and backpacks.

You can't make a silk purse out of a sow's ear, they say. But Aweko has managed to do something even better. FD

Photography and reporting by **JJUMBA MARTIN** in Kampala, Uganda

1. Faith Aweko
2. Harriet Atimango hangs washed plastic to dry
3. Katooke swamp, where people illegally dump waste
4. The MEMA waterproof backpack
5. Kisitu Daniel sews a bag

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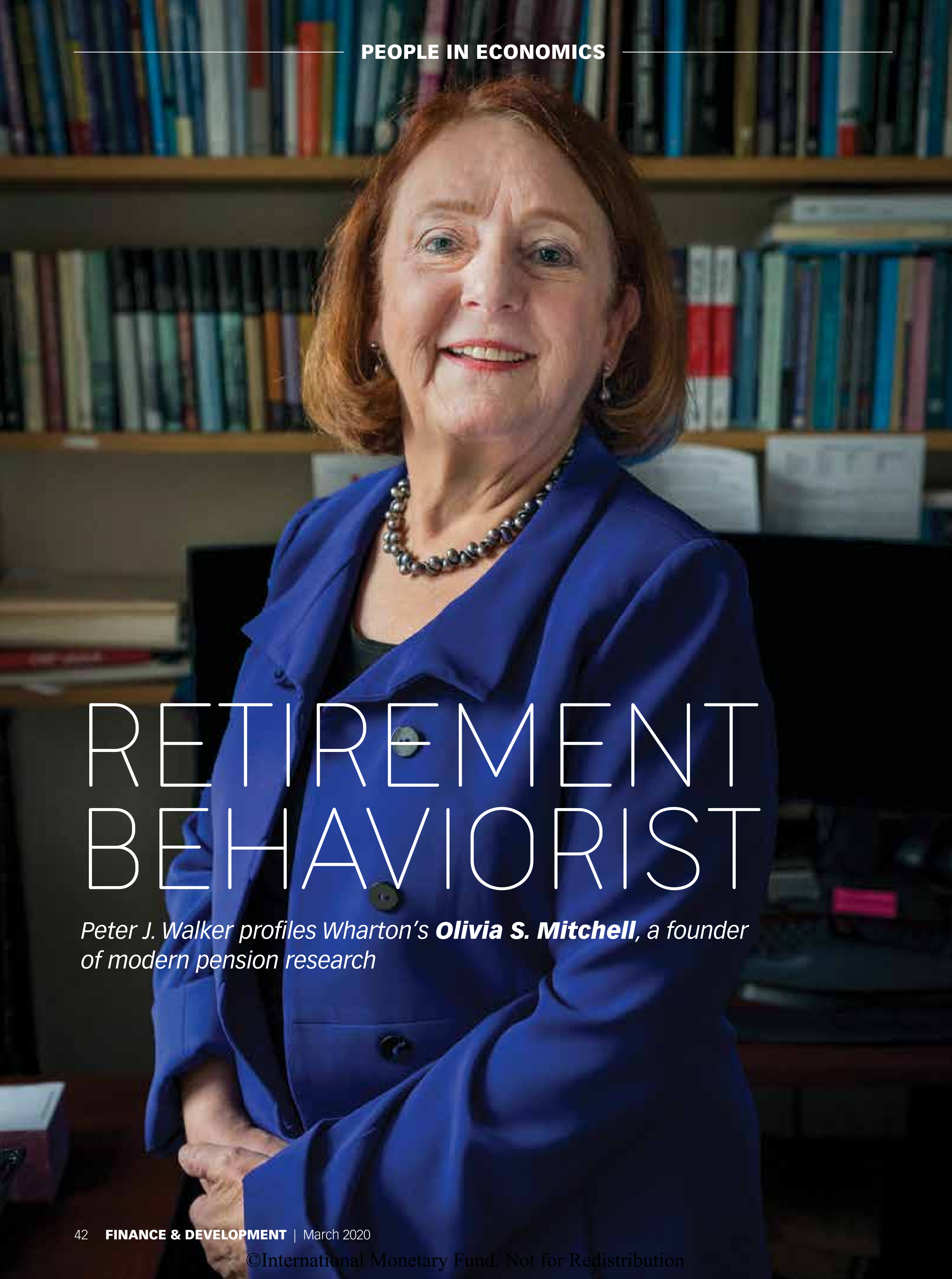
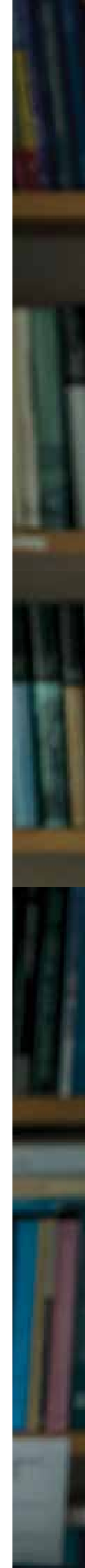


RETIREMENT BEHAVIORIST

Peter J. Walker profiles Wharton's ***Olivia S. Mitchell****, a founder of modern pension research*



As the US presidential race heats up, leading pension expert Olivia S. Mitchell has a warning for candidates.

"Some of the individuals who are running for US president have talked about expanding Social Security benefits, but that's very misguided," the 66-year-old economist says, arguing that just keeping the current system solvent would require steep hikes in payroll taxes or reduced benefits.

Mitchell's research suggests that Americans would be better off with later retirement, expanded financial literacy, and economic incentives that encourage saving, planning, and smarter investing. She has called for a national conversation on entitlement reform to fix the system before benefit funding runs out. Her sobering prognosis is that people must "work longer, save more, and expect less."

Mitchell is one of the founders of modern academic pension research. She has published more than 250 books and articles, advised governments around the world, and received more than 60 professional honors and awards.

When Mitchell began working on the subject 40 years ago, the field was largely limited to actuarial analysis (mathematical and statistical calculations of risk). She has devoted her career to bringing economic considerations, especially those from behavioral economics, into the discipline. Speaking in her office at the University of Pennsylvania's Wharton School, she describes pensions as "a microcosm of everything: demographics, human resources, taxes, finance, psychology, economics, and beyond."

"The breadth and depth of Olivia's expertise about pensions is breathtaking," says Wharton Dean Geoffrey Garrett. "Her insights cover every topic that impacts the economics of retirement—including funding crises in both private and public pensions, the decline in employer-provided pensions, changing demographics, household finance, wealth accumulation, and the need for financial literacy. Her work reflects a period of enormous change in pensions and extends beyond issues in the US."

Between 2006 and 2016, the US population aged 65 and over rose from 37 million to 49 million, and by 2060 the number will almost double—to 90 million. The trillion-dollar Social Security system is the main source of retirement income in the United States, but starting in 2020, its total cost is expected to outstrip its total income. By 2035, system reserves will be depleted, making it able to honor just three-quarters of scheduled benefits. Similar stories are playing out around the world. Mitchell's research offers policymakers a road map for how to address this widespread crisis.

Early life

Mitchell was born in Lincoln, Nebraska, where her father taught agricultural economics at the University of Nebraska. Her parents met while working for the US government in the Republic of Korea, after which they both studied economics at Harvard. Women were not common in the program at that time, and her mother was admitted only on the condition that she type her advisor's papers.

During most of Mitchell's childhood, her father worked for the United Nations Food and Agriculture Organization and was posted to Brazil, Chile, Colombia, Guatemala, Italy, Mexico, Pakistan, and Peru. The experience gave Mitchell a lifelong love of foreign cultures, languages, food, and travel. And it was a childhood steeped in economics.

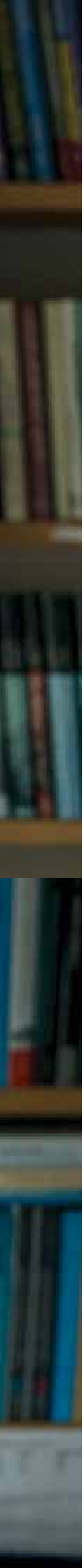
"Economics pervaded my upbringing," Mitchell says. "On the wall above the kitchen table there was a clock which said, 'Time is Money.' Now it sits over my kitchen table." She says her father used a corollary economic concept to coax her into weeding the garden. "When I was five years old, we had a vegetable plot, and my father explained to me that since his time was worth more than mine, I should do the weeding. This was so logical that I decided I must increase the value of my time. So I did!"

Following in her parents' footsteps, Mitchell earned her bachelor's degree in economics from Harvard in 1974, where she too had to deal with a male-dominated environment. One older professor would acknowledge her presence in class with the greeting, "Good morning, lady and gentlemen."

"Standing up to speak and having 99 male faces turn around was initially quite intimidating, though I got over it," she says. It was a formative experience that led her to seek more female-friendly environments later in her career. This was a major reason behind her decision in 1993 to go to Wharton, which historically has had a high proportion of women faculty. She has also been active in the Committee on the Status of Women in the Economics Profession, serving as a mentor and supporter.

In 1978, at the age of 25, Mitchell completed her PhD at the University of Wisconsin with a dissertation on the effect of high local unemployment on married women's participation in the labor force.

PHOTO: CORY HANCOCK/IMF



She took her first job at Cornell University, where she was asked to teach a course on pensions. "The book I had to teach out of was the most boring tome that you can imagine," recalls Mitchell, who, at the time, concluded that she could "write more interestingly on this theme and explore not only actuarial issues but also economics." Moreover, her mother warned of a looming pension crisis in the United States and encouraged her to investigate.

At Cornell, Mitchell married the "boy next door" in her apartment building in Ithaca. Gene Dykes would go on to become a computer scientist. Now retired, he holds the unofficial marathon world record for the 70–74 age group, even though he began running seriously only in his 60s.

The week Mitchell gained tenure at Cornell, she also gave birth to the first of two daughters. Later she set up the "Bank of Mom," a spreadsheet recording the kids' allowances and extra money for doing chores. "If they wanted to buy something, other than for school, they had to check if they had enough funds to cover it," she says.

In academia, Mitchell made her earliest major splash by cowriting, with Cornell economist Gary S. Fields, *Retirement, Pensions, and Social Security*, the first book-length examination of what influences people's retirement behavior. The study of pensions as an economic institution influencing behavior really took off afterward, she says.

"Olivia was bright and hard-working, disciplined and focused, kind and decent," says Fields, one of the world's leading labor economists. "It was clear that she was destined for high achievement."

Modernizing retirement

Mitchell's research then expanded into designing pension plans, including Social Security, to encourage later retirement. More than 40 percent of recipients currently claim Social Security benefits at the minimum age of 62, though those who wait eight years until they qualify for maximum benefits at 70 can increase their monthly income by 75 percent, Mitchell calculates. Filing for benefits early thus usually does not maximize people's benefits.

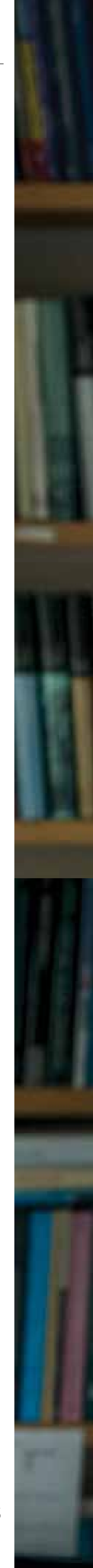
One reason people take their benefits very young, Mitchell found, has to do with how financial advisors explain—or "frame"—this key retirement decision. In particular, advisors use a "break-even" approach that implicitly frames the decision as a risky bet on how long you think you will live. Thus, they might tell you how much you would receive in benefits if you took them early, at age 62, and then tell you that you would have to live at least 14 more years *for sure* to recoup the money forgone by delaying a few years. This analysis might show, for instance, that deferring claiming to age 70 would require that you live to age 84 to break even and start deriving a net gain.

When presented in these terms, people worry whether they will actually live that long. Unfortunately, they tend to ignore the fact that half of all people live longer than their life expectancy. Accordingly, if people are concerned about outliving their assets, it makes much more sense to defer claiming benefits and thereby avoid running out of money in old age. Informed by Mitchell's research, the Social Security Administration has stopped using break-even analyses and now provides a more neutral treatment, which should provide incentives for claiming benefits later.

Another way to encourage people to retire later is to offer lump-sum incentives to defer claiming. Mitchell's work defines these lump sums so that they do not change overall program costs, and they are attractive to older people carrying debt. In related work, Mitchell has found that retirees today are much more likely to have debt, because of bigger mortgages, larger credit card debt, and the growth of student and payday loans.

Retirement may be even further out of reach for millennials, those born between 1980 and 2000. Given the low returns generated by capital markets, Mitchell argues, millennials seeking to retire at 65 must set aside 40 percent of their paycheck, compared with the current average of just 6 percent. Of course, competing expenses such as student loans and high housing costs can make a 40 percent saving target practically impossible. Therefore, Mitchell believes that people must plan to work longer, redefine what retirement means to include part-time work, and embrace lifelong learning.

Financial literacy is a particularly crucial element of lifelong learning. About a dozen years ago, Mitchell's interest in retirement behavior—combined with the transition away from defined-benefit toward defined-contribution retirement plans requiring greater individual responsibility—led her to begin exploring what people know about key financial concepts. Mitchell and Annamaria Lusardi of The George Washington University, devised three questions for the University of Michigan's long-running Health and Retirement Study of US people over the age of 50. The two researchers were stunned to



discover that older people had remarkably low levels of financial knowledge. Lauded as comprehensive yet concise, their "Big Three" questions have been used in numerous other surveys and in more than 20 countries, painting a picture of low financial literacy among the young, the old, women, and low-income groups around the world (see *F&D* online).

Subsequent research has found that financial literacy matters enormously for financial decision making. Those who are financially literate are more likely to plan and save for retirement, make better investments, and experience less financial stress. One study found that the most financially knowledgeable employees in a business received retirement plan returns 130 basis points, or 1.3 percentage points, higher each year, compared with the average worker.

Mitchell and Lusardi also looked at the wider implications of financial knowledge and found that financial literacy can explain between 30 and 40 percent of wealth inequality. That study also included the surprising finding that Social Security benefits may actually discourage the accumulation of financial knowledge and thereby contribute to wealth inequality. "We asked the question, What if Social Security benefits were reduced by 20 percent, reflective of the projected future shortfall?" Mitchell says. "We found that this would increase incentives for low-wage workers to save and invest in financial literacy, which would, in turn, reduce wealth inequality." Their projections revealed that median assets would increase by 32 percent among those without a college education and by 19 percent among the college-educated. "It was an unexpected result," adds Mitchell.

Lusardi, her frequent collaborator, notes that "working with such a rigorous scholar has been a privilege. Our work has been able to uncover not only the low level of financial literacy, but also how much it matters, in particular for groups who are already vulnerable."

Corridors of power

Over her career, Mitchell has also provided a great deal of expert support to public entities concerned with pensions. In 2001, she served on George W. Bush's bipartisan President's Commission to Strengthen Social Security. One of the group's main recommendations was to allow individuals to place a portion of their Social Security contributions in voluntary personal accounts. The proposal was not implemented, largely because of political opposition and the onset of the 2001 capital market collapse. Nonetheless, Mitchell considers the commission's proposals still relevant today, since the system faces shortfalls within the next dozen years or so.

Another approach Mitchell has explored to ensure that more Americans have an adequately funded retirement is longevity income annuities. Under a federal measure signed into law in December 2019, US employers are encouraged to include in workplace pension plans annuities that start paying at least by age 85. Mitchell's research shows that if people used just 10 percent of their retirement nest egg to buy such a longevity annuity, it would boost well-being at age 85 by 6 to 14 percent. With many people living into old age and health care costs rising, she sees this as key to ensuring that people will have more to spend in retirement.

Mitchell also keeps an eye on the countries she once called home, especially Chile. Uprisings on the streets of Santiago in late 2019 began because of subway fare increases, but they quickly led to a broader movement encompassing several popular concerns. One is anger that pensions for the poorest are too small and private pension fund managers' profits too large.

Five years ago, Mitchell served on then-President Michelle Bachelet's pension commission, recommending reforms for Chile's pension system. The commissioners proposed ways to ensure that the plans covered a broader segment of the population, provide a more generous solidarity pillar supporting the poor, and raise contribution rates. At present, the government is pursuing some of the recommendations, including a higher solidarity benefit and lower fees and commissions charged by private pension funds, says Mitchell.

Today Mitchell is working on the determinants and consequences of debt at older ages, the impact of pension guarantees, and how alternative tax structures will alter the way people work, save, invest, consume, and retire.

And what about her own retirement, which has surely been well planned, given her expertise? "My insights into the many risks associated with aging," Mitchell says, "lead me to conclude that, barring very poor health, I will never retire!" FD

PETER J. WALKER is on the staff of *Finance & Development.*

COMING OF AGE

By 2050, as birth rates continue to drop and people live longer, the world's population will change

IN JUST 30 YEARS, the world will look very different. Since 1950, the global population has grown from 2.5 billion to more than 7.7 billion. By 2050, however, that number is projected to reach just 9.7 billion. This is because population growth is slowing—from about 1–2 percent to 0.5 percent annually—largely because of falling birth rates and aging populations, according to the Pew Research Center's analysis of the United Nations' World Population Prospects 2019 report.

The report finds that by 2050, global fertility is expected to be 2.2 births per woman, down from 2.5 today. This rate is inching closer to the replacement rate of 2.1—the number of births per woman needed to maintain a population's size.

Meanwhile, the world's median age is projected to be 36 by 2050, up from the current age of 31. Europe is projected to have the oldest median age, 47 years, in 2050. Surprisingly, Latin America and the Caribbean, long known for its younger population, is expected to see the biggest shift, with its median age, currently 31, poised to increase to 41.

Many countries will face a shrinking population. For Europe, this challenge may come sooner. The region is projected to face the highest dependency ratio—the number of people of nonworking age (over 65) compared with those of working age—by 2050. At 75 percent, this ratio is higher than for any other region.

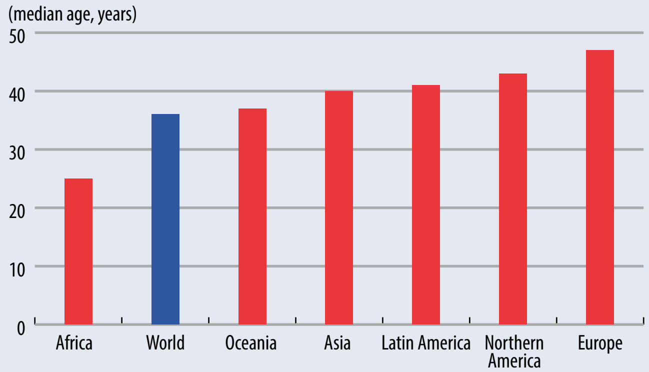
In contrast, Asia and Latin America and the Caribbean are expected to have the lowest dependency ratio, 56 percent, in 2050. Not all populations are shrinking or getting older, though. Africa—the only region whose population is expected to grow more than 1 percent a year—will have the youngest median age, 25, by 2050. FD

*Prepared by **NEIL RUIZ** and **LUIS NOE-BUSTAMANTE**, Pew Research Center, and **NADYA SABER**, IMF, based on the Pew Research Center's analysis of the United Nations' 2019 World Population Prospects Report.*

As the world grows older and birth rates continue to fall...

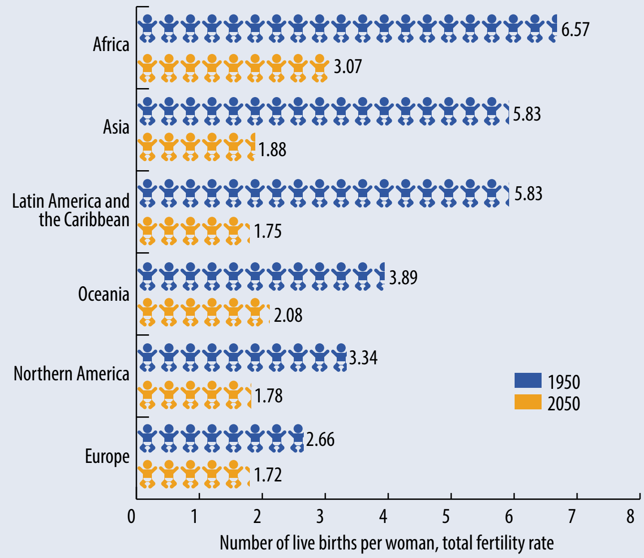
Youngest and oldest

The world's median age is projected to be 36 years by 2050. Europe is expected to be the oldest region (47 years) while Africa is the youngest (25 years).



Oh baby

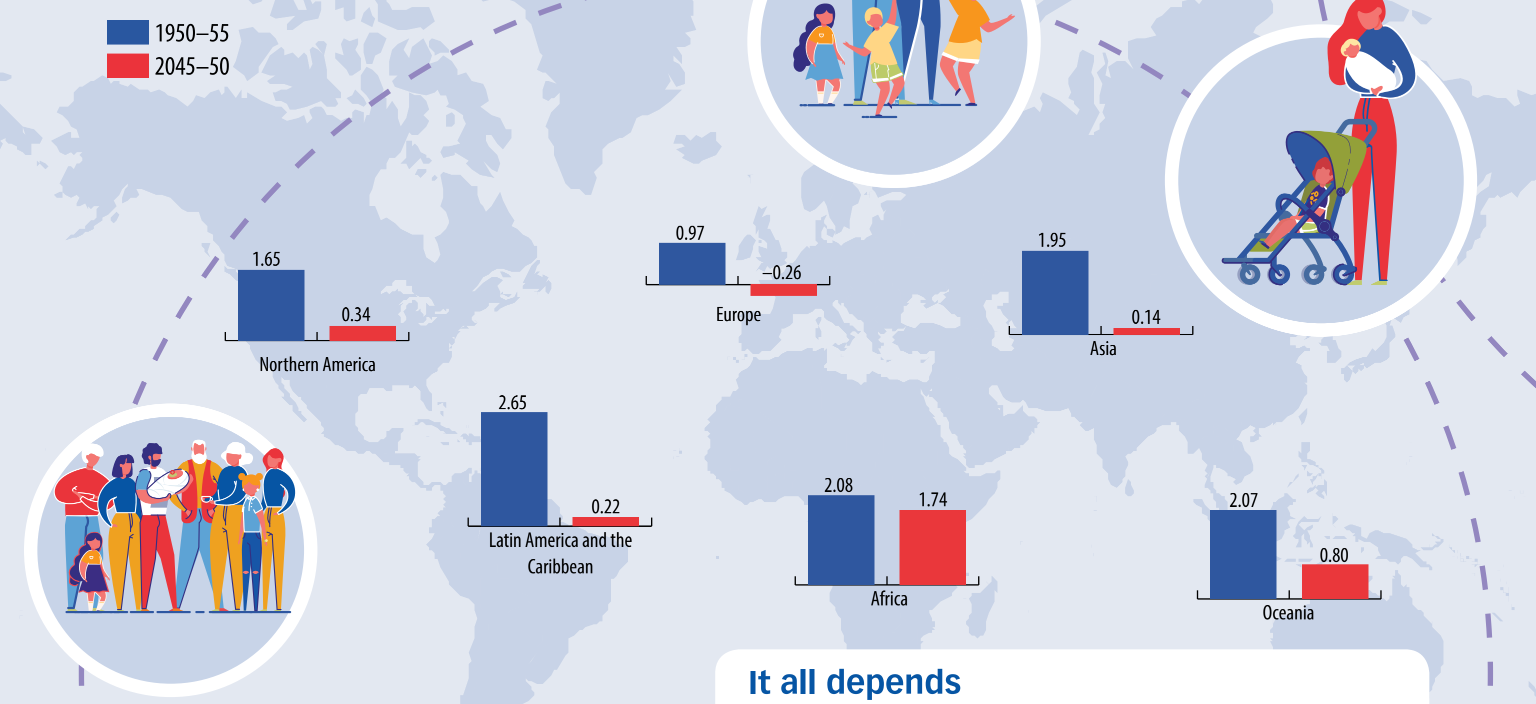
Global fertility rates are expected to drop in 2050.
(number of live births per woman, total fertility rate)



...many countries will face **declining population growth.**

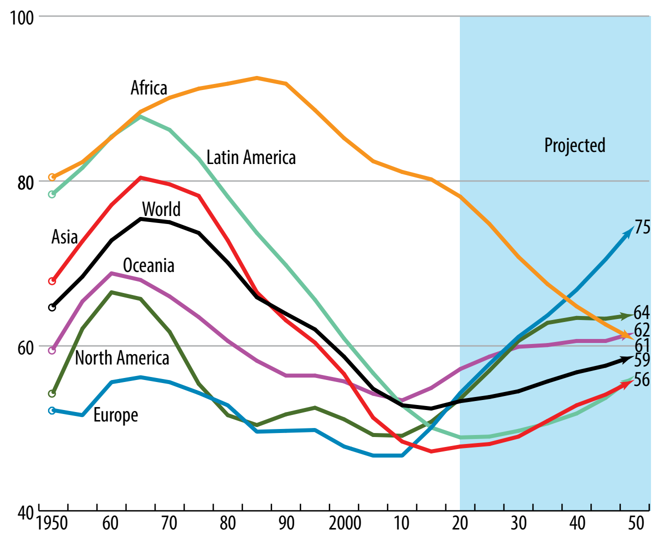
Declining population growth

Europe's population is expected to decline the most by 2050, while Africa is expected to have the strongest population growth of any region.
(average annual rate of population change, percentage)



It all depends

At 75 percent, Europe is projected to have the highest dependency ratio of the world's regions by 2050.
(dependency ratio)



Note: The dependency ratio is the ratio of the population ages 14 or younger and 65 or older per 100 people ages 15–64.

This leaves future generations with smaller workforces to shoulder the burden of an aging population.

ART: ISTOCK / MICRONE;

PHOTO: IMF/EUGENE SALAZAR

Rebuilding Somalia

Finance Minister ***Abdirahman Dualeh Beileh*** *sees hope for his country's economic development*

A BIG CHALLENGE for fragile states is to hold on to their most valuable asset: people. More than 1 million Somalis have fled their country in recent years, many choosing ramshackle refugee camps in neighboring countries over the incessant instability and conflict back home. But for Abdirahman Dualeh Beileh, Somalia's finance minister, years abroad helped prepare him for a key post in a country that had virtually no functioning public institutions for more than 20 years.

After three degrees from the University of Wisconsin–Madison and a long stint at the African Development Bank (AfDB), Beileh was beckoned back to Somalia in 2014 to help the country get on its feet again. He served first as minister of foreign affairs before being named finance minister in 2017. Decades of devastating conflict have left Somalia with vast needs, and Beileh has focused on restoring trust in Somalia's government to secure the resources needed to rebuild.

In addition to his role as a public servant, Beileh is known for his talent as an artist and songwriter. In this interview with *F&D*'s Bruce Edwards, Beileh says cultural expression has been a unifying force in Somalia's fractious history and plays an important role in its development.

F&D: Could you paint us a picture of the place Somalia is emerging from?

ADB: Somalia had no recognized government for 20 years. There was a total lack of institutions, a total suspension of law and order. Everybody went back to their roots, back to their clans where the elders are in charge of small communities. If you don't have a recognized central government, schools, or anything binding these communities of small clans and subclans, then you suddenly feel that you don't exist anymore. We were saved by our women and elders, who helped ease tensions between communities. But we sobered up when we saw that the country was slipping away. We realized that people were leaving, and a country cannot exist in a vacuum.

F&D: What was the turning point?

ADB: The turning point was 2012, when the first government was elected in a manner that resembled normalcy, and the international community recognized that. Since then we've been climbing a very steep mountain, and we're heading for the summit.

F&D: Insecurity has been a long-standing issue.

ADB: Security is always a problem. But when we compare where we are today and where we came from, I think it's tremendous that we were able to make it this far.

There are still some security problems, some terrorist elements in Somalia. But by and large, we have rules that guide our economy nationwide. I think we have the common agenda worked out: one nation, one economy, and one budget. We're not there yet, but with the help of the international community, we'll get there soon.

F&D: Among your many priorities, which ones are the most pressing?

ADB: The most pressing issue is to deal with our debt to the international community. In recent years,

It is impossible to imagine what it is like to lose everything—to lose institutions, records, even your history of governance.

Somalia did not have access to financial resources of the international community other than funds for capacity building and humanitarian assistance.

F&D: What is the size of Somalia's debt, and why have you not had access to the financial resources of the international community in the past?
ADB: The total estimated debt is about $5.3 billion. No country can have access to international financial institutions or other concessionary or grant resources as long as it is in arrears. So the Somali government's clear strategy has been to put every effort into clearing its arrears through the Heavily Indebted Poor Countries Initiative. Once the debt is relieved, we will be able to benefit from the grant resources of the IMF, the World Bank, the AfDB, and other institutions. These resources will be used in rebuilding the country, which will, in turn, generate more jobs. My country is a youthful country, with young people making up 70 percent of the population. There are currently very few jobs for them. Creating more job opportunities is also a top priority.

F&D: After so many years without a functioning government, how do you regain people's trust in government institutions?
ADB: To a normal person working in a normal country, it is impossible to imagine what it is like to lose everything—to lose institutions, records, even your history of governance. It is simply unimaginable.

We have lived through this. It is not easy. At some point, some of the ministers had no offices, no staff. But we now have a functioning government. We have been able to agree on all the bills that will govern our finances, taxes, and customs. Some of them have already been harmonized, and we are working on others with the help of the IMF and the rest of the international community.

F&D: There is now a very large global Somali diaspora. How closely tied is that community to the community within Somalia?
ADB: The diaspora for Somalia has been a blessing. They contribute significantly to our economy, bringing their businesses and their skills back to Mogadishu—not to mention their remittances. I would say 80 to 90 percent of Somali families were fed during our period of difficulty thanks to the diaspora community. And so I cannot overemphasize its value for our country.

F&D: Where would you like Somalia to be, say, five years from now?
ADB: If the current trajectory holds, we can be a middle-income country. It sounds like an overstatement, but knowing the Somali people and their acumen and resilience—you name it, they have been through it. If you can survive all these challenges, if you can build malls and businesses in places like Minneapolis, London, Columbus, and Nairobi, then you can do that in Somalia.

Five years down the road, we have to be a country with a self-sufficient government. We should not be asking for handouts. In five years, the government's budget must be funded by internal resources. We will still require investment in Somalia, because the country's infrastructure has been totally destroyed.

F&D: You're well-known not only as an engaged public official, but also as a distinguished artist and songwriter. Do you believe that art and culture can play a role in the development of the country?
ADB: Yes—when we lost everything else, the culture and the letters remained. And it is Somali culture to articulate everything through the art of poetry and songwriting. So I am one among many. I don't think I can say that I am a great artist. It is just when my emotions reach a certain level, then those feelings find expression in song.

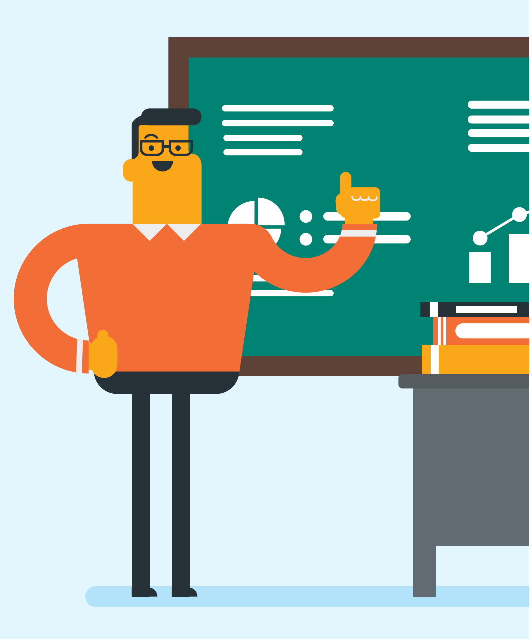
I'll give you an example. When I worked for the AfDB, I would go to African countries and participate in meetings where Africans congregated, and Somalia was not there. The chair was there, the flag was there, but there was no representative. And then I would recall how strong Somalia was when I was growing up. I needed to express the emotion that this evoked in me. And so I did that through song. FD

This interview has been edited for length and clarity.

How Can Interest Rates Be Negative?

Central banks are starting to experiment with negative interest rates to stimulate their countries' economies

Vikram Haksar and Emanuel Kopp



MONEY HAS BEEN AROUND for a long time. And we have always paid for using someone else's money or savings. The charge for doing this is known by many different words, from *prayog* in ancient Sanskrit to *interest* in modern English. The oldest known example of an institutionalized, legal interest rate is found in the *Laws of Eshnunna*, an ancient Babylonian text dating back to about 2000 BC.

For most of history, nominal interest rates—stated rates that borrowers pay on a loan—have been positive, that is, greater than zero. However, consider what happens when the rate of inflation exceeds the return on savings or loans. When inflation is 3 percent, and the interest rate on a loan is 2 percent, the lender's return after inflation is less than zero. In such a situation, we say the real interest rate—the nominal rate minus the rate of inflation—is negative.

In modern times, central banks have charged a positive *nominal* interest rate when lending out short-term funds to regulate the business cycle. However, in recent years, an increasing number of central banks have resorted to low-rate policies. Several, including the European Central Bank and the central banks of Denmark, Japan, Sweden, and Switzerland, have started experimenting with *negative interest rates*—essentially making banks pay to park their excess cash at the central bank. The aim is to encourage banks to lend out those funds instead, thereby countering the weak growth that persisted after the 2008 global financial crisis. For many, the world was turned upside down: Savers would now earn a negative return, while borrowers get paid to borrow money? It is not that simple.

Simply put, interest is the cost of credit or the cost of money. It is the amount a borrower agrees to pay to compensate a lender for using her money and to account for the associated risks. Economic theories underpinning interest rates vary, some pointing to interactions between the supply of savings and the demand for investment and others to the balance between money supply and demand. According to these theories, interest rates must be positive to motivate saving, and investors demand progressively higher interest rates the longer money is borrowed to compensate for the heightened risk involved in tying up their money longer. Hence, under normal circumstances, interest rates would be positive, and the longer the term, the higher the interest rate would have to be. Moreover, to know what an investment effectively yields or what a loan costs, it important to account for inflation, the rate at which money loses value. Expectations of inflation are therefore a key driver of longer-term interest rates.

While there are many different interest rates in financial markets, the policy interest rate set by a country's central bank provides the key benchmark for borrowing costs in the country's economy. Central banks vary the policy rate in response to changes in the economic cycle and to steer the

ART: ISTOCK / RASTUDIO

country's economy by influencing many different (mainly short-term) interest rates. Higher policy rates provide incentives for saving, while lower rates motivate consumption and reduce the cost of business investment. A guidepost for central bankers in setting the policy rate is the concept of the *neutral rate of interest*: the long-term interest rate that is consistent with stable inflation. The neutral interest rate neither stimulates nor restrains economic growth. When interest rates are lower than the neutral rate, monetary policy is expansionary, and when they are higher, it is contractionary.

Today, there is broad agreement that, in many countries, this neutral interest rate has been on a clear downward trend for decades and is probably lower than previously assumed. But the drivers of this decline are not well understood. Some have emphasized the role of factors like long-term demographic trends (especially the aging societies in advanced economies), weak productivity growth, and the shortage of safe assets. Separately, persistently low inflation in advanced economies, often significantly below their targets or long-term averages, appears to have lowered markets' long-term inflation expectations. The combination of these factors likely explains the striking situation in today's bond markets: not only have long-term interest rates fallen, but in many countries, they are now negative.

Returning to monetary policy, following the global financial crisis, central banks cut nominal interest rates aggressively, in many cases to zero or close to zero. We call this the *zero lower bound*, a point below which some believed that interest rates could not go. But monetary policy affects an economy through similar mechanics both above and below zero. Indeed, negative interest rates also give consumers and businesses an incentive to spend or invest money rather than leave it in their bank accounts, where the value would be eroded by inflation. Overall, these aggressively low interest rates have probably helped somewhat, where implemented, in stimulating economic activity, though there remain uncertainties about side effects and risks.

A first concern with negative rates is their potential impact on bank profitability. Banks perform a key function by matching savings to useful projects that generate a high rate of return. In turn, they earn a spread, the difference between what they pay savers (depositors) and what they charge on the loans they make. When central banks lower their policy rates, the general tendency is for this spread to be reduced, as overall lending and longer-term interest rates tend to fall. When rates go below zero, banks may be reluctant to pass on the negative interest rates to their depositors by charging fees on their savings for fear that they will withdraw their deposits. If banks refrain from negative rates on deposits, this could in principle turn the lending spread negative, because the return on a loan would not cover the cost of holding deposits. This could in turn lower bank profitability and undermine financial system stability.

A second concern with negative interest rates on bank deposits is that they would give savers an incentive to switch out of deposits into holding cash. After all, it is not possible to reduce cash's face value (though some have proposed getting rid of cash altogether to make deeply negative rates feasible when needed). Hence there has been a concern that negative rates could reach a tipping point beyond which savers would flood out of banks and park their money in cash outside the banking system. We don't know for sure where such an *effective lower bound* on interest rates is. In some scenarios, going below this lower bound could undermine financial system liquidity and stability.

In practice, banks can charge other fees to recoup costs, and rates have not gotten negative enough for banks to try to pass on negative rates to small depositors (larger depositors have accepted some negative rates for the convenience of holding money in banks). But the concern remains about the limits to negative interest rate policies so long as cash exists as an alternative.

Overall, a low neutral rate implies that short-term interest rates could more frequently hit the zero lower bound and remain there for extended periods of time. As this occurs, central banks may increasingly need to resort to what were previously thought of as unconventional policies, including negative policy interest rates. FD

VIKRAM HAKSAR is an assistant director and **EMANUEL A. KOPP** a senior economist in the IMF's Strategy, Policy, and Review Department.

Access to Finance: Why Aren't Women Leaning In?

Women are self-selecting out of the African credit market

Hanan Morsy

IMAGE COURTESY OF THE AFRICAN DEVELOPMENT BANK

AS A GIRL, I was taught to believe that personal agency prevails over societal biases. I was told that I could accomplish anything if I believed in myself and that sexism was not insurmountable. Later, as a woman, I found out that my parents' advice could not have been wiser. In Africa, the gender gap in access to financial services is driven by women entrepreneurs' own self-perception. Such perception leaves many African women on the fringes of the financial sector—unable to save, borrow, or build capital.

Worldwide, women's access to finance is disproportionately low. Despite substantial overall progress—in 2017, the World Bank reported, 1.2 billion more people had bank accounts than in 2011—there is still a 9 percent gap between women's and men's access. In sub-Saharan Africa, only 37 percent of women have a bank account, compared with 48 percent of men, a gap that has only widened over the past several years. The figures are even worse in North Africa, where about two-thirds of the adult population remains unbanked and the gender gap for access to finance is 18 percent, the largest in the world.

These striking figures raise urgent questions for decision makers in Africa. What continues to fuel gender disparity in access to finance across the continent? And why, despite all efforts, is the gap even wider today than a decade ago?

The mainstream view of economists is that supply-side constraints such as high interest rates and collateral requirements play a major role in excluding women from the formal credit market. Credit rationing through high interest rates disproportionately discourages women entrepreneurs from applying for loans, while lack of collateral can mean they have less access to loans than their male counterparts (Morsy and Youssef 2017). And when they do have access, women typically face more stringent loan arrangements than men.

Overemphasis on the credit market's supply side by academics, policymakers, and practitioners means that demand-side factors and their influence on the gender gap in access to finance have been largely overlooked, especially in Africa. But women's decision-making behavior also plays a key role in this gender gap.

In the credit market, women entrepreneurs fail even to apply for loans because of such factors as low financial literacy, risk aversion, and fear of failure. Intuitively, one would expect women who choose to be entrepreneurs to be at least as competitive as men entrepreneurs. Why, then, are they self-selecting out of the credit market?

Distorted perceptions

Fresh evidence drawn from the credit markets of 47 African countries suggests that women entrepreneurs in Africa, in general, and in North Africa, in particular, are more likely to self-select out of the credit market because of low *perceived* creditworthiness. These women did not apply for loans or lines of credit because they were discouraged by their own perception that their applications would be denied. Our study finds that women managers of micro and small firms are more likely than men to self-select out of the credit market.

Along with this key finding, we observed three stunning phenomena that reinforce our "demand-side" hypothesis. First, the complexity of application procedures and unfavorable loan and credit terms did *not* discourage women entrepreneurs from applying for credit. Second,

women entrepreneurs' self-selection was *not* found to relate to the observed creditworthiness of their firms. And, finally, women's self-selection persisted even in the *absence* of discriminatory lending practices, suggesting that this behavior is not merely a response to discrimination by financial institutions.

Such evidence presents an opportunity to close the persistent gender gap in access to finance in Africa and presumably in other developing regions too. African decision makers should, can, and must do more to address demand-side factors, such as the financial literacy of women and girls. This is indispensable in today's rapidly changing and complex credit market.

Even in a country like Kenya, which has a sound financial system and many women-specific programs, women entrepreneurs still face numerous demand-side challenges to accessing those funds. Financially literate entrepreneurs make more informed financial decisions overall and assess their creditworthiness more objectively. Hence, arming women entrepreneurs with the appropriate financial knowledge and skills will boost their effective engagement in the credit market.

One pioneer model is Malaysia's Women Entrepreneur Financing Programme, which equips women with the knowledge and skills to enhance their strategic business ability in key functional areas, including financial management, marketing, leadership, and technology. The program has helped close Malaysia's gender gap in borrowing.

Differing financial behavior

In addition to financial knowledge, gender differences extend to financial behavior. Women, for example, are more likely than men to save informally. One way to foster women's demand for financial services is thus to introduce financial products aimed at meeting the needs of borrowers who traditionally use informal systems of finance—for example, loans that accept smaller and more movable assets and traditional wealth storage mediums such as livestock and gold as collateral. Governments can help develop such new products—for instance, by putting in place the necessary legal and regulatory framework. Some local banks in West Bank and Gaza now offer loans to small and medium-sized enterprises based on movable assets, with a wide range of innovative products for women, including collateral-free loans and loans secured by gold. These loans are accompanied by financial literacy programs and online business toolkits and advisory services to help smaller enterprises and women entrepreneurs manage and grow their businesses.

Our research shows that it is mainly demand-side factors that limit access to finance for African women entrepreneurs, especially in northern Africa. We controlled for differences between men and women entrepreneurs in terms of talent and the characteristics of their respective firms. We ruled out discrimination in the supply of credit or institutional barriers as driving the observed self-selection. Our conclusion: men and women behave differently. These behavioral differences are based on different risk, social, and competitive preferences.

Africa's gender gap in access to finance can have a dramatic impact on social and economic progress. Women today dominate African agriculture, the continent's most important sector. When women farmers lack access to financial services, their ability to invest in modern technologies to raise their productivity is limited. They cannot diversify their farms. They cannot grow high-value crops and invest in assets such as livestock. And they cannot invest in better nutrition for their children.

The fashion industry in sub-Saharan Africa is also dominated by women, whose small businesses connect a vibrant cotton-textile-garment industry that produces a whopping $31 billion annually. Without access to financing, women-owned enterprises and entrepreneurs struggle to tap into higher-value areas of the fashion industry.

With greater access to finance working capital, many African women entrepreneurs will see their businesses blossom, paving a road toward a better future for everyone. FD

HANAN MORSY is the director of the macroeconomic policy and research department at the African Development Bank Group.

This article is based on African Development Bank Working Paper 317, "Women Self-Selection out of the Credit Market in Africa," by Hanan Morsy, Amira El-Shal, and Andinet Woldemichael.

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WHERE the Sun Shines

Renewable energy sources, especially solar, are ideal for meeting Africa's electrical power needs

Gregor Schwerhoff and Mouhamadou Sy

About half of sub-Saharan Africa's population today does not have access to electricity. Those who do have electricity pay on average nearly twice as much as consumers elsewhere in the world. Power shortages cost the continent about 2 to 4 percent of GDP a year.

And the large electricity needs will only grow in the foreseeable future. Given that the population in sub-Saharan Africa is expected to grow from 1 billion in 2018 to more than 2 billion in 2050, the demand for electricity is projected to expand 3 percent a year. This takes into account a steady increase in access to electricity as well as greater energy efficiency.

Meeting that demand with current energy sources would have severe consequences for health and the environment. The current energy mix in Africa is based mostly on burning coal, oil, and traditional biomass (wood, charcoal, dry dung fuel). This reflects the energy resources of the continent, but also the use of technologies of the past. While this energy mix is comparatively cheap, it is insufficient to meet current needs, and negative effects on the environment are left unaddressed. The continent's sources of energy will need to change, especially if African governments aim to achieve a healthy environment for their citizens and meet the emission limits for greenhouse gases set out by the 2015 Paris Agreement.

Getting the energy mix right

Fortunately, thanks to notable technological advances, Africa does not have to rely on large amounts of fossil fuel, as advanced economies did

when they were at Africa's current stage of development. There is the option to design an energy mix, built largely on renewable sources, that supports both strong growth *and* low emissions. Apart from ensuring an ecologically sustainable approach to development, investing in renewable energy will also generate new job opportunities (IMF 2019).

The right energy mix will allow Africa to develop rapidly while respecting the emission levels required under the 2015 Paris Agreement, in which governments commit to limiting global warming to 2°C above preindustrial levels. Chart 1 shows one such projection, in which the energy mix relies on a variety of technologies.

The chart, based on projections made in 2013, suggests using modern biomass, cultivating high-energy plants, and using crop residue to produce synthetic fuels, as well as carbon capture and storage (CCS), which involves storing carbon dioxide emissions underground. Other researchers have proposed different mixes, all making use of these technologies (Schwerhoff and Sy 2019). However, these technologies carry risks. Biomass production competes with food cultivation and nature conservation. CCS has not yet been tested at an industrial scale. Both technologies can face resistance from local populations. To avoid large-scale reliance on unsustainable technology, Africa will need to move toward an economically and environmentally sound energy mix. This will require addressing the financial challenges of installing renewable energy capacity while seizing opportunities provided by falling prices and technological progress.

Falling cost

Prices for renewable energy have fallen substantially in the past few years, especially for solar power, whose cost decreased 77 percent between 2010 and 2018 according to the International Renewable Energy Agency (see Chart 2). While biomass, geothermal energy, and hydropower cost the least, these sources have limited potential.

As illustrated in Chart 1, both geothermal energy and hydropower can reach a value that is several times larger than today's generation capacity. The energy need, however, far exceeds this capacity.

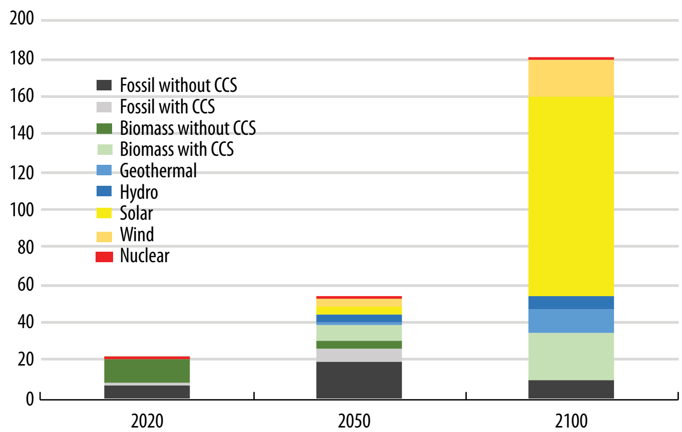
PHOTO CREDIT: ISTOCK KENCANNING; PATTHAMA MOOMUANG

Chart 1

Shift to renewables

Africa's energy mix, today almost totally reliant on burning fossil fuels and biomass, can shift to renewable sources.

(primary energy consumption, exajoules a year)



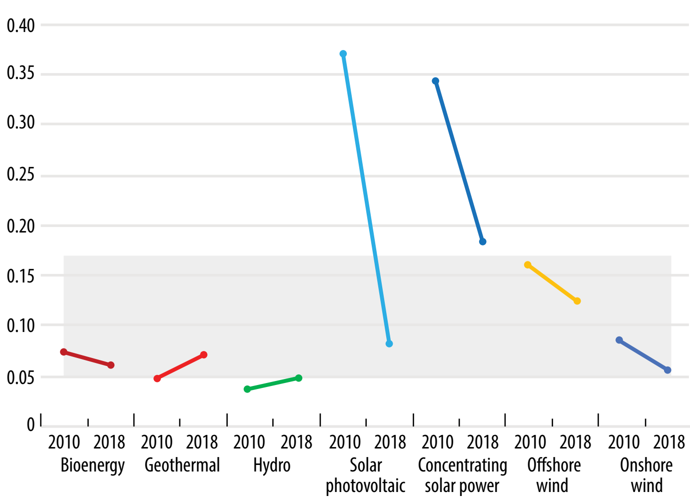
Source: Authors' calculations using the LIMITS database.
Note: "Fossil" includes energy from coal, oil, and gas. CCS = carbon capture and storage.

Chart 2

Getting cheaper

The cost of generating electricity using renewable sources declined sharply from 2010 to 2018 and is now in the same range ($0.05 to $0.17 a kilowatt hour) as fossil-fuel-fired power generation.

(2018 US dollars a kilowatt hour)



Source: International Renewable Energy Agency (IRENA), Renewable Cost Database (2019).
Note: The fossil-fuel-fired power generation cost range for Group of Twenty countries between 2010 and 2017 was estimated to be between $0.05 and $0.17 a kilowatt hour, according to IRENA. We assume the same fossil-fuel-fired power generation cost range in 2018.

Geothermal energy can be very efficient (as we have seen in Kenya) but is available only in certain locations. Hydropower requires a careful balancing of environmental, social, and economic objectives. It is impossible to exploit the entire technical potential of hydropower: it requires the inundation of large areas, which threatens local ecosystems and often involves relocation of the local population. Hydropower is currently being hampered by continuous drought in southern Africa, and related energy generation has been severely curtailed in Zambia and Zimbabwe because dam levels are dangerously low. Conversely, there are large hydropower projects coming onstream or in preparation in west Africa, the Democratic Republic of the Congo, and Ethiopia.

More promising for large-scale expansion of renewable electricity generation are solar and wind power, whose prices are now in the same range as those of fossil fuels. In addition, conditions for solar energy are excellent in Africa, where sunshine is not only abundant but also much more reliable than elsewhere. And investment into renewables is in fact picking up in Africa. South Africa, Uganda, and Zambia have held renewable-energy auctions that achieved competitive prices and attracted private investors. South Africa already has several solar power plants with a capacity of more than 100 megawatts. The Lake Turkana Wind Power project in Kenya is another success story.

Despite successful examples in many countries, solar and wind accounted for only 3 percent of the electricity generated in Africa in 2018 compared with 7 percent in other regions of the world. The supply of electricity in Africa is strongly dominated by fossil fuels and to a lesser extent by hydropower (79 percent and 16 percent, respectively).

The problem with renewable energy has always been that its supply fluctuates, posing a challenge for reliance on renewables as a source of electric power. Technological advances in stabilizing the electricity supply now make it possible for renewable energy to constitute a large share of the energy supply. These advances include using hydropower as a buffer during periods of peak demand, pooling electricity production from different geographic regions through a well-connected electricity grid, adjusting electricity demand to supply, and storing energy with flow batteries and hydrogen electrolysis. Currently,

the share of variable renewable energy in total energy production is so low that variability is not yet a major concern. As this share increases, these options can be rolled out at a reasonable pace. With these technological advances, updates of Chart 1 show that it is possible for Africa to rely 100 percent on renewable energy by 2050 without slowing development.

Overcoming financial challenges

Financing is now the biggest challenge, however. Fossil fuel plants are comparatively cheap to build but expensive to run, as they require continued purchases of fuel. In contrast, renewable sources are inexpensive to operate but have high installation costs, which must be financed up front. Providing a high-quality energy basis for African development thus requires a comprehensive approach to financing (Schwerhoff and Sy 2017). If Africa is to take a new, low-carbon approach to development, its countries must mobilize public, private, and multilateral and bilateral donor financing to raise the funds needed for renewable-energy projects.

On the public side, African governments can generate significant revenue by reducing the inefficiency caused by fossil fuel subsidies, which benefit mainly coal and oil. These subsidies are estimated at 5.6 percent of sub-Saharan African GDP (Coady and others 2019). Progressively phasing out subsidies—while protecting the vulnerable—could raise financing for renewable-energy projects. Moreover, African governments can potentially mobilize more of their domestic resources to cover the initial capital costs of renewable energy. For example, with an average tax-to-GDP ratio of about 14 percent in 2017, sub-Saharan African countries have ample room to increase their tax revenues. Use of carbon taxation could boost tax revenue while reducing fossil fuel carbon dioxide emissions (IMF 2019).

On the private sector side, African countries must make substantial efforts to attract private investment to the renewable sector. Surveys have identified governance-related risks—complex bureaucracy and changing regulation—as the greatest threat to private investment in renewable-energy projects in Africa. Attracting private financing will require improvements in governance to reduce political risk. Reforming the financial sector to boost the incipient green bond market and reducing financial risk by transferring part of it to public actors can also help attract private investment.

At the international level, multilateral financial institutions play an important role in facilitating long-term financing to support investment in climate change mitigation. In addition to identifying alternative sources of funding, these institutions provide tailored advice on the effective deployment of climate financing.

The problem with renewable energy is that its supply fluctuates, posing a challenge for reliance on it.

The 2015 Paris Agreement is based on advanced economies' commitment to mobilizing the equivalent of 0.12 percent of the world's GDP a year through 2025 to address the needs of developing economies. Honoring this financial commitment would smooth the way for the transition to a low-carbon-energy economy across Africa—the continent with the lowest contribution to global warming. Only about 4 percent of global-energy-related carbon dioxide emissions in 2018 originated there (IEA 2019), yet Africa is the region most affected by climate change. This twist of fate certainly justifies more international support for the continent. FD

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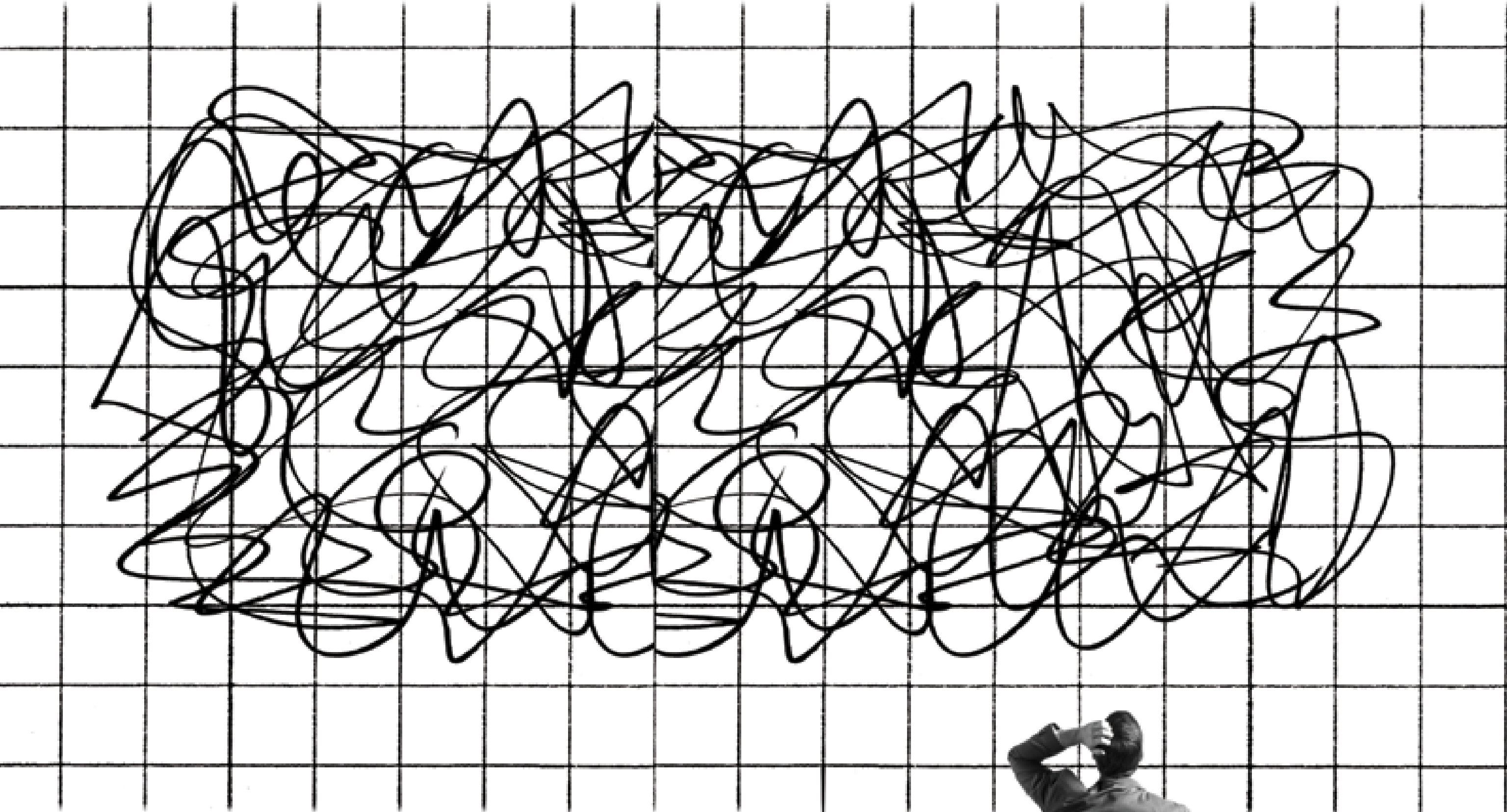


60 Years of Uncertainty

Our new index provides novel insights into an amorphous concept

Hites Ahir, Nicholas Bloom, and Davide Furceri

"If I had to identify a theme at the outset of the new decade it would be increasing uncertainty." Kristalina Georgieva, Managing Director of the IMF, Peterson Institute for International Economics, January 17, 2020

It is well-known that uncertainty reduces the willingness of firms to hire and invest and of consumers to spend. Yet it is a nebulous concept, because it reflects uncertainty in the *minds* of consumers, managers, and policymakers about *future events* (that may or may not happen). It is also a broad concept since it relates to macro phenomena like GDP growth and micro phenomena like the growth rate of firms—as well as other events like elections, wars, and climate change.

Looking back at the past 60 years, we see few episodes where uncertainty has been at levels close to those observed in the past decade.

Given all these challenges, it is not surprising that researchers have relied on different methods to measure uncertainty. One approach is based on the volatility of key economic and financial variables (Leahy and Whited 1996; Bloom 2009; Ludvigson, Ma, and Ng, forthcoming). Another method is based on text-searching newspaper archives, for example, the Baker, Bloom and Davis (2016) Economic and Policy Uncertainty index. However, these approaches share an important limitation: they are typically limited to a set of mostly advanced economies, and for many of these countries the data are available only after the early 1990s.

New measure of uncertainty

To address this limitation, we have constructed a new quarterly measure of uncertainty—the World Uncertainty Index (WUI). It covers 143 countries—all countries in the world with a population of at least 2 million. It goes back in time, providing data for the past 60 years. The index uses a single source for all countries, which allows us to compare the level of uncertainty across countries. And it captures uncertainty related to economic and political events, regarding both near-term (e.g., uncertainty created by the United Kingdom's referendum vote in favor of Brexit) and long-term (e.g., uncertainty engendered by the impending withdrawal of international forces in Afghanistan, or tensions between the Democratic People's Republic of Korea and the Republic of Korea) concerns.

The index is constructed by text-mining the country reports from the Economist Intelligence Unit (EIU), a business intelligence company that provides country reports on a quarterly basis. These reports cover the economy, policies, and politics of each country. We follow three steps in constructing the index. First, we compile country-specific reports on a quarterly basis from the EIU from the mid-1950s onward for 143 countries. Second, we count the number of times the word "uncertainty" (and its variants) is mentioned in these reports. Third, we normalize the total count of the word "uncertainty" according to the total number of words in each report.

To address potential concerns regarding the accuracy, reliability, and consistency of our dataset, we evaluate the index in several ways. First, we examine the narrative associated with the largest global spikes. Second, we show that the index is associated with greater economic policy uncertainty, stock market volatility, risk, and lower GDP growth, and tends to rise close to political elections.

Key findings

This new data set allows us, for the first time, to examine the historical evolution of uncertainty around the globe. Several interesting stylized facts emerge:

First, global uncertainty has increased significantly since 2012. The latest data for the fourth quarter of 2019 show that, after dipping in the third quarter of 2019, the aggregate index—a GDP-weighted average of 143 countries—is at an all-time high.

The recent levels of global uncertainty are also exceptional in a historical context. Looking back at the past 60 years, we see few episodes in which uncertainty has been at levels close to those observed in the past decade. Other notable historical episodes include the assassination of US President John F. Kennedy, the Vietnam War, the gold crisis in the late 1960s and the oil crises in the 1970s.

These global episodes, however, do not mean that levels of uncertainty are historically high for all countries in the world. They reflect, to a large extent, the increasing role of global factors in driving uncertainty across the globe. For example, the current level of uncertainty in China is significantly lower than the level recorded during the cultural revolution in the late 1960s, a period when China was less connected to the rest of the world.

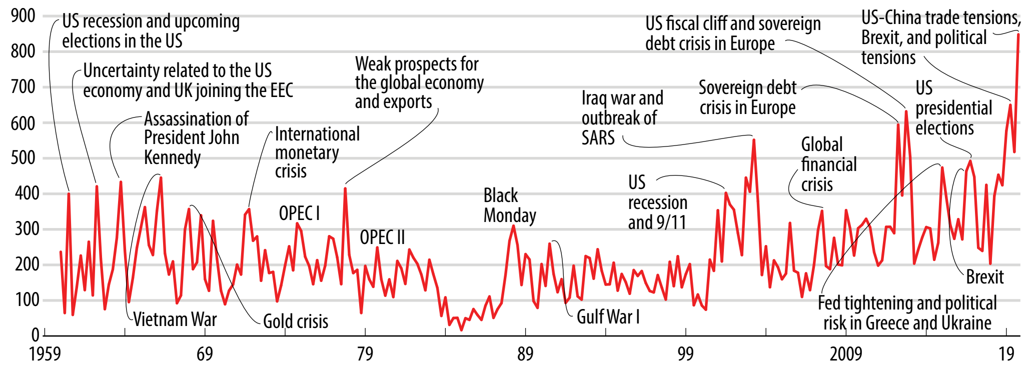
Second, uncertainty spikes are more synchronized in advanced economies than in emerging market and low-income economies. Our analysis finds that

ART: ISTOCK / DNY59

Uncertain times

Global uncertainty has surged to a record high.

(WUI index: 1959 Q1 to 2019 Q4, GDP weighted average)



Sources: Ahir, H., N. Bloom and D. Furceri (2018), World Uncertainty Index (WUI), mimeo.

Note: The WUI is computed by counting the frequency of the word "uncertain" (or the variant) in Economist Intelligence Unit country reports. The WUI is then normalized by total number of words and rescaled by multiplying by 1,000. A higher number means higher uncertainty and vice versa. The aggregate and disaggregate data by country and regions are available at www.worlduncertaintyindex.com.

uncertainty in emerging market and low-income economies mostly follows the global average. This is because individual country shocks are not synchronized, so they get averaged away. In contrast, uncertainty in advanced economies spikes sharply, because these countries tend to move together. Within advanced economies, uncertainty synchronization is higher among euro area countries. In addition, we find that stronger trade and financial linkages across countries lead to stronger uncertainty synchronization.

Third, the average level of uncertainty is higher in low-income economies than in emerging market and advanced economies. One potential reason for this is that developing countries appear to have more domestic political shocks like coups, revolutions, and wars; are more susceptible to natural disasters like epidemics and floods; and their economies are more volatile as they are more frequently hit by external shocks and have more limited capacity to manage these shocks.

Fourth, there is an inverted U-shaped relationship between uncertainty and democracy. As countries move from a regime of autocracy and anocracy toward democracy, uncertainty increases. As countries move from some degree of democracy to full democracy, uncertainty declines.

Finally, increases in the index foreshadow significant output declines, with the effect being larger in countries with weaker institutions.

Research uses

This data set can be extremely valuable for researchers. For instance, the fact that spikes to the index foreshadow output declines suggests that it could be used as alternative measures of economic activity when those typically employed are not available (such as quarterly GDP for many countries). The dataset can also be used to investigate a number of policy questions, including the impact of differences in the level of uncertainty across countries on key macroeconomic outcomes, such as foreign direct investment. It can likewise be used to examine the various drivers of uncertainty as well as the economic effects of policies in times of uncertainty. FD

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Facts for Change

Abhijit V. Banerjee and Esther Duflo
Good Economics for Hard Times
Hachette, New York, NY
2019, 403 pp., $25.98

ABHIJIT V. BANERJEE AND ESTHER DUFLO, two of 2019's Nobel Prize winners in economics, start their extraordinary book by noting that people's core beliefs "are better predictors of their policy views than their income, their demographic groups or where they live." Subjective identities increasingly tend to overpower more objective predictors and reflect growing polarization. In the United States, for example, "in 1960 roughly 5 percent of Republicans and Democrats reported that they would feel displeased if their son or daughter married outside their political party. In 2010 nearly 50 percent of Republicans and over 30 percent of Democrats reported such feelings."

The authors set out to use what economists can say with some certainty to find common ground in the great debates of our time, such as those about migration, trade, economic growth, climate, and social policies. They use simple prose to demonstrate how rigorous economic thinking accompanied by careful empirical work can be brought to bear on a myriad of concrete policy problems. The authors, already very well known for their earlier work promoting the use of randomized controlled trials in empirical development economics, use this method to shed light on many controversies that often rage with little or, even worse, misleading factual support. Throughout the book they explore many examples of otherwise similar groups that differed only in their exposure to exogenous events or different policies. One example—visa lotteries in New Zealand whose applicants were from the same Pacific island of Tonga—reports that winners tripled their income within one year of receiving a visa, which supports the conclusion that differences in wages are "caused by difference in the location and nothing else."

The many randomized controlled trial discussions are placed in a wider context, however. The chapter on trade starts with basic theory from Ricardo's comparative advantage to the Stolper-Samuelson theorem on the effects of trade on factor income. The chapter on growth takes us from the Solow model with diminishing returns to Romer's views on spillover effects from innovation, which can overcome diminishing returns for an economy as a whole. For trade, once it is recognized that neither capital nor labor reallocates with the ease often assumed, the predicted benefits weaken. For growth, the authors conclude that "despite the best efforts of generations of economists, the deep mechanism of persistent economic growth remains elusive" and recommend a focus on poverty reduction using the insights from randomized controlled trials.

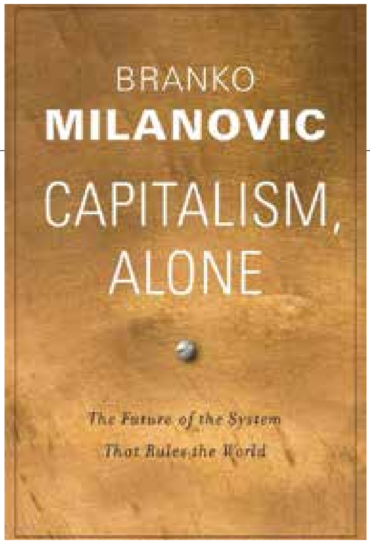
The chapter on climate argues that warming will have huge costs for poor countries closer to the equator, but surprisingly says that "if the world warms by a degree centigrade or two, residents of North Dakota will mostly feel perfectly happy about it"—ignoring other effects of climate change, such as extreme weather events.

Subjective identities increasingly overpower more objective predictors.

The book is written with both ambition and realistic modesty. The authors hope that their critical scrutiny of narratives that are too "easy" will help reduce polarization and allow improved design of specific policies based on sound evidence and rigorous analysis. FD

KEMAL DERVIŞ, senior fellow in the Global Economy and Development Program, Brookings Institution

End of History?



Branko Milanovic
Capitalism, Alone: The Future of the System That Rules the World
Harvard University/Belknap Press, Cambridge, MA, 2019, 304 pp., $29.95

CAPITALISM, ALONE is an ambitious and provocative examination of the present and the future of capitalism. It is a valuable, data-rich, and thoughtful addition to several recent books examining the challenges facing this economic system.

The premise is that capitalism has beaten all alternatives. The book reviews the historical shifts leading to this Darwinian triumph. For the first time, a single economic system rules the world. "The domination of capitalism as the best, or rather the only, way to organize production and distribution seems absolute."

This does not, however, entail the "end of history." The triumph of liberal capitalism has not delivered the vision that had many in its thrall in the 1990s. Branko Milanovic examines the internal strains the system faces: increasing income and wealth inequality within economies, declining intergenerational mobility, mounting economic and social polarization, and rising influence of wealth in politics leading to the concentration of both economic and political power in the hands of an elite and a weakening of democratic polity. Big changes in technology may exacerbate these strains, which are reflected in the rising popular revolt across Western capitalist democracies.

Capitalism itself may no longer have competitors; the competition now is between different types of capitalism, the West's "liberal meritocratic capitalism" (with the United States as its most paradigmatic example) and "political capitalism" (with China as the exemplar). The latter system is mounting a growing challenge, on the back of China's economic rise. But it is beset by its own problems: endemic corruption, weak rule of law, authoritarian control by a political elite whose power depends on delivering continued high economic growth, and rising inequality.

What does the future hold? Milanovic says that while capitalism cannot be replaced—at least in the foreseeable future—it can be improved. He sketches areas for reform to address the economic and political dysfunction of liberal capitalism. And his list includes deconcentrating capital and wealth ownership through tax advantages that give the middle class a bigger stake in financial capital and a corresponding increase in the taxation of the rich, coupled with higher taxes on inheritance. He also calls for a significant boost in public investment to broaden access to high-quality education and enhance equality of opportunity. Strictly limited and exclusively public funding of political campaigns to reduce the ability of the rich to control the political process is another necessary reform, he says.

Such major reforms face heavy odds in a system where wealthy elites wield strong political influence and will resist change. Higher taxes on capital and wealth may be difficult in globalized capital markets without significant international coordination. Absent reform, liberal capitalism may lurch further toward plutocracy, with technocratic structures overshadowing those that are democratic as discontent with elected governments grows. Political capitalism, on the other hand, faces existential risks from the inevitable slowing of growth as economies mature.

So the evolution of humankind's socioeconomic system may not have reached its terminus. The march of history continues. FD

ZIA QURESHI, visiting fellow, Global Economy and Development Program, Brookings Institution

Story Time

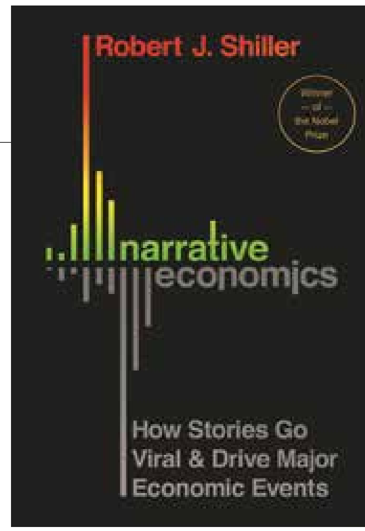
"FACTS DON'T CARE ABOUT YOUR FEELINGS" is a popular phrase on social media, ironically often used by those with at best a rudimentary grasp of history. Robert Shiller's mission in this book is to convince us of the opposite—that economic facts are indeed driven by our feelings. Those feelings are in turn driven by what he describes as economic narratives—contagious stories with the potential to change how people make economic decisions.

Recently, an extensive economic literature has looked at how perceptions can drive outcomes and vice versa.

But Shiller argues that the power of narratives is both broader and deeper than contemporary economics is prepared to accept. We cannot understand or, regarding the future, predict episodes like the Great Depression—or the 1980s move toward personal tax cuts—without understanding the narratives that underpin them. In some ways his thesis could be seen as pushback against the most recent Nobelists. These "randomistas" argue (to oversimplify, no doubt unfairly) that the discipline of science can strip away the need to "tell stories" and cleanly identify the reduced-form causal impact of particular policy interventions, without fear about expectations or beliefs.

But—and it is a big but—it is Shiller's approach to causality that trips him up. His description of the cult of frugality during the Great Depression, and how it led to the mass adoption of blue jeans and jigsaw puzzles, is entertaining. But the claim that "the crazed nature of the phenomena...helps to explain the length and severity of the Depression" is a stretch, to say the least. Similar examples dot the book. Art Laffer's napkin and Ronald Reagan's jokes (not to mention a short story by Astrid Lindgren) "touched off an intense public mandate for tax-cutting"; George W. Bush's post–9/11 narrative ended the 2001 recession.

The power of narratives is both broader and deeper than contemporary economics is prepared to accept.



Robert J. Shiller
Narrative Economics: How Stories Go Viral & Drive Major Economic Events
Princeton University Press, Princeton, NJ, 2019, 377 pp., $27.95

But why should we believe that these stories genuinely caused their related economic events rather than being driven by them, or perhaps being usefully and interestingly illustrative of them? There's remarkably little reference to empirical evidence, and none to the recent literature on, for example, political uncertainty.

Instead, Shiller's views of the importance of narrative seem themselves to be based on his belief in a specific story about how and why people make economic decisions. "Ultimately, the mass of people whose decisions cause economic fluctuations aren't very well-informed...and yet their decisions drive aggregate economic activity. It must be the case that attention-getting narratives drive those decisions."

The "must" is assertion, not analysis. Not surprisingly, given this lack of analysis, the book does little to set out a convincing research agenda. The call for economists to draw from other disciplines, not just epidemiology but qualitative social research, among others, is welcome. But I struggle to see how Shiller's thesis can be turned into testable hypotheses and especially, as he hopes, into mechanisms for predicting and avoiding economic downturns or crises. FD

JONATHAN PORTES, professor of economics and public policy, King's College London

Natural Treasures

Samoa honors its environmental heritage in colorful currency

Melinda Weir

THE VALUE of a crisp banknote is easy to understand. But the value of a country's natural landscape, facing threats including climate change, natural disasters, and overzealous developers, is sometimes harder to see—until it's possibly too late.

In Samoa, population just under 200,000, there is a history of celebrating the fragile natural beauty of its surroundings on the country's currency, the Samoan Tala.

Samoan banknotes—in every shade of the rainbow—depict influential people and institutions, but also the South Pacific country's unique and irreplaceable natural environment: a cascading waterfall (Sopoaga Falls); Samoa's national flower, the *teuila*, also known as red ginger flower; the national bird (the manumea, an endangered species found only in Samoa); and a pristine white sandy beach.

PHOTOS: CENTRAL BANK OF SAMOA

Samoa's $20 tala bill has been honored for its design. It features the national bird (the manumea), national flower (the teuila), *and Sopoaga Falls.*

Samoan currency, last issued in 2008, has in turn received awards for its design aesthetic; the vibrant yellow $20 tala bill, featuring Sopoaga Falls and a manumea, was singled out as one of the world's "most beautiful" banknotes by Banknote World.

Carbon neutral, climate positive

More recently the commemorative $10 tala bill, printed in honor of the 2019 Pacific Games, which Samoa hosted, was a nominee for the International Bank Note Society's Banknote of the Year.

The limited-edition banknote celebrates the themes of sports and youth, depicting children playing rugby and adult athletes competing in rowing and women's weight lifting.

The vivid blue polymer bill is also believed to be the world's first carbon-neutral banknote, according to Central Bank of Samoa Banking and Currency Services Manager Lea Collins. The emissions used in production of the banknotes were offset by purchases of carbon dioxide savings elsewhere, according to the central bank and bill design firm De La Rue.

It was especially fitting, Collins told *F&D*, that the banknote's rollout last year was tied to the first "green" Pacific Games, which presented an opportunity for host Samoa to campaign against single-use plastics and promote carbon offsets for participating countries.

Urgency of action

The carbon-neutral banknote was issued against a backdrop of growing concern about climate change in Samoa and internationally.

Living in a small state made up of two main islands, Samoans are increasingly accustomed to damage from extreme weather events, in addition to threats from rising sea levels and climate-related natural disasters such as Cyclone Gita in 2018.

Samoan Prime Minister Tuilaepa Sailele Malielegaoi has advocated more urgent international action against climate change, calling it an

Samoa issued a commemorative $10 tala bill in 2019 to celebrate the Pacific Games, which the country hosted. It is thought to be the world's first carbon-neutral banknote.

"existential threat . . . for all our Pacific family." In a 2019 speech to the United Nations, he said the crisis is not limited to small island or developing states. "Climate change crosses borders uninvited and does not discriminate by size or economic status," he said.

Tourism and tales

As Samoa's first vertically oriented banknote, the limited-edition $10 tala bill entered circulation in 2019, joining the $10 tala bill already in use, which highlights images from education and sports and is the most widely circulated banknote in the country, according to the central bank.

Samoa's other multicolored banknotes, last issued in 2008, each focus on a different theme:

- the red and orange $5 tala bill focuses on "tourism," with Matareva Beach on one side and Villa Vailima, the home of Scottish novelist and travel writer Robert Louis Stevenson, on the other. Stevenson, who gave the world *Treasure Island* and *Strange Case of Dr. Jekyll and Mr. Hyde*, was dubbed the "Teller of Tales" in Samoa; he lived there for four years before his death in 1894.
- the yellow-orange $20 tala bill represents "the environment" (highlighting the national bird, national flower, and a picturesque waterfall); the purple $50 tala focuses on "political and economic stability" (government complex at Matagialalua and the central bank); and the emerald green $100 tala bill features images of Malietoa Tanumafili II, the 1962–2007 Samoan head of state, and the historical Mulivai Catholic cathedral.

Printed currency remains important in Samoa and likely will stay that way for some time. Collins says the bank is considering a redesign of its banknotes and that although Samoa is studying digital-currency trends, "culturally we prefer using cash over electronic payments." FD

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