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ARTICLES

THE AGING OF THE WORLD'S POPULATION AND ITS EFFECTS ON GLOBAL BUSINESS

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The rapid aging of the world's population will bring unprecedented and important changes in the global economic environment, creating unique challenges and opportunities for businesses worldwide. These challenges and opportunities span multiple business areas, including strategy, human resources, cross-cultural management, and marketing, while operating simultaneously at the functional, corporate, and public policy levels nationally and internationally. In this paper, we first present an overview of the aging situation globally and the challenges that result from it. Then we explain some of the reasons behind demographic shifts in different countries, and how a graying population affects macroeconomic systems. Finally, we analyze the implications for businesses, in terms of both opportunities and challenges, and provide insights on how businesses can cope with these changes. We explain our findings through several themes that emerge from our research and discuss their implications for global businesses.

Declining birthrates and rising life expectancies in many countries are causing a seismic demographic transformation, and this transformation—the rapid aging of the world's population—is bringing about unparalleled changes in the global business environment in terms of business opportunities, workforce productivity, cross-cultural management, marketing, macroeconomic public policies, and corporate strategy. According to the United Nations World Population Aging Report (UN Population Division, 2005), this process is taking place in all but 18 countries (mostly in sub-Saharan Africa). For most of human history, the elderly (those over 65) have never exceeded 3% or 4% of a country's population. In today's developed world, they comprise roughly 15% of the population. By 2050, this could reach 25% on average (Center for Strategic and International Studies, 2011). The aging of the population in most countries of the world is leading to important changes in the global economic environment—changes that create unique and unprecedented challenges and opportunities for businesses.

Aging occurs when the median age of a country or region rises due to prolonged life expectancy and/or declining birthrates. While aging is a worldwide phenomenon, its effects have been dramatically evident in developed countries so far: The overall median age in developed countries (corresponding figures for the world as a whole appear in parentheses) rose from 29.0 (23.9) in 1950 to 39.6 (28.1) in 2009, and is forecasted to rise to 45.5 (37.8) by 2050. In addition, the pace of aging is projected to accelerate in developing countries: By 2050, the worldwide population of people over 60 will reach two billion, three-quarters of whom will be from developing countries (Australian Institute of Health and Welfare, 2012; Hayutin, 2007; UN Population Division, 2009). Developing countries will have less time to adjust and establish the infrastructure and policies necessary to meet the needs of their rapidly shifting demographics. It also means that unlike developed countries, they will need to cope with the possibility of getting old before they get rich (Beard et al., 2012).

By 2030, the working-age population is expected to contract in nearly all developed countries with the exception of the United States. By 2050, in some fast-aging European countries such as Germany, Spain, and Italy, the share of the elderly population will be over 35%, while in Japan, Korea, and Singapore it will approach 40% (Beard et al., 2012; Center for Strategic and International Studies, 2011). If current demographic trends continue, by 2040 Mexico will be nearly as old as the United States—and China will be even older. By 2050, the developing countries will rapidly match the median ages of developed countries (Hayutin, 2007). Aging has been identified as one of the four key "megatrends" that will shape the world in 2030 (National Intelligence Council, 2012) and as one of the five major global risks in the coming decade (Howell, 2013).

The implications of the demographic shift straddle the fields of business, geopolitics, economics, and sociology and are only beginning to be fully appreciated by management scholars (Marcus, Islam, & Moloney, 2009). For example, the aging workforce is a human resource issue that is important at the functional, corporate, and public policy levels; the rising demand for assisted living facilities is an opportunity for existing businesses in the field but also a major cultural challenge in developing countries; the offshoring of labor-intensive production from rapidly aging regions to ones with a younger population is a strategic management issue that has ramifications at the corporate, national, and regional levels.

The objectives of this paper are threefold. First, we will briefly synthesize from different sources an overview of the aging situation globally and the challenges that result from it. We will focus on the United States, the European Union (EU), Japan, and the BRIC (Brazil, Russia, India, and China) economies, as they collectively accounted for nearly 80% of the world economy in 2011 (International Monetary Fund, 2012), and because the projected impact of aging is very different across these countries. In addition, we will also look at Singapore as a representative of the rapidly aging newly industrialized countries and Nigeria as a representative of sub-Saharan Africa. Second, we will explain the reasons behind aging in different countries, and how it affects the macroeconomic systems in these countries. Third, we will analyze the implications for businesses, both the opportunities and challenges, and provide some insights on how they can cope with these changes at a broader societal level.

We will also briefly discuss cases of businesses that are developing practices and policies to deal with an aging population. In this paper, we used a mix of data from the UN Population Division, the World Bank, the World Economic Forum (WEF), and the International Monetary Fund (IMF) to explain the nature of the changes taking place and the implications they could have for global businesses, individual countries, and the changing balance of global economic power. The empirical data are supplemented by qualitative data in the form of government and business policies being implemented to manage the effects of aging populations and case studies of companies that are dealing with aging as a part of their business strategy.

OVERVIEW AND ECONOMIC CONSEQUENCES OF AGING

There are three major drivers of aging (Beard et al., 2012): declining fertility, increased longevity, and the fact that the decline in mortality rates superseded the decrease in fertility.

Declining fertility. The world's total fertility rate fell from 5 children born per woman in 1950 to roughly 2.5 today, and is projected to drop to about 2 by 2050. The causes of declining fertility include the rising social status of women in society, widespread availability of birth control mechanisms, increased access to higher education for women (resulting in their growing participation in the workforce), the discontinuation of government policies that previously incentivized bearing more children, the rising costs of raising children, greater social acceptance of a child-free lifestyle, and a weakening of traditional cultural norms and/or religious values that emphasize procreation and large families.

Increased longevity. Globally, life expectancy has increased by two decades since 1950 (from 48 years in 1950–5 to 68 years in 2005–10), and is expected to rise to 75 years by 2050. While disparities in life expectancies exist between the industrialized and less developed countries (82 years for the former versus 64 years for the latter), this gap has narrowed in the past few decades. Some reasons for increased longevity include advances in and greater access to health care, increased emphasis on personal and social hygiene, and wealth transfers to the poor and elderly through government welfare programs.

Decline in mortality rates superseded the decrease in fertility. In the early phases of demographic transition, large cohorts were born and survived mainly because infant and early childhood mortality tended to decline before fertility fell (Davis, 1945). Those cohorts are now reaching working ages. However, as fertility rates subsequently fell, the size of the follow-up cohorts shrank. In developed countries in particular, post-World War II baby-boom cohorts are reaching 65, with fewer younger cohorts behind them.

We next look at some of the major concerns associated with an aging society and how they could affect global businesses.

Slower Economic Growth

In general, productivity declines as people age. This stems from physical and cognitive decline and the natural obsolescence of skills and knowledge acquired at an earlier age.[1] As a society ages, a greater proportion of its gross domestic product (GDP) has to be spent in the form of pensions and health care for the elderly at the expense of long-term investments in infrastructure and education. A shrinking labor force also drives up wage levels. However, there are important paradoxes in different segments of the workforce. For example, while there are repeated calls to increase the production of PhDs in science and technology in the United States, many freshly minted PhDs in chemistry and biology have difficulty finding jobs commensurate with their skills and education (Vastag, 2012). These developments, taken collectively, could slow economic growth. Gordon (2012) considered aging as one of the major headwinds that could reduce U.S. economic growth to 0.2% in the coming decades. Since the United States is already the exception among developed countries in terms of overall aging, the implications for other industrialized countries are even more dire.

To some extent, the dangers of slowing economic growth can be partially managed by businesses catering more to the needs of aging consumers. As society ages, demand patterns change and businesses can partially manage slowing overall growth (such as lower demand for paper products) by shifting to areas where growth is stronger (such as increasing demand for senior housing). Product usage can also change with an aging population, and businesses can adapt by tailoring similar products to an older clientele. For example, in 2011, Japan and Unicharm, a Japanese company, became the first country/company where sales of adult diapers exceeded those of baby diapers (Yamaguchi, 2012).

Poverty Among the Elderly

Because the elderly often do not work full time or have up-to-date skills, their monthly expenditures can exceed their revenues. This shortfall is typically met in two ways: through prior acquired assets, including savings, or through wealth transfers from the current working-age population in the form of public pensions and subsidized health care benefits (such as Medicare and Medicaid in the United States). In an aging society, as the working-age populace declines, at constant wealth transfer levels, the income available to the elderly also declines. Poverty among the elderly could be worse in developing countries without pension systems; an estimated 80% of people in developing countries do not have access to a pension (UN Population Division, 2009).

Furthermore, a formalized wealth transfer system in aging societies may lead to increasing overall poverty as the proportion of the nonworking population increases. This is usually accompanied by rising political and social influence for the elderly. In Spain, for example, the unemployment rate among the young approaches 50% while the elderly continue to receive their pensions and other entitlements; government expenditures on pensions stand at 9% of GDP, compared to 4.9% spent on education of all types (OECD, 2011b).

For businesses, one way to manage this potential impact is to introduce products and services once designed for developing countries to industrialized ones. For example, at the Narayana Hrudayalaya hospital in Bangalore, India, open-heart surgeries performed by Western-trained physicians cost about $2,000 (compared to $30,000 in the United States). According to the hospital's CEO, Dr. Dev Shetty, the goal is to offer as many surgeries as possible without compromising on quality. To accomplish that, he ensures that his surgeons do only the most complex procedures; other health care professionals do everything else (*The Economist*,

[1] This is particularly true in today's society where rapid advances in technology have obliterated complete industries and sectors. For example, *Newsweek*, an authoritative source of news to millions for over eight decades, discontinued its print edition on December 31, 2012. *Newsweek*'s actions follow that of many other iconic newspapers and magazines.

2012c). If these techniques can be transferred to more developed countries, it could open up a new model for global businesses and help society ameliorate the problem of rising poverty among the nonworking population.

Generational Equity

A question arises as to whether the current system, whereby the decreasing working-age populace pays for the needs of an increasing elderly population, is equitable and sustainable. This issue is addressed, at least in part, by raising the age of eligibility for pensions in light of increasing longevity. For example, both Canada and the United States are raising eligibility for their government-funded pensions from 65 to 67 by 2029 and 2027, respectively (Finance Canada, 2012; Social Security Administration, 2012). Another issue that arises is that the elderly may have different objectives from the general working population because of their greater reliance on savings and investments. For example, the recent high value of the yen benefited Japan's rapidly expanding elderly population as it lowered inflation, while it hurt the younger population because their corporations became less competitive worldwide due to the higher cost of operations (Fackler, 2012).

Banks worldwide now increasingly offer financial services specifically tailored to seniors. For example, in Canada, Scotia Bank has a dedicated banking section that offers specialized services for seniors such as financing for vacation homes and travel, drafting of wills, and estate planning. Global businesses can take advantage of these trends in several ways: First, they can amend their human resource and operations policies to enable the elderly to continue working, thus ensuring that they pay longer into public pensions. Second, by adopting an arbitrage strategy (i.e., capitalizing on different aging rates in different regions of the world), companies can establish labor-intensive production in countries with younger populations while concentrating on more value-added, less labor-intensive production in countries with a more elderly population.

Inefficiency in Labor Markets

An aging population could decrease the labor supply available to businesses unless the retirement age is raised. A decreasing labor supply, in the absence of rising productivity, would drive up labor costs and result in higher inflation and less consumer spending power. This shortage could be acute in certain sectors that demand more physical labor, such as manufacturing and construction.

The trend toward an older workforce is already observable at many companies, including manufacturing companies that are highly mechanized and where work experience is paramount. For example, the German automaker BMW expects that about 40% of its workforce will be over age 50 by 2020, compared with only 22% in 2010. At Boeing, more than 55% of the company's engineers are 50 and older (Boston Consulting Group, 2011). The continued world-class nature of these companies and their status as trusted consumer brands illustrates the fact that managing aging in the right way can ensure that an aging workforce can remain a productive and innovative workforce.

Another way to deal with this issue is to help people stay on the job longer, possibly on a part-time basis. For example, YourEncore, a Web-based service that connects retirees with companies that need their expertise, allows its 50 member companies to tap into the professional skills of retirees as needs arise. For the more than 5,000 retirees who have signed on to the service, YourEncore provides a means of continuing to work and generate income. Participating companies pay membership and network access fees depending on their size and frequency of use of such services. They work with YourEncore account managers to define projects and recruit the best talent for each job. Remuneration is based on an expert's experience and the company in question. Companies that have subscribed to this service include Procter & Gamble, Eli Lilly, General Mills, and Boeing (Lallos, 2010).

Unsustainable Public Transfer Systems

The combination of a shrinking workforce paying into the pension system and an increasing elderly population that draws on pensions could lead to a situation where maintaining benefit levels would require either a higher tax rate or increased immigration to sustain the working population. If revenues are fixed or declining, these expenditures could be at the expense of long-term investments in human and physical capital. Without public support for these steps, the pension system as it exists will be unsustainable (Ezeh, Bongaarts, & Mberu, 2012; Vos, 2009). The European Foresight Platform (Leis & Gijsbers, 2011) predicts that, by 2025 and 2050, there will be only three and two people employed for every retired person in the EU, respectively, compared to four employed people in 2010. These projections challenge the viability of pensions and raise important questions pertaining to how the financial burden of retirement and social security should be shared between the old and the young.

This issue presents an even bigger challenge for emerging markets that are developing and/or restructuring their public welfare programs. Decisions have to be made with regard to when people become eligible, how much they get in benefits, how to include workers in the informal sector, and the level of private-sector involvement and competition with the public sector (*The Economist*, 2012a; World Bank, 2013). These are particularly nebulous issues for highly populous countries such as China and India, which face potentially very different outcomes because of different demographics: China has a rapidly aging workforce, while India has a much younger workforce. In fact, India will reap the benefits of the demographic dividend—a situation where a large cohort faces the twin benefits of smaller subsequent cohorts (because of declining fertility) and a small elderly cohort (because of previously high mortality rates). China has a more developed infrastructure, but India has a more competitive private sector. While a discussion of these is beyond the scope of this paper, how emerging markets respond to the challenges of designing/redesigning their new public transfer systems, and the role that the private sector plays in this, could go a long way in determining the sustainability of their long-term economic growth and the viability of their public transfer systems in the 21st century.

FERTILITY TRENDS ACROSS THE WORLD: CAUSES AND CONSEQUENCES

We next look at the fertility and aging trends in the major world economies: the European Union, the United States, Japan, and the four BRIC economies, as well as Singapore as a representative of newly industrialized countries and Nigeria as a representative of Africa. For each region, we will look at the reasons for emerging demographic trends and speculate on the effect that these could have on their economies. A fertility rate of 2.1 is needed to maintain the population at current levels in the absence of significant levels of immigration (the "replacement level"); a 1.4 fertility rate signifies that the population of a country will drop by half in 50 years. Fertility rates are far below replacement levels in most countries in southern and central Europe and in industrialized and newly industrialized countries in East Asia. The rates are significantly higher, though slightly below replacement levels, in the United States, Brazil, and countries in northern and western Europe. India has an above-replacement-level fertility rate and a relatively young population, though the fertility rate is gradually dropping. Nigeria, like most of sub-Saharan Africa, has a very high fertility rate and suffers from the problems of overpopulation and rapid population growth rather than aging at present.

In 2008, the average EU fertility rate was around 1.6, one of the lowest in the world (Hoorens, Clift, Staetsky, Janta, Diepeveen, & Jones, 2011). However, this fertility rate masked great disparities across EU member countries, from a near replacement level of 2.1 in some northern European and Scandinavian countries to a rate of 1.3 in some central and southern European countries. Given this regional disparity, we look at examples of four large EU economies from different regions: Germany, the largest country in the EU; Spain, which had Europe's longest period of right-wing dictatorship and is one of the largest countries in southern Europe; Poland, the largest post-communist central European country; and the U.K., the largest northern European country.

Table 1 presents the fertility and aging trends (and possible reasons for these trends) for 12 countries in various regions of the world.

From Table 1, we can observe that not only are there wide variances in fertility rates across countries in the EU, there are also significant differences among various ethnic groups within countries. For example, in the U.K., fertility rates among immigrants from South Asia are over 2.5, while in France fertility rates among immigrants from North Africa are close to 3 (Coleman & Dubuc, 2010). These intra-country differences also point to the importance of studying the effects that the rise and decline of certain ethnic groups can have on integration policies, national solidarity, and economic performance in multicultural countries.

China is aging at an unprecedented pace. Its median age will rise from 37 currently to 49 by 2050, nearly nine years higher than the forecast for the United States at that point. Therefore, China might grow old before it gets rich (*The Economist*, 2012b). India, the only BRIC country whose population is not aging rapidly, will become the world's largest country (population-wise) by 2022 (Basu, 2007).

TABLE 1
Fertility Trends Across the World

	Fertility rate	Current trend	Possible reasons
Germany	1.4	Stable	Women under pressure to choose between work and family life; growing societal norm that accepts childlessness; continued social stigma of young mothers who work as "raven mothers"
Spain	1.5	Slight upward trend	Changing cultural values in post-Franco regime; increased education for women resulting in greater career opportunities; high unemployment among youth; inflexible labor market, costly housing
Poland	1.4	Stable	High unemployment and job insecurity in post-communist era; reduction in maternity leaves and child care benefits
United Kingdom	2.0	Slight upward trend	Increases in public spending on child care; working family tax credit; increases in the length and generosity of maternity leave; higher immigrant fertility; significant difference in fertility across ethnic groups
Brazil	1.8	Trending lower	Rising standard of living; urbanization; influence of telenovelas (popular soap operas) that glorify small or childless families
Russia	1.5	Slight upward trend	High mortality rates among men (average male life expectancy of 64.3 years); job insecurity; high rate of abortions (one of the highest in the world); reduction in maternity leaves and child care benefits
China	1.6	Stable	Chinese government's one-child policy implemented in 1979; rapid urbanization; less desire to have children especially in affluent coastal cities such as Shanghai
India	2.6	Trending lower	Rising standard of living; urbanization; government encouragement of smaller families, wide regional differences (from 3.5 in some northern states to 1.9 in some southern states)
Japan	1.8	Stable	High costs of child care; late marriages; increased participation of women in the workforce; small living spaces; legacy of postwar government encouragement of smaller families
United States	2.1	Stable but trending lower with 2008–9 global financial crisis	Religiosity[a]; variations across ethnic groups (fertility rates of 2.5, 2.0, 1.8, and 1.7, respectively, for Latinos, blacks, whites, and Asians; Mather, 2012); since the financial crisis, immigrants from high-fertility countries returning to countries of origin; housing crisis; delayed marriages
Singapore	1.2	Stable	Long working hours; small living spaces; pre-1990 government policies to reduce births
Nigeria	5.2	Trending lower	Low levels of contraception; early marriages; lack of access to family planning services

[a] Numerous studies have shown that religiosity has a positive correlation with fertility, and, in general, religiosity is higher in the United States than in most EU countries (Berger, 2005; Frejka & Westoff, 2006; Pew Research Center, 2002).

Japan has one of the highest proportions of elderly citizens in the world; in 2011, they accounted for 23% of the population. The Japanese Health Ministry (2011) has estimated that its population will decrease by 25%, from 127.8 million in 2005 to 95.2 million by 2050, while the number of the elderly will increase from about 26 million to nearly 35 million. This situation does not bode well for the country's future international competitiveness, particularly in light of the recession/slow growth since the early 1990s coupled with a huge budget deficit.

As noted in Table 1, the United States is unusual among industrialized countries in having a relatively high fertility rate near or above the replacement rate of 2.1. However, 2012 statistics reveal that since the great recession of 2008–9, the U.S. fertility rate has dropped sharply to about 1.9, below that of countries such as Sweden, France, and the U.K. (*The Economist*, 2012d). Whether this is a short-term dip stemming from the recession or the beginning of a long-term decline remains to be seen.

Singapore has one of the world's lowest fertility rates at 1.2, a sharp decline from over 4 in 1960 (Chan, 2004). Currently, 8% of Singapore's population is over the age of 65; this is projected to increase to 13% and 24%, respectively, in 2025 and 2050 (National Research Foundation, 2009).

Nigeria has one of the highest fertility rates in the world, and if current rates continue, it will be the fourth most populous country in the world by 2050 (U.S. Census Bureau, 2012). Thus, aging is not a major issue in Nigeria because less than 3% of the population is over the age of 65. Similar to India, the challenge is generating sufficient employment for the young.

AGING, ECONOMIC POLICY, AND GLOBAL BUSINESSES

An aging population has a direct or indirect effect on various national goals. Rising pension and health care costs can place intense pressure on government budgets at the expense of spending on other priorities (World Development Report, 2013). The tough choices confronting governments are depicted in Figure 1. An aging population would also see a shift of resources away from education and child care over time. To a certain extent, this is already happening in some of the fastest aging countries in Europe. Thus governments and businesses need to prepare, at least in the short run, for the paradox of a rapidly aging and sometimes shrinking workforce along with a high level of unemployment among youth in certain sectors of the workforce. Businesses also have to adapt to the need for attracting and retaining a workforce that is older and has different priorities (i.e., wants and needs) than the traditionally younger workforce.

An aging population presents challenges to businesses in terms of consumption and human resources. The baby boom generation (called boomers, referring to those who reached or will reach the age of 65 between 2011 and 2029) highlights the significance of this issue. Boomers now comprise a third of the adult population in the United States, France, Germany, and the United Kingdom. Their spending patterns are different from those of younger people: In the United States, on average, boomers spend more than twice as much on health care and less than half as much on automobile and health insurance as the population as a whole (Cashell, 2010). Boomers are especially significant because they are the first generation in human history to reach that age with income and significant wealth; U.S. boomers have earned more at every age in real terms than previous generations. They also control the bulk of household disposable income (53%) and account for over 80% of the nation's net worth (Gillon, 2004; McKinsey, 2008; Walker, 2004).

An aging population will lead to different consumption and demand patterns for many types of goods and services. Luhrmann's (2007, 2008) studies of changing consumer patterns in Germany and the U.K. due to aging found a significant increase in the demand for health and leisure goods accompanied by a significant reduction in demand for food

FIGURE 1
Potential Effects of Falling Fertility Rates on Public Policy

Low fertility rates below replacement level of 2.1

Decline in working-age population over time in the absence of large-scale immigration and/or increased fertility

Rising dependency ratio (especially if combined with rising life expectancy)

Higher wealth transfers from working population to maintain identical benefits for elderly

Policy choices for governments: higher taxes, higher retirement ages, reduced pension and health care benefits for elderly and energy in older households. An aging population could spur higher sales of over-the-counter medications, senior-friendly foods, and nutritional supplements. Due to the seniors' greater wealth, it could lead to increased demand for certain higher-end products, such as premium spirits and luxury cars. Demand for sugar substitutes, a $13 billion industry, could also rise because type 2 diabetes is more common in older people. L'Oréal, the world's largest company specializing in beauty products and supplies, has estimated that consumers between 50 and 59 and those 60 and over spend, on average, 48% and 69%, respectively, more on cosmetics than the base group (30–39). To further examine the impact an aging population has on consumerism, we will look at four major consumer industries: automobiles, banking, senior housing, and telemedicine.

Auto Companies

Older drivers emphasize safety, comfort, and ease of operation. They also want smaller cars, because the vehicle is typically for two people, but at a higher price. Car manufacturers have redesigned cars to offer more safety features, such as lane departure warning systems, blind spot detection, and automatic park options. In fact, there are proposals to make the first two features mandatory in EU countries by 2015.

To capitalize on this growing market segment, Volkswagen has developed the Golf Plus, which is similar to the classic Golf but with more space and higher seating. Some luxury cars now offer options to appeal to seniors: Cadillac and Lincoln, for example, offer night vision that projects an infrared image of the road on the windshield; the designs at Nissan and Ford consider wider waistlines, arthritis, blurry vision, and other physical changes that come with age (Llewellyn & Chaix-Viros, 2008; Walker, 2004). Ford has developed technology that makes parallel parking easier (Economist Intelligence Unit, 2011).

Banks

An aging population affects banks through changes in the macro-economy (e.g., changes in economic growth, interest rates, and real estate markets) and the composition of the banks' portfolios (including, for example, an increasing share of age-related products, such as pension funds). Older consumers, on average, are wealthier, have more savings and investment accounts, and are more likely to live in a mortgage-free house. As they reach retirement, their demand for "accumulation" products, such as equity mutual funds and amortizing mortgages, declines markedly from their peak accumulation years and shifts to "draw-down" products, such as annuities and structured income contracts (Oliver Wyman, 2010).

To address these needs, the Bank of America offers "Senior Advantage" services that include large-print statements and checks, free senior checking and savings accounts, reader services (having a bank employee read to customers an important bank document), and discounted wealth management services. The shift away from traditional savings accounts to investment products is likely to increase the cost of funds for banks, thus pushing up the cost base. Lower profitability makes banks more vulnerable to economic shocks, so banks may need to operate with a higher level of capital to sustain a target rating. Rural banks in Europe, because of their small scale and already high cost/income ratios, could be further pressured by demographics, thus accelerating domestic consolidation (Llewellyn & Chaix-Viros, 2008).

Assisted Living for Seniors

This has become one of the fastest growing industries worldwide, including China and India, where cultural mores had traditionally dictated that the elderly were cared for by their extended families. With changing value systems and the growing tendency for the younger generation to migrate to the cities for work reasons while the older parents remain in the countryside, the past norm of living with one's aged parents may be eroding. Even in the urban areas, small apartments and long working hours make it difficult for three generations to live under one roof.

Singaporean-controlled Pinetree Senior Care Services employed 500 nurses to provide in-home care to 20,000 seniors in China in 2009. In 2011, the company reported a 55% year-on-year growth in revenues. Their current plans are to open 1,000 franchises across China by 2015 to serve 5 million elderly clients (Xiaoshu, 2012).

In India, U.S.-based Signature Senior Living has formed a joint venture with Coimbatore-based Covai Properties to enter the old-age care market. Signature has invested $2.5 million to build an old-age care facility in Chennai ready for occupation by 2014. Signature plans to invest up to $50 million in different cities across India, including Bangalore, Hyderabad and Coimbatore, where it already owns land (Vijaykumar, 2013).

Telemedicine

This market is expected to reach nearly half a billion dollars by 2014, at an annual growth rate of 15.8% from 2009 to 2014 (Miliard, 2010). The BRIC telemedicine market has grown rapidly because of the increase in older patients suffering from chronic diseases such as obstructive pulmonary disease, heart failure, asthma, hypertension, and diabetes (McCann, 2012).

EFFECTS ON THE WORKFORCE

Societal aging has a profound effect on the workforce. Because of the expected decrease in the working-age population, organizations have to pay extra attention to the attraction and retention of workers for almost every kind of job, particularly those where there is a shortage of employees with the requisite skills and/or competencies. Despite efforts to appeal to an aging workforce, there is a paradoxical prejudice against older workers. Many employers continue to perceive that older workers are more inflexible and expensive due to higher wages and extra health benefits. They also perceive that older workers have higher rates of absenteeism. Evidence shows that the frequency of absenteeism for older workers is lower but the duration is longer, while the opposite is true with younger workers.[2]

A study by the University of Utrecht (Netherlands) of more than 6,000 workers showed that younger workers are more ready for change, more eager to learn, more capable with modern technology, physically stronger, and more creative. However, older workers have skills and competencies often lacking among the young; the older workers are typically more engaged, loyal, and client-focused and have better social skills (Schippers, 2011). In light of these different competencies, businesses should view the aging of the workforce as an opportunity to balance their workforce needs: Younger workers might be better suited to jobs that involve heavy manual labor or changing technology, while older workers are more appropriate for positions that require a greater degree of social skills and empathy. There is a growing consensus among progressive employers that because of their complementary capabilities, a good mix between older and younger workers can actually lower workforce-related risks (Beard et al., 2012).

We now examine the cases of four companies in different industries that have implemented programs designed to increase workforce participation of the elderly and, in the process, acquired a competitive advantage. These companies are LANXESS AG and 3M Europe from the European Union, Public Utilities Board from Singapore, and Foxconn from Taiwan.[3]

German-based LANXESS AG, a chemicals company with more than 14,000 employees worldwide and US$9 billion in 2010 revenues, has been at the forefront of managing a rapidly graying workforce. In 2009, LANXESS established a pilot program called XCare with its employee representatives. XCare is a collective agreement designed to make the workplace more responsive to the needs of the aging workforce at different stages of their careers in the chemical industry.[4] The success of the pilot project led to the company's decision to continue this program in 2011. The program has the following five components (Beard et al., 2012):

- *An extra savings program* to allow employees to save additional amounts, including the conversion of parts of their bonus payments and unused vacation time into savings. Additional savings can be used to allow for flexible retirement, part-time work, sabbaticals, and so on.

[2] According to the Centers for Disease Control and Prevention (2009), workers aged 55–64 had 116.8 lost workdays per 10,000 FTE workers, and workers over 65 had a rate of 105.9 per 10,000 FTE workers. The rate for workers of all ages combined was 117.2 per 10,000 FTE workers. There was no significant difference between older and younger workers on average when it came to absences per year. No consistent age-related trend in overall rates by age group was observed.

[3] For educators interested in more detailed case studies, we refer you to the 2002 HBS case "Raiser Senior Services," which is set at the company level, and the 2006 HBS case "Japan: Deficits, Demography, and Deflation," which is set at a more macro level.

[4] The chemical industry generates more than three million jobs in the EU and accounts for about 12% of manufacturing value added within it. Globally, the industry had revenues of about US$4 trillion in 2009, with about $700 billion in the United States. The industry is characterized by high capital and energy requirements, high barriers to entry, high levels of innovation, integrated value chains, and long product development times.

- *A program of continuous qualification and retraining* (both in-house and external) for all employees, regardless of age.
- *A review of working conditions* to ease the transition of older employees to shift work.
- *Health management* to facilitate the reintegration of employees who have suffered prolonged illness. Workplace integration units are composed equally of employee and employer representatives who, with the support of external specialists, analyze the existing health situation and develop a participatory action model.
- *Work-life balance* in the form of an elder-care program that parallels the company's support for child care. Employees can reduce their hours on advantageous financial terms to care for elderly parents, and special loans are available to employees to pay for elder care.

3M's European division has proactively devised a solution for keeping everyone productive. Overall, the company sought to develop measures to enable workers (average age mid-40s) to work beyond the traditional retirement age, and to retrain workers throughout their careers to keep pace with technological developments.

In essence, 3M Europe's human capital planning model revolves around four key concepts:

- *Talent development* to monitor factors such as talent retention, diversity, and external recruitment versus internal promotion of those with high potential.
- *Internal mobility* as a percentage of total population moving across borders within the EU.
- *Human capital positions*, including strategic, core, requisite, and non-core positions, and the gaps that need to be filled and resources available across each.
- *Costs of outflow and inflow, and effects of implementing life cycle employment.* The life cycle employment model identifies stages in employees' careers and helps the employer optimize processes that yield mutually beneficial outcomes at every career stage.

By effectively addressing the above issues, 3M Europe hopes that their workforce will become more engaged, flexible, and mobile, thereby ensuring that their workers' needs are met while the company maintains a competitive advantage in an aging region of the world (Beard et al., 2012). While this program was developed for Europe, it could be modified for implementation in other parts of the world with aging populations (Beard et al., 2012).

Public Utilities Board (PUB), the national water agency of Singapore responsible for the collection, production, distribution, and reclamation of water, has more than 3,000 employees, nearly 27% of whom are over the age of 55. PUB's experience is that mature employees provide workforce stability. Reemployment of employees who have reached the statutory retirement age of 62 is a key source of recruitment at PUB. In 2007 PUB also codeveloped with its employees' union (PUBEU) and implemented the Transition Training Program (TTP) for employees who will reach the compulsory retirement age within the next 10–12 years. It consists of four modules and covers topics such as change management, managing one's financial and other commitments, forward planning, acquiring of new life and trade skills and how these open up career opportunities, and health management. Feedback from the participants has been very positive. PUB has also sponsored an Educational Upgrading Program to help employees advance their educational qualifications. Since 2002, more than 900 employees, most whom are over the age of 50, have gone through the program, thus refuting the negative stereotype that older workers are unwilling and/or unable to learn (Tripartite Alliance for Fair Employment Practices, Singapore, 2011).

Foxconn has manufacturing facilities in Asia, Europe, and South America. In March 2012, Foxconn signed a deal with Apple to resolve low wages and poor working conditions at the Chinese factories that produce most of its popular products. While this agreement was partly in response to allegations that Foxconn was exploiting its workers, this action helped address labor shortages due to an aging workforce in China. Foxconn has promised to reduce working hours (including overtime) to 49 hours per week while maintaining the same level of total compensation for workers. It has also gradually relocated its manufacturing operations from China's coastal provinces westward to combat rising labor costs and shortages in the former region (Gupta & Chan, 2012).

THE ROLE OF IMMIGRATION

A shrinking labor force can be partially addressed through immigration (Gordon, 2012), although this would intensify the global "war for talent" (Tung, Worm, & Petersen, 2008). According to the National Intelligence Council (2012), rapidly aging countries will face an uphill battle in maintaining their living standards, and the worldwide demand for their skilled labor will spur global migration. However, education, technical skills, language proficiency, and lifestyle differences between the country of origin and the country of residence render immigration only a partial solution at best (OECD, 2011a).

An additional important limiting factor for the EU is that Eastern Europe, a major source of immigrant labor, is itself aging at a rapid rate. It is unlikely that there will be enough young people who want to emigrate as the living standards in their home countries rise, and that there will be the political appetite in the recipient countries to accept and integrate large numbers of immigrants. Even in countries with a tradition of immigration, such as the United States and the United Kingdom, there is a backlash against immigrants, especially during economic downturns.[5]

The attitude of a recipient country to immigration is usually a function of the acuteness of its labor shortage. Where unemployment is low, as in Germany and the Netherlands, there is typically a more open and positive attitude toward immigration. In contrast, EU countries with high unemployment levels, such as Spain and Italy, are more resistant to immigration (Dutch Committee on Labor Market Participation, 2008; OECD, 2011a). However, even in countries where there is an impending labor shortage, there is still widespread concern about the cultural impact that large-scale immigration could have. For example, in Germany, there is a growing concern that Turkish immigrants have not integrated well into German society but have established their own parallel social systems instead. Fears of the "Islamization" of Europe brought on by increased migration from Middle/Near Eastern and other Muslim countries also exist to a certain degree in many other European countries (National Intelligence Council, 2012).

It appears that the concerns about the Islamization of Europe have superseded the reality that diasporas have historically encouraged the development of new transnational businesses by establishing cross-border social networks that can facilitate economic and social ties between their home and host countries (Chand & Tung, 2011). These transnational social networks can act as conduits through which the diaspora can remit money and transfer ideas back home (Levitt, 1998; Vaaler, 2011). Social unrest brought on by maladjusted immigrants can, however, negate such benefits. An important issue for these countries is the extent to which they can integrate the relatively young migrants from African and Asian countries; this can go a long way to answering whether increased immigration can actually help alleviate challenges posed by an aging population.

The issue of attracting and/or integrating immigrants is even more problematic in countries *without* a tradition of immigration, such as South Korea and Japan. Foreigners comprise only 2% of South Korea's population of 50 million. Of these, roughly one-half are Chinese nationals of ethnic Korean descent (*Chosun Ilbo*, 2009). UN demographers project that Japan needs 13 million to 17 million new immigrants by 2050 to prevent a collapse of its existing pension system. Yet in the past 25 years, only one million immigrants have been accepted (Bloom & Canning, 2007; Population Reference Bureau, 2008). Given the homogeneous population in both countries, very fundamental changes have to be made to accept large-scale immigration.

Immigration can help reduce the effects of aging if the incoming immigrants are younger than the native-born population and participate in the labor force. However, globally, the demand and supply of immigrants is uneven. Immigrant countries such as the United States, Canada, and Australia attract immigrants in large numbers from most parts of the world; monolithic countries such as Japan and South Korea are less receptive to immigration; and European countries are somewhat in the middle—they have some immigration, but it is often concentrated from certain areas (e.g., Algerians and Moroccans in France, Turks in Germany, and Albanians in Italy). BRIC countries (except Russia) have been major emigrant nations, with China and India having the world's largest diasporas, variously estimated at roughly 40 and 30 million respectively. Countries in sub-Saharan Africa are also major emigrant nations and suffer from severe brain drain; the best and brightest tend to emigrate abroad. It is estimated that Nigeria has a diaspora of more than 10 million (Akwani, 2007). Table 2 shows an analysis of the immigration issues affecting different countries and their potential impact on aging.

[5] While we will briefly examine the issue of immigration as it relates to the global "war for talent," it is beyond the scope of this paper to discuss the pros and cons associated with its different manifestations in different countries.

TABLE 2
Major Immigration Issues by Country

	Net immigrant/emigrant	Main countries/regions	Major immigration issues	Talent attraction policies	Relationship to aging
Germany	Immigrant	Turkey	Lack of integration by immigrants from Turkey and the Middle East; difficulty of having dual citizenship	2005 immigration law to attract high-skilled immigrants	Migration of younger workers could help reduce aging
United Kingdom	Immigrant	India, Pakistan, Philippines, Caribbean	Lack of integration by mainly Muslim immigrants; rising climate of anti-immigrant fears	Point-based immigration system	Migration of younger workers and higher fertility among immigrants has helped reduce aging
United States	Immigrant	Mexico, China, India, Philippines	No separate track for skilled immigrants unless company sponsored; anti-immigrant backlash in certain states	H-1B visa (company-sponsored high-skilled workers)	Migration of younger workers and higher fertility among immigrants have helped reduce aging, but it is slowing
India	Emigrant	United States, United Kingdom, Canada, Australia, Middle East (temporary)	How to leverage knowledge diaspora in Western countries	Dual citizenship instituted to attract skilled diaspora; property buying made easier for diaspora	Net exporter of young talent. This is likely to slow down in the long term but likely to continue in the near future
China	Emigrant	United States, United Kingdom, Canada, Australia, Southeast Asia	How to connect with and attract the Chinese knowledge diaspora back	Skilled overseas Chinese welcomed back	Net exporter of talent, but as society ages and industrializes, this could soon stop
Japan		Mainly short-term workers	No history of long-term immigration of non-Japanese	New points-based system introduced in 2012	Migration of younger workers could help reduce aging, but it is almost nonexistent so far
Nigeria	Emigrant	United States, United Kingdom	Brain drain, especially in health care	Engaging the diaspora to transform brain drain to brain circulation	Net exporter of young skilled and unskilled workers. This is likely to continue in the near future
Singapore	Immigrant	Australia, Malaysia, India, Pakistan, EU	Mandatory military service for male residents; concerns over high immigration levels	Contact Singapore launched in 1997 to attract people with professional degrees needed in Singapore	Rapidly aging workforce could be partially countered by immigration, which so far has been restricted to the highly skilled

Immigration aside, there is the growing boundaryless nature of the workforce (DeFillippi & Arthur, 1996; Stahl, Miller, & Tung, 2002), which has been brought about by the globalization of the world economy and the reduction in immigration and emigration barriers to the movement of people across international borders (Tung et al., 2008). The emergence of boundaryless careers has further fueled the global war for talent. A growing number of highly educated and entrepreneurial Chinese and Indian emigrants to the United States and Canada have either returned to their countries of origin (COO) or established dual beachheads of business in their COOs and countries of residence (COR) to take advantage of the rapid economic growth in their COOs (Saxenian, 2002; Tung et al., 2008).

THEMES THAT EMERGE FROM OUR ANALYSIS

An Increasingly Elderly Population and a Reduction in Working-Age Population

Countries with below-replacement fertility rates will witness a shrinkage in their labor force, resulting in higher dependency ratios that in turn lead to politically unpopular choices for most countries. These choices include large rises in taxes, cuts in services, the raising of eligibility age for pensions, or a combination of these. Large and sustained increases in the fertility rate, even if they began now (an extremely unlikely scenario), could not reverse the aging trend for decades in both Europe and Japan (National Intelligence Council, 2008). This has important consequences for these economies because their elderly populations will be among the richest and healthiest in human history. The wealth of the elderly will affect consumption and investment patterns for the rest of the economy.

Divergence in Fertility Within the EU, Which Could Lead to Significant Viability Problems in the Near Future

As discussed above, there is significant variation in the demographic outlook across Europe. While the population of northern Europe stays relatively stable and the dependency ratios[6] rise modestly, southern and central Europe will see falling populations and fast-rising dependency ratios. Collectively, these changes will mean that the latter group of countries will no longer be able to fund their pension, health care, and social welfare systems without either a large increase in taxes or a drastic cut in services. Because these options are politically unpalatable, they may require more wealthy and relatively younger northern European countries to bail them out. This option is most likely unacceptable to northern European countries. Thus, the divergence of fertility rates, if left unchecked, could lead to further strains in the unity of the EU—strains already evident in the current sovereign debt crisis in which the wealthier countries (Germany and the Netherlands) resent the bailout of their free-spending neighbors (Greece and Spain).

The Possible End of American Demographic Exceptionalism

As noted above, the United States has maintained a relatively younger population. However, 2012 statistics revealed that since the great recession of 2008–9, the U.S. fertility rate has dropped sharply, to about 1.9 (*The Economist*, 2012d). According to a report by the Pew Hispanic Center, for the first time in over two decades, illegal immigration from Mexico to the United States has significantly decreased (Preston, 2012). With Mexico's fast-growing economy and falling fertility rates and the slow growth in the U.S., it is unlikely that there will be a significant reversal in this trend, thus further reducing the U.S. fertility rate.

The two next largest emigrant nations to the United States, China and India, also have either low (in the case of China) or falling (in the case of India) fertility rates. Asian-Americans have lower fertility rates than white Americans (Mather, 2012). Furthermore, the United States has to contend with some unique demographic challenges because of its global strategic and military role. While the U.S. military expenditure is almost as much as that of the rest of the world combined, it currently spends 84 cents on soldiers' pensions for every dollar spent on soldiers in active service (Last, 2013). An aging U.S. population translates into even higher spending on military pensions rather than on salaries for actively deployed soldiers.

Changing Balance of Global Economic Power

Transitions in demographics across countries can complicate efforts to project the changing size

[6] The ratio of the non-working population to the working population.

of economies over time. While the balance of economic power, as defined by the size of GDP, has been shifting toward the BRIC economies, a question arises as to whether they can sustain their rapid GDP growth rates in the face of slowing or even negative population growth. For example, as China's elderly population doubles in the next 25 years, resulting in an overall reduction of its workforce, will it be able to provide labor to sustain continued economic growth? Even if the one-child policy is gradually relaxed or lifted, there simply may not be the social desire to have more than one child.

The UN projects that there will be about 1.4 billion Chinese and 438 million Americans in 2050 (UN Population Division, 2005), compared to 1.3 billion and 310 million, respectively, in 2011. Similarly, according to the U.S. Census Bureau, there will be a depopulation of over 20% in Russia by 2050 (Suddath, 2011). How will that affect Russia's economy? If Nigeria's population grows from 170 million today to almost 400 million by 2050, will it become a new industrial powerhouse with a young population, or will it remain an underdeveloped country struggling to create enough employment for its people with millions of emigrants in other countries trying to escape poverty back home?

Of course, population trends—like economic projections—are not fixed but change over time. If the recent declines in the U.S. fertility rate become the new normal, the United States will begin to age rapidly, like most European and East Asian countries. Similarly, if the slight improvement in fertility rates in northern European countries is maintained or increases, this could mark the reversal of the aging process in these countries and lead to a growing workforce.

Intensification of the Global War for Talent

In most developed and emerging countries, as the workforce ages and/or shrinks the competition to attract and retain highly skilled workers will intensify, thus highlighting the different immigration and integration policies espoused by various governments. For example, are the relatively multicultural models in Anglo-Saxon countries more conducive to attracting skilled immigrants than the more assimilative models in France and Germany? Even more important, do countries *without* an immigration tradition, such as Japan, Korea, and Taiwan, which historically have found talent at home or through short-term foreign experts, need to revisit their policies toward immigration if they are to remain competitive in this war for talent? Where will the skilled emigrants of the future come from, given that historically emigrant countries such as China, Mexico, and India are themselves aging—thus closing off an important source of supply to industrialized countries such as the United States and Canada?

BRIC and Newly Industrialized Economies (NIEs) Facing the Challenge of Balancing Rapid Economic Growth with an Aging Population

With the exception of India, all BRIC economies are rapidly aging. This is also true of NIEs such as Taiwan, Singapore, South Korea, and Hong Kong. Historically, economic growth has accompanied population growth, while aging has been an issue mostly for the developed West. With overall aging, both BRIC and NIEs are entering uncharted territory. For China and Brazil, the most significant issue might be whether they can grow rich before they grow old, and what type of welfare states they will create during the period in which they are both rapidly growing and aging (*The Economist*, 2012b). While both countries have basic pension and universal health care schemes, as their population ages and as social values change, the popular desire for more social expenditure can negatively affect economic growth rates. Brazil, for example, with 11 boomers for every 100 working-age people, already spends 11.3% of its GDP on public pensions—about the same as Greece (11.9%), which has 29 boomers for every 100 working-age people (*The Economist*, 2013b).

On the other hand, for NIEs such as South Korea, Taiwan, and Singapore, the question is how to maintain current standards of living and social benefits with a rapidly shrinking workforce without resorting to raising taxes, increasing retirement ages, cutting social welfare benefits, employing more foreign labor, or allowing more long-term immigration. How these countries grapple with these issues and address these challenges will go a long way to determining the economic balance of power in the 21st century.

The Rise and Decline in Certain Industries

As the global population ages, demand patterns will shift, which will in turn lead to structural changes within and across industries. An aging population will lead to a rising demand for products and services such as health care, pharmaceuticals, long-term care, retirement planning, and skin care products, and at the same time a reduced demand for education, child care, and traditional banking. Even within industries, the emphasis of production might shift: Pharmaceutical companies might begin to channel R&D away from childhood diseases to those that beset the elderly, such as Alzheimer's, multiple sclerosis, and diabetes, while banks might devote a greater proportion of their resources to products such as annuities and retirement planning rather than traditional checking and savings accounts.

Companies that already cater primarily to older consumers, such as health care providers and medical device manufacturers, will be among the major beneficiaries. One example is Smith & Nephew, which sells replacement hip and knee joints to an older population. Intel, General Electric (GE), Danone, and Philips are among the largest firms in the world that have dedicated research efforts to better understand older consumers, from nutritional needs to retirement plans. Intel, in a joint venture with GE called Care Innovations, seeks to tap into new market opportunities and services—"tele-health" and home health monitoring—for the elderly who want to live independent lives. According to business research and consulting firm Frost & Sullivan, the market for such products is expected to more than double, to US$7.7 billion by 2013 from its 2009 level of US$3 billion (Economist Intelligence Unit, 2011).

In an Economist Intelligence Unit (2011) survey of 583 multinational business executives from around the world, the overwhelming majority of executives viewed increased longevity and aging as an opportunity rather than a risk. Health care and pharmaceuticals, leisure and tourism, and financial services are viewed as some of the primary beneficiaries of this changing demographic trend. Interestingly, only 7% and 3% of the respondents to the survey were from the pharmaceutical and the leisure industries, respectively; this suggests that multinational corporations (MNCs) see these as growth sectors even if their companies are not currently involved in them.

Demographic changes may also prompt some industries to relocate geographically to capitalize on local resources. For example, retirement communities are now being built in India to provide specialized facilities for seniors who wish to live more independent lifestyles. Aside from attracting members of the Indian diaspora (Chand, 2012), these facilities appeal to retirees from other developed countries as well. The combination of relatively low costs (US$5,500 a year in India on average versus US$6,000 a month in Chicago, for example), availability of cheap labor such as domestic help and home-care nurses, and the presence of modern medical facilities and world-class telecommunications make India an attractive destination for cost-conscious consumers, regardless of ethnicity (Magnier, 2012).

MNCs can also relocate their production and supply chains to take advantage of differing resource conditions across countries. This is a form of arbitrage strategy (Ghemawat, 2007, 2008) in which labor-intensive production (such as textiles and apparel) is offshored from a rapidly aging region to countries with a young population, thus maintaining competitive advantage.

In the service sector, preparation of legal documents and translation are already taking place via online labor exchanges such as Elance.com and oDesk.com (*The Economist*, 2013a). Accenture (2011) has referred to this phenomenon as the "cloud workforce" and challenged organizations to broaden their notion of a workforce to include "the vast army of potential workers that are a click away."

CONCLUSIONS

In this paper, we have provided an overview of how aging is affecting the major global economies and how governments and businesses are seeking to manage this unprecedented event in human history. As the rate of aging varies across countries, within countries, and across different ethnic groups, the demographic composition of both the workforce and consumers changes, thus necessitating the adoption of business strategies to deal with this multifaceted societal transformation. Businesses have to adjust to an increasingly older society, thus necessitating a change in attitudes and processes toward dealing with aging. These changes affect companies in terms of product development, workforce productivity, cross-cultural management, public policy, marketing, and corporate strategy.

Businesses also have to contend with a looming global war for talent as the working-age population declines and countries across the world seek to attract the same qualified pool of highly skilled individuals. Paradoxically, this could occur simultaneously with increasing unemployment among certain segments of society (for example, high youth unemployment in Spain and Greece), thus bringing into sharper focus the complex nature of this challenge. The reasons behind the paradox are multifold and include the inability of modern higher education systems to provide the appropriate skills required by businesses, the unwillingness of many young university graduates to work their way up from lower positions in companies, and the increasing ability of the elderly to maintain a decent livelihood based on a combination of prior savings and public wealth transfer systems without having to supplement it with full-time work.

Our analysis of fertility rates across major economies reveals different reasons for declining birthrates, including changes in societal attitudes and values toward childlessness, more women entering into the workforce, and insufficient support systems for working mothers. For both governments and businesses in rapidly aging countries, it is important to realize that the reversal of this long-term trend of declining fertility rates is going to be difficult, thus pointing to the importance of managing its effects through a mix of public and non-public policies.

Aside from the issues identified in the paper, public policy researchers should also investigate the trend toward a sharp decrease in fertility rates in the Middle East, an often-neglected topic (Eberstadt & Shah, 2012), and what this decline could mean for long-term immigration/emigration and the risks associated with the area. While investigating this is beyond the scope of this paper, the Middle East has experienced some of the most dramatic drops in fertility rates in history, falling from about 5 to a little over 2 between 1975 and 2005. Five of the most rapid fertility declines over a 20-year period took place in the Middle East and the Arab world: Algeria, Libya, Kuwait, Oman, and Iran. Algeria and Morocco have fertility rates similar to that of Texas, while Iran's is comparable to that of New England's, the U.S. region with the lowest fertility rate.

With rapidly declining fertility rates, the population composition makes for inescapable "youthquakes": temporary but very substantial increases in the fraction of young adults as a proportion of total population, usually occurring only once. These societies have a bulge of young adults because of high fertility rates in the last generation, they do not yet have a large number of older people because life expectancy was lower in the last generation, and rapidly falling fertility now means that they have a small cohort of children following the young adults in the current youth bulge. Depending on the social, economic, and political contexts, such youthquakes can facilitate rapid economic development; alternatively, they can exacerbate social and political tensions.

For policymakers in governments across the world, aging populations will necessitate several potentially unpopular choices. At a more ambitious and multilateral level, aging populations will require more inter-country dialog as to how aging can be best dealt with at a regional or more macro level. For example, should labor-deficit countries encourage more immigration or short-term movement of labor from countries that have a surplus? What rules should govern these movements, and how could these affect both the home and host countries?

For global businesses, the aging of populations poses serious challenges yet some interesting opportunities. As companies in rapidly aging countries and regions scramble to attract and retain talent, they can create value by implementing systems that ensure flexible benefits and reward lifelong learning, as evidenced by the cases of LANXESS and 3M presented in this paper. In the manufacturing sector, this development means that the workforce now has more bargaining power, as illustrated by the case of Foxconn. An aging clientele also provides opportunities for businesses in marketing products geared toward the elderly, an avenue that has not been fully explored by most businesses in our youth-centered society. There are also opportunities to take advantage of growing industries that cater to the elderly, such as health care, pharmaceuticals, long-term care, retirement planning, and anti-aging products; companies such as Intel and GE are already taking important steps in this regard. Financial institutions have the opportunity to design products and services geared to a growing elderly population.

In the segment of the service sector that has resorted to or is considering the "cloud workforce" discussed earlier, there are important legal and social issues, such as to what extent "employees" in countries that are the source of abundant and relatively cheap sources of human power supply will abide by the same standards with regard to confidentiality and privacy because they are, in theory, not employees of the foreign-based multinational per se? Another issue is whether the use of a "cloud workforce" is merely a ploy by multinationals from industrialized countries to further their "race to the bottom" by exploiting cheaper wages in less developed countries.

For management researchers, a key question is how to integrate the research done on this issue in disparate fields such as sociology, economics, and demographic studies into management literature, and how knowledge helpful to businesses can be synthesized from advances in other disciplines. One important theme for management researchers is changing consumer preferences as societies age and the implications this could have for different industries. How will different industries fare in an aging environment, and what can they do to adapt? How can products and services be tailored to meet the needs of aging populations across the world? Another theme is how marketing strategies can be tailored to deal effectively with older consumers across cultures.

A third important theme is the human resource implications of this change: How can businesses design policies and programs that will enable them to attract and retain talent in economies where the labor force is rapidly aging and shrinking? How will the nature of work be remodeled to respond to the concerns of older workers? Does aging necessitate a new human resource management model to reflect the reality that employees at different life stages have different needs and aspirations? These issues have profound implications on existing training and development programs and employee benefit packages.

A fourth theme is the process by which MNCs can arbitrage different rates of aging around the world to create a competitive advantage. As countries such as China and Mexico age, how can MNCs best realign their value chains so the more labor-intensive parts of the chain are relocated to countries with younger populations? How will this affect management styles in different countries? Related to this is the need to examine the cultural dimensions of aging as they affect international businesses. Does the growing proportion of the elderly in certain countries require a new approach to managing workforces by managers and employees from other countries?

A fifth theme is how aging could change the macro-institutional environment for global business. As countries such as China, Japan, and South Korea rapidly age while countries such as India and Nigeria stay relatively young, how will this affect their influence in transnational bodies such as the IMF, the World Trade Organization (WTO), and the World Bank, thereby affecting international standards guiding multilateral trade and financial systems worldwide? How will this affect the global trading system? How will the global trading system, the IMF, and the World Bank as we know them now—systems that are essentially formulated by Western industrialized countries—evolve and change if the global balance of power begins to shift to the more youthful emerging economies?

At the national level, businesses and governments need to examine the different approaches to integration of "foreigners" or newcomers to a country (for example, multiculturalism versus the melting pot versus the more assimilative policies?) to help maximize benefits in the global war for talent. As countries such as China (rapidly) and India (less rapidly) age, an important question is whether the flow of immigrants from these countries to developed countries will continue, slow down, or even stop. As developed countries continue aging, will there be more immigration from sub-Saharan Africa? What will be the social and political implications of this? The establishment of an African Academy of Management perhaps reflects the growing attention to this hitherto less researched region of the world.

Another important question for researchers is to analyze how businesses and governments can come together in rapidly growing but fast-aging societies to create social safety nets for the less fortunate. Finally, at a higher level, management researchers need to explain how aging can affect the long-term relationship among business, government, and society; to what extent we can develop models to predict these changes; and whether the different ways in which countries deal with aging can lead to best practices that reflect some key principles that are applicable to all or most countries.

In this paper, we have provided a starting point for answering the above questions. However, because the process of aging is both long term and largely unprecedented, the ways of managing its consequences will be novel and dynamic and entail continuous modifications. It is incumbent on management academics to realize that this long-term discussion will be interdisciplinary in nature and cut across business, government, and societal levels in practice. Future management scholars must take into account this reality as they address this defining societal issue for much of the 21st century.

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