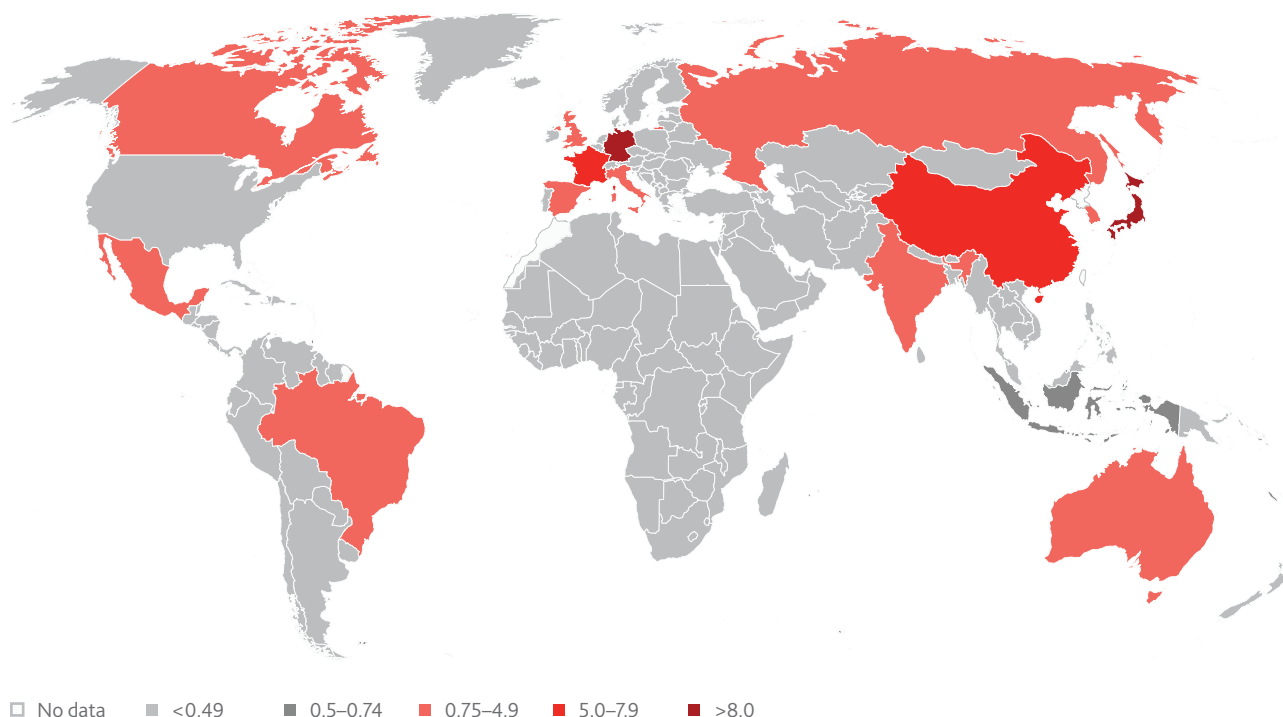


There is a dynamic and ongoing improvement in life expectancies that is not currently accounted for in the social pension systems designed to provide financial security in retirement. At the same time, fertility rates have dropped to historically low levels in most countries resulting in too few workers being available to support the increasing number of retirees in pay-as-you-go (PAYG) pensions systems.

The Pension Gap Epidemic study explores possible solutions to mitigate this growing challenge and highlights the potential role of the private sector in addressing it. Adequate solutions will require a concerted effort (and perhaps compromise) from governments, corporations and individuals alike. No single stakeholder can address this challenge alone. The report also provides an holistic overview of a series of other steps that address the challenge created by this otherwise remarkable human achievement.

Figure 1: Pension Gap by Country (USD 41 Trillion Estimate)



The Geneva Association estimates the worldwide pension gap to be USD 41 trillion¹. The definition of the pension gap is the difference between the present value of the yearly lifetime income needed to sustain a reasonable standard of living and the actual amount saved for retirement plus the present value of PAYG contributions over a 40-year period.

The main consequence of the pension gap is old-age poverty. Not only does old-age poverty put a drain on government finances, it neglects an important societal value, that people should retire with dignity.

Life expectancies at birth have been improving since statistics have been recorded, but it is only during the past few decades that life expectancies at older ages have been improving dramatically. Advances in medical technologies including bypass operations, stent insertions and cancer treatments along with cholesterol-

reducing drugs and infectious disease vaccines will add an estimated 3 years to the life expectancies of 60-year-olds in 2050 in developed countries².

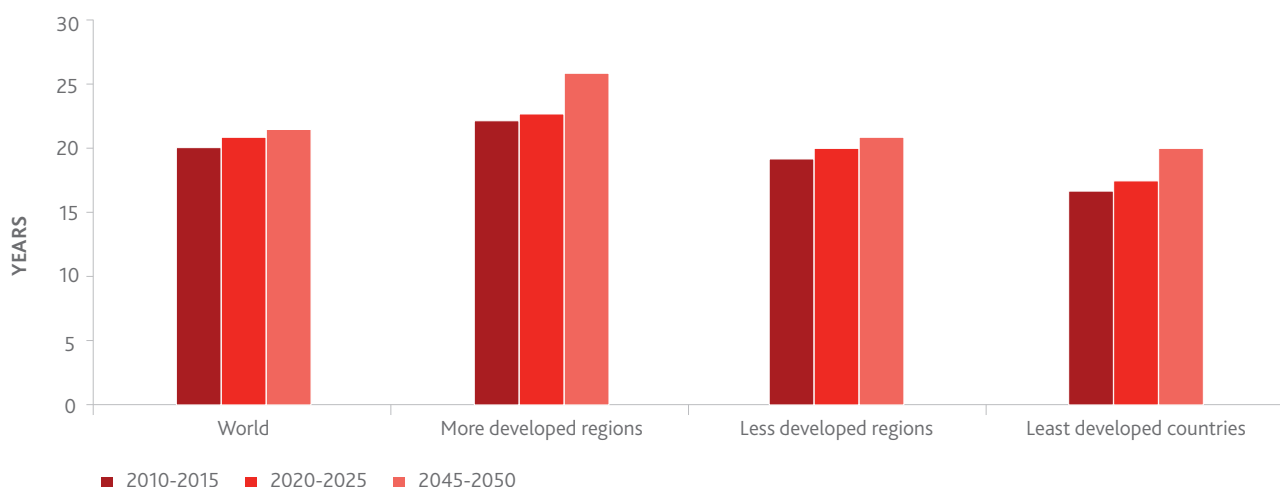
During this period of improving life expectancies, fertility rates have been steadily declining. The fertility rate is defined as the number of children that a woman has during her childbearing years. It would seem logical that a fertility rate of 2.0 would be sufficient to replace the woman and the father of her child. However, due to infant mortality, women not living through their childbearing years and imbalances between male/female percentages in some countries, the average worldwide fertility rate needed to replace the current population is approximately 2.1.

Between 1965 and 2014, the worldwide fertility rate has dropped from 5.1 to about 2.5. In Europe, this trend is even more dramatic with a current rate of about 1.5.

¹ These estimates are based upon a 60 per cent wage replacement ratio, Richard Marin's pension gap calculation in his book *Global Pension Crisis: Unfunded Liabilities and how we can Fill the Gap*, and an OECD estimate of pay-as-you-go pension funding.

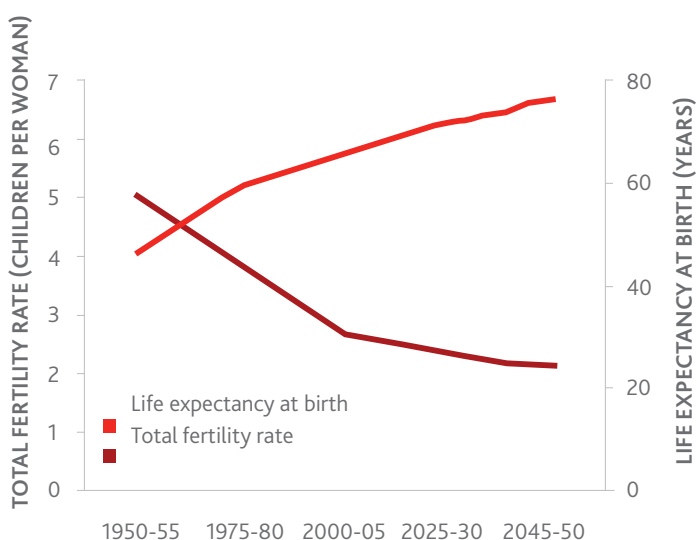
² United Nations, Department of Economic and Social Affairs (DESA), Population Division (2013) *World Population Ageing 2013*, Doc. ST/ESA/SER.A/348. Available at <http://www.un.org/en/development/desa/population/publications/pdf/ageing/WorldPopulationAgeing2013.pdf>

Life Expectancy at Age 60: World and Development Regions, 2010–2015, 2020–2025 and 2045–2050



Source: United Nations, Department of Economic and Social Affairs, Population Division (2013). *World Population Ageing 2013*. ST/ESA/SER.A/348

Figure 2: Total Fertility Rate and Life Expectancy at Birth: World, 1950–2050



Source: United Nations, DESA (2001) *World Population Ageing 1950-2050*

Low fertility rates put extreme pressure on the old-age-support ratio which is defined as the number of workers divided by the number of retirees. As a proxy for workers, most old-age-support ratio calculations use people aged 15-64, and as a proxy for retirees, ages 65 and older. The current worldwide old-age-support ratio is about 6.9 workers to retirees and is expected to drop to approximately 3.7 by 2050. For developed countries, the old-age support ratio is expected to drop to 2.5 by the year 2050¹.

Increased life expectancies and low fertility rates are the two main drivers of the pension gap. However, the sustained low interest rate environment is exacerbating the situation by not only decreasing returns on assets, but also by increasing pension liabilities. Pension liabilities are the present value of future expected payments to retirees. The lower the interest rate, the greater the amount of pension funds that are needed to be able to make future payments. These three factors, increasing life expectancies, low fertility rates and low interest rates, are causing a perfect storm that will need to be addressed quickly.

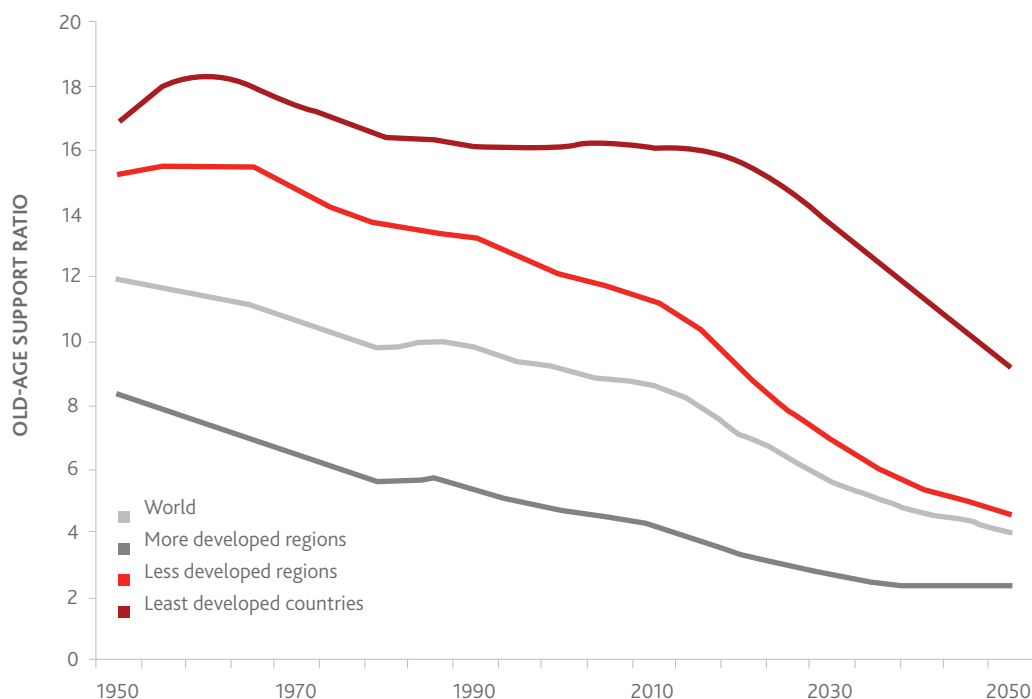
The pension gap has caused countries to cut social benefits promised to citizens, local governments to cut benefits promised to municipal workers and companies to cut pension promised to employees. For example, Greece required a European Union bailout and in order to secure funding, it had to agree to harsh austerity measures including reductions in social pension benefits that the government had already committed to pay to its citizens.

Detroit, a U.S. city in the state of Michigan, declared bankruptcy in 2013 mainly due to a pension funding gap that was estimated to be USD 18 billion. As part of the bankruptcy, Detroit was able to renegotiate pension payments due to its municipal workers. These lower pension payments increased the pension gap and put extreme pressure on families that were counting on full pension payments from the city.

Examples of companies that were forced to reduce promised pension payments to employees are Ford Motor Company and British Home Stores (BHS). Ford had accumulated a USD 15

¹ United Nations, Department of Economic and Social Affairs, Population Division (2013). *World Population Ageing 2013*. ST/ESA/SER.A/348.

Old-age Support Ratio: World and Development Regions, 1950–2050.



Source: United Nations, Department of Economic and Social Affairs, Population Division (2013). *World Population Ageing 2013*. ST/ESA/SER.A/348.

Note: The old-age support ratio is the number of working-age persons (age 15–64 years) per older person (aged 65 years or over).

billion pension funding gap by 2012. In order to remediate this shortfall, it offered over 90,000 employees a pension buyout. This lump sum offer reduced the huge pension liability on Ford's books. It also allowed employees to spend money on current wants and needs versus saving for retirement, thus adding to the pension gap. BHS declared bankruptcy in 2015 and required a government takeover. Along with the takeover came an immediate 10% reduction in pension benefits and a removal of an inflation protection benefit.

Asia has no less of a pension gap issue than Europe and North America. In fact, some may argue that the situation is even more dire. The one-child policy in China has caused this populous country to have fertility rates below 2 since the mid-1990s. This, in conjunction with improving mortality, will cause the ratio of workers to people over age 65 to decrease from about 7.9 in 2008 to about 2.4 by 2050, according to OECD estimates¹.

According to a Geneva Association calculation, Japan has the highest current pension gap in the world. This is due to Japan having the second longest life expectancy in the world (Monaco is first), according to the World Factbook², coupled with one of the lowest fertility rates in the world (211th of 224 according to the World Factbook³).

The Japanese government saw this evolution in demographics coming and instituted cuts to retirement benefits and increases to normal retirement ages in the late 1990s⁴. Then, in 2004, an automatic pension stabiliser was enacted that annually recalibrates benefits according to the number of workers in the workforce and life expectancy development. It is too early to tell if these measures will be socially sustainable, as benefits may need to be reduced during the next 20 years. Finally, China and Japan have been slow to increase normal retirement age to the levels that we are seeing in European countries, which puts extra pressure on the pension gap.

While the U.S. has the fourth largest pension gap behind China, Japan and Germany, before deducting PAYG contributions, its very high GDP virtually eliminates the pension gap using the OECD average worldwide PAYG contribution rate. Of course, the U.S. has its own problems with an estimate of between USD 10 and USD 15 trillion of projected shortfall if it wants to pay the current rate of social pension benefits for the next 40 years. Without a change in the law, benefits will have to be slashed by about 25 per cent to meet this gap.

1 OECD (2011) *Society at a Glance 2011: OECD Social Indicators*, OECD Publishing. http://dx.doi.org/10.1787/soc_glance-2011-en

2 The World Factbook Country Comparison: Life Expectancy at Birth, Central Intelligence Agency.

3 The World Factbook Country Comparison: Total Fertility Rate, Central Intelligence Agency.

4 Fukawa, T. (2001) Japanese Welfare State Reforms in the 1990s and Beyond *Quarterly Journal of Economic Research* 70(4): 571–585.

Pension Gap for Top Five Countries

(Marin method, before and after PAYG adjustment)

| Country | Pension gap USD trillions before deducting for PAYG | Pension gap USD trillions after deducting for PAYG | Pension gap after PAYG as % GDP |
|--------------|---|--|---------------------------------|
| China | 14.3 | 5.3 | 51% |
| Japan | 13.5 | 9.7 | 210% |
| Germany | 12.3 | 9.0 | 234% |
| U.S. | 8.5 | 0 | 0% |
| France | 8.0 | 5.6 | 198% |
| World | 100.0 | 41.0 | 83% average |

Source: The Geneva Association research.

There are, however, a number of steps that governments, corporations and the general public can take to reduce the pension gap.

1. Employer **defined contribution pensions** should, at a minimum, **automatically enrol workers** and at a high enough level to ensure adequate retirement income.
2. Governments should further encourage retirement contributions with additional **tax-advantaged savings opportunities**.
3. Governments should strongly encourage or mandate **annuitisation** of all or a large portion **of employer defined contribution plans**.
4. **Retirement ages** to receive unreduced social pensions should continue to increase commensurate with the **increase** in life expectancy.
5. Governments and the industry should create **more opportunities** to allow **work past normal retirement age**.
6. **Contribution rates for social pensions should increase for employers and individuals** until, in conjunction with other solutions, the national system is sustainable based upon realistic actuarial assumptions. In addition, all defined benefit plans should be funded to the actuarially correct levels.
7. Governments should be required to **disclose current pension funding gaps and show expected benefits** to future retirees under best estimate assumptions.
8. **Financial literacy** should be part of core **education** systems around the world.

Some of these proposed mitigating solutions are in place or being introduced in many countries. For example, many countries have increased normal retirement ages to receive social pensions. Continuing to increase normal retirement ages could have a huge effect on the pension gap. Based upon The Geneva Association

calculations, increasing the normal retirement age to 70 could reduce the pension gap by 75%.

Of course, this would assume that people are healthy enough to work until age 70, want to work, that there are jobs available, that their continued work does not affect the employment status of other workers, that their salaries will be unaffected and that these people continue to contribute to social pensions, work pensions and private savings. Even if a fraction of the population continues to work to age 70, the results can be quite beneficial.

Some of the recommended solutions could cause other issues such as placing further demands on younger workers to finance current retirees or what is called inter-generational wealth transfer as well as difficulty for politicians to change policies that reduce current pension benefits with an ageing population that has a high voter turnout.

CONCLUSION

Improving life expectancies, low fertility rates and the current low interest rate environment have created a perfect storm for pension funding globally. The estimated pension gap is USD 41 trillion and it will take a combined effort by governments, corporations and the general population to begin to mitigate this epidemic. Laws and cultures need to change and this will not be an easy task.

Some of the needed changes are already beginning to be enacted. The window for some of these changes may be shorter than politicians believe. As the populations in most countries continue to age, the political climate will change as well. Older people vote and they will elect politicians who will assure them that their benefits will remain intact.

The insurance industry is in a unique position to mitigate the effects of this epidemic. It has the expertise through its actuaries and underwriters, the tools with its products and services, the appetite to accept risk and the political influence and means to work with governments and society on practical solutions.