2018 Global Retirement Index

An in-depth assessment of welfare in retirement around the world

Table of Contents

Global Retirement Security: A question of sustainability 3
Protecting the promise 4
About the Global Retirement Index 17
Executive summary 18
The Global Retirement Index 2018 19
Framework 20
The Best Performers 21
Regional Perspective 23
  Spotlight: The Nordic example 25
The Top 25: Year-on-Year Trends 27
BRICs punching above their weight in Finances 54
  Spotlight: How would Hong Kong perform in Finances if it was part of the GRI? 58
Health 62
Material Wellbeing 65
  Spotlight: Elderly poverty rates 67
Finances in Retirement 68
  Spotlight: Public debt has escalated rapidly for some countries in the past two decades 70
  Spotlight: Higher levels of public debt could prove devastating for older countries without reform 71
Quality of Life 73
References 75
Framework 76
Appendix A 77
  Methodology 77
  Constructing the Global Retirement Index 81
Appendix B: Full Rankings 82

Global Retirement Security: A question of sustainability

Retirement security is arguably at the crossroads of history. On one side is the three-pillar funding model that's been the basis of retirement systems across the globe for the better part of a century. On the other is the reality of 21st century demographics, fiscal imbalances, and monetary policies that are straining the resources of governments, employers and individuals worldwide. In the balance is our ability as a society to provide individuals with the opportunities and resources that will allow them to live with dignity in the years after work.

With the 2018 Natixis Global Retirement Index, we seek to offer insight into how a wide and diverse set of factors is pressuring the notion of retirement around the globe. As an asset manager, we of course emphasize finances in retirement in our analysis. This is the area where we can contribute most to the dialogue and have the most direct impact on long-term outcomes. But we also seek to include other critical factors such as quality of life, health, and material wellbeing – drawing upon the views of organizations focused on these issues – to provide a more complete picture of where the challenges for today's retirees lie and where future sustainability efforts must focus if we are to attain the goal of a more secure retirement.

An aging global population may seem to be the greatest challenge. After all, we live in a world of 7 billion people where the average life expectancy is 72 years today and may be as much as 100 for those born in the year 2000. But it is critical to recognize that aging demographics are not the only challenge. Retirement security also depends on how we as a society address critical questions about income and wealth inequality, affordable and accessible healthcare, environmental quality and safety, and the long-term stability of financial systems around the world.

If we are to look to a future when over 25% of the population of OECD countries[1] and 17% of the total global population[2] will be over age 65 by 2050, we must view global retirement security as a multi-dimensional problem at the leading edge of human sustainability.

Our work with the Global Retirement Index is not simply designed to provide a snapshot of where society stands today. It is intended to contribute to a dialogue with policy makers, pension managers, workers, and the financial services industry at large about how to best meet the needs of today's retirees, while advancing new ideas that will impact the wellbeing and security of many generations to come.

Jean Raby
Chief Executive Officer

[1] "OECD Environmental Outlook to 2050: The Consequences of Inaction - Key Facts and Figures." http://www.oecd.org/env/indicators-modelling-outlooks/oecdenvironmentaloutlookto2050theconsequencesofinaction-keyfactsandfigures.htm
[2] He, Wan, et al. "An Aging World: 2015." United States Census Bureau. March 28, 2016. Accessed August 07, 2018. www.census.gov/library/publications/2016/demo/P95-16-1.html.

Protecting the promise
Five critical threats to global retirement security

Demographics and economics have long placed global retirement security on shaky ground, but ten years on from the global financial crisis the erosion of foundational beliefs on retirement funding has escalated. As a result, today's stakeholders in retirement security must now reevaluate old assumptions to build more sustainable strategies for ensuring individuals can live with dignity in the years after work.

Theory and practice no longer add up

In theory, retirement security should work on a simple principle: Workers save over a lifetime, employers provide retirement benefits, and policy makers collect payroll taxes to fund government benefits. It should all add up to a stable source of retirement income. This essential theory of workers, employers and government sharing the responsibility is the basis of a three-pillar funding model that has been the foundation for a promise of a secure retirement for individuals in countries across the globe for 50 years or more.

In reality, the traditional three-pillar model may not be able to live up to the promise of retirement security. Rapidly aging populations have made funding models for government retirement benefits unsustainable. Mounting payout liabilities have made it difficult for employers to fully fund pension plans. All the while, stagnant wage growth, a steadily rising cost of living and swelling personal debt levels have limited individuals' ability to generate retirement savings. The end result is a retirement security crisis that threatens tens of millions of individuals globally.

Measuring security today

Ensuring retirement security is ultimately a sustainability problem. Solving it will require active participation from policy makers, employers, individuals and other stakeholders across the globe. But retirement security is a complex, multi-dimensional issue that requires objective data analysis and practical action. The Natixis Global Retirement Index is designed to help open a discussion of global best practices in retirement security. Examining 18 factors across four sub-categories – finances in retirement, material wellbeing, health, and quality of life – the index is intended to provide a tool for discussion on how to best achieve retirement security goals.

At this point in time, when the number of individuals age 60 and older currently stands at 13% of the world's population, and is increasing by 3% every year,[3] it is critical to start the conversation today so we can better understand the threats, examine the options, and collaborate on sustainable solutions that can ensure retirement security for generations to come.

Retirement: a slow-moving crisis

Because it's driven by long evolving demographic trends, the retirement crisis has been approaching in slow motion for decades. Between 1950 and 2017, the United Nations reports, the global population has grown from 2.5 billion to nearly 7.6 billion people.[4] Advances in healthcare and medicine have accelerated human longevity to the point that those over

[3] "World Population Prospects: The 2017 Revision." World Population Prospects, 2017. Accessed August 07, 2018. https://esa.un.org/unpd/wpp/Publications/Files/WPP2017_KeyFindings.pdf.
[4] "World Population Prospects: The 2017 Revision." World Population Prospects, 2017. Accessed August 07, 2018. https://esa.un.org/unpd/wpp/Publications/Files/WPP2017_KeyFindings.pdf.

age 65 now represent 17.6% of the population in the developed world. Projections call for this figure to reach 26.6% by 2050.[5] But this longevity revolution has unfolded over decades, not overnight.

Policy makers and pension managers have had the problem in sight since before the turn of the 21st century, but a multi-decade bull market helped even out the math, sparking an explosion of wealth between 1982 and 2007. Even with dramatic downturns in 1987, 1998, and 2001, markets managed to deliver results that helped keep the crisis at bay. All the while, interest rates hovered near 5%, keeping pension liabilities within a manageable range and providing retirees with a stable base for annuitizing their savings for lifetime income. The conditions weren't perfect, but the stakeholders in retirement security still had room to maneuver.

Financial crisis accelerates a retirement crisis

It all changed in 2008 when an overheating housing market expanded into a housing bubble, which burst into a subprime mortgage crisis and exploded into a global financial crisis. The crisis sent shockwaves across the global financial system, and triggered huge stock market losses globally over the course of the next 24 months. But as policy makers and lenders in North America, Europe, the UK and Asia worked toward a solution in the short term, few could have foreseen the long-range aftershocks that would undermine retirement security more than a decade later.

If the retirement security crisis was driven by aging demographics before 2008, it has been further compounded by both the economic realities of the post-crisis world and the continuing progression of societal trends that include:

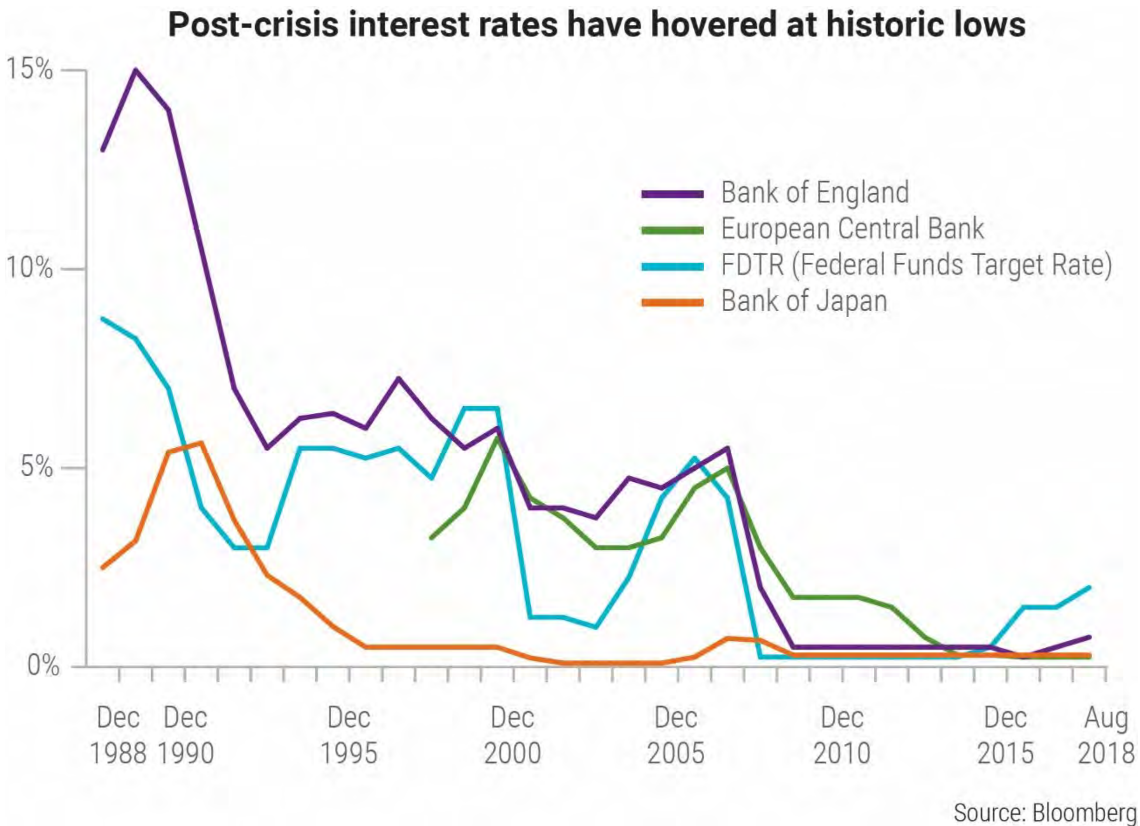
- **Monetary policy:** A decade of ultra-low interest rates has widened the pension gap, challenging pension managers to address mounting liabilities and forcing retirees to annuitize savings on unfavorable terms.
- **Public debt:** As the world grappled with the slowest moving recovery in history, public spending continued near pre-crisis levels; the ensuing public debt crisis strains resources to be allocated to government pensions and social services for the elderly.
- **Demographics:** Aging populations and expanding old-age dependency ratios across the globe have led to unpopular discussions about reduced pension payouts and challenging questions about effective immigration policy.
- **Climate change:** Rising temperatures and rising sea levels increase health, safety, and insurance risks for retirees while presenting obstacles for policy makers focused on sustainability.
- **Quality of life:** Shifting employment dynamics, rising healthcare costs, and increasing environmental pressures will all have an impact on the security of retirees across the globe.

Retirement security has been put under considerable pressure in the decade following the global financial crisis. To make systems more sustainable, it is critical to understand how these and other factors pose a risk to retirees in order to strike the delicate balance needed to ensure long-term sustainability of retirement systems globally.

[5] United Nations, Department of Economic and Social Affairs, Population Division (2017). World Population Prospects: The 2017 Revision, custom data acquired via website.

Threat #1: Monetary policy that's perpetually stuck in crisis mode

In the midst of the financial crisis, central bankers knew they needed to step in to quell highly volatile markets and manage economies across the globe. Their initial shot at staving off disaster was to bring interest rates down to historically low, and in some cases negative, levels. In the short term it worked like a tourniquet, cutting off the bleeding of a badly wounded patient, freeing up credit and getting investors into riskier assets. In the long term nobody could have predicted the potential outcomes of a treatment that continued for ten years.



Low yields raise the risk

A decade of low yields has had a profound effect on retirement security. On the institutional side of the equation, low rates today mean the present value of assets is lower as well. It all translates into greater liabilities for pension managers. In order to ensure they have the assets needed to meet those liabilities, pension professionals have fewer options for growing assets over the long term.

If the pension gap was growing prior to the financial crisis, low interest rates have only widened it. It's likely that this is one of the primary reasons that respondents to our 2017 Global Survey of Institutional Investors rank interest rates as their top portfolio risk concern (62%), ranking it higher than volatility spikes (53%), liquidity (32%) and inflation (27%).[6]

Low rates pose a significant threat to the individual side of the equation as well. Retirees looking to generate income off retirement savings are now forced to annuitize assets at a time when interest rates have never been lower. As a result, most pensioners are faced with four choices: 1) live on lower levels of income than they may have anticipated, 2) work longer, if they are physically able to, 3) cash in their defined benefit pension funds and assume the subsequent investment

[6] Natixis Investment Managers, Global Survey of Institutional Investors conducted by CoreData Research in September and October 2017. Survey included 500 institutional investors in 30 countries.

and financial risks themselves, or 4) invest in riskier assets with higher income potential but also the potential for higher losses. Our 2017 Global Survey of Institutional Investors shows that the smart money understands just what that last option has meant for investors, as 70% believe individuals have taken on too much risk in pursuit of yield.

But cutting interest rates was only the first step in the treatment. With rates at all-time lows, central bankers found they had little left to respond to financial aftershocks, and many implemented unprecedented asset repurchase programs to inject massive amounts of cash into the financial system. In the short term, quantitative easing worked, helping to bid up prices and produce positive results in the markets. But with bankers buying trillions of dollars of "safe" government bonds, interest rates across the yield curve were pressured even lower.

In the ensuing quest for yield, investor demand has driven up asset prices for mortgage-backed securities, investment grade corporates, high yield bonds and finally equities in markets across the globe, as institutional investors look to fill portfolio gaps. It's no surprise, then, that 71% of institutions surveyed believe their cohort has also taken on too much risk in pursuit of yield[7] – risks that could well be realized when treatment is stopped.

Loosening the tourniquet

Radical rate cuts and quantitative easing certainly put central bank policy in uncharted territory, but after ten years it has become a normal circumstance in investment assumptions. Now, one of the key challenges will come as bankers start to unwind quantitative easing and implement rate hikes. Increasing interest rates after this long puts investors in uncharted territory. Institutions show the greatest concern with what happens when policies are reversed and interest rates are increased: 61% worry that rate hikes will have a negative impact on portfolio performance.[8]

The big challenge going forward will be how rate hikes are implemented as central banks start the unprecedented process of quantitative tightening and raising interest rates to normal levels. While higher rates will be a positive for pensions and pensioners in the long run, it is the short run that poses an immediate challenge.

If rates rise too quickly, it could result in a meaningful slowdown in growth. This could put institutional portfolios built with relatively high return assumptions (which our institutional survey respondents peg at 7.2%) on perilous ground. Retirees are likely to feel the pinch as well, as rising prices are never a good sign for those living on a fixed income.

In the end, rates certainly need to increase from record lows. Global retirement security will likely hinge upon central bankers' ability to remain free from political pressure so they can take slow, deliberate actions that will ultimately reduce the risks that crisis policies present a decade after they were needed.

Threat #2: Slow growth and the weight of public debt

Even though markets recovered from the crisis, they now presented a new and maybe bigger threat to global retirement security – staggering levels of public debt. The eventual path out of the financial crisis proved to be the slowest, most anemic recovery in modern history. Despite this sobering economic reality, unabated public spending continued across the developed world. Without higher levels of revenue coming to public coffers, policy makers were unable to keep pace with the debt they were amassing. Now, with debt levels at all-time highs, they are faced with tough policy and funding decisions that could impact millions of retirees.

The problem is clear: Policy makers have limited funds to work with. Retirement benefits, education, and infrastructure must all vie for a share of the same revenues that fund both defense budgets and interest payments on public debt. As debt increases, the funding available for retirement benefits and other social services decreases. Depending on who's in

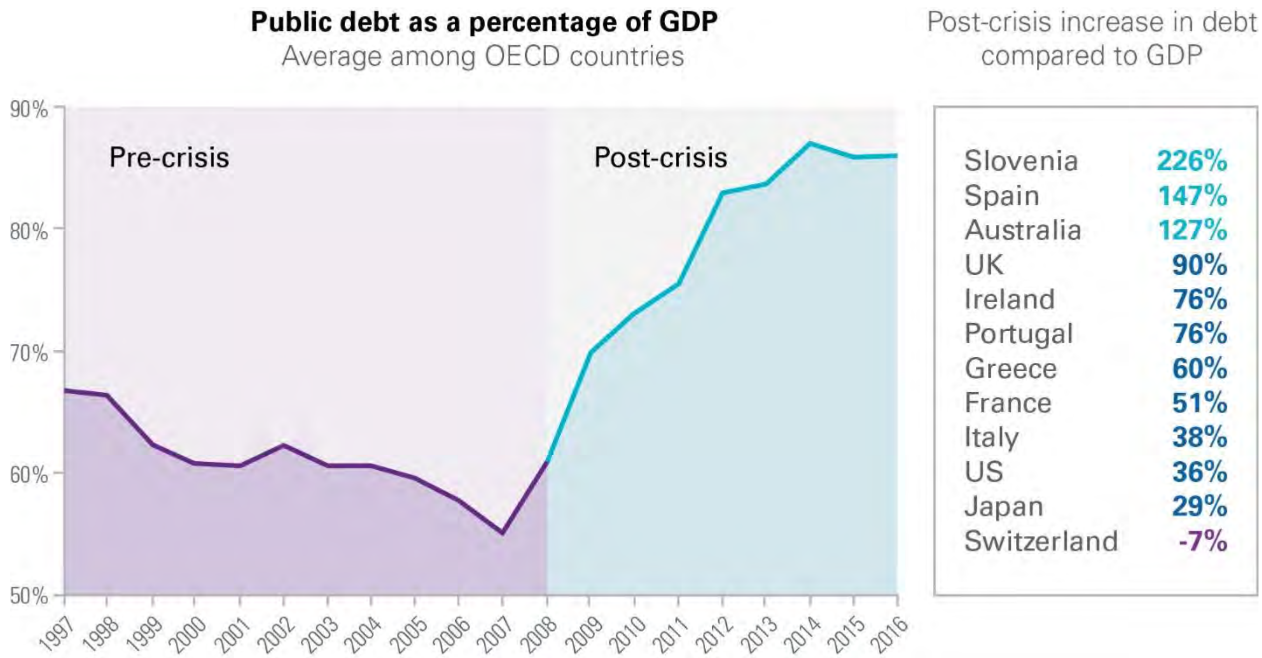
---

[7] Natixis Investment Managers, Global Survey of Institutional Investors conducted by CoreData Research in September and October 2017. Survey included 500 institutional investors in 30 countries.
[8] Natixis Investment Managers, Global Survey of Institutional Investors conducted by CoreData Research in September and October 2017. Survey included 500 institutional investors in 30 countries.

power at any given time, tough decisions will have to be made about where to spend and where to cut. In terms of retirement security this puts a system that was made unsustainable by demographics before the crisis in the untenable position of meeting the needs of even more people with significantly less cash.

Solving one crisis leads to another

Just how much have QE and other measures added to public debt? Between 2008 and 2016, the Organization for Economic Cooperation and Development (OECD) reports that public debt in the developed world has ballooned from 61% to 86% of GDP – an increase of 41% in just eight years. Compare this to the previous ten-year period (1997–2007), when public debt actually dropped by 10% from 65% to 55%, and the impact of the crisis becomes clearer.[9]



Risk realized in Greece

While a debt crisis in Italy is deepening today, Greece serves as a recent reminder of how public debt can ultimately impact retirement security for millions of individuals. In short, fiscal mismanagement and underreporting of public debt levels led to a crisis of confidence in Greek sovereign debt in late 2009. Ultimately Greece's government required multiple bailouts from the International Monetary Fund, the European Commission, and the European Central Bank in 2010, 2012, and again in 2015. As public debt reached 184% of GDP in Greece, a level second only to Japan's level of 237% of GDP, the crisis came to a head.[10] In June 2015, Greece became the first developed country in history to miss a loan payment to the IMF. At that time, public debt had reached $345 billion or $32,000 per capita.[11]

Austerity measures implemented in response to the crisis included 12 rounds of tax increases, spending cuts, and economic reforms in just a six-year period. The causes of the debt crisis range from systemic problems such as rampant tax evasion

---

[9] "General Government - General Government Debt - OECD Data." The OECD. Accessed August 07, 2018. https://data.oecd.org/gga/general-government-debt.htm.

[10] "General Government - General Government Debt - OECD Data." The OECD. Accessed August 07, 2018. https://data.oecd.org/gga/general-government-debt.htm.

[11] "Greece National Debt 2018." Countryeconomy.com. Accessed August 07, 2018. https://countryeconomy.com/national-debt/greece.

by Greek citizens to the underreporting of debt by the Greek government. However, the ensuing austerity measures have had a human toll, especially among individuals living on a fixed income with public pension benefits.

Retirees have been among the hardest hit by austerity. Benefits have been cut more than a dozen times since 2010, leaving many with pension payments of just 50% of pre-crisis levels. With additional cuts slated for 2019, Greek pensioners could be accepting another level of pain, but the issue has become such a lightning rod that hundreds of pension recipients marched on the Greek Supreme Court in October 2017 to demand the cuts to be ruled unconstitutional. Pensioners protesting in the street is a none-too-subtle reminder of just how critical the effective management of public debt can be to ensuring retirement security across the globe.

The global threat

Greece is just one example of the pressures that public debt puts on policy makers. Across the developed world, public debt has increased dramatically between 2008 and 2016. While Italy's 38% increase and Greece's 60% increase in debt compared to GDP over this time may seem staggering, increases of 147% in Spain, 76% in Portugal, and 76% in Ireland are eye-opening. Beyond the PIIGS, public debt has ballooned in Slovenia (226%), the United Kingdom (90%), Japan (29%), France (51%), Australia (127%), and the United States (36%).[12]

Globally sovereign debt for all OECD countries has increased from $25 trillion in 2008 to $44 trillion last year, while debt-to-GDP ratios across the OECD averaged 74% by the end of 2017.[13] Numbers of this size may seem incomprehensible, but when it comes down to human scale, the pressure becomes all the clearer. Japan's $3.5 trillion in debt translates into a debt burden of more than $90,000 for every man, woman and child. The $12 trillion debt in the US adds up to a bill of $60,000 per capita. While Greece's $477 billion in debt pales in comparison, it brings with it a debt load of just under $50,000 per capita. Even in Germany, where public debt grew by just 8% post-crisis, the burden is still close to $40,000 per citizen.[14]

The threat presented by public debt has clear implications for retirement security. With the pressure to bring debt levels under control mounting on all sides, it will be critical for policy makers to keep the needs of present and future retirees in mind. Governments must ensure that promises made to workers as payroll taxes were collected to fund retirement benefits are honored when they leave the workforce altogether.

Threat #3: Old-age dependency keeps growing

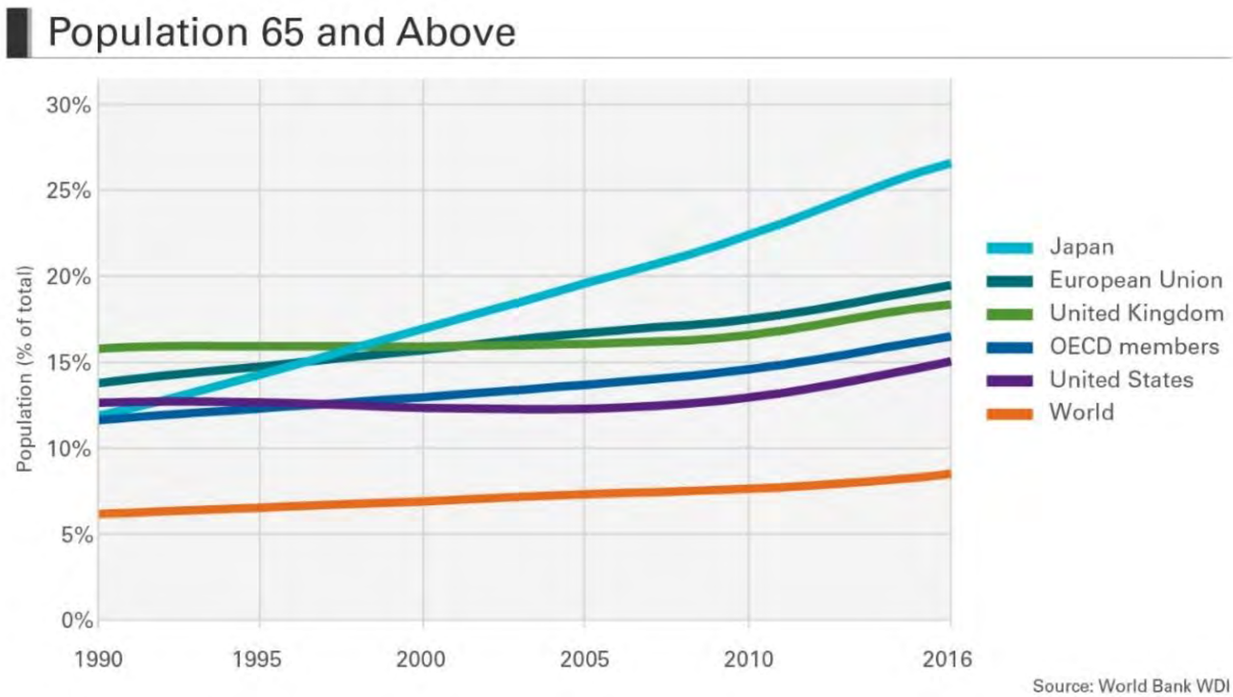
The success of public and private retirement systems across the globe depend on one key factor: The number of younger individuals paying into the system has to be large enough to support the number of people taking payments out of the system. The math is simple, but the fundamentals have been eroding for decades.

According to United Nations data, the world's population of individuals age 65 and above increased from 6.2% in 1990 to 8.3% in 2015.[15] While it may seem like a small jump, it is the global average. In more developed countries growth in the elderly population is growing at a more dramatic rate. People over the age of 65 in Europe, North America, Australia/New

---

[12] "General Government - General Government Debt - OECD Data." The OECD. Accessed August 07, 2018. https://data.oecd.org/gga/general-government-debt.htm.
[13] "Sovereign borrowing outlook for OECD countries." The OECD. Accessed August 8, 2018. https://www.oecd.org/finance/Sovereign-Borrowing-Outlook-in-OECD-Countries-2018.pdf
[14] Gray, Alex. "This Is How Much Debt Your Country Has per Person." World Economic Forum. October 04, 2017. Accessed August 07, 2018. https://www.weforum.org/agenda/2017/10/this-is-how-much-debt-your-country-has-per-person.
[15] "World Population Prospects: The 2017 Revision." World Population Prospects, 2017. Accessed August 07, 2018. https://esa.un.org/unpd/wpp/Publications/Files/WPP2017_KeyFindings.pdf.

Zealand, and Japan already accounted for 12.5% of the populations in these regions in 1990. Over the next 25 years, this population grew another 5% to reach 17.6%. But it is within the next 25 years that the aging phenomenon is likely to reach critical mass in the developed world, as the number of individuals age 65 and older is estimated to reach 25.2% in 2040.[16]



The world keeps getting older

If estimates that anticipate the growth rate for the elderly population to nearly double over the next 25 years are realized, it will throw the retirement calculus even further out of balance. For evidence of the potential impact of accelerated aging, there's no need to look further than Japan today, where the elderly already accounted for 26.6% of the total population in 2016.[17] The longevity issue comes to a head in Japan's old-age dependency ratio. When the number of Japanese age 65 and older is compared to the general working population (age 18–64), it adds up to 45 elderly individuals for every 100 workers.[18]

Old-age dependency ratios measure the burden placed on workers to provide pension, healthcare, and social security benefits to retirees. The higher the ratio, the greater the burden on workers. Policy makers have limited tools at their disposal to help alleviate the impact of aging on retirement systems, few of which are popular:

- **Raise the qualified retirement age:** While retirement age can vary from country to country, age 65 is a generally accepted global benchmark. In many cases, the age was set when average lifespans were only a few years longer. Adding years to working life is not a popular option for many individuals, as evidenced in France when a proposed increase from age 60 to age 62 set off weeks of protests across the country in 2010.
- **Reduce retirement benefit payments:** With fewer funds coming into public coffers and more individuals joining pension rolls, policy makers may need to reduce benefit payments. Not only have these moves been met with

[16] "World Population Prospects: The 2017 Revision." World Population Prospects, 2017. Accessed August 07, 2018. https://esa.un.org/unpd/wpp/Publications/Files/WPP2017_KeyFindings.pdf.
[17] "Population ages 65 and above (% of total)." World Bank WDI. Accessed August 08, 2018. https://data.worldbank.org/indicator/SP.POP.65UP.TO.ZS?view=chart.
[18] "Age Dependency Ratio, Old (% of Working-age Population)." World Bank WDI. Accessed August 07, 2018. https://data.worldbank.org/indicator/SP.POP.DPND.OL.

protests in Greece, but in 2018, pension funding came to a head in the US, resulting in teacher strikes in Arizona, Colorado, Kentucky and Ohio and protests from retired union truckers and mineworkers across the Midwest. Pension cuts have also become part of violent protests in Nicaraguan national elections.

- **Bring more people into the system via immigration:** While a hot button populist issue across the globe, immigration is also seen by some policy makers as an opportunity to offset an aging population by increasing the number of working age individuals within their country. The Australian Reserve Bank points to a recent wave of immigration of younger, skilled workers to the country, which has offset age increases across the broad population. As a result, the board anticipates that Australia's old-age dependency ratio will increase at a slower pace than other countries, making it one of the youngest populations in the developed world.[19]

Old-age dependency ratios for selected countries

	1990	2016	2030	2050	Change between 1990 and 2016	Change between 2016 and 2030	Change between 2016 and 2050
Switzerland	21.3	27.2	38.1	50.0	5.9	10.9	22.8
Iceland	16.6	21.4	32.1	41.5	4.8	10.7	20.1
Sweden	27.7	31.6	36.7	41.3	3.9	5.1	9.7
Denmark	23.2	30.4	37.4	41.0	7.2	7.0	10.6
United States	19.2	22.8	33.2	36.4	3.6	10.4	13.6
United Kingdom	24.2	28.7	36.0	43.6	4.5	7.3	14.9
Japan	17.0	43.9	52.7	71.2	26.9	8.8	27.3
China	8.6	14.0	25.3	44.0	5.4	11.3	30.0
Brazil	6.7	11.8	19.8	36.7	5.1	8.0	24.9
India	6.6	8.8	12.4	19.8	2.2	3.6	11.0

Source: WDI, UN Population Division

Millennials alone won't stem the tide

In the US, some may look at the rise of Millennials as a key to improving the dependency ratio. At 83 million strong, this generation born between 1980 and 2000 is larger than both Baby Boomers (74 million) and Generation X (66 million). Knowing that there is a larger population behind them should help quell the concerns of older workers, but the solution isn't that simple.

First, the Millennial generation is not bigger than Boomers and Xers combined. Second, having a large number of younger people join the workforce is good for Social Security funding in the long term, but younger workers are generally not the most productive within an economy. It won't be until they gain the years of service needed and access higher-paying, more senior-level jobs that they will be able to generate maximum revenue for these vital benefits programs.

A problem that won't go away with time

Countries will continue to see longevity that stretches well past the sustainable limits of retirement security. Japan's old-age dependency ratio could skyrocket through 2050, when there will be 71 individuals over the age of 65 for every 100 individuals of working age. It's not just today's developed countries that will have to grapple with higher old-age dependency ratios. Longevity appears to be a benefit of the economic development process. In the next 15 years it's

[19] Reserve Bank of Australia. "Minutes of the Monetary Policy Meeting of the Board – 5 June 2018." Accessed August 07, 2018. www.rba.gov.au/monetary-policy/rba-board-minutes/2018/2018-06-05.html.

anticipated that China's ratio will increase 10% to more than 25%, Brazil's will rise from 12% to 20% and India's will rise from 9% to 12%.[20]

As policy makers around the globe consider the path forward, they will be in the unenviable position of choosing payments today or a sustainable stream of payments to future retirees. We have seen some hard choices made already as national retirement ages continue to climb upwards of 70.

Individuals already recognize the challenge in front of them: 78% of those included in our most recent investor survey say the responsibility for funding retirement is increasingly theirs.[21] They will need to maximize retirement savings opportunities over a lifetime of work in order to ensure they can fulfill that responsibility.

Employers will also play a critical role in addressing the gap. Giving workers access to the tools they need to simplify retirement access is a critical first step. Making defined benefit plans and instituting auto-enrollment and auto-escalation features go a long way toward effective individual savings. But employers may also want to begin to shift their thinking on older, more productive workers. Eliminating mandatory retirement ages, and instituting proactive employment policies for more senior members of the workforce, may also help to minimize the threat to retirement security.

Threat #4: Climate change

While the socioeconomic and fiscal risks to retirement may be obvious, the environmental risks may be less clear. On the surface, some may see climate change as a feel-good issue when it comes to solving the problem of ensuring individuals can retire with dignity, but it is in fact a critical issue facing retirees even today.

How can climate change pose a threat to retirement security? Ask retirees living in the Florida Keys during September of 2017. With Category 4 Hurricane Irma bearing down on the region after decimating Puerto Rico, Cuba and the Caribbean's Leeward Islands, almost all evacuated. After waiting out the storm and the ten days it took to clear the region's roads, many returned to find that their homes had been destroyed or extensively damaged.

Insurance might have helped recover losses. But those living on a fixed income could also find their personal resources strained as they determined if they could afford to rebuild to new safety standards, or finance a move to another locale with access to healthcare and services many retirees depend upon.

Rising temperatures, rising costs

With temperatures across the globe warming at an increasing rate, this scenario presents but one example of the choices that climate change could force upon retirees.

Since 1960, land and ocean surface temperatures have been on the upswing, running 0.84 degrees Celsius warmer than the 20th century average in 2017 according to the US National Oceanic and Atmospheric Administration (NOAA). At 1.12 degrees above the mean, 2016 came in as the warmest year on record.[22] New research from NOAA has identified a link between these higher temperatures and more intense storm activity. This same research suggests that in terms of the

---

[20] "World Population Prospects: The 2017 Revision." World Population Prospects, 2017. Accessed August 07, 2018. https://esa.un.org/unpd/wpp/Publications/Files/WPP2017_KeyFindings.pdf.

[21] Natixis Investment Managers, Global Survey of Individual Investors conducted by CoreData Research, February-March 2017. Survey included 8,300 investors from 26 countries.

[22] "January 2017 Was Third-warmest January on Record – Climate Change: Vital Signs of the Planet." NASA. February 15, 2017. Accessed August 07, 2018. https://climate.nasa.gov/news/2550/january-2017-was-third-warmest-january-on-record/.

extreme levels of precipitation experienced by residents in Houston during Hurricane Harvey, this kind of storm activity in the US is moving from a once-in-100-years occurrence to one that can be expected every 16 years.[23]

One of the most immediate impacts for retirees will be economic, as those who escape to coastal locations feel the burden of their share of the $306 billion in storm-related losses the National Aeronautics and Space Administration (NASA) estimates the US experienced in 2017 alone.[24] The pain is just that felt in the aftermath of hurricanes, but NASA includes damage by rising sea levels, droughts, floods, heat waves, and wildfires in the total.

Rising sea levels are another outcome of global warming that may impact retirees. According to NOAA's National Ocean Service (noaa.gov), global sea levels have been rising over the past century; the rate has increased in the past decade to about one-eighth of an inch annually, with levels reaching 3.2 inches above the 1993 average in 2016.[25] This poses significant threats to those who live in densely populated coastal areas, currently about 40% of the earth's total population.[26]

Water, water everywhere

Not only are those in low-lying areas exposed to the safety risk of extreme flooding, but they may also feel an economic impact as well. With flooding becoming more frequent and storms growing more intense, property insurance costs are skyrocketing for homeowners in these areas. At the same time, new research from Harvard University[27] and the University of Colorado[28] indicates that home values for properties at lower elevations are growing at a slower rate as well.[29]

This is an important consideration, as property can play a significant role in the retirement plans of individual investors. In our global survey of individual investors more than 50% of respondents said the sale of a primary residence or business would be an important funding source for their retirement. The impact could be greater in Asia, where 66% of investors in Hong Kong and 63% in Singapore are counting on their home or business to provide at least part of their retirement funding.[30]

---

[23] "Global Warming and Hurricanes." GFDL - Geophysical Fluid Dynamics Laboratory. June 6, 2018. Accessed August 07, 2018. https://www.gfdl.noaa.gov/global-warming-and-hurricanes/.

[24] "2017 U.S. Billion-dollar Weather and Climate Disasters: A Historic Year in Context | NOAA Climate.gov." Global Warming Frequently Asked Questions | NOAA Climate.gov. January 08, 2018. Accessed August 07, 2018. https://www.climate.gov/news-features/blogs/beyond-data/2017-us-billion-dollar-weather-and-climate-disasters-historic-year.

[25] Smith, Adam B. "2017 U.S. Billion-dollar Weather and Climate Disasters: A Historic Year in Context | NOAA Climate.gov." Global Warming Frequently Asked Questions | NOAA Climate.gov. January 08, 2018. Accessed August 07, 2018. https://www.climate.gov/news-features/blogs/beyond-data/2017-us-billion-dollar-weather-and-climate-disasters-historic-year.

[26] "Climate Change: Global Sea Level | NOAA Climate.gov." Global Warming Frequently Asked Questions | NOAA Climate.gov. September 11, 2017. Accessed August 07, 2018. https://www.climate.gov/news-features/understanding-climate/climate-change-global-sea-level.

[27] Keenan, Jesse M, et al. "Climate Gentrification: from Theory to Empiricism in Miami-Dade County, Florida." Environmental Research Letters, vol. 13, no. 5, April 23, 2018. Accessed August 07, 2018. http://iopscience.iop.org/article/10.1088/1748-9326/aabb32

[28] Bernstein, Asaf, et al. "Disaster on the Horizon: The Price Effect of Sea Level Rise." Journal of Financial Economics (JFE), Forthcoming. May 4, 2018. Accessed August 07, 2018. https://ssrn.com/abstract=3073842

[29] Harris, Alex. "The Risk of Sea Level Rise Is Chipping Away at Miami Home Values, New Research Shows." Miami Herald. April 24, 2018. Accessed August 07, 2018. https://www.miamiherald.com/real-estate/article209611439.html.

[30] Natixis Investment Managers, Global Survey of Individual Investors conducted by CoreData Research, February-March 2017. Survey included 8,300 investors from 26 countries.

But not a drop to drink

It's not just too much water that poses threats to retirees: In some regions, not having enough water could be the bigger risk. In Spain and Portugal, the problem is looking to be the opposite of Florida's. Research from the University of Newcastle suggests that by 2100, climate change will make the Iberian Peninsula susceptible to mega-droughts lasting as long as 15 years.[31] These prospects may sound all too familiar to those living in Barcelona in 2008. In that time the worst drought in 60 years of recordkeeping drained reservoirs to just 25% of normal capacity.[32]

The solution then was to bring in tanker ships filled with water from France and southern Spain. Carrying one day's water for 180,000 people, each tanker reached the port of Barcelona at a cost of nearly $26 million. Water scarcity was not likely to be on the minds of the approximately 120,000 British retirees who call Spain home – let alone millions of Spanish citizens over age 65 – in 2016 as they weighed the pros and cons of their expat lifestyle, but with prospects for droughts to increase in the coming years, it could be a more pressing consideration as future retirees determine where to best put down roots for life after work.[33]

In terms of public policy, almost every nation on earth, including most of the developed world, has signed on to the Paris Climate Accord, laying out manageable goals for slowing, if not eventually reversing, climate change. If the world is to manage an issue with implications for retirement security and well beyond, coordinated efforts, such as the Paris agreement, that transcend geopolitical boundaries are the right step forward. In truth, the earth's atmosphere does not recognize borders, nor should efforts to sustain it for the long term.

Threat # 5: An eroding quality of life for retirees

While sustainable funding models are essential to delivering on retirement security across the globe, the issue does not add up only to pension payments. Access to employment opportunities, healthcare services and a clear, stable environment are all essential to ensuring a high quality of life for retirees in the 21st century. Employment in the decade following the Global Financial Crisis is an issue that has evolved from record unemployment to the appearance of the gig economy to the rise of automation and machine learning.

Even retirees need to worry about unemployment

The effects of the financial crisis on employment have had a long tail. While the crisis began in 2008, unemployment continued to climb for two to three years after markets got back on track. OECD reported unemployment among member countries at 5.6% in 2007; by 2010 it had reached 8.3%. It took another seven years before employment retreated to pre-crisis levels, dropping to 5.8% in 2017. Spain was among the hardest hit, starting at an already high rate of 11.24% in 2008; unemployment peaked at 26.09% in 2013 and by 2017 it had only tapered slightly to 17.22%. Starting at 7.76% in 2008, Greece saw an even greater jump to 27.47% in 2013 and had only declined to 21.49% by 2017.[34]

---

[31] Johnston, Ian. "Spain and Portugal Could Be Hit by 'megadroughts' Lasting 15 Years by 2100, Finds Study." The Independent. May 26, 2017. Accessed August 07, 2018. https://www.independent.co.uk/environment/spain-portugal-megadroughts-eight-fifteen-years-2100-study-drought-newcastle-university-a7757036.html.

[32] Keeley, Graham. "Barcelona Forced to Import Emergency Water." The Guardian. May 14, 2008. Accessed August 07, 2018. https://www.theguardian.com/world/2008/may/14/spain.water.

[33] Fleming, Liam. "Article: Living Abroad: Migration between Britain and Spain." Office for National Statistics. June 29, 2017. Accessed August 07, 2018. https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/internationalmigration/articles/livingabroad/migrationbetweenbritainandspain.

[34] "Unemployment - Unemployment Rate - OECD Data." The OECD. Accessed August 07, 2018. https://data.oecd.org/unemp/unemployment-rate.htm.

High unemployment can have a compound effect on retirement security: Not only does it reduce tax revenues to fund pension benefits, and healthcare and social services many retirees count on, but it also limits employment opportunities for those over age 65 who want or need to keep working in their senior years. It's a group whose numbers are growing. According to the OECD, the share of workers aged 65 or older in member countries has grown from 10.3% in 1990 to 14.8% in 2017.[35] By 2030, it is estimated that 30% of people in Japan will be represented by this age group.[36] If one of the outcomes of a retirement funding shortage is to have individuals work longer, it will become critical to ensure that they have employment opportunities.

Can the gig economy keep up?

Changes in employment will also present challenges for younger workers who are in the process of saving for retirement. Since 2010, informal employment has come more into the mainstream. The rise of the gig economy has resulted in millions of individuals globally working as freelancers, independent contractors, or temporary employees. In America alone, more than 20 million individuals are "gig" workers.[37] Note that gig includes all categories: contingency, freelance, temp, and temps from temp firms.

This type of employment can be a win-win in the short term. It can give employers access to qualified workers without adding to benefit and tax rolls and give workers access to flexible employment. But it can present a significant long-term retirement problem if gig workers do not have access to retirement savings plans. Another potential challenge to retirement security in the future is the rise of robots and machine learning, which could result in significant job losses for unskilled and under-skilled laborers.

Healthcare costs soar

Rising healthcare costs present yet another quality-of-life challenge to retirement security. Following the logic that as individuals age, so do the frequency and severity of health issues, it is right to assume that on average retirees face much higher healthcare costs than they did in their younger years. Nowhere is the trend more prevalent than in the US, where health expenditures per capita are highest among all countries included in the Global Retirement Index. Expenditures have been steadily climbing in the US, rising from $6,369 per person in 2004 to $9,403 per person in 2014, a figure $2,590 higher than next-highest Luxembourg.[38]

Healthcare Costs in Retirement for a Single Retiree in 2013

Retirement age	Life expectancy rates				
	75	80	85	90	95
65	$50,900	$91,200	$146,400	$220,600	$318,800
70	$23,000	$53,700	$95,500	$151,800	$226,200

Source: Yamamoto, Dale H. "Health Care Costs – From Birth to Death." Society of Actuaries. June 2013.

While it is the most glaring example, this phenomenon is not limited to the US, as healthcare costs have been rising in the most advanced economies and, barring any significant policy changes, the trend is expected to continue. In fact, health costs have increased faster than economic growth in all OECD countries over the past 20 years; they are expected to climb

---

35 "Labour force participation rate - OECD Data." The OECD. Accessed August 08, 2018. https://data.oecd.org/emp/labour-force-participation-rate.htm

36 United Nations, Department of Economic and Social Affairs, Population Division (2017). World Population Prospects: The 2017 Revision, custom data acquired via website.

37 "Contingent and Alternative Employment Arrangements Summary." U.S. Bureau of Labor Statistics. June 07, 2018. Accessed August 07, 2018. https://www.bls.gov/news.release/conemp.nr0.htm.

38 "Health expenditure per capita, PPP (constant 2011 international $)." World Bank WDI 2017. Accessed February 8th, 2018.

from 6% of GDP today to nearly 9% in 2030 and 14% by 2060.[39] If these anticipated increases should be factored into retirement plans, individuals could run the risk of not saving enough and ultimately running out of money in retirement.

While there are many other measures to the quality of life individuals will enjoy in the years after work, employment and healthcare are two that must be addressed to ensure global retirement security. Policies and standards will need to be updated to address the unique needs that will be presented by an aging population over the next 25, 50, and 75 years. Taking steps now to shore up a fiscally responsible and socially empathetic response will go a long way toward ensuring sustainable retirement systems across the world.

Ensuring security for the long term

Retirement security is an issue that affects virtually every worker around the world. For the better part of a century, the regimen of a three-pillar system built on contributions from individuals, employers, and policy makers has provided an effective platform for addressing the challenge of funding retirement income. But it is now, as the world undergoes demographic, technical, and economic transformation, that the long-term sustainability of retirement systems faces its greatest threats.

Providing security for retirees over the next 100 years will require a continual examination of the underlying assumptions about retirement. For example, if human longevity now extends into the range of 80, 90, or 100 years, does it make sense for work to end at the younger age of 65? If older members of society are to remain in the workforce longer, will the nature of work and the concept of a single career need to evolve into a more flexible working model?

The first step is evaluating today's conditions and identifying the factors that can have the greatest long-term impact on successful outcomes. The Natixis Global Retirement Index is intended to provide the starting point for a meaningful conversation about the course forward. The next step is to open a dialogue between all the stakeholders, individuals, employers and policy makers, as well as asset managers, if we are to ensure that all avenues are explored and the best path for ensuring global retirement security is set for the long term.

The index incorporates 18 performance indicators, grouped into four thematic sub-indices, which have been calculated on the basis of reliable data from a range of international organizations and academic sources. It takes into account the particular characteristics of the older demographic retiree group in order to assess and compare the level of retirement security in different countries around the world.

[39] "Healthcare costs unsustainable in advanced economies without reform." The OECD. http://www.oecd.org/health/healthcarecostsunsustainableinadvancedeconomieswithoutreform.htm

About the Global Retirement Index

The Global Retirement Index (GRI) is a multi-dimensional index developed by Natixis Investment Managers and CoreData Research to examine the factors that drive retirement security and to provide a comparison tool for best practices in retirement policy.

The index incorporates 18 performance indicators, grouped into four thematic sub-indices, which have been calculated on the basis of reliable data from a range of international organizations and academic sources. It takes into account the particular characteristics of the older demographic retiree group in order to assess and compare the level of retirement security in different countries around the world.

The four thematic indices cover key aspects for welfare in retirement: the material means to live comfortably in retirement; access to quality financial services to help preserve savings value and maximize income; access to quality health services; and a clean and safe environment.

The sub-indices provide insight into which particular characteristics are driving an improvement or worsening each country's position. Data has been tracked consistently to provide a basis for year-over-year comparison. This is the sixth year Natixis and CoreData have produced the GRI as a guide to the changing decisions facing retirees as they focus on their needs and goals for the future, and where and how to most efficiently preserve wealth while enjoying retirement.

As the GRI continues to run each year, it is our hope it will be possible to discern ongoing trends in, for instance, the quality of a nation's financial services sector, thereby identifying those variables that can be best managed to ensure a more secure retirement.

The index includes International Monetary Fund (IMF) advanced economies, members of the Organization for Economic Co-operation and Development (OECD) and the BRIC countries (Brazil, Russia, India and China). The researchers calculated a mean score in each category and combined the category scores for a final overall ranking of the 43 nations studied. See page 82 for the full list of countries.

Executive summary
2018 is a year of change

For the first time since the adoption of our new methodology in 2016, Switzerland takes the top spot for retirement security with higher scores for Quality of Life (thanks to better air quality and environmental factors), Finances, and Health. It's also the only country to finish in the top ten for all four of our sub-indices. Iceland moves up into second, with the highest score in Material Wellbeing. A sharp decline in Finances dropped Norway to third overall. For the second year in a row, Sweden takes fourth place and New Zealand ranks fifth.

Who's moving up?

Ireland moves into the top ten overall for the first time in the GRI's history, making the largest jump in both ranking and score of all countries in the top 25. It ranks seventh overall this year after ranking 14th in 2017, 16th in 2016 and 19th in 2015. It shows steep improvements in the Material Wellbeing sub-index and smaller gains in the Finances and Health sub-indices. Ireland's employment has improved sharply, with greater income equality and only 6.2% unemployment.

Canada also breaks the top ten, moving two spots into ninth place, with a higher score for the Quality of Life sub-index and slight improvements in the Finances and Material Wellbeing sub-indices. It scored well in the Quality of Life sub-index, with the second-highest air quality and seventh-highest personal happiness scores in the entire GRI. Despite improving its biodiversity year over year, Canada still ranks low in this area, with the ninth-worst score.

Who's moving out?

While the top ten welcomes an up-and-coming Ireland, it also loses a high-performing mainstay. Germany ranked seventh both last year and in 2016 after improving its ranking from 12th in 2015. However, declines in the Finances sub-index, the only sub-index score with a lower score than last year, prove to be too much for Germany to merit staying in the top ten. It drops six spots to 13th overall.

Luxembourg is the other country to fall out of the top ten, although it only drops one spot to 11th. It has the highest ranked score for the Health sub-index, but declines in three out of its four sub-indices seal its fate.

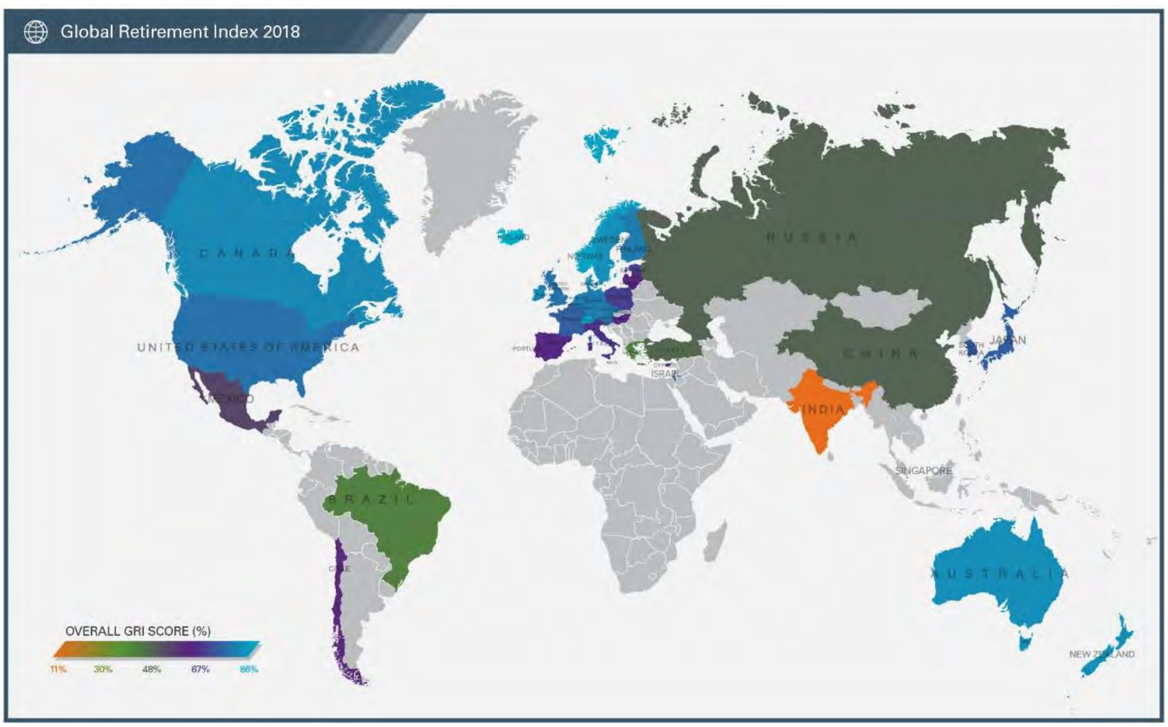
Nordics significantly outperform in Material Wellbeing and Quality of Life

Nordic countries comprise three of the top five and four of the top eight overall. While these countries have relatively good scores across all sub-indices, they truly stand out from the others with much higher scores in the Material Wellbeing and Quality of Life sub-indices. Northern Europe has very strong health care systems and new medical technology, which both support the needs of an aging population. All four countries score in the top ten for the income equality indicator. They miss the sweep of the top five for happiness, with Sweden ranking ninth in this indicator.

The Global Retirement Index 2018

Evaluating the progression of different countries and assessing their potential risk factors are key elements of the GRI. A static representation of a country's current conditions, without considering the past or future, would misrepresent the true level of security for retirees. The GRI takes into account economic development, policy and political modifications, demographic changes and environmental conservation when assessing retiree welfare. The main objectives of this report are evaluating how these elements may increase or decrease retiree welfare in a particular nation and analyzing how a country's indicator scores stand in relation to its peers.

The map below features the results of the 2018 GRI. The cooler colors represent higher overall GRI performance, while the warmer colors indicate poorer performance. Western European countries represent seven of the top ten performers, two countries are from Asia Pacific and one is from North America. Canada moves back into the top ten after falling out last year while, for the third year in a row, Australia and New Zealand are the two Asia Pacific countries in the top ten. The countries in the bottom of the rankings mostly consist of BRIC countries, although China performs better than Greece while Russia ranks ahead of both Turkey and Greece.



Framework

The Global Retirement Index is a multi-faceted index that focuses on various factors determining the welfare and financial security of retirees in the developed world. Specifically, the index considers 18 drivers of retiree welfare that are grouped into four sub-indices capturing the key aspects impacting the welfare of those in retirement: Health, Finances in Retirement, Quality of Life and Material Wellbeing. The GRI thus looks at the numerous and diverse nature of elements influencing the welfare of people in their older years.

FINANCES IN RETIREMENT

- Old-Age Dependency
- Bank Non-Performing Loans
- Inflation
- Interest Rates
- Tax Pressure
- Governance
- Government Indebtedness

MATERIAL WELLBEING

- Income Equality
- Income per Capita
- Unemployment

QUALITY OF LIFE

- Happiness
- Air Quality
- Water and Sanitation
- Biodiversity and Habitat
- Environmental Factors

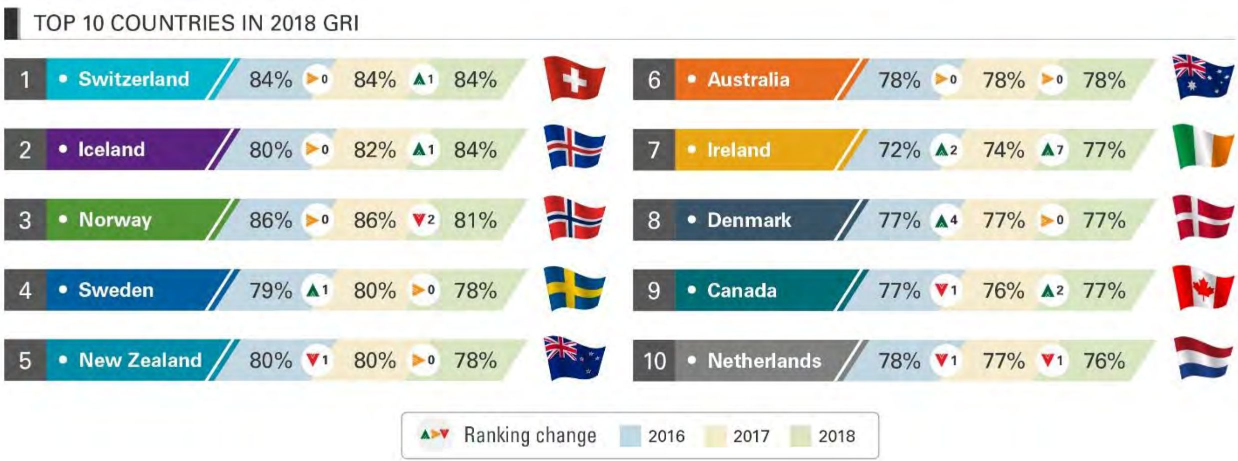
HEALTH

- Life Expectancy
- Health Expenditure per Capita
- Non-Insured Health Expenditure

The Best Performers

While the countries in the top five are the same as last year, there has been some movement in the rankings. Norway drops two places, making way for Switzerland to take top spot and Iceland to move into second. New entrants into the top ten include Ireland, which climbs from 14th last year to seventh, and Canada which moves from 11th to ninth. Meanwhile Germany and Luxembourg, after ranking seventh and tenth respectively last year, fall out of the top ten and now rank 13th and 11th respectively.

Countries in the top ten typically achieve good performance across all four sub-indices. The top ten countries all have higher scores for the Quality of Life sub-index: Eight countries in the top ten overall finish in the top ten for the Quality of Life sub-index, compared to five each for the other sub-indices. Switzerland has top ten finishes in all four sub-indices, Norway and Canada have top ten finishes in three of the four sub-indices and the remaining nations mostly have two sub-indices finishing in the top ten. Australia is the only country in the group to have just one sub-index finish in the top ten.



While Finances has historically been a stumbling block for some countries in the top ten overall, the effect this year is more muted. The number of countries finishing in the Finances top ten is the same as the number ranking in the top ten for both Health and Material Wellbeing. However, there are still a few countries with low Finances scores relative to their overall positions. Norway, Denmark and the Netherlands are prime examples – all feature in the top ten overall, but have a Finances ranking of 28th or lower. These three countries have lower scores for the interest rate and tax pressure indicators compared to other GRI countries. Sweden, ranking fourth overall but 20th in the Finances sub-index, finishes in the bottom ten for the tax pressure indicator and, along with Denmark, the old-age dependency indicator. However, these four countries all finish in the top ten for governance.

Iceland, the second-highest scoring country overall, has the best score in the Material Wellbeing sub-index. It boasts the highest score for both the income equality and employment indicators and the seventh-highest for income per capita. Other countries featuring in the top ten both overall and in Material Wellbeing include Switzerland, Norway, Denmark and the Netherlands. Meanwhile, New Zealand, Australia and Canada finish in the top ten overall but have a Material Wellbeing ranking of 21st or lower. None of these countries have any indicators appearing in the top ten.

Quality of Life is the sub-index with the largest number of top ten finishes from countries also in the top ten overall. Australia and the Netherlands are the only top ten countries overall not finishing in the top ten for the sub-index, ranking 11th and 13th respectively. Of the eight countries featuring in the top ten both overall and in the Quality of Life sub-index, six have top ten finishes for the air quality and environmental factors indicators. Performance in the biodiversity indicator is more subdued, with only Denmark having a top ten finish.

Nine of the top ten countries overall also manage top ten finishes in the happiness indicator within Quality of Life, with Ireland being the exception. However, it is worth noting that all countries in the top ten overall have lower scores for happiness this year. Given that 20 out of 43 countries see a decline in the happiness indicator, half of those with lower indicator scores feature in the top ten overall. And nine of the 22 countries that improve their happiness indicator scores were in the bottom ten last year. The countries that have improved in happiness are therefore playing more of a catch-up game and pose little threat to those currently in the top ten overall.

The Health sub-index has not seen many score changes from last year with only one indicator, life expectancy, being updated. Norway, the country with the highest ranking for the Health sub-index among the top ten overall, only has one top ten indicator finish within the sub-index. All top ten countries overall except Ireland have at least one indicator within the sub-index finish in the top ten, and five countries have two indicators in the top ten. However, no country in the top ten overall finishes in the top ten for all three indicators within the sub-index.

Top 25 Countries in the 2018 GRI

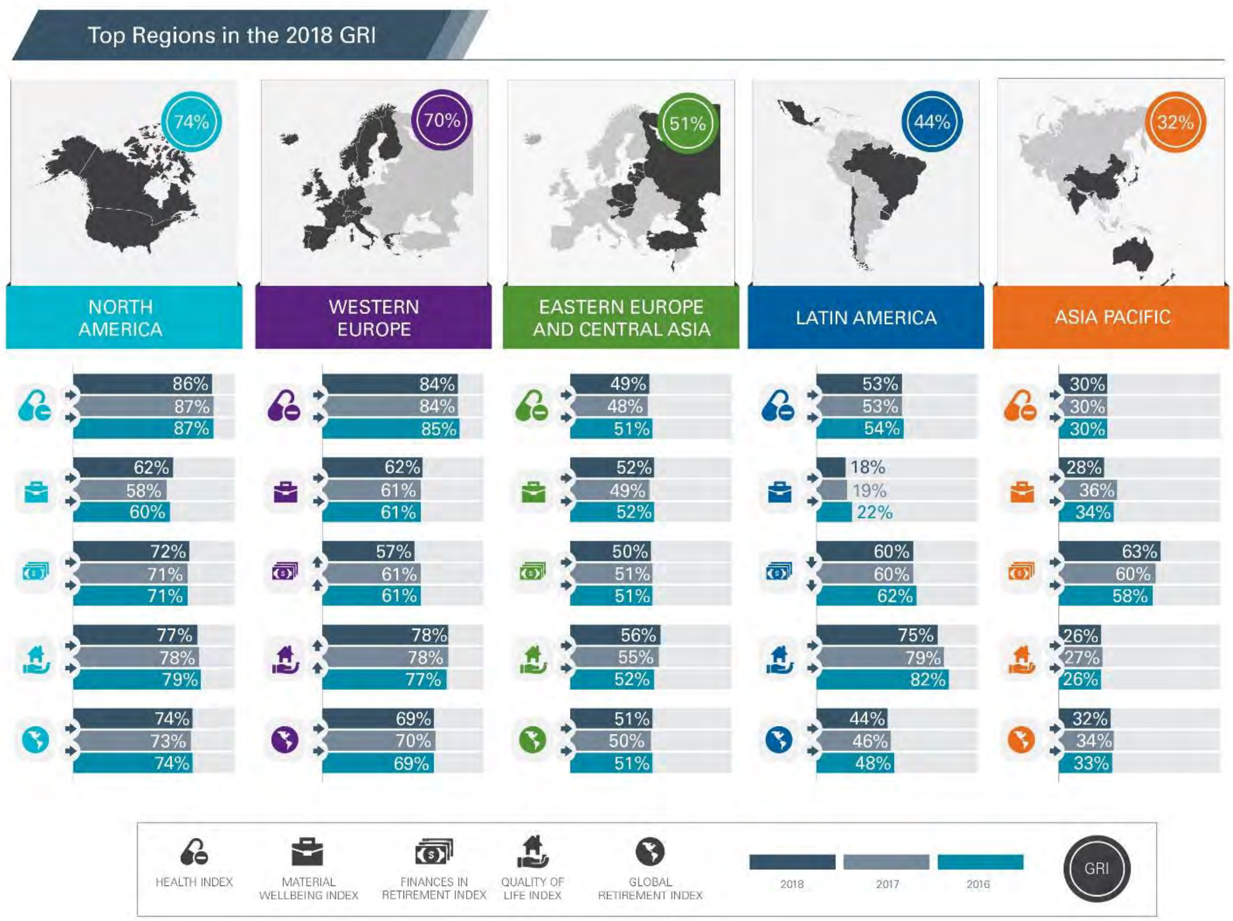
Color Scale: 100%, 95%, 90%, 85%, 80%, 75%, 70%, 65%, 60%, 55%, 50%

Rank #	Country	Health Index	Finances in Retirement Index	Quality of Life Index	Material Wellbeing Index	Global Retirement Index
1	Switzerland	87%	78%	92%	80%	84%
2	Iceland	85%	71%	88%	93%	84%
3	Norway	90%	60%	92%	87%	81%
4	Sweden	89%	67%	90%	71%	78%
5	New Zealand	85%	79%	90%	63%	78%
6	Australia	85%	78%	83%	66%	78%
7	Ireland	82%	71%	83%	73%	77%
8	Denmark	85%	59%	94%	74%	77%
9	Canada	87%	74%	83%	65%	77%
10	Netherlands	90%	58%	83%	80%	76%
11	Luxembourg	92%	62%	80%	73%	76%
12	Finland	81%	63%	93%	69%	75%
13	Germany	86%	57%	83%	79%	75%
14	Austria	86%	54%	87%	76%	74%
15	Czech Republic	72%	69%	75%	82%	74%
16	United States	86%	72%	77%	61%	73%
17	United Kingdom	83%	57%	83%	71%	73%
18	Belgium	83%	59%	80%	71%	73%
19	Israel	76%	71%	78%	63%	72%
20	Malta	77%	67%	69%	73%	71%
21	France	90%	57%	80%	60%	70%
22	Japan	88%	55%	68%	75%	70%
23	Slovenia	79%	65%	68%	69%	70%
24	Korea, Rep.	72%	76%	54%	75%	69%
25	Slovak Republic	65%	68%	69%	64%	66%

Regional Perspective

For the third year in a row, North America has the highest overall GRI score when analyzed by region. While most Western European countries outrank Canada and the U.S., the regional score is dragged down by countries such as Italy and Spain with relatively large populations but low comparative scores. North America's score of 74% is higher than last year while Western Europe has an unchanged score of 70%.

As with previous years, there is a sizable gap between North America and Western Europe on the one hand and the remaining regions on the other. Eastern Europe and Central Asia ranks third but scores a relatively low 51%. This is followed by Latin America with a score of 44% and, lagging by some distance, Asia Pacific which scores 32%. The difference in score (22%) between first and third place is approximately the same as the difference between third and last place (20%).



North America has a higher score this year because of improvements in the Material Wellbeing and Finances sub-index. It has the highest ranking for both Finances and Health, despite its score slipping slightly for the latter sub-index. And the region has the second-highest score for the Quality of Life sub-index after coming third last year, even though it registers a marginally lower score than last year.

Meanwhile, Western Europe improves in Material Wellbeing and Quality of Life – boasting the highest scores for these sub-indices – but records a lower score in Finances. Indeed, it now has the second-lowest score for the Finances sub-index, compared to the second-highest last year, and this represents an area of potential concern.

The Eastern Europe and Central Asia region ranks third with a score of 51%. This region has improved its overall score slightly compared to last year because of gains in the Material Wellbeing, Quality of Life and Health sub-indices. However, the group has a slightly lower score in Finances compared to last year. Eastern Europe and Central Asia has a higher overall score than Latin America yet has lower scores for the Health, Finances and Quality of Life sub-indices.

Latin America ranks fourth with an overall score of 44%. It has a lower score than last year because of drops in the Quality of Life and Material Wellbeing sub-indices. The region had the highest ranking for Quality of Life last year but now ranks third after Western Europe and North America. Latin America beats Eastern Europe in three out of the four sub-indices but ranks fourth overall because of a particularly poor score for the Material Wellbeing sub-index. Brazil, the country with the largest population within the region, has bottom five finishes for all indicators within Material Wellbeing. Furthermore, all three countries in this region have bottom six finishes for the income equality and income per capita indicators.

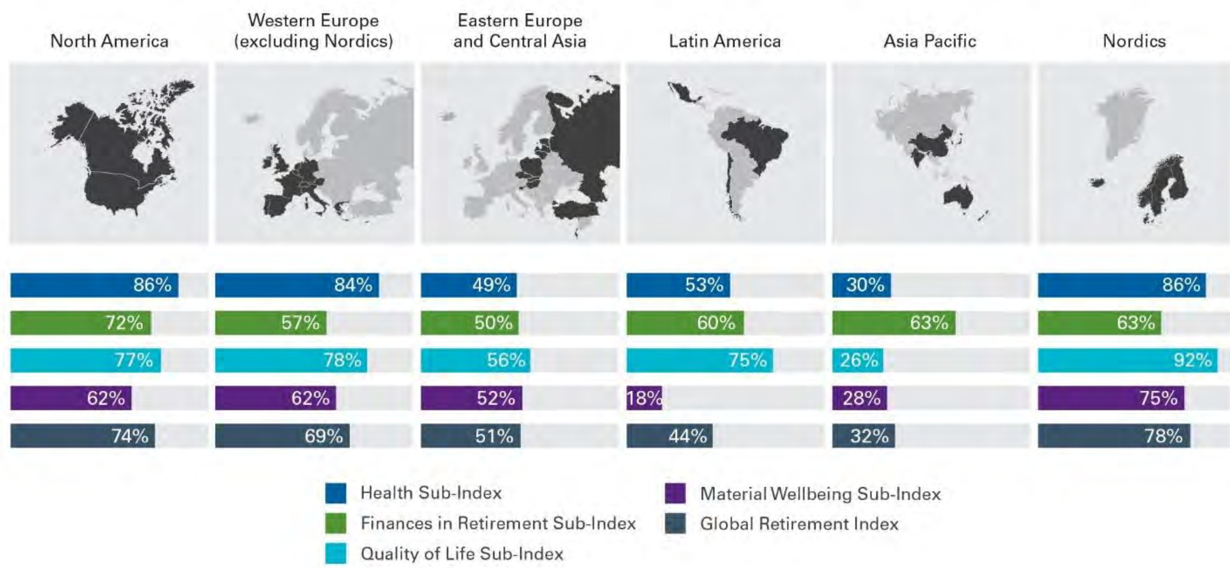
For the third year in a row, Asia Pacific has the lowest regional score. Its overall score declines from 34% to 32% due to lower scores for the Material Wellbeing and Quality of Life sub-indices. The region has a low score chiefly because of the performance of India and China – two countries with very large populations but very low scores. Conversely, New Zealand and Australia represent countries with very favorable scores – both finish in the top ten overall – but their relatively small populations mean their positive influence is cancelled out by the negative effect of India and China. The region has the lowest score for the Health and Quality of Life sub-indices and the second-worst score for Material Wellbeing. More positively, it has the second-highest score for Finances after ranking fourth last year.

Spotlight: The Nordic example

The Nordic countries – Denmark, Norway, Finland, Iceland and Sweden – have always been top performers in the GRI. With better income equality than most countries, a generous social security system, and generally good economic performance, the Nordics can be considered a model worth emulating. All Nordic countries apart from Finland, ranking 12th, feature in the overall top ten. The Nordic countries typically finish near the top for most indicators and therefore provide a best practice template for retirement wellbeing.

When the Nordic countries are excluded, Western Europe ranks number five out of six for the Finances sub-index, third for Health and second for both the Material Wellbeing and Quality of Life sub-indices. All sub-indices suffer lower rankings when the Nordic countries are removed – underscoring the boost they provide to Western Europe's regional score.

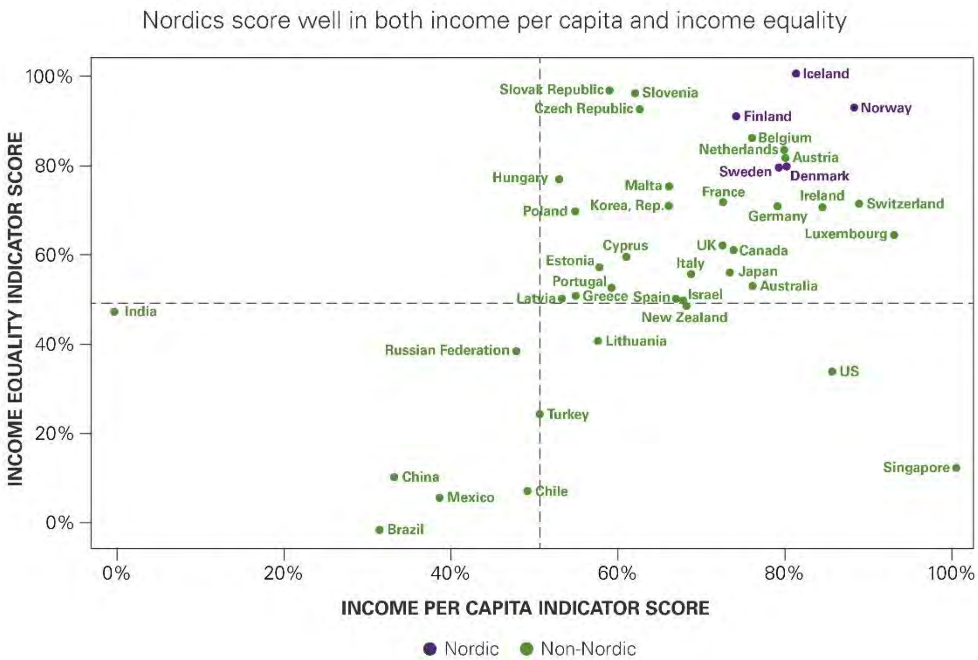
Regional performance with Nordics separated from Western Europe



While the Nordics have the highest score for almost all of the four sub-indices, their scores for both the Finances and Health sub-indices are on par with other regions. However, the Nordics have a considerable advantage in the Material Wellbeing and Quality of Life sub-indices and have more than a ten percentage point lead on the next highest regions for both sub-indices. The strength of the Nordics therefore lies in the indicator performances within these sub-indices.

A staple of the Nordic countries' solid retirement conditions is a good balance of well-to-do citizens whose distribution of income is relatively more equal than other countries in the GRI. Some countries have high income per capita or high income equality, but few countries are able to master the balance of having high scores for both. Countries like the United States and Singapore, for example, have high incomes per capita but relatively low income equality. Slovak Republic has the second-highest income equality indicator score but ranks 30th for income per capita, meaning the distribution of income is high but the level of income is relatively low compared to other countries. Other countries have an even worse combination – Brazil and Mexico have relatively low scores for both income equality and income per capita. Nordic countries, by contrast, generally do a good job of having relatively high incomes with the wealth still being relatively well-disbursed throughout society.

Iceland has the highest score for the income equality indicator and also has the seventh highest score for the income per capita indicator. Norway has the fourth highest score for both indicators. And Denmark has the eighth highest score for the income per capita indicator and the tenth highest score for the income equality indicator. The remaining two Nordic countries, Sweden and Finland, both rank in the top ten for income equality while the former ranks 11th in income per capita and the latter 15th.



A couple of non-Nordic countries perform very well in both the income equality and income per capita indicators. Netherlands and Austria are two of the five countries to make the top ten for both indicators with the other three being Nordic countries. Furthermore, these two countries have higher scores for both indicators compared to Sweden.

All Nordic countries finish in the top ten for the happiness indicator. Finland has the highest score for the happiness indicator among all 43 countries while Norway ranks second, Denmark ranks third and Iceland ranks fourth. Sweden, finishing ninth, is the only Nordic country not to rank in the top five for the happiness indicator. The majority of the Nordics also score in the top ten for the environmental factors and air quality indicators, but happiness is the main indicator where the Nordics are able to significantly outpace other GRI countries.

The Top 25: Year-on-Year Trends

Europe continues its stellar performance in the GRI this year. As with last year, 15 of the top 25 countries are from Western Europe while three are from Eastern Europe. The remaining seven are scattered across the world, with four being from Asia Pacific, two from North America and one from Central Asia.

The countries achieving the largest positive overall score change among the top 25 this year are Ireland, Slovenia, the Czech Republic and Iceland. Ireland climbs seven spots to seventh overall on the back of improvements in the Material Wellbeing, Finance and Health sub-indices. Slovenia, the Czech Republic and Iceland all nudge up one spot with score improvements of either 1.8% or 1.7%. Slovenia moves to 23rd overall after gaining in all sub-indices. Meanwhile, the Czech Republic and Iceland move to 15th and second overall, respectively, due to improvements in the Material Wellbeing, Health and Finances sub-indices, although both decline in Quality of Life.

Norway, Germany and Sweden experience the largest overall score declines among the top 25 in this year's GRI. Norway and Germany suffer significantly lower scores in the Finances sub-index due to a decline in their five-year average for real interest rates. Norway also has a lower score in the Material Wellbeing sub-index compared to last year. And Sweden has a lower overall score owing to declines in the Material Wellbeing, Finance and Quality of Life sub-indices.

There have been no movements into, or out of, the top 25 overall compared to last year.

Year-On-Year (YoY) Top 25 Countries in the 2018 GRI

Color Scale: 100%, 95%, 90%, 85%, 80%, 75%, 70%, 65%, 60%, 55%, 50%

Changes in 2017: Increase, Consistent, Decrease

Country	Ranking 2018 #	Ranking 2017 #	Ranking 2016 #	Trend in Ranking [2016-2018]	Score 2018	Score 2017	Score 2016
Switzerland	1	2	2		84%	84%	84%
Iceland	2	3	3		84%	82%	80%
Norway	3	1	1		81%	86%	86%
Sweden	4	4	5		78%	80%	79%
New Zealand	5	5	4		78%	80%	80%
Australia	6	6	6		78%	78%	78%
Ireland	7	14	16		77%	74%	72%
Denmark	8	8	12		77%	77%	77%
Canada	9	11	10		77%	76%	77%
Netherlands	10	9	8		76%	77%	78%
Luxembourg	11	10	13		76%	76%	76%
Finland	12	12	11		75%	76%	77%
Germany	13	7	7		75%	77%	78%
Austria	14	13	9		74%	75%	77%
Czech Republic	15	16	18		74%	72%	71%
United States	16	17	14		73%	72%	73%
United Kingdom	17	18	17		73%	72%	71%
Belgium	18	15	15		73%	73%	73%
Israel	19	20	19		72%	71%	71%
Malta	20	21	23		71%	70%	69%
France	21	19	20		70%	71%	71%
Japan	22	22	21		70%	70%	70%
Slovenia	23	24	24		70%	68%	67%
Korea, Rep.	24	23	22		69%	68%	69%
Slovak Republic	25	25	26		66%	66%	64%

Country Reports

This section offers a summary of GRI performance for each country finishing in the top 25 overall. Each country report references last year's figures and shows how different indicator movements have affected the country's overall and sub-index scores this year. The goal of the country analyses is to obtain an adequate proxy for changes in retirement conditions in a particular country by comparing year-on-year performance and movements in rankings.

1. Switzerland

Switzerland topples Norway to sit at the top of the 2018 Global Retirement Index. Switzerland moves up one spot from 2017 by achieving higher scores for the Quality of Life (3rd), Finances (5th) and Health (7th) sub-indices but a lower score for the Material Wellbeing (4th) sub-index.

Switzerland's better performance in Quality of Life – its highest-ranked sub-index – is due to improvements in the air quality and environmental factors indicators. It has the highest environmental factors indicator score and the fifth-highest score for happiness among all GRI countries.

Switzerland's gains in the tax pressure indicator mainly helped improve its overall score in the Finances sub-index. The country also has moderately higher scores for the interest rate and bank non-performing loans indicators compared to last year. It achieves strong finishes in governance, bank non-performing loans and tax pressure where it ranks second, fifth and tenth respectively among all GRI countries.

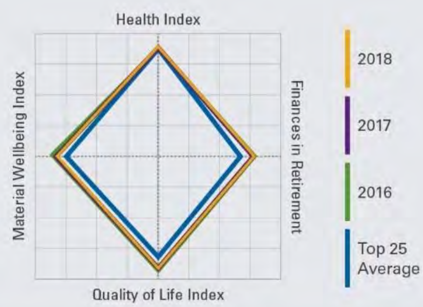
Meanwhile, the country's Health sub-index ranking nudges up one spot to seventh on the back of improvements in the life expectancy indicator. Switzerland also boasts the third-highest score for the health expenditure per capita indicator and the fourth-highest score for the life expectancy indicator.

Material Wellbeing represents Switzerland's only sub-index with a lower score than last year. It has a lower score for both the income per capita and employment indicators, but both finish in the top ten with the former ranking third and the latter ranking tenth among all GRI countries.

Switzerland

Global Retirement Index

	2018	2017	2016	Change (2018)	Change (2017)
RANKING	1	2	2	▲	►
SCORE	84%	84%	84%	►	►



Sub-Index and Indicator Rankings

	2018	2017	2016	Change (2018)	Change (2017)
Health Index	87%	87%	88%	►	▼
Quality of Life Index	92%	92%	94%	►	▼
Material Wellbeing Index	80%	81%	80%	▼	▲

Finances in Retirement Index	2018	2017	2016	Change (2018)	Change (2017)
	78%	77%	77%	▲	►
Old-Age Dependency	38%	39%	40%	▼	▼
Bank Non-Performing Loans	77%	77%	77%	►	►
Inflation	100%	100%	100%	►	►
Interest Rates	75%	75%	74%	►	▲
Tax Pressure	52%	47%	47%	▲	►
Government Indebtedness	51%	53%	52%	▼	▲
Governance	93%	93%	93%	►	►

2. Iceland

Iceland moves up one place to second overall for 2018. With an overall score of 84%, the country registers solid improvements in Material Wellbeing (1st), Finances (11th) and Health (12th). Although it declines slightly in Quality of Life (7th), it still manages a top ten finish in the sub-index.

Iceland's top placement in the Material Wellbeing sub-index is driven with the top score for the employment indicator, improving over last year's number-five ranking, and coupled with the highest score for income equality. Topping it all off, Iceland achieves a top ten finish in income per capita where it ranks seventh.

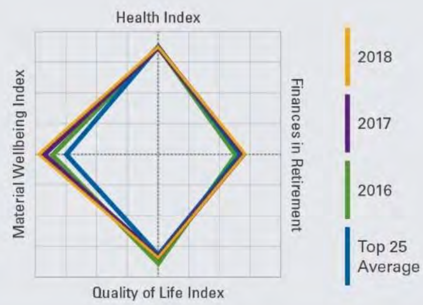
In terms of Finances, Iceland has made strides in the inflation, government indebtedness, tax pressure and interest rate indicators. However, the country is unable to continue its progress in the bank non-performing loans indicator where it made significant improvements last year. Its bank non-performing loans were 4.3% in 2013, declining to 1.7% in 2015 but rising to 2.0% in 2016. But the country's real interest rate indicator is still in the top ten, and an improvement in tax pressure sees it move out of the bottom ten for this indicator.

Iceland's Quality of Life score slips marginally because of the happiness, environmental factors and air quality indicators. However, it still ranks in the top ten for these indicators – with happiness ranking fourth, air quality sixth and environmental factors seventh.

Iceland

Global Retirement Index

	2018	2017	2016	Change (2018)	Change (2017)
RANKING	2	3	3	▲	►
SCORE	84%	82%	80%	▲	▲



Sub-Index and Indicator Rankings

	2018	2017	2016	Change (2018)	Change (2017)
Health Index	85%	84%	86%	▲	▼
Quality of Life Index	88%	88%	88%	►	►
Material Wellbeing Index	93%	88%	81%	▲	▲

	2018	2017	2016	Change (2018)	Change (2017)
Finances in Retirement Index	71%	70%	68%	▲	▲
Old-Age Dependency	53%	55%	57%	▼	▼
Bank Non-Performing Loans	59%	62%	44%	▼	▲
Inflation	74%	65%	54%	▲	▲
Interest Rates	80%	79%	81%	▲	▼
Tax Pressure	23%	21%	25%	▲	▼
Government Indebtedness	47%	41%	34%	▲	▲
Governance	90%	90%	90%	►	►

3. Norway

Norway drops from the top spot last year to third overall in this year's GRI. The country's overall score falls to 81% due to a significant decline in the Finances (28th) sub-index and a drop in the Material Wellbeing (2nd) sub-index.

Norway's performance in the Finances sub-index is particularly poor compared to last year, dropping from ninth to 28th. While five of the six indicators play a part in the rankings slide, the interest rate indicator has a driving role. The five-year average for real interest rates moves from a positive value in last year's report to a negative value this year, resulting in a dramatic fall in indicator score. The sharp drop in the interest rate indicator is accompanied by lesser declines in the government indebtedness, inflation, bank non-performing loans, old-age dependency and governance indicators. But despite these declines, Norway has the third-highest score for governance and the seventh-highest score for government indebtedness. Meanwhile, the country sees a slight improvement in the tax pressure indicator but still has the ninth-highest tax burden among all GRI countries.

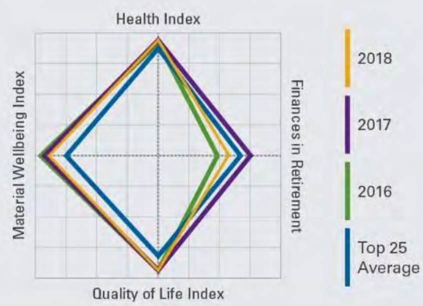
Norway loses its first-place ranking in the Material Wellbeing sub-index but only drops one place so remains in the top ten. The country still ranks in the top ten for all three indicators but has lower scores for each compared to last year. It has the fourth-highest score for both the income per capita and income equality indicators and the tenth-best score for the employment indicator.

The country improves its score in both the Health (3rd) and Quality of Life (4th) sub-indices. It has a higher score for the life expectancy indicator and ranks fourth in the health expenditure per capita indicator. Meanwhile, the country improves in both the biodiversity and air quality indicators, ranking eighth in the latter. And it achieves top ten finishes in the happiness and environmental factors indicators, ranking second and third respectively, despite scores declining in both.

Norway

Global Retirement Index

	2018	2017	2016	Change (2018)	Change (2017)
RANKING	3	1	1	▼	►
SCORE	81%	86%	86%	▼	►



Sub-Index and Indicator Rankings

	2018	2017	2016	Change (2018)	Change (2017)
Health Index	90%	89%	90%	▲	▼
Quality of Life Index	92%	92%	91%	►	▲
Material Wellbeing Index	87%	91%	95%	▼	▼

Finances in Retirement Index	2018	2017	2016	Change (2018)	Change (2017)
Finances in Retirement Index	60%	73%	72%	▼	▲
Old-Age Dependency	42%	43%	45%	▼	▼
Bank Non-Performing Loans	67%	68%	66%	▼	▲
Inflation	96%	100%	100%	▼	►
Interest Rates	1%	56%	61%	▼	▼
Tax Pressure	21%	20%	14%	▲	▲
Government Indebtedness	61%	68%	65%	▼	▲
Governance	93%	93%	93%	►	►

4. Sweden

Sweden ranks fourth despite seeing a decline in its overall score compared to last year. The country posts lower scores in the Material Wellbeing (15th), Finances (20th) and Quality of Life (6th) sub-indices. Health (5th) is the only sub-index in which Sweden posted an improvement over last year.

After ranking tenth in the 2016 report and ninth last year, Sweden drops out of the top ten in Material Wellbeing due to declines in all three indicator scores. Income equality accounts for the biggest drop in the sub-index, although Sweden still ranks tenth among all GRI countries. Declines in the income per capita and employment indicators are more muted.

Sweden's decline in the Finances sub-index is mainly due to the tax pressure indicator. The country has a higher tax burden compared to last year which, for the second year in a row, is the seventh-highest among all GRI countries. It improves slightly in the old-age dependency indicator but still has the sixth-lowest score. Top ten finishes in both bank non-performing loans and governance represent more encouraging aspects of Sweden's performance in the Finances sub-index.

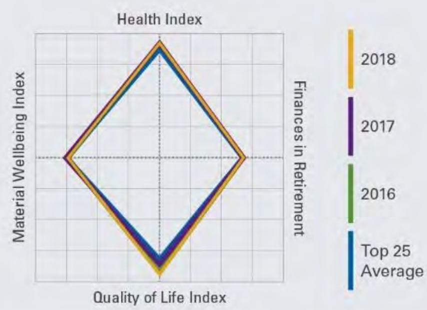
Quality of Life undergoes the smallest decline among all of Sweden's sub-indices. Although the country has lower biodiversity and habitat, air quality and happiness scores than last year, it has the second-highest score for environmental factors and the ninth-highest for happiness.

Sweden's slight improvement in the Health sub-index is due to life expectancy. It now has the eighth-highest life expectancy among all GRI countries.

Sweden

Global Retirement Index

	2018	2017	2016	Change (2018)	Change (2017)
RANKING	4	4	5	▶	▲
SCORE	78%	80%	79%	▼	▲



Sub-Index and Indicator Rankings

	2018	2017	2016	Change (2018)	Change (2017)
Health Index	89%	88%	86%	▲	▲
Quality of Life Index	90%	91%	91%	▼	▶
Material Wellbeing Index	71%	75%	74%	▼	▲

Finances in Retirement Index	2018	2017	2016	Change (2018)	Change (2017)
Finances in Retirement Index	67%	69%	68%	▼	▲
Old-Age Dependency	29%	28%	30%	▲	▼
Bank Non-Performing Loans	71%	70%	69%	▲	▲
Inflation	100%	100%	100%	▶	▶
Interest Rates	61%	61%	63%	▶	▼
Tax Pressure	7%	13%	10%	▼	▲
Government Indebtedness	54%	54%	55%	▶	▼
Governance	92%	92%	92%	▶	▶

5. New Zealand

For the second year in a row, New Zealand finishes fifth in the Global Retirement Index. However, it receives a lower overall score compared to last year. The only sub-index registering a score gain is Finances, where the country outperforms.

New Zealand has the highest score in the Finances sub-index among all GRI countries. While it has the same score as last year, it rises to the top of the sub-index after ranking second last year and third in 2016. For the second year in a row, it has the highest governance score among all GRI countries. Other standout areas include a fourth-place finish for bank non-performing loans, the sixth-highest score for the government indebtedness indicator and the tenth-highest score for interest rates. It also registers an improvement in the tax pressure indicator compared to last year.

Material Wellbeing (25th) represents the country's sharpest sub-index decline. Both its income equality and income per capita scores have fallen compared to last year. However, the employment indicator improves marginally.

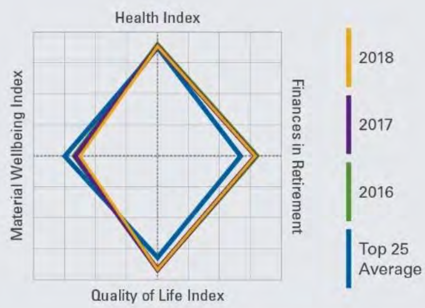
The next biggest sub-index score decline is in Quality of Life (5th). But despite having a lower score, with declines in both the biodiversity and happiness indicators compared to last year, the country remains in the top ten and actually improves its ranking by one spot to finish fifth. And it achieves multiple top ten finishes with air quality ranking fifth, happiness ranking eighth and environmental factors ranking tenth.

The Health sub-index (15th) also declines compared to last year. But while the country has a slightly lower score for life expectancy, it has the fifth-highest score for the insured health expenditure indicator.

New Zealand

Global Retirement Index

	2018	2017	2016	Change (2018)	Change (2017)
RANKING	5	5	4	▶	▼
SCORE	78%	80%	80%	▼	▶



Sub-Index and Indicator Rankings

	2018	2017	2016	Change (2018)	Change (2017)
Health Index	85%	85%	85%	▶	▶
Quality of Life Index	90%	91%	90%	▼	▲
Material Wellbeing Index	63%	66%	68%	▼	▼

Finances in Retirement Index	2018	2017	2016	Change (2018)	Change (2017)
	79%	79%	78%	▶	▲
Old-Age Dependency	48%	49%	51%	▼	▼
Bank Non-Performing Loans	84%	84%	73%	▶	▲
Inflation	100%	100%	100%	▶	▶
Interest Rates	79%	81%	73%	▼	▲
Tax Pressure	36%	34%	33%	▲	▲
Government Indebtedness	65%	66%	61%	▼	▲
Governance	94%	94%	94%	▶	▶

6. Australia

With a score of 78%, Australia maintains its sixth place position from 2017.

Australia improves in the Finances (4th) sub-index as compared to last year. It performs strongly in the inflation and tax pressure indicators, maintaining its ninth-place ranking for the latter. It also manages top ten finishes in interest rates and bank non-performing loans, ranking third and eighth respectively. But a decline in the government indebtedness indicator sees it move out of the top ten, dropping from tenth to 13th. As with last year, the country is one place away from a top ten finish in governance.

Australia drops out of the top ten in Quality of Life (11th) after registering lower scores in the happiness and biodiversity indicators. Despite logging a lower happiness score than last year, Australia still ranks number ten for this factor overall. While the country manages to improve its score for environmental factors, it has the ninth-lowest score for this indicator among all GRI countries. More positively, Australia has the highest air quality score overall.

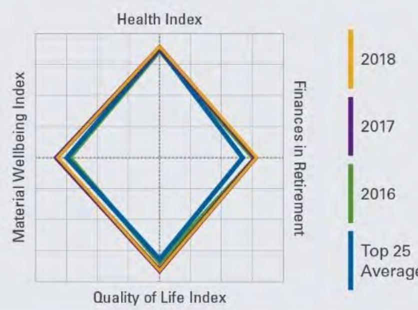
Within Material Wellbeing (21st), Australia has slightly lower scores in the income equality and income per capita indicators but improves in the employment indicator.

The slight decline in the Health (13th) sub-index is driven by a lower score in life expectancy, although Australia still achieves the ninth-highest score for this indicator.

Australia

Global Retirement Index

	2018	2017	2016	Change (2018)	Change (2017)
RANKING	6	6	6	►	►
SCORE	78%	78%	78%	►	►



Sub-Index and Indicator Rankings

	2018	2017	2016	Change (2018)	Change (2017)
Health Index	85%	85%	86%	►	▼
Quality of Life Index	83%	84%	81%	▼	▲
Material Wellbeing Index	66%	66%	70%	►	▼

Finances in Retirement Index	2018	2017	2016	Change (2018)	Change (2017)
	78%	77%	77%	▲	►
Old-Age Dependency	48%	49%	51%	▼	▼
Bank Non-Performing Loans	72%	71%	70%	▲	▲
Inflation	100%	90%	84%	▲	▲
Interest Rates	83%	81%	81%	▲	►
Tax Pressure	52%	46%	45%	▲	▲
Government Indebtedness	55%	60%	61%	▼	▼
Governance	90%	90%	91%	►	▲

7. Ireland

In the largest jump of ranking and overall score among the top 25 GRI countries, Ireland moves into the top ten after climbing from 14th in 2017 to seventh overall this year. With an overall increase in score from 74% to 77%, Ireland has higher scores in the Material Wellbeing (12th), Finances (10th) and Health (19th) sub-indices for the year.

Within Material Wellbeing, Ireland registers a significant improvement in the employment indicator. It has managed to cut unemployment to 6.2% as of 2017, while income equality has improved compared to last year. And despite a decline in its income per capita score from last year, Ireland has the sixth-highest indicator score among all countries.

After missing out by one spot last year, Ireland also moves into the top ten for the Finances sub-index. A significant improvement in tax pressure, where it boasts the sixth-highest indicator score, sees it move into 10th spot in the sub-index rankings. One area of concern, however, is bank non-performing loans, where the country has the fifth-lowest indicator score.

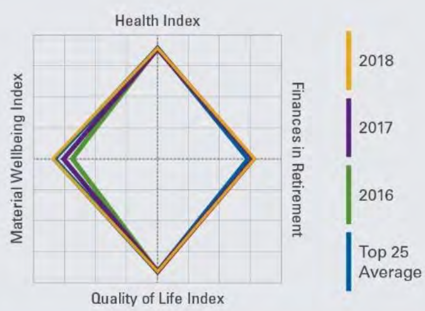
Health has the least positive effect on Ireland's overall score. The life expectancy indicator increases slightly but none of the three indicators manage a ranking better than 17th, where both health expenditure per capita and insured health expenditure currently sit.

Quality of Life (10th) is the only sub-index to register a score decline from last year, but Ireland manages to keep its top ten ranking. Ireland has slightly lower scores for happiness and air quality but finishes tenth in the air quality indicator.

Ireland

Global Retirement Index

	2018	2017	2016	Change (2018)	Change (2017)
RANKING	7	14	16	▲	▲
SCORE	77%	74%	72%	▲	▲



Sub-Index and Indicator Rankings

	2018	2017	2016	Change (2018)	Change (2017)
Health Index	82%	82%	83%	►	▼
Quality of Life Index	83%	83%	82%	►	▲
Material Wellbeing Index	73%	64%	58%	▲	▲

Finances in Retirement Index	2018	2017	2016	Change (2018)	Change (2017)
	71%	71%	68%	►	▲
Old-Age Dependency	54%	56%	59%	▼	▼
Bank Non-Performing Loans	26%	31%	16%	▼	▲
Inflation	100%	100%	100%	►	►
Interest Rates	72%	78%	81%	▼	▼
Tax Pressure	69%	40%	43%	▲	▼
Government Indebtedness	35%	36%	25%	▼	▲
Governance	89%	90%	90%	▼	►

8. Denmark

Denmark ranks eighth overall for the second year in a row with a score of 77%. Compared to last year, it has lower scores for the Material Wellbeing (10th) and Finances (29th) sub-indices but higher scores for Quality of Life (1st) and Health (14th).

Denmark falls two places in the Material Wellbeing rankings this year, with slight declines in all three indicators. However, it boasts two top ten indicator scores for income per capita and income equality, ranking eighth and tenth respectively.

Denmark registers a slight score decline in Finances due to lower scores for the old-age dependency and governance indicators. And for the third year in a row it has the lowest score for tax pressure among all GRI countries. It has bottom ten finishes in the old-age dependency and interest rate indicators, ranking ninth-worst and tenth-worst respectively. However, it has the ninth-highest governance ranking, while the bank non-performing loans, government indebtedness and interest rate indicators have all improved from last year. Despite the score decline, the country manages to improve its ranking in the Finances sub-index from 33rd place to 29th.

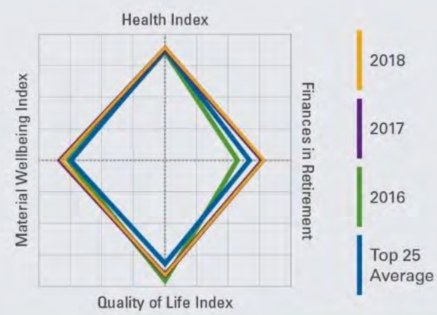
For the third year in a row, Denmark has the highest Quality of Life score among all GRI countries. Compared to last year, it improves in the air quality and environmental factors. The country has multiple top ten indicator placements, with both happiness and air quality ranking third, environmental factors ranking fifth and biodiversity ranking tenth.

The country's Health sub-index score has improved on the back of an increase in the life expectancy indicator. Both health expenditure per capita and insured health expenditure rank ninth among all GRI countries. It retains the same sub-index ranking as last year.

Denmark

Global Retirement Index

	2018	2017	2016	Change (2018)	Change (2017)
RANKING	8	8	12	▶	▲
SCORE	77%	77%	77%	▶	▶



Sub-Index and Indicator Rankings

	2018	2017	2016	Change (2018)	Change (2017)
Health Index	85%	84%	85%	▲	▼
Quality of Life Index	94%	94%	92%	▶	▲
Material Wellbeing Index	74%	75%	75%	▼	▶

Finances in Retirement Index	2018	2017	2016	Change (2018)	Change (2017)
Finances in Retirement Index	59%	59%	59%	▶	▶
Old-Age Dependency	31%	33%	34%	▼	▼
Bank Non-Performing Loans	54%	49%	43%	▲	▲
Inflation	100%	100%	100%	▶	▶
Interest Rates	40%	39%	43%	▲	▼
Tax Pressure	1%	1%	1%	▶	▶
Government Indebtedness	56%	53%	54%	▲	▼
Governance	92%	92%	92%	▶	▶

9. Canada

Canada breaks into the top ten this year, moving up two spots to finish ninth in the overall rankings. The country has an improved overall score of 77%, and posts gains in the Quality of Life (9th), Finances (8th) and Material Wellbeing (22nd) sub-indices.

Canada's improvement in the Quality of Life sub-index is driven by higher scores in the biodiversity, air quality and environmental factors indicators. It has the second-highest air quality and seventh-highest personal happiness scores in the entire GRI.

Within Finances, Canada has higher scores for the bank non-performing loans, interest rate, tax pressure and governance indicators compared to last year. It finishes in the top ten for both bank non-performing loans and governance, ranking second and eighth respectively. Although most indicators stage an improvement from last year, Canada regresses in government indebtedness and old-age dependency.

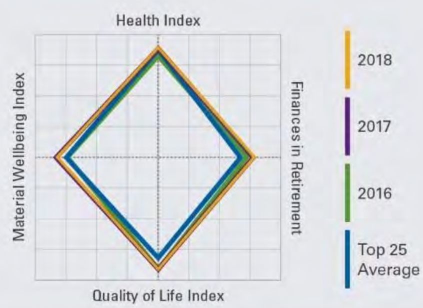
Material Wellbeing registers the smallest score improvement among sub-indices. While Canada has higher scores for both the income equality and employment indicators, this is offset by a decline in the income per capita indicator. The country slips two places down the sub-index rankings this year.

The country performs well in the Health (8th) sub-index, even though its score declines slightly from last year. It finishes tenth in both the health expenditure per capita and insured health expenditure indicators.

Canada

Global Retirement Index

	2018	2017	2016	Change (2018)	Change (2017)
RANKING	9	11	10	▲	▼
SCORE	77%	76%	77%	▲	▼



Sub-Index and Indicator Rankings

	2018	2017	2016	Change (2018)	Change (2017)
Health Index	87%	87%	87%	►	►
Quality of Life Index	83%	81%	82%	▲	▼
Material Wellbeing Index	65%	65%	70%	►	▼

Finances in Retirement Index	2018	2017	2016	Change (2018)	Change (2017)
	74%	73%	73%	▲	►
Old-Age Dependency	44%	46%	48%	▼	▼
Bank Non-Performing Loans	85%	81%	84%	▲	▼
Inflation	100%	100%	100%	►	►
Interest Rates	70%	66%	57%	▲	▲
Tax Pressure	38%	38%	37%	►	▲
Government Indebtedness	29%	31%	32%	▼	▼
Governance	92%	91%	91%	▲	►

10. Netherlands

Netherlands falls one spot to tenth overall this year. While the country registers declines in the Finances (31st) sub-index, it also demonstrates improvements in the other sub-indices.

With five-year real interest rates dropping below zero, Netherlands suffers a significant decline in the Finances sub-index, falling in the rankings from 24th last year to 31st. Netherlands' Finances score has previously been bolstered by non-negative interest rates. Indeed, the country would have ranked 23rd this year had it the same real interest rate as last year. Other indicator declines include tax pressure and old-age dependency. On a brighter note, Netherlands has the seventh-highest governance score among all GRI countries.

The country manages a stellar performance in Material Wellbeing (5th), where it breaks into the top ten after ranking 11th in the sub-index last year. Its employment indicator score is significantly better, while income equality and income per capita both rank in the top ten with placements of eighth and ninth respectively.

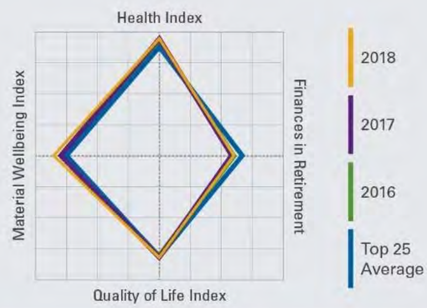
It achieves another top-ten finish in the Health (4th) sub-index. The country has the highest score for the insured health expenditure indicator and the sixth-highest score for health expenditure per capita. Its life expectancy indicator has also increased from last year.

The Netherlands keeps its 13th place in the Quality of Life sub-index rankings. It improves in the air quality and environmental factors indicators and has the sixth-highest happiness score among all GRI countries.

Netherlands

Global Retirement Index

	2018	2017	2016	Change (2018)	Change (2017)
RANKING	10	9	8	▼	▼
SCORE	76%	77%	78%	▼	▼



Sub-Index and Indicator Rankings

	2018	2017	2016	Change (2018)	Change (2017)
Health Index	90%	89%	91%	▲	▼
Quality of Life Index	83%	81%	80%	▲	▲
Material Wellbeing Index	80%	75%	76%	▲	▼

Finances in Retirement Index	2018	2017	2016	Change (2018)	Change (2017)
	58%	64%	68%	▼	▼
Old-Age Dependency	35%	36%	38%	▼	▼
Bank Non-Performing Loans	55%	54%	51%	▲	▲
Inflation	100%	100%	100%	►	►
Interest Rates	1%	14%	47%	▼	▼
Tax Pressure	21%	25%	21%	▼	▲
Government Indebtedness	42%	41%	40%	▲	▲
Governance	92%	92%	92%	►	►

11. Luxembourg

Luxembourg drops out of the top ten this year to 11th overall. It has a slightly lower overall score compared to last year because of declines in the Material Wellbeing (11th), Health (1st) and Finances (25th) sub-indices.

Luxembourg falls six places in the Material Wellbeing sub-index after ranking fifth last year. The largest indicator decline is in income equality. It also has a lower score for the income per capita indicator, although it still ranks second among all GRI countries. A positive for Luxembourg is its improved employment indicator score.

For the third year in a row, Luxembourg has the highest score for the Health sub-index among all GRI countries. It has top-ten finishes in all three indicators, with health expenditure per capita ranking second, insured health expenditure ranking fourth and life expectancy ranking tenth. The life expectancy score is slightly lower compared to last year.

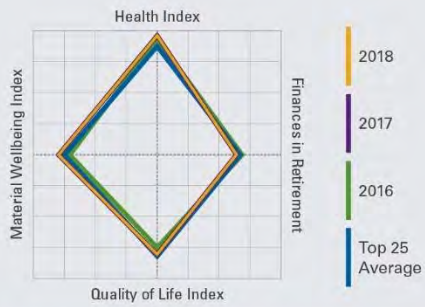
Luxembourg sees a small decline in the Finances sub-index because of lower indicator scores for government indebtedness, old-age dependency and governance. Luxembourg's performance in the sub-index is something of a mixed bag. It has the highest score for the bank non-performing loans indicator, the fourth-highest for the government indebtedness indicator and the sixth-highest for governance among all GRI countries. However, it has a relatively low score for tax pressure and its five-year average for real interest rates is negative.

Quality of Life (17th) is the only sub-index with a higher score than last year. Luxembourg registers improvements in the air quality, environmental factors and happiness indicators. But while it ranks fourth in biodiversity, the country has the eighth-lowest score for environmental factors among all GRI countries.

Luxembourg

Global Retirement Index

	2018	2017	2016	Change (2018)	Change (2017)
RANKING	11	10	13	▼	▲
SCORE	76%	76%	76%	▶	▶



Sub-Index and Indicator Rankings

	2018	2017	2016	Change (2018)	Change (2017)
Health Index	92%	92%	92%	▶	▶
Quality of Life Index	80%	77%	75%	▲	▲
Material Wellbeing Index	73%	77%	71%	▼	▲

Finances in Retirement Index	2018	2017	2016	Change (2018)	Change (2017)
Finances in Retirement Index	62%	62%	69%	▶	▼
Old-Age Dependency	56%	57%	57%	▼	▶
Bank Non-Performing Loans	100%	100%	100%	▶	▶
Inflation	100%	100%	96%	▶	▲
Interest Rates	1%	1%	15%	▶	▼
Tax Pressure	24%	22%	17%	▲	▲
Government Indebtedness	73%	76%	71%	▼	▲
Governance	92%	92%	92%	▶	▶

12. Finland

Finland ranks 12th overall for the second year in a row. Its score falls from 76% to 75% because of drops in the Finances (24th) sub-index.

Finland suffers multiple indicator declines within the Finances sub-index. The country's bank non-performing loans as of 2017 have more than tripled since 2012 (the latest data update available for last year's GRI), resulting in a significantly worse indicator score this year. The tax pressure, government indebtedness, old-age dependency and governance indicators have also all declined since last year. Furthermore, Finland has the fourth-worst tax pressure, third-worst old-age dependency and ninth-worst interest rate scores among all GRI countries. More positively, the country has the fourth-highest score for governance.

Finland performs very well in the Quality of Life (2nd) sub-index. It has the highest score for happiness and the fourth-highest for air quality. It improves in both of these indicators as well as the environmental factors indicator. It retains the same sub-index ranking as last year.

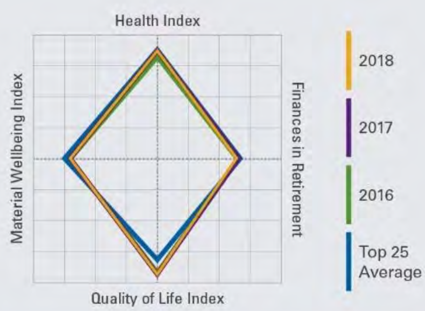
Finland's Material Wellbeing (19th) sub-index ranking slips three places from last year. The sub-index features one top ten finish, with income equality ranking sixth.

None of the indicators in the Health (20th) sub-index have top ten finishes. It retains the same sub-index ranking as last year.

Finland

Global Retirement Index

	2018	2017	2016	Change (2018)	Change (2017)
RANKING	12	12	11	►	▼
SCORE	75%	76%	77%	▼	▼



Sub-Index and Indicator Rankings

	2018	2017	2016	Change (2018)	Change (2017)
Health Index	81%	81%	82%	►	▼
Quality of Life Index	93%	92%	91%	▲	▲
Material Wellbeing Index	69%	68%	72%	▲	▼

Finances in Retirement Index	2018	2017	2016	Change (2018)	Change (2017)
	63%	65%	66%	▼	▼
Old-Age Dependency	26%	27%	30%	▼	▼
Bank Non-Performing Loans	61%	84%	84%	▼	►
Inflation	100%	100%	100%	►	►
Interest Rates	36%	27%	42%	▲	▼
Tax Pressure	6%	11%	8%	▼	▲
Government Indebtedness	41%	43%	44%	▼	▼
Governance	92%	93%	94%	▼	▼

13. Germany

Germany falls out of the overall top ten this year, dropping six places to 13th with a lower score of 75%. The main reason for the decline is a drop in the Finances (34th) sub-index, as none of the other sub-indices have lower scores than last year.

Germany drops 13 places in Finances after ranking 21st last year. While it suffers declines in multiple indicators, the interest rate indicator accounts for the most significant drop. The tax pressure, old-age dependency and governance indicators also have lower scores, but these changes are not as marked as that characterizing the interest rate indicator. For the second year in a row, the country has the fifth-lowest score for the old-age dependency indicator among all GRI countries.

The sub-index with the largest gain is Material Wellbeing (6th), which finishes in the top ten for the third year in a row. Germany improves in both the employment and income equality indicators. It has the seventh-highest score for the employment indicator among all GRI countries.

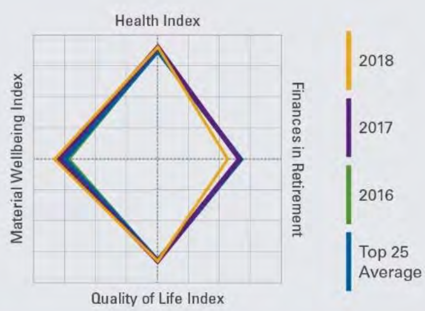
The country also improves its score in Quality of Life (14th), despite sliding down two places in the sub-index rankings. Higher scores for the air quality and environmental factors indicators are balanced by lower scores for the biodiversity and happiness indicators. The country still has the highest score for the biodiversity indicator among all GRI countries.

Although Germany has the same score for the Health (11th) sub-index as last year, it drops one place in the rankings to fall out of the top ten. It has the seventh-highest score for the health expenditure per capita indicator and the eighth-highest score for insured health expenditure.

Germany

Global Retirement Index

	2018	2017	2016	Change (2018)	Change (2017)
RANKING	13	7	7	▼	▶
SCORE	75%	77%	78%	▼	▼



Sub-Index and Indicator Rankings

	2018	2017	2016	Change (2018)	Change (2017)
Health Index	86%	86%	87%	▶	▼
Quality of Life Index	83%	82%	82%	▲	▶
Material Wellbeing Index	79%	76%	80%	▲	▼

Finances in Retirement Index	2018	2017	2016	Change (2018)	Change (2017)
	57%	66%	67%	▼	▼
Old-Age Dependency	27%	27%	28%	▶	▼
Bank Non-Performing Loans	62%	56%	55%	▲	▲
Inflation	100%	100%	100%	▶	▶
Interest Rates	1%	33%	48%	▼	▼
Tax Pressure	24%	26%	22%	▼	▲
Government Indebtedness	39%	39%	38%	▶	▲
Governance	90%	90%	91%	▶	▼

14. Austria

Austria falls one spot to 14th this year with a score of 74%. Its overall score drops from last year owing to declines in the Finances (38th) and Material Wellbeing (7th) sub-indices. In addition to Material Wellbeing, Quality of Life (8th) and Health (9th) all rank in the top ten, so the Finances sub-index is acting as a significant drag on Austria's overall performance.

A range of indicators are driving down the country's Finances sub-index score this year. The main culprit is the tax pressure indicator, which is the fifth-worst among all GRI countries. Austria also declines in the old-age dependency, governance and government indebtedness indicators. It has relatively low levels of inflation, but its five-year average for real interest rates is below zero, resulting in a poor score for this indicator.

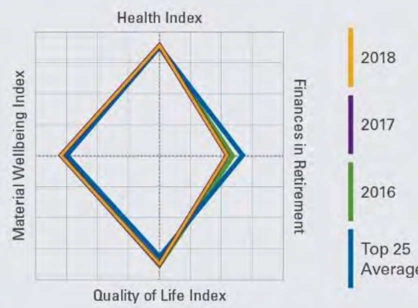
Material Wellbeing drops from a fourth-place ranking last year but remains in the top ten. All three indicators suffer slightly lower scores compared to last year. Austria has the ninth-highest income equality ranking and the tenth-highest income per capita ranking.

Austria improves in both the Quality of Life and Health sub-indices. The country has the sixth-highest environmental factors and the eighth-highest health expenditure per capita indicator scores among all GRI countries.

Austria

Global Retirement Index

	2018	2017	2016	Change (2018)	Change (2017)
RANKING	14	13	9	▼	▼
SCORE	74%	75%	77%	▼	▼



Sub-Index and Indicator Rankings

	2018	2017	2016	Change (2018)	Change (2017)
Health Index	86%	85%	86%	▲	▼
Quality of Life Index	87%	86%	86%	▲	►
Material Wellbeing Index	76%	77%	77%	▼	►

Finances in Retirement Index	2018	2017	2016	Change (2018)	Change (2017)
	54%	55%	63%	▼	▼
Old-Age Dependency	35%	36%	37%	▼	▼
Bank Non-Performing Loans	55%	49%	48%	▲	▲
Inflation	100%	98%	93%	▲	▲
Interest Rates	1%	1%	42%	►	▼
Tax Pressure	7%	13%	11%	▼	▲
Government Indebtedness	32%	33%	32%	▼	▲
Governance	89%	90%	90%	▼	►

15. Czech Republic

The Czech Republic moves up one spot to 15th overall in this year's GRI with an improved score of 74%. Its higher score is due to improvements in the Material Wellbeing (3rd), Health (26th) and Finances (15th) sub-indices.

The country's Material Wellbeing ranking climbs three places from sixth last year. It has the fourth-highest employment and fifth-highest income equality scores among all countries. Declines in two of its three indicators are offset by a disproportionately strong improvement in the employment indicator, translating into a higher sub-index score.

The Czech Republic also has a higher Health sub-index score than last year owing to an improvement in the life expectancy indicator. But none of its indicators rank in the top ten.

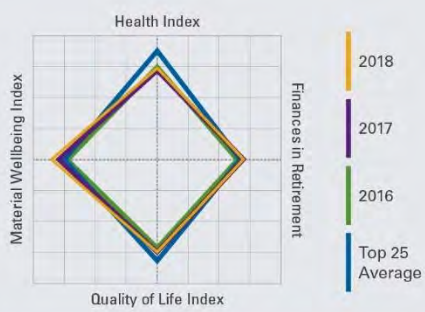
Meanwhile, the country manages an improved showing in the Finances sub-index on the back of higher scores for the bank non-performing loans, tax pressure, government indebtedness and governance indicators. It has the ninth-highest score for government indebtedness, but none of its other indicators feature in the top ten.

Quality of Life (22nd) is the only sub-index to register a score decline from last year. This is chiefly due to drops in the air quality and biodiversity indicators. However, these indicators sit at opposite ends of the performance spectrum – the country's biodiversity indicator score is the eighth-highest among all GRI countries while its air quality score is the eighth-lowest.

Czech Republic

Global Retirement Index

	2018	2017	2016	Change (2018)	Change (2017)
RANKING	15	16	18	▲	▲
SCORE	74%	72%	71%	▲	▲



Sub-Index and Indicator Rankings

	2018	2017	2016	Change (2018)	Change (2017)
Health Index	72%	70%	71%	▲	▼
Quality of Life Index	75%	75%	74%	▶	▲
Material Wellbeing Index	82%	76%	73%	▲	▲

Finances in Retirement Index	2018	2017	2016	Change (2018)	Change (2017)
Finances in Retirement Index	69%	68%	67%	▲	▲
Old-Age Dependency	36%	38%	41%	▼	▼
Bank Non-Performing Loans	47%	41%	39%	▲	▲
Inflation	100%	100%	100%	▶	▶
Interest Rates	75%	78%	81%	▼	▼
Tax Pressure	34%	31%	28%	▲	▲
Government Indebtedness	57%	56%	55%	▲	▲
Governance	83%	83%	83%	▶	▶

16. United States

With scores for Material Wellbeing (26th) and Finances (9th) improving over last year, the United States nudges up one spot to 16th overall in this year's GRI.

Improvements in the income equality and employment indicators are the primary drivers of the higher Material Wellbeing sub-index score. But the country still has a bottom ten placement in income equality, with the seventh-lowest score among all GRI countries. This is despite having the fifth-highest score for income per capita.

The U.S. produces strong performances in a number of indicators within the Finances sub-index. The greatest improvement is in the tax pressure and bank non-performing loans indicators, both of which rank in the top ten at eighth and tenth respectively. The real interest rate indicator has also staged a slight improvement. But there is no improvement in government indebtedness, where the U.S. has the seventh-lowest score for the second year in a row.

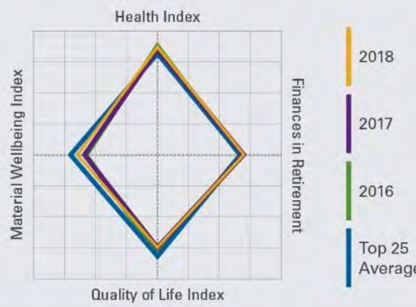
The United States has a lower score for the Health (10th) sub-index compared to last year. Its life expectancy indicator has declined, but it still has the highest score for health expenditure per capita and sixth-highest score for insured health expenditure among all GRI countries.

Meanwhile, the Quality of Life (19th) sub-index score has deteriorated due to the happiness and biodiversity indicators. The score for environmental factors has improved, but the U.S. still has the seventh-lowest score among all GRI countries. Its air quality performance is better, with the U.S. boasting the seventh-highest score in the entire GRI.

United States

Global Retirement Index

	2018	2017	2016	Change (2018)	Change (2017)
RANKING	16	17	14	▲	▼
SCORE	73%	72%	73%	▲	▼



Sub-Index and Indicator Rankings

	2018	2017	2016	Change (2018)	Change (2017)
Health Index	86%	87%	87%	▼	►
Quality of Life Index	77%	78%	79%	▼	▼
Material Wellbeing Index	61%	57%	59%	▲	▼

Finances in Retirement Index	2018	2017	2016	Change (2018)	Change (2017)
	72%	71%	71%	▲	►
Old-Age Dependency	49%	50%	52%	▼	▼
Bank Non-Performing Loans	69%	64%	61%	▲	▲
Inflation	100%	100%	100%	►	►
Interest Rates	68%	66%	67%	▲	▼
Tax Pressure	58%	50%	51%	▲	▼
Government Indebtedness	25%	27%	26%	▼	▲
Governance	87%	87%	87%	►	►

17. United Kingdom

The United Kingdom moves up one spot to 17th in this year's GRI. The rise is fueled by score improvements in the Material Wellbeing (16th), Quality of Life (12th) and Health (16th) sub-indices.

Within Material Wellbeing, the U.K. manages a better showing in employment and income equality, although these indicators fail to break into the top ten.

The U.K.'s highest-ranked sub-index is Quality of Life, which records improvements in most indicators. It has higher scores for biodiversity – which moves to second position among all GRI countries – air quality, environmental factors and happiness.

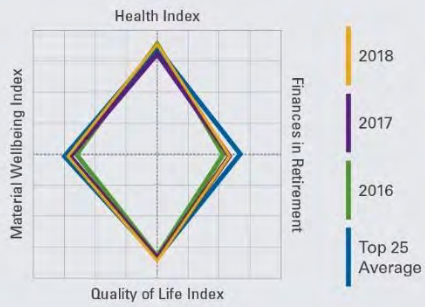
The U.K.'s improvement in the Health sub-index is driven by a higher score in the life expectancy indicator and an impressive performance in insured health expenditure, where it boasts the third-highest score among all GRI countries.

But the U.K. declines marginally in the Finances (32nd) sub-index, with lower scores in the old-age dependency, government indebtedness and governance indicators. However, improved scores in bank non-performing loans – where it ranks seventh-highest among all GRI countries – and inflation represent bright spots.

United Kingdom

Global Retirement Index

	2018	2017	2016	Change (2018)	Change (2017)
RANKING	17	18	17	▲	▼
SCORE	73%	72%	71%	▲	▲



Sub-Index and Indicator Rankings

	2018	2017	2016	Change (2018)	Change (2017)
Health Index	83%	83%	84%	►	▼
Quality of Life Index	83%	81%	80%	▲	▲
Material Wellbeing Index	71%	68%	68%	▲	►

Finances in Retirement Index	2018	2017	2016	Change (2018)	Change (2017)
Finances in Retirement Index	57%	58%	56%	▼	▲
Old-Age Dependency	35%	37%	38%	▼	▼
Bank Non-Performing Loans	72%	71%	61%	▲	▲
Inflation	100%	91%	76%	▲	▲
Interest Rates	1%	1%	1%	►	►
Tax Pressure	37%	33%	31%	▲	▲
Government Indebtedness	31%	32%	31%	▼	▲
Governance	89%	90%	89%	▼	▲

18. Belgium

Despite posting the same score as 2017, Belgium falls three spots to 18th overall in 2018 thanks to the performance of other countries with similar rankings in 2017. It improves in three sub-indices but has a lower score for Finances (30th).

Belgium declines by two places in the Finances sub-index mainly due to significant movement in the interest rate and tax pressure indicators, both of which drop by more than 5%. Government indebtedness, old-age dependency and governance also have lower scores, albeit to a lesser degree. Bank non-performing loans and inflation are the only two indicators not to decline from last year. Belgium has poor ratings for its public finance indicators, with tax pressure and government indebtedness ranking third-worst and eighth-worst respectively among all GRI countries.

Quality of Life (15th) registers the largest improvement of all Belgium's sub-indices. This is due to a significantly higher score for the air quality indicator. Other indicators in the sub-index, including biodiversity, environmental factors and happiness, have lower scores than last year. The only indicator to make the top ten is seventh-ranked biodiversity and habitat.

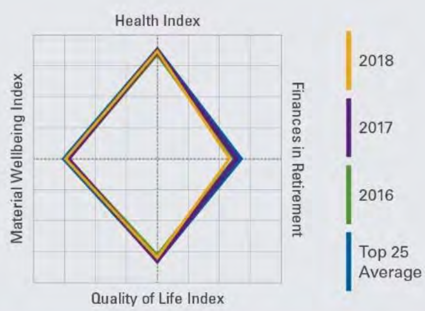
Despite declining in two of the three indicators, Belgium gets a boost in the Material Wellbeing (14th) sub-index from the employment indicator. The country has the seventh-highest score for income equality among all GRI countries.

Belgium improves its performance in the Health sub-index due to a higher score for the life expectancy indicator. But none of the indicators in the sub-index make it into the top ten.

Belgium

Global Retirement Index

	2018	2017	2016	Change (2018)	Change (2017)
RANKING	18	15	15	▼	►
SCORE	73%	73%	73%	►	►



Sub-Index and Indicator Rankings

	2018	2017	2016	Change (2018)	Change (2017)
Health Index	83%	82%	82%	▲	►
Quality of Life Index	80%	78%	78%	▲	►
Material Wellbeing Index	71%	70%	71%	▲	▼

Finances in Retirement Index	2018	2017	2016	Change (2018)	Change (2017)
Finances in Retirement Index	59%	62%	61%	▼	▲
Old-Age Dependency	35%	36%	37%	▼	▼
Bank Non-Performing Loans	50%	48%	45%	▲	▲
Inflation	100%	100%	100%	►	►
Interest Rates	46%	57%	60%	▼	▼
Tax Pressure	4%	10%	7%	▼	▲
Government Indebtedness	25%	26%	26%	▼	►
Governance	87%	87%	87%	►	►

19. Israel

Israel inches up one spot to 19th overall in this year's GRI with a score of 72%. It records improved scores in the Material Wellbeing (24th) and Finances (12th) sub-indices.

Israel has a better score in the Material Wellbeing sub-index because of gains in the income equality indicator, which climbs two spots to move out of the bottom ten. Both of the other indicators decline slightly but not enough to cancel out the positive performance in income equality.

Within Finances, Israel improves on the back of higher scores for the bank non-performing loans, tax pressure and governance indicators. It also has a favorable old-age dependency ratio, where it records the tenth-highest indicator score among all GRI countries for the second year in a row. But its governance score, despite improving from last year, still lags behind other GRI top performers.

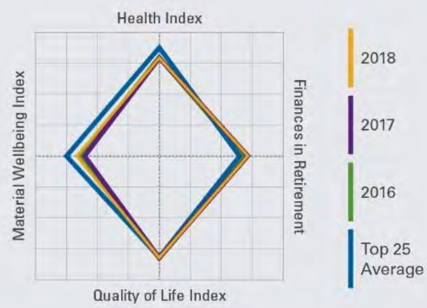
Israel declines in the Quality of Life (18th) sub-index compared to last year. A significantly improved showing in the air quality indicator is cancelled out by lower scores for biodiversity, happiness and environmental factors. Furthermore, Israel has the fifth-lowest score for biodiversity and habitat among all countries.

The country's performance in the Health (24th) sub-index has deteriorated slightly from last year due to a lower score for the life expectancy indicator, which drops four places to 14th and falls out of the top ten.

Israel

Global Retirement Index

	2018	2017	2016	Change (2018)	Change (2017)
RANKING	19	20	19	▲	▼
SCORE	72%	71%	71%	▲	►



Sub-Index and Indicator Rankings

	2018	2017	2016	Change (2018)	Change (2017)
Health Index	76%	76%	77%	►	▼
Quality of Life Index	78%	79%	78%	▼	▲
Material Wellbeing Index	63%	61%	62%	▲	▼

Finances in Retirement Index	2018	2017	2016	Change (2018)	Change (2017)
	71%	70%	69%	▲	▲
Old-Age Dependency	60%	62%	63%	▼	▼
Bank Non-Performing Loans	66%	62%	57%	▲	▲
Inflation	100%	100%	100%	►	►
Interest Rates	69%	70%	75%	▼	▼
Tax Pressure	40%	37%	37%	▲	►
Government Indebtedness	42%	42%	39%	►	▲
Governance	81%	80%	80%	▲	►

20. Malta

Malta nudges up one place to 20th after improving its overall score to 71%. It has higher scores for the Finances (19th), Material Wellbeing (13th) and Quality of Life (27th) sub-indices.

Malta's rise in the Finances sub-index is down to much-improved performances in the bank non-performing loans and tax pressure indicators, both of which record score increases of at least 9%. The other Finance indicators to stage an improvement – old-age dependency and government indebtedness – gain by less than 2%. Other than inflation, none of Malta's indicators feature in the top ten. And bank non-performing loans, despite the improved score, ranks as the eighth-lowest among all GRI countries for the second year in a row.

Malta manages to improve in Material Wellbeing, its highest-ranked sub-index, due to higher scores for both the employment and income per capita indicators. But none of its indicators rank in the top ten.

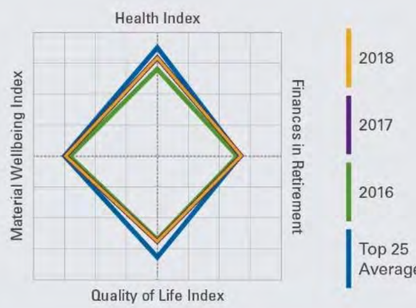
Gains in the biodiversity and happiness indicators drive Malta's improvement in the Quality of Life sub-index. However, the country slips three places in air quality and consequently falls out of the top ten for this indicator. Furthermore, it has the second-lowest score for the environmental factors indicator among all GRI countries for the second year in a row.

Malta suffers a slight decline in the Health (23rd) sub-index due to a lower score for the life expectancy indicator.

Malta

Global Retirement Index

	2018	2017	2016	Change (2018)	Change (2017)
RANKING	20	21	23	▲	▲
SCORE	71%	70%	69%	▲	▲



Sub-Index and Indicator Rankings

	2018	2017	2016	Change (2018)	Change (2017)
Health Index	77%	77%	74%	►	▲
Quality of Life Index	69%	68%	66%	▲	▲
Material Wellbeing Index	73%	72%	71%	▲	▲

Finances in Retirement Index	2018	2017	2016	Change (2018)	Change (2017)
	67%	65%	65%	▲	►
Old-Age Dependency	35%	34%	36%	▲	▼
Bank Non-Performing Loans	40%	31%	31%	▲	►
Inflation	100%	100%	100%	►	►
Interest Rates	69%	69%	63%	►	▲
Tax Pressure	36%	27%	28%	▲	▼
Government Indebtedness	43%	42%	40%	▲	▲
Governance	84%	85%	85%	▼	►

21. France

With an overall score of 70%, France drops two places to 21st in the 2018 Global Retirement Index. While France delivers superior performance in the Health Index for 2018, it was not enough to offset lower scores in the Finances (33rd) and Material Wellbeing (27th) sub-indices.

In the Finances sub-index, France experienced declines across multiple indicators. Compared to 2017, the country posted lower scores for tax pressure, interest rate, government indebtedness, governance and old-age dependency indicators. Three key challenges are represented by low rankings for tax pressure, old-age dependency, and government indebtedness.

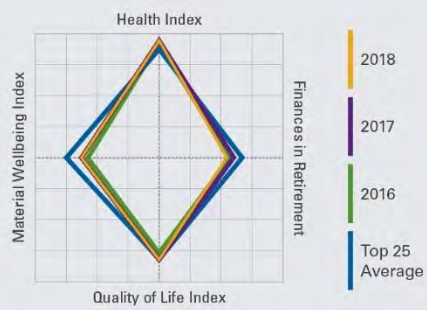
France drops four places in Material Wellbeing after ranking 23rd last year. It records lower scores for both income per capita and income equality. Adding to the challenges is a score for the employment indicator which ranks among the lowest of all GRI countries.

France's largest sub-index gain comes in Quality of Life (16th), where it records improvements in both the air quality and happiness indicators. It ranks in the top ten for several indicators, with biodiversity finishing sixth, environmental factors ranking eighth and air quality finishing ninth among all GRI countries.

France's highest ranked sub-index, Health (2nd), has a slightly better performance on the back of gains in the life expectancy indicator. It has the second-highest score for the insured health expenditure indicator and the sixth-highest life expectancy among all countries.

France

Global Retirement Index	2018	2017	2016	Change (2018)	Change (2017)
RANKING	21	19	20	▼	▲
SCORE	70%	71%	71%	▼	▶



Sub-Index and Indicator Rankings

	2018	2017	2016	Change (2018)	Change (2017)
Health Index	90%	90%	89%	▶	▲
Quality of Life Index	80%	79%	78%	▲	▲
Material Wellbeing Index	60%	61%	60%	▼	▲

Finances in Retirement Index	2018	2017	2016	Change (2018)	Change (2017)
	57%	61%	60%	▼	▲
Old-Age Dependency	30%	30%	32%	▶	▼
Bank Non-Performing Loans	49%	46%	44%	▲	▲
Inflation	100%	100%	100%	▶	▶
Interest Rates	58%	61%	63%	▼	▼
Tax Pressure	2%	9%	6%	▼	▲
Government Indebtedness	28%	29%	29%	▼	▶
Governance	84%	85%	86%	▼	▼

22. Japan

Japan maintains its 22nd place in this year's rankings and achieves a slightly higher overall score. It registers improvements in the Quality of Life (30th) and Material Wellbeing (9th) sub-indices, but declines in Finances (37th). It has the same score in the Health (6th) sub-index as last year.

Japan's performance in Quality of Life is boosted by across-the-board indicator improvements. Scores for the air quality, biodiversity, environmental factors and happiness indicators all increase compared to last year. But the country's ranking for the happiness indicator, which is one spot away from the bottom ten, represents a potential concern.

Japan also improves in the Material Wellbeing sub-index. The country's gain in the employment indicator, which is now the highest-scoring among all GRI countries, offsets the drop in the other two indicators within the sub-index.

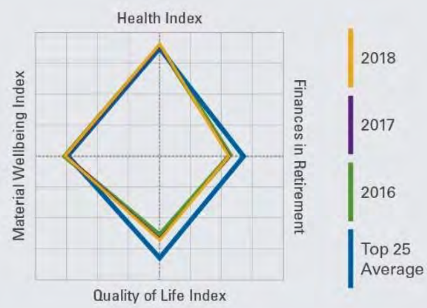
Japan's decline in the Finances sub-index is primarily driven by a significantly lower score for the interest rate indicator as well as slightly lower scores for the old-age dependency and tax pressure indicators. For the second year in a row, it has the lowest score for both the government indebtedness and old-age dependency indicators.

Japan's Health sub-index registers no change in score, with its life expectancy remaining the sample maximum. It has the sixth-highest sub-index score among all GRI countries.

Japan

Global Retirement Index

	2018	2017	2016	Change (2018)	Change (2017)
RANKING	22	22	21	▶	▼
SCORE	70%	70%	70%	▶	▶



Sub-Index and Indicator Rankings

	2018	2017	2016	Change (2018)	Change (2017)
Health Index	88%	88%	88%	▶	▶

	2018	2017	2016	Change (2018)	Change (2017)
Quality of Life Index	68%	65%	64%	▲	▲

	2018	2017	2016	Change (2018)	Change (2017)
Material Wellbeing Index	75%	74%	76%	▲	▼

Finances in Retirement Index	2018	2017	2016	Change (2018)	Change (2017)
	55%	56%	55%	▼	▲
Old-Age Dependency	8%	9%	11%	▼	▼
Bank Non-Performing Loans	66%	64%	62%	▲	▲
Inflation	100%	100%	100%	▶	▶
Interest Rates	55%	74%	36%	▼	▲
Tax Pressure	38%	39%	38%	▼	▲
Government Indebtedness	1%	1%	1%	▶	▶
Governance	88%	88%	89%	▶	▼

23. Slovenia

Slovenia inches up one place to rank 23rd in this year's GRI with an improved overall score of 70%. It manages higher scores in all four sub-indices, although none rank in the top ten.

The sub-index with the largest score gain is Material Wellbeing (18th), where the employment indicator stages the most significant improvement. Income equality sees a more minor improvement but enough to boost its indicator ranking by one spot to finish third among all GRI countries.

The sub-index with the next highest score gain is Quality of Life (29th). The improvement is solely due to a higher score in the happiness indicator. It has the third-highest score for biodiversity but the tenth-lowest score for the air quality indicator.

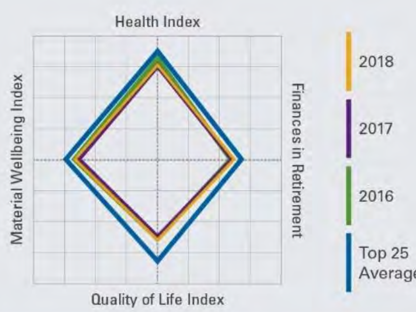
Multiple indicator gains are responsible for an improved score in the Finances (22nd) sub-index. The bank non-performing loans indicator registers the largest improvement, followed by the governance and government indebtedness indicators. And while the country manages to improve its bank non-performing loans performance, it is just one spot away from the bottom ten.

A higher score in the life expectancy indicator accounts for an improved showing in Health (22nd). Slovenia has the seventh-highest score for insured health expenditure among all GRI countries.

Slovenia

Global Retirement Index

	2018	2017	2016	Change (2018)	Change (2017)
RANKING	23	24	24	▲	►
SCORE	70%	68%	67%	▲	▲



Sub-Index and Indicator Rankings

	2018	2017	2016	Change (2018)	Change (2017)
Health Index	79%	78%	79%	▲	▼
Quality of Life Index	68%	66%	63%	▲	▲
Material Wellbeing Index	69%	66%	67%	▲	▼

Finances in Retirement Index	2018	2017	2016	Change (2018)	Change (2017)
	65%	64%	62%	▲	▲
Old-Age Dependency	37%	39%	41%	▼	▼
Bank Non-Performing Loans	44%	33%	25%	▲	▲
Inflation	100%	100%	100%	►	►
Interest Rates	74%	76%	75%	▼	▲
Tax Pressure	25%	25%	22%	►	▲
Government Indebtedness	34%	34%	34%	►	►
Governance	83%	82%	82%	▲	►

24. Korea, Rep.

South Korea slips down one place to rank 24th in this year's GRI, despite seeing a slight improvement to its overall score. It achieves higher scores in the Finances (6th), Quality of Life (40th) and Material Wellbeing (8th) sub-indices compared to last year.

South Korea's higher score in the Finances sub-index comes on the back of gains in the tax pressure, bank non-performing loans and governance indicators. It has top ten finishes across a range of indicators, with bank non-performing loans ranking third, tax pressure seventh, old-age dependency eighth and government indebtedness tenth among all GRI countries. Although it still has a relatively low score for governance, the overall performance of all indicators is enough to drive Finances into the top ten among all GRI countries and become the country's highest ranking sub-index.

While South Korea boasts some of the best performances among all GRI countries in the Finances sub-index, it has some of the worst finishes in the Quality of Life sub-index. The country has the third-lowest score for the biodiversity indicator, fourth-lowest for environmental factors, seventh-lowest for air quality and tenth-lowest for happiness. And although the country has a marginally higher sub-index score than last year, driven by gains in the air quality and happiness indicators, its ranking falls two places due to stronger performances of other countries.

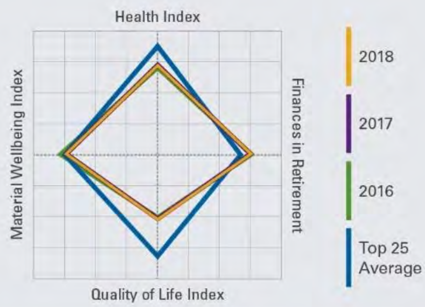
The country achieves a top ten sub-index ranking in Material Wellbeing (8th). It declines in two of the three indicators, but gains in the income equality indicator mitigate these falls. It has the sixth-highest score for the employment indicator.

South Korea's only sub-index score to decline is Health (27th). A lower score for life expectancy sees the country fall two spots to 11th and move out of the indicator top ten. It also has the sixth-lowest score for the insured health expenditure indicator.

Korea, Rep.

Global Retirement Index

	2018	2017	2016	Change (2018)	Change (2017)
RANKING	24	23	22	▼	▼
SCORE	69%	68%	69%	▲	▼



Sub-Index and Indicator Rankings

	2018	2017	2016	Change (2018)	Change (2017)
Health Index	72%	73%	72%	▼	▲
Quality of Life Index	54%	53%	52%	▲	▲
Material Wellbeing Index	75%	75%	79%	►	▼

	2018	2017	2016	Change (2018)	Change (2017)
Finances in Retirement Index	76%	76%	76%	►	►
Old-Age Dependency	62%	63%	66%	▼	▼
Bank Non-Performing Loans	85%	80%	80%	▲	►
Inflation	100%	100%	90%	►	▲
Interest Rates	74%	77%	78%	▼	▼
Tax Pressure	62%	54%	55%	▲	▼
Government Indebtedness	57%	60%	60%	▼	►
Governance	81%	81%	81%	►	►

25. Slovak Republic

The Slovak Republic (25th) has the same ranking as last year and a score of 66%. It improves in the Material Wellbeing (23rd), Health (30th) and Finances (18th) sub-indices but declines in Quality of Life (26th).

The country improves in the Material Wellbeing sub-index because of solid gains in the employment indicator. However, it declines in the other two indicators. It has the second-highest score for the income equality indicator but the tenth-lowest score for the employment indicator.

The Slovak Republic's next highest sub-index improvement is in Health. It has a higher score for life expectancy and consequently moves out of the bottom ten for this indicator.

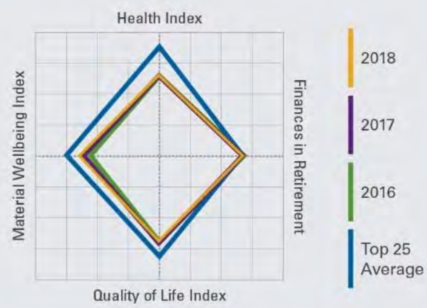
The Finances sub-index also stages an improvement from last year, with higher scores for the bank non-performing loans, interest rate, tax pressure and governance indicators. But the country declines in the old-age dependency and government indebtedness indicators and has the tenth-lowest score for governance among all GRI countries.

Quality of Life is the only sub-index to suffer a dip in performance from last year. Air quality, biodiversity and environmental factors all record lower scores compared to last year. Furthermore, the Slovak Republic has the sixth-lowest score for the air quality indicator among all GRI countries.

Slovak Republic

Global Retirement Index

	2018	2017	2016	Change (2018)	Change (2017)
RANKING	25	25	26	►	▲
SCORE	66%	66%	64%	►	▲



Sub-Index and Indicator Rankings

	2018	2017	2016	Change (2018)	Change (2017)
Health Index	65%	65%	65%	►	►
Quality of Life Index	69%	71%	69%	▼	▲
Material Wellbeing Index	64%	60%	56%	▲	▲

	2018	2017	2016	Change (2018)	Change (2017)
Finances in Retirement Index	68%	68%	68%	►	►
Old-Age Dependency	55%	59%	61%	▼	▼
Bank Non-Performing Loans	46%	42%	40%	▲	▲
Inflation	100%	100%	100%	►	►
Interest Rates	65%	64%	67%	▲	▼
Tax Pressure	37%	37%	39%	►	▼
Government Indebtedness	47%	48%	47%	▼	▲
Governance	80%	80%	80%	►	►

BRICs punching above their weight in Finances

Individually, the BRIC countries rank near the bottom of the barrel compared to the rest of the countries in the GRI. All four countries finish in the bottom six overall and have some of the worst indicator scores within each sub-index.

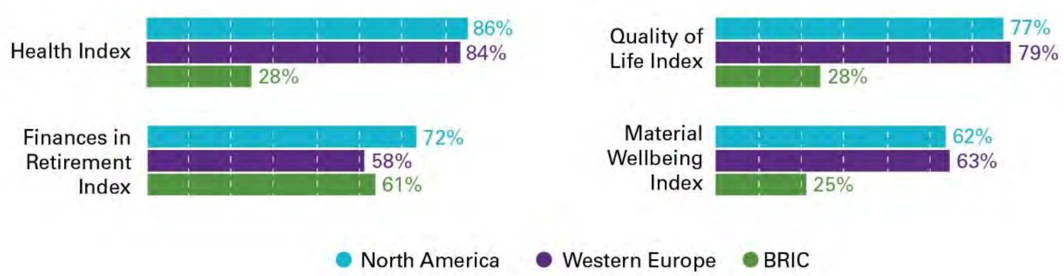
However, the BRICs as a population-weighted group perform quite well in Finances compared to other regions despite China being the only country to not place in the bottom ten. With a score of 61%, they still rank lower than North America (72%) but actually manage to have a higher score than Western Europe (58%), who beats them handily in every other sub-index.

There are a few advantages BRIC countries have which enable them to pull ahead of some of their more developed competitors. First is the old-age dependency ratio: India, China and Brazil place in the top five and Russia ranks 11th. Their consistent strong performance in this indicator helps place these countries closer to the developed world in terms of financial measures of the GRI. And the benefits are clear: a higher amount of younger people in the workforce serve as a support base for older generations and retirees.

Tax burden is another element of outperformance for these countries compared to the developed ones since India and China rank first and fourth, respectively. Russia has one of the highest scores for the government indebtedness indicator and ranks second among all GRI countries.

However, the developed countries separate themselves from the developing BRICs when it comes to the governance indicator. All BRIC countries place in the bottom six, with Russia having the worst indicator score among all 43 countries.

BRIC Comparison to North America and Western Europe

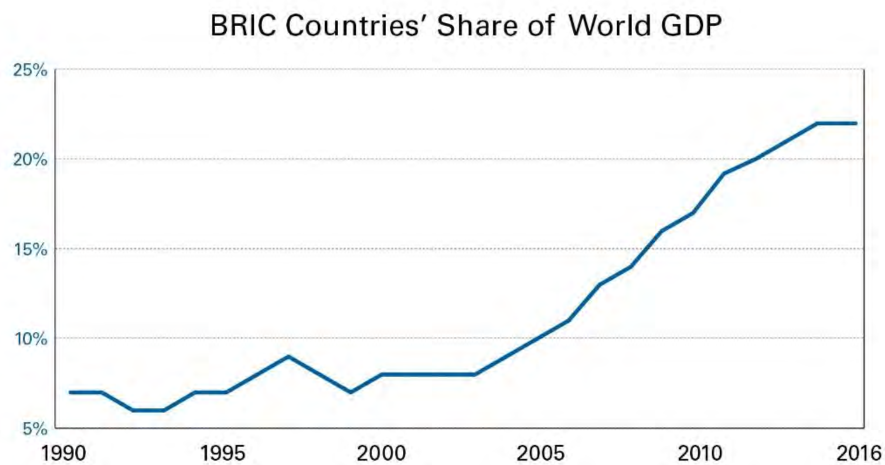


	Old-Age Dependency Index	Bank Non-Performing Loan Index	Tax Pressure Index	Government Indebtedness Index	Governance Index
Brazil	89%	47%	38%	35%	68%
China	79%	61%	100%	51%	63%
India	100%	29%	100%	38%	67%
Russian Federation	57%	28%	48%	82%	57%
North America	46%	77%	48%	27%	89%
Western Europe	37%	49%	23%	38%	87%

BRICs lag far behind Western European and North American countries in other dimensions of the GRI index, namely the Material Wellbeing, Quality of Life and Health sub-indices. Three out of four BRIC countries place in the bottom six for both the Material Wellbeing and Quality of Life sub-indices, and all four BRICs place in the bottom seven of the Health sub-index.

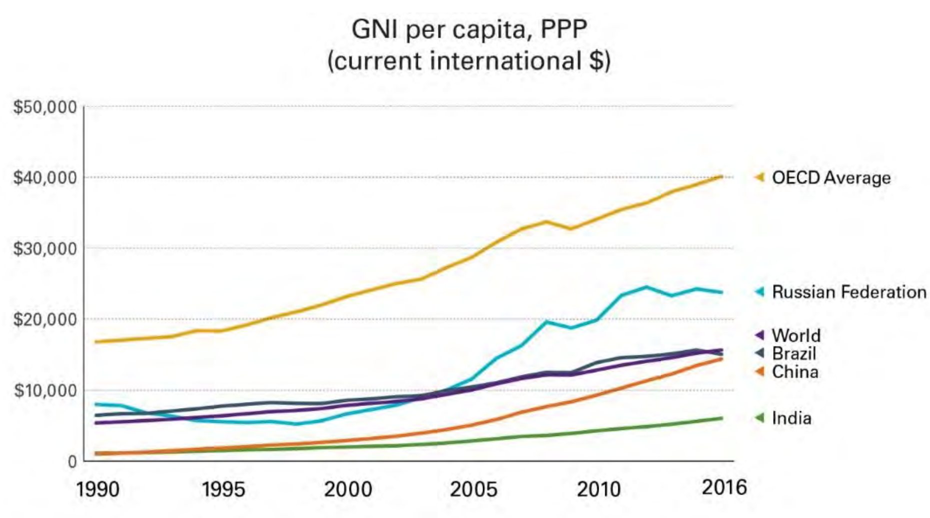
Within the Material Wellbeing sub-index, Brazil has the worst score for income equality, the second-lowest score for income per capita (India is the worst) and the third-lowest score for unemployment. India has the lowest score for the happiness, air quality and water and sanitation indicators and the second-lowest score for the biodiversity and habitat indicator within the Quality of Life sub-index. Meanwhile, India and Russia finish with the worst and second-worst scores for the Health sub-index among all countries. All BRICs finish in the bottom ten for the life expectancy indicator.

However, the BRICs have an important role to play in the global economic landscape and over the past 25 years have been rapidly climbing the ladder of economic development. BRICs' share of the world economy has risen significantly from 7% at the end of the 1990s to 22% last year. However, this trend seems to have consolidated around the threshold of 20% over the last five or six years, posing questions around their possible economic slowdown.



Source: World Bank (2016), World Development Indicators 2016. Washington, DC.

Although not comparable with the strength of GDP growth, income per capita is another fundamental economic indicator which signaled the rapid growth of the BRICs on a global scale. Despite lagging far behind the OECD members' average, BRIC countries show a level of income per person similar to the rest of the world with Brazil and China particularly close. Russia has been outpacing both Brazil and China since 2005 and is higher than the world average. Meanwhile, India has a significantly lower level of income per capita than the rest of the BRICs.



Source: World Bank (2016), World Development Indicators 2016. Washington, DC.

38. Russian Federation

Russia climbs two spots to 38th overall after seeing its score increase to 46%. The country has bottom ten finishes in Finances (43rd) and Health (42nd) but manages to improve its score in both sub-indices along with Material Wellbeing (30th). It has a lower score compared to last year for the Quality of Life (38th) sub-index.

Material Wellbeing is the sub-index in which Russia improves the most. It has higher scores in both the income equality and employment indicators but declines in the income per capita indicator. Despite the improved showing in Material Wellbeing, which represents Russia's highest-ranking sub-index, it finishes in the bottom ten for income per capita and income equality, ranking fifth-worst and eighth-worst, respectively.

Although Russia has a higher score in Finances, it finishes last in the sub-index for the third year in a row. It improves significantly in both the interest rate and tax pressure indicators, while scores for the other indicators either decline or stay the same compared to last year. The country has the second-highest score for the government indebtedness indicator, and it ranks 11th in the old-age dependency indicator and 12th in the tax pressure indicator. Against this, it has the worst score for governance among all GRI countries and the sixth-lowest score for bank-nonperforming loans.

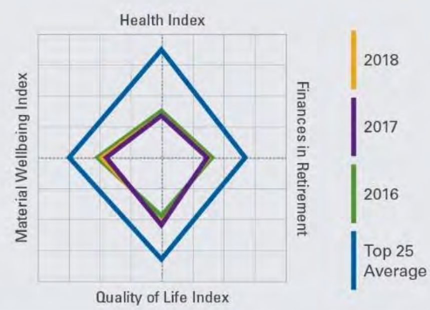
Russia also manages a better score in the Health sub-index compared to last year. It has a higher score for life expectancy but still ranks second-to-last in this indicator. In addition, it has the fourth-lowest score for insured health expenditure. Taken together, these two bottom ten indicator rankings mean Russia has the second-lowest sub-index score for the third year in a row.

Russia drops two spots to 38th in the Quality of Life sub-index rankings this year due to lower scores in the air quality and happiness indicators. It has multiple bottom ten indicator finishes, with environmental factors ranking third-from-last, biodiversity placing sixth-from-last and happiness finishing ninth-from-last.

Russian Federation

Global Retirement Index

	2018	2017	2016	Change (2018)	Change (2017)
RANKING	38	40	40	▲	►
SCORE	46%	45%	46%	▲	▼



Sub-Index and Indicator Rankings

	2018	2017	2016	Change (2018)	Change (2017)
Health Index	37%	36%	40%	▲	▼
Quality of Life Index	56%	58%	54%	▼	▲
Material Wellbeing Index	52%	47%	52%	▲	▼

Finances in Retirement Index	2018	2017	2016	Change (2018)	Change (2017)
	43%	41%	40%	▲	▲
Old-Age Dependency	57%	60%	61%	▼	▼
Bank Non-Performing Loans	28%	30%	34%	▼	▼
Inflation	1%	1%	20%	►	▼
Interest Rates	81%	51%	1%	▲	▲
Tax Pressure	48%	27%	27%	▲	►
Government Indebtedness	82%	82%	81%	►	▲
Governance	57%	57%	58%	►	▼

40. China

China falls two places to 40th overall and sees its score decline to 45%. It has lower scores in the Material Wellbeing (38th) and Quality of Life (42nd) sub-indices compared to last year.

China declines in the Material Wellbeing sub-index because of a significantly lower score for the income equality indicator and the income per capita indicator. It has the third-lowest score for income per capita and the fourth-lowest score for income equality. None of its indicators finish in the top ten.

China has a lower score for the Quality of Life sub-index due to a weaker performance in the air quality indicator. Every other indicator either improves or stays the same compared to last year. All indicators finish in the bottom ten – with air quality and happiness both ranking second-from-last, environmental factors ranking fifth-from-last and biodiversity eighth-from-last.

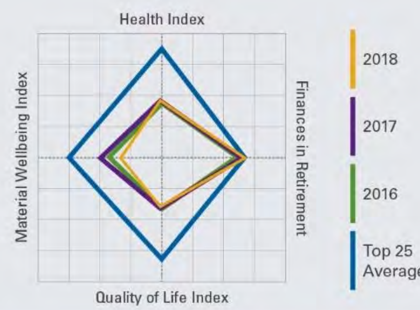
Finances (14th) represents China's only sub-index to stage an improvement from last year. It has higher scores for the tax pressure, inflation, interest rate, governance and bank non-performing loan indicators. It has multiple top ten indicator finishes, with tax pressure ranking fourth and old-age dependency coming fifth. However, its performance in the governance indicator, where it has the third-lowest score, is acting as a drag on its wider sub-index score.

China records a slight improvement in the life expectancy indicator within the Health (40th) sub-index. But it has bottom ten finishes in all indicators within the sub-index, with health expenditure per capita ranking second-from-last, life expectancy eighth-lowest and insured health expenditure ninth-lowest.

China

Global Retirement Index

	2018	2017	2016	Change (2018)	Change (2017)
RANKING	40	38	38	▼	►
SCORE	45%	50%	47%	▼	▲



Sub-Index and Indicator Rankings

	2018	2017	2016	Change (2018)	Change (2017)
Health Index	47%	47%	47%	►	►
Quality of Life Index	39%	41%	38%	▼	▲
Material Wellbeing Index	32%	49%	43%	▼	▲

Finances in Retirement Index	2018	2017	2016	Change (2018)	Change (2017)
	69%	66%	66%	▲	►
Old-Age Dependency	79%	83%	86%	▼	▼
Bank Non-Performing Loans	61%	61%	67%	►	▼
Inflation	95%	77%	71%	▲	▲
Interest Rates	78%	75%	69%	▲	▲
Tax Pressure	100%	75%	73%	▲	▲
Government Indebtedness	51%	54%	55%	▼	▼
Governance	63%	63%	63%	►	►

Spotlight: How would Hong Kong perform in Finances if it was part of the GRI?

Hong Kong is not part of the 43 countries in the GRI because of data availability issues. Most of its indicators in the Health, Material Wellbeing and Quality of Life sub-indices are not uniformly available as they are for the rest of the countries. However, all of its indicators in the Finances in Retirement sub-index are available, so a what-if analysis could be worthwhile to see how they would stack up against other countries in a new 44-country list.

Hong Kong would actually have the highest score in the Finances in Retirement sub-index among all countries if it was included in the GRI. One of its more impressive achievements is exemplary public finances scores. It has the highest score for both the tax pressure and government indebtedness indicator. In addition, it makes the top ten in the bank non-performing loans indicator by ranking seventh among all GRI countries. While Hong Kong's Finances score is not significantly larger than the next highest (New Zealand at 79%), the fact that it has two indicators with the highest score and another top ten performance would be enough to provide an edge over other high-ranking countries.

Hong Kong

Finances in Retirement Index

SCORE	RANKING
81%	1

Finances in Retirement Sub-Index	2018	Ranking
Old-Age Dependency	52%	16
Bank Non-Performing Loans	76%	7
Inflation	58%	40
Interest Rates	71%	22
Tax Pressure	100%	1
Government Indebtedness	100%	1
Governance	89%	16

Hong Kong has multiple indicators scoring very well, but it also has a few rankings in the middle of the pack or even relatively low compared to other countries. It has one of the worst scores for inflation in an indicator where most of the other countries have perfect scores. It also ranks 16th for both the old-age dependency and governance indicators. This is by no means a bad rank but is still somewhat lower compared to the caliber of the other countries breathing down their neck in the top spots. New Zealand and Singapore, ranking second and third in the sub-index among the 44 countries, have the highest and tenth-highest respective scores for governance while Chile, with the fifth-highest sub-index score, has the sixth-highest score for the old-age dependency indicator.

42. Brazil

Brazil falls one spot to 42nd after its overall score declines to 38%. It has lower scores for three of the four sub-indices, with Health (37th) being the only year-on-year improvement.

Although Quality of Life is Brazil's highest-ranked sub-index, it falls nine places in the rankings to 20th after finishing 11th last year. It has lower scores for air quality, biodiversity, happiness and environmental factors compared to last year. The country has the fourth-highest score for environmental factors, but none of its other indicators finish in the top ten.

Brazil's next largest sub-index decline is in Material Wellbeing (43rd), where it has the lowest sub-index score among all GRI countries for the third year in a row due to poor indicator performances across the board. The country has the highest income inequality, second-lowest income per capita and third-lowest employment levels among all GRI countries. Both the employment and income per capita indicators decline compared to last year.

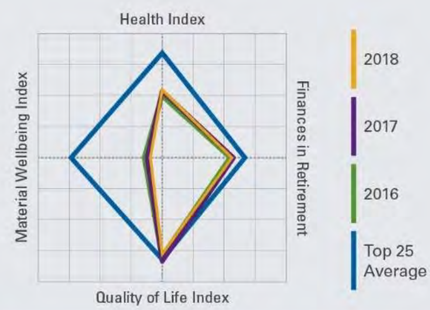
Brazil also falls slightly in the Finances (36th) sub-index. Compared to last year, it has lower scores for the inflation, government indebtedness and old-age dependency indicators. And although Brazil records a slightly improved score in the governance indicator, it has the sixth-worst ranking among all GRI countries for the third year in a row. Meanwhile, the country achieves a third-place ranking in the old-age dependency indicator, despite seeing its score fall from last year.

Brazil improves in the Health (37th) sub-index owing to a higher score in the life expectancy indicator. However, it still finishes in the bottom ten for both the life expectancy and health expenditure per capita indicators, ranking fifth-worst and sixth-worst respectively.

Brazil

Global Retirement Index

	2018	2017	2016	Change (2018)	Change (2017)
RANKING	42	41	41	▼	►
SCORE	38%	41%	44%	▼	▼



Sub-Index and Indicator Rankings

	2018	2017	2016	Change (2018)	Change (2017)
Health Index	54%	52%	54%	▲	▼
Quality of Life Index	77%	82%	86%	▼	▼
Material Wellbeing Index	9%	12%	13%	▼	▼

Finances in Retirement Index	2018	2017	2016	Change (2018)	Change (2017)
	55%	57%	60%	▼	▼
Old-Age Dependency	89%	92%	94%	▼	▼
Bank Non-Performing Loans	47%	46%	50%	▲	▼
Inflation	12%	18%	30%	▼	▼
Interest Rates	100%	100%	100%	►	►
Tax Pressure	38%	33%	30%	▲	▲
Government Indebtedness	35%	38%	41%	▼	▼
Governance	68%	67%	69%	▲	▼

43. India

For the third year in a row, India has the lowest overall GRI score. It has a slightly lower overall score compared to last year due to declines in the Quality of Life (43rd) and Material Wellbeing (41st) sub-indices.

India has the lowest score in the Quality of Life sub-index for the third consecutive year. It records a significantly lower score for the air quality indicator and a slightly lower score for biodiversity. The country also has the lowest score among all GRI countries for the happiness, water and sanitation and air quality indicators and the second-to-worst score for biodiversity.

India registers a slight decline in the Material Wellbeing sub-index because of lower scores for the employment and income equality indicators. It has the worst score for income per capita and the tenth-lowest score for the income equality indicators among all GRI countries. And a stellar showing in the employment indicator, where it boasts the fifth-highest score, is not enough to cancel out poor performances in the other two indicators. As a result, India has the third-lowest sub-index score for the third year in a row.

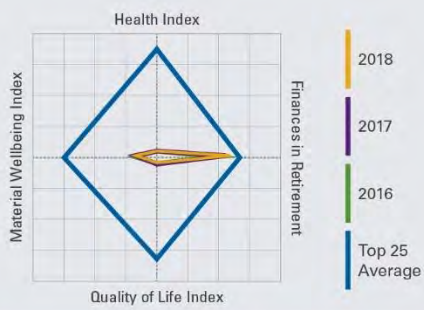
The country improves its score in the Finances (35th) sub-index but still ranks in the bottom ten. It has higher scores for the tax pressure, inflation, interest rate and governance indicators compared to last year. But it finishes in the bottom ten for both the governance and bank non-performing loans indicators, ranking fifth-last and seventh-last respectively. More positively, India achieves a top ten finish for both the tax pressure and interest rate indicators, ranking first and fourth respectively.

With the same score as last year, India has the lowest ranking in the Health (43rd) sub-index for the third consecutive year. It has the worst scores for all three indicators within the sub-index.

India

Global Retirement Index

	2018	2017	2016	Change (2018)	Change (2017)
RANKING	43	43	43	►	►
SCORE	11%	12%	12%	▼	►

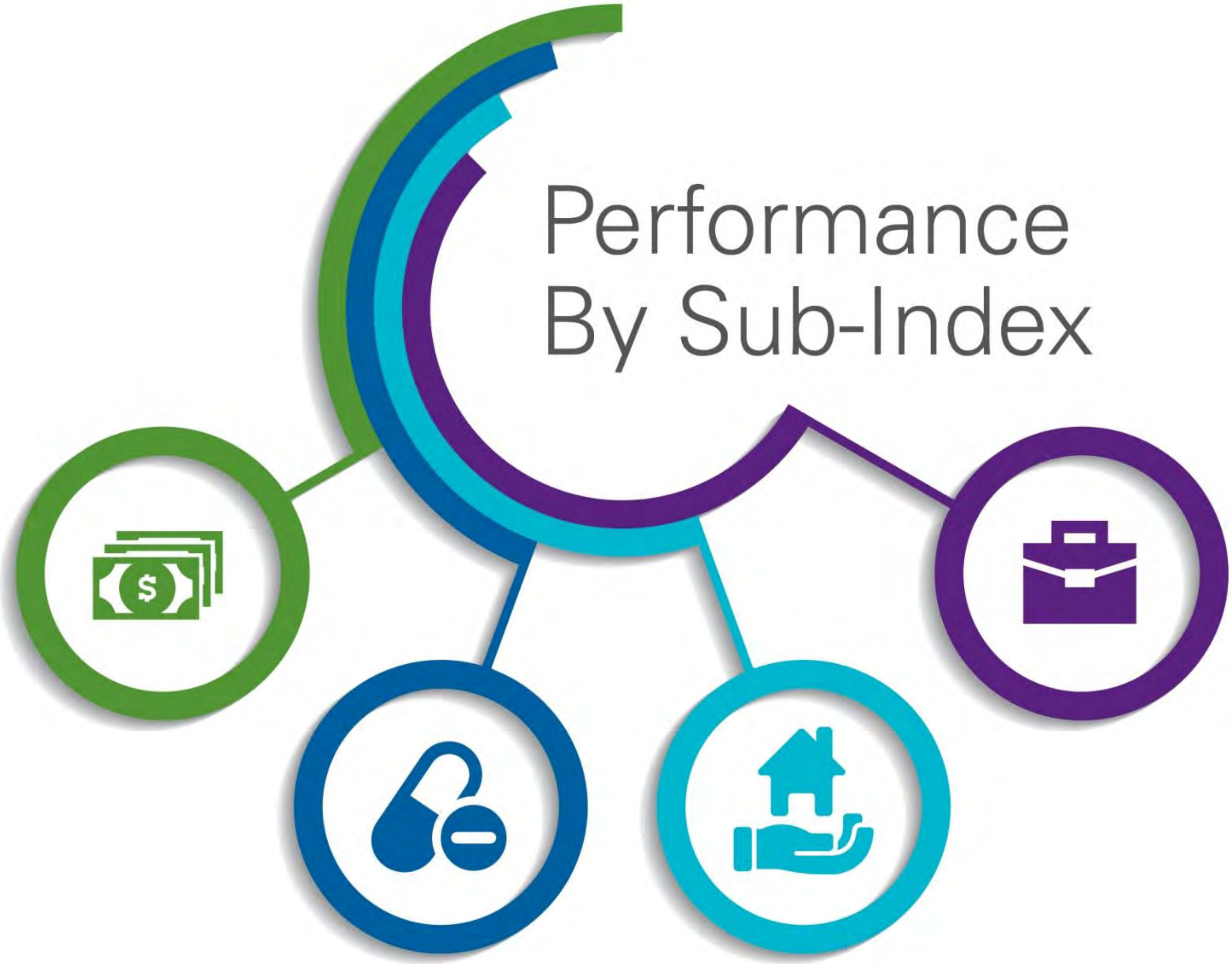


Sub-Index and Indicator Rankings

	2018	2017	2016	Change (2018)	Change (2017)
Health Index	3%	3%	4%	►	▼
Quality of Life Index	6%	7%	6%	▼	▲
Material Wellbeing Index	16%	17%	18%	▼	▼

Finances in Retirement Index	2018	2017	2016	Change (2018)	Change (2017)
	56%	53%	49%	▲	▲
Old-Age Dependency	100%	100%	100%	►	►
Bank Non-Performing Loans	29%	34%	44%	▼	▼
Inflation	10%	4%	1%	▲	▲
Interest Rates	83%	81%	76%	▲	▲
Tax Pressure	100%	84%	85%	▲	▼
Government Indebtedness	38%	41%	41%	▼	►
Governance	67%	66%	65%	▲	▲

Performance By Sub-Index



The performance by sub-index section analyzes GRI performance on an indicator-by-indicator basis. Focusing on sub-index performance highlights the strengths of some countries' indicators and illuminates good practices for certain countries while highlighting needed areas of improvement for others.

Health

For the third year in a row, Luxembourg has the highest score for the Health sub-index while India has the lowest score. Austria moves into the top ten for the first time and Germany moves out after dropping one spot to 11th. Out of the three indicators, only life expectancy data has been updated from last year, so all sub-index score changes are due to this indicator.

Luxembourg has the highest Health sub-index score among all GRI countries, despite recording a slightly lower total than last year. It has a lower score for life expectancy but still ranks tenth for this indicator. The country also achieves top ten finishes in the other indicators, with health expenditure per capita ranking second and insured health expenditure coming fourth.

There are no changes in rank compared to last year for the next five countries. France and Norway again rank second and third respectively. France has the second-highest score for insured health expenditure, and Norway has the fourth-highest score for the health expenditure per capita indicator. The Netherlands, Sweden and Japan place fourth, fifth and sixth respectively in the sub-index. For the third year in a row, Japan has the highest score for the life expectancy indicator while the Netherlands has the highest score for the insured health expenditure indicator.

The United States, ranking tenth in the sub-index, has the highest score for the health expenditure per capita indicator among all GRI countries. It also has the sixth-highest score for the insured health expenditure indicator, but a middle-of-the-road ranking in life expectancy holds it back from achieving a higher sub-index score.

TOP 10 COUNTRIES IN HEALTH SUB-INDEX

Country	2016	Ranking change	2017	Ranking change	2018
Luxembourg	92%	▶0	92%	▶0	92%
France	89%	▲2	90%	▶0	90%
Norway	90%	▶0	89%	▶0	90%
Netherlands	91%	▼2	89%	▶0	90%
Sweden	86%	▲6	88%	▶0	89%
Japan	88%	▼1	88%	▶0	88%
Switzerland	88%	▼2	87%	▲1	87%
Canada	87%	▶0	87%	▲1	87%
Austria	86%	▲2	85%	▲2	86%
United States	87%	▶0	87%	▼3	86%

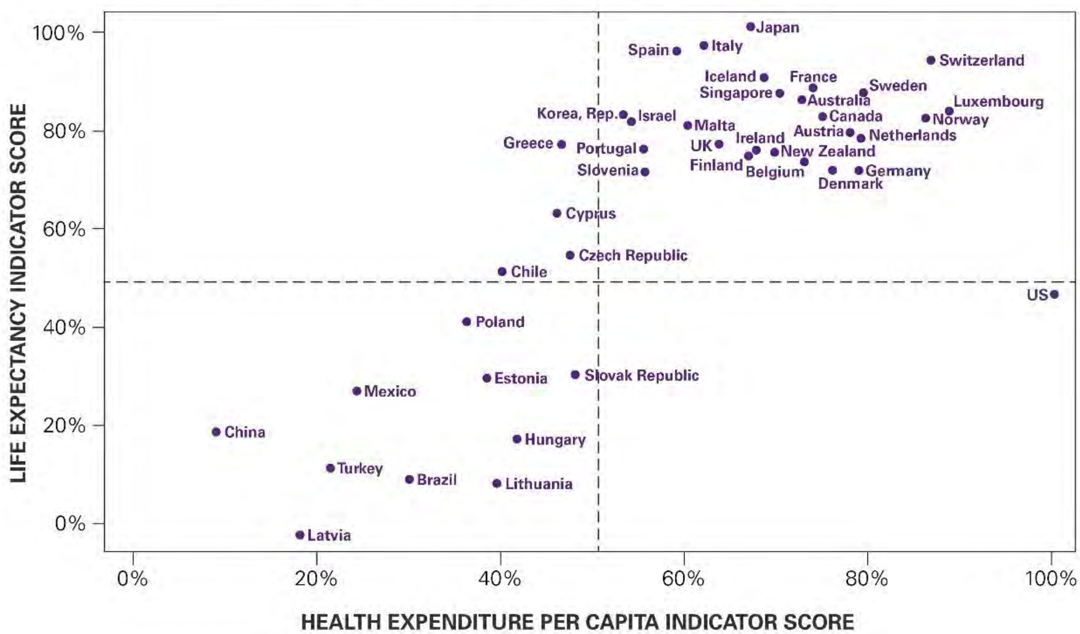
▲▶▼ Ranking change   2016   2017   2018

Since life expectancy is the only indicator to change compared to last year, the countries with the most marked sub-index movements are those that have changed the most in life expectancy. The Czech Republic, Lithuania and Poland have the biggest indicator gains while Chile, the United States and Estonia see the largest declines. This latter three comprise half of a group of countries whose raw value for life expectancy moves down. While two-fifths of countries in the GRI have a lower life expectancy indicator score compared to last year, only six countries have a lower raw value score for life expectancy.

As observed last year, there is a relatively strong connection between the life expectancy and health expenditure per capita indicator. A lower health expenditure per capita score is typically associated with a lower score for life expectancy. Eight of the countries in the bottom ten for health expenditure per capita, such as India, China, Latvia and Turkey, are also in the bottom ten for the life expectancy indicator. However, only three countries with a top ten finish in the health expenditure per capita indicator, namely Switzerland, Sweden and Luxembourg, also finish in the top ten for life expectancy.

Furthermore, the US deviates wildly from this established pattern. It has the highest score for the health expenditure per capita indicator yet is in danger of being in the bottom ten for life expectancy with a ranking of 31st. Meanwhile, the amount spent on healthcare per person for Chile, Czech Republic and Cyprus combined is less than two-thirds of what the US spends, yet all three of these countries have a higher life expectancy than the US. While more healthcare spending can generally lead to positive benefits such as longer life expectancy, spending more will not necessarily guarantee perfect results.

Health expenditure and life expectancy indicators



Note: India and Russia not shown because of chart scaling issues

Three BRIC countries – India, China and Russia – and Latvia have the four worst sub-index scores. India has the lowest scores for all indicators for the third year in a row. Meanwhile, all of China's and most of Russia's indicators feature in the bottom ten. China's worst indicator placement is health expenditure per capita at 42nd and Russia's is life expectancy at 42nd.

TOP 25 COUNTRIES IN HEALTH SUB-INDEX

COLOR SCALE
91% - 100%
81% - 90%
71% - 80%
61% - 70%
51% - 60%
41% - 50%
31% - 40%
21% - 30%
11% - 20%
0% - 10%

COUNTRY	RANKING			SCORE		
	2018	2017	2016	2018	2017	2016
Luxembourg	1	1	1	92%	92%	92%
France	2	2	4	90%	90%	89%
Norway	3	3	3	90%	89%	90%
Netherlands	4	4	2	90%	89%	91%
Sweden	5	5	11	89%	88%	86%
Japan	6	6	5	88%	88%	88%
Switzerland	7	8	6	87%	87%	88%
Canada	8	9	9	87%	87%	87%
Austria	9	11	13	86%	85%	86%
United States	10	7	7	86%	87%	87%
Germany	11	10	8	86%	86%	87%
Iceland	12	15	10	85%	84%	86%
Australia	13	13	12	85%	85%	86%
Denmark	14	14	15	85%	84%	85%
New Zealand	15	12	14	85%	85%	85%
United Kingdom	16	16	16	83%	83%	84%
Belgium	17	17	19	83%	82%	82%
Italy	18	18	18	83%	82%	83%
Ireland	19	19	17	82%	82%	83%
Finland	20	20	20	81%	81%	82%
Spain	21	21	21	81%	81%	81%
Slovenia	22	22	22	79%	78%	79%
Malta	23	23	26	77%	77%	74%
Israel	24	24	23	76%	76%	77%
Portugal	25	25	25	75%	74%	74%

Material Wellbeing

For the first time in three years, Norway does not have the highest score in the Material Wellbeing sub-index. Iceland takes Norway's top spot as it improves in two of the three indicators, while Norway slips to second and declines in all three indicators. Iceland has the highest scores for both the income equality and employment indicators and the seventh-highest score for income per capita. Norway, meanwhile, drops one spot in both income equality and income per capita to rank fourth for both and also slips from sixth to tenth in the employment indicator.

The Czech Republic climbs three places to third in the sub-index after registering a strong improvement in the employment indicator. It now has the fourth-highest score for this indicator after ranking eleventh last year. The country's income per capita score is still middle-of-the-road, but its income equality score ranks fifth for the second year in a row. The Czech Republic has managed to improve its Material Wellbeing sub-index ranking for the past three consecutive years, after finishing 11th in 2016 and sixth last year.

TOP 10 COUNTRIES IN MATERIAL WELLBEING SUB-INDEX

Country	2016	Ranking change	2017	Ranking change	2018
Iceland	81%	▶0	88%	▲1	93%
Norway	95%	▶0	91%	▼1	87%
Czech Republic	73%	▲5	76%	▲3	82%
Switzerland	80%	▲1	81%	▼1	80%
Netherlands	76%	▼3	75%	▲6	80%
Germany	80%	▼4	76%	▲1	79%
Austria	77%	▲2	77%	▼3	76%
Korea, Rep.	79%	▼5	75%	▲2	75%
Japan	76%	▼5	74%	▲3	75%
Denmark	75%	▲1	75%	▼2	74%

▲▶▼ Ranking change 2016 2017 2018

The most striking ranking improvement among the top ten for Material Wellbeing is the Netherlands (5th), which moves up six spots from 11th last year. A significantly better showing in the employment indicator, where it moves from 25th last year to 15th this year, outweighs declines in the other two indicators.

Japan also enters the top ten, climbing from 12th last year to ninth, on the back of a higher score for the employment indicator. Japan now achieves the distinction of having the highest score for the employment indicator among all GRI countries.

The two countries dropping out of the top ten are Luxembourg and Sweden. Both fall six spots, with Luxembourg sliding from 5th to 11th and Sweden from 9th to 15th. Both countries see significant declines in the income equality indicator and moderate score falls for income per capita. But the two countries still manage top ten finishes in other indicators, with Luxembourg ranking second for income per capita and Sweden 10th for income equality. Neither country has a top ten finish for the employment indicator, with Luxembourg recording a higher score and Sweden a slightly lower score than last year.

Chile and Spain enjoy the largest improvement and China suffers the largest decline in sub-index score. Much-improved performances in the income equality indicator for Chile and the employment indicator for Spain help boost their sub-index scores, while China's lower sub-index score is due to a significantly lower score in income equality and a moderate decline in employment.

For the third year in a row, Brazil has the worst score in the Material Wellbeing sub-index. Its score for the employment indicator has dropped significantly from 29th last year to 41st this year. Furthermore, it has the lowest score for the income equality indicator and the second-lowest score for income per capita among all GRI countries.

TOP 25 COUNTRIES IN MATERIAL WELLBEING SUB-INDEX

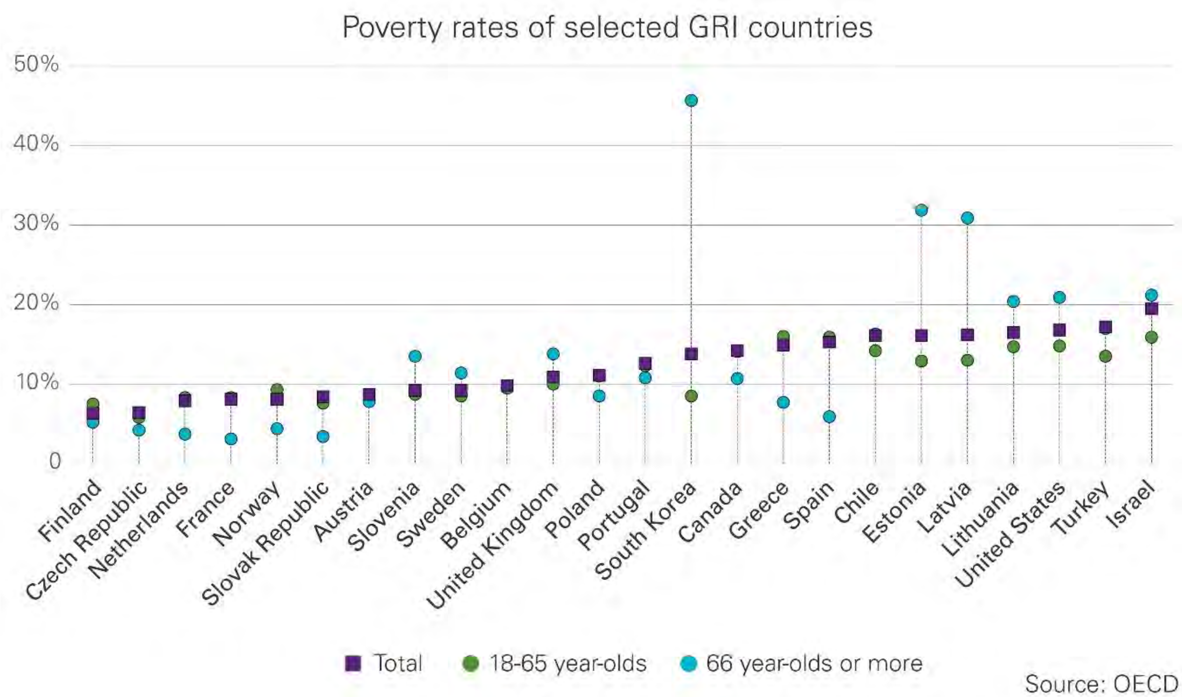
COUNTRY	RANKING			SCORE		
	2018	2017	2016	2018	2017	2016
Iceland	1	2	2	93%	88%	81%
Norway	2	1	1	87%	91%	95%
Czech Republic	3	6	11	82%	76%	73%
Switzerland	4	3	4	80%	81%	80%
Netherlands	5	11	8	80%	75%	76%
Germany	6	7	3	79%	76%	80%
Austria	7	4	6	76%	77%	77%
Korea, Rep.	8	10	5	75%	75%	79%
Japan	9	12	7	75%	74%	76%
Denmark	10	8	9	74%	75%	75%
Luxembourg	11	5	15	73%	77%	71%
Ireland	12	22	26	73%	64%	58%
Malta	13	13	13	73%	72%	71%
Belgium	14	14	14	71%	70%	71%
Sweden	15	9	10	71%	75%	74%
United Kingdom	16	15	18	71%	68%	68%
Hungary	17	21	21	70%	64%	63%
Slovenia	18	17	20	69%	66%	67%
Finland	19	16	12	69%	68%	72%
Poland	20	26	29	66%	60%	56%
Australia	21	18	16	66%	66%	70%
Canada	22	20	17	65%	65%	70%
Slovak Republic	23	25	28	64%	60%	56%
Israel	24	24	22	63%	61%	62%
New Zealand	25	19	19	63%	66%	68%

COLOR SCALE
91% - 100%
81% - 90%
71% - 80%
61% - 70%
51% - 60%
41% - 50%
31% - 40%
21% - 30%
11% - 20%
0% - 10%

Spotlight: Elderly poverty rates

Income per capita is a key indicator in the Material Wellbeing sub-index. A derivative measure of prosperity not included in the GRI is the poverty rate, or the percentage of people in a given age group whose income falls below the poverty line. The chart below shows poverty rates for OECD countries among working-age adults (18-65), the elderly (66+) and the total population. A few countries, such as Austria and Belgium, have relatively similar poverty rates across age groups, but there is some disparity for most of the countries.

South Korea has a far higher proportion of elderly whose income falls below the poverty line compared to working-age adults and the total population. It also has a larger population of elderly in poverty compared to other countries in the OECD. However, the poverty rate on its own doesn't adequately tell the whole story. South Korea also has a relatively low proportion of older dependents to the working-age population and ranks 8th in the GRI for the old-age dependency indicator. Even though South Korea has one of the highest elderly poverty rates in the OECD, it has approximately 5.4 working-age adults for every old-age dependent, so the elderly in poverty would be better supported in South Korea than in other countries with less favorable demographics.



Latvia has the worst of both worlds when it comes to elderly poverty and the old-age dependency ratio. It has one of the highest elderly poverty rates in the OECD and finishes in the bottom ten for the old-age dependency indicator with a ranking of 34th. One old-age dependent is supported by only approximately 3.3 working-age adults, and almost a third of its elderly have incomes below the poverty line. Estonia, with an even higher elderly poverty rate than Latvia but a slightly better score for the old-age dependency indicator, is another country with the short end of the stick in terms of a large proportion of elderly dependents and a large percentage of elderly in poverty.

Providing for elderly in poverty is a desirable part of a strong retirement system, and it makes it easier when a relatively small proportion of the population are old-age dependents. A country's elderly can have relatively low income but be supported by more working-age adults or have relatively more income and be supported by fewer working-age adults. But it is difficult to have an elderly population in poverty and have them not be supported adequately by the working-age population.

Finances in Retirement

New Zealand knocks Singapore off the top spot and moves into pole position in the Finances sub-index. The sub-index high-achievers are little changed – nine countries in the top ten were also there last year. Ireland moves into the top ten after ranking 11th last year, while Norway drops out with a big fall from ninth last year to 28th. For the third year in a row, Russia ranks last in the sub-index with a score of 43%.

New Zealand jumps ahead of Singapore but actually has the same sub-index score as last year. Singapore loses its top spot due to lower indicator scores for government indebtedness, bank non-performing loans, old-age dependency and governance. New Zealand, to a lesser extent, also declines in some of these indicators, but this is offset by gains in the tax pressure indicator. New Zealand finishes in the top ten for bank non-performing loans and government indebtedness, while Singapore has top ten finishes in the tax pressure and old-age dependency indicators. Both countries manage top ten finishes in the governance and interest rate indicators.

Chile ranks third in the sub-index for the second year in a row after achieving the highest sub-index score in the 2016 report. It manages a solid gain in the tax pressure indicator and more moderate improvements in old-age dependency and bank non-performing loans, but declines in the remaining indicators prevent it from retaking its 2016 top spot. And while it has top ten finishes in the government indebtedness, tax pressure, old-age dependency and interest rate indicators, it is one of only nine countries in the entire GRI to have a five-year average for inflation over 2%. Improvements to its inflation levels could, therefore, power Chile back to the top of the rankings. Indeed, the country would have the highest overall score for the Finances sub-index if it had an inflation indicator score of 100% like most GRI countries.

TOP 10 COUNTRIES IN FINANCES IN RETIREMENT SUB-INDEX

Country	2016	Ranking change	2017	Ranking change	2018
New Zealand	78%	▲1	79%	▲1	79%
Singapore	79%	▲1	79%	▼1	79%
Chile	80%	▼2	78%	►0	78%
Australia	77%	►0	77%	▲1	78%
Switzerland	77%	►0	77%	▼1	78%
Korea, Rep.	76%	►0	76%	►0	76%
Estonia	73%	▲1	74%	►0	75%
Canada	73%	▼1	73%	►0	74%
United States	71%	►0	71%	▲1	72%
Ireland	68%	▲9	71%	▲1	71%

▲►▼ Ranking change   2016   2017   2018

Ireland moves into the top ten this year after ranking 11th last year and 20th in 2016. It improved last year on the back of higher scores for the government indebtedness and bank non-performing loans indicators. And while the country registers declines in these indicators this year, it more than makes up for it in the tax pressure arena where it sees its score improve by more than 25%. The importance of the tax pressure indicator to Ireland's Finances performance is underscored by the fact that every other indicator in the sub-index apart from inflation sees declines from last year.

Norway, which plunges from ninth to 28th, is the most significant mover by some distance. It suffers a dramatic decline in the real interest rate indicator as a result of its five-year average for real interest rates moving into negative territory. It also records minor drops in indicator scores for government indebtedness, inflation, bank non-performing loans, old-age dependency and governance. Tax pressure is the only indicator in which it has a higher score than last year.

Germany suffers a similar fate to Norway. A significantly lower score for the real interest rate indicator, combined with minor drops in other indicators such as tax pressure and old-age dependency, sees Germany's sub-index ranking slide from 21st to 34th and fall into the bottom ten. Nevertheless, it has the fifth-highest score for the old-age dependency ratio among all GRI countries.

Similarly, Luxembourg and Austria saw their Finances sub-index rankings drop last year from 12th to 29th and 27th to 37th respectively, mainly due to their five-year average for real interest rates moving into negative territory. And neither of these countries sees their Finances score significantly rebound this year, although Luxembourg manages to ascend four places up the rankings table to 25th. Both countries have lower Finances scores than last year, with Austria having the sixth-lowest score among all GRI countries. But while none of Austria's Finances indicators feature in the top ten, Luxembourg has the highest score in the bank non-performing loans indicator, fourth-highest in government indebtedness and sixth-highest in governance.

Russia has the lowest Finances sub-index score for the third year in a row. It has the lowest score among all GRI countries for governance and the sixth-lowest for bank non-performing loans. However, it has made incremental progress in sub-index score over the three years – scoring 40% in 2016, 41% in 2017 and 43% in 2018. This year, it stages a significant improvement in both the interest rate and tax pressure indicators and also boasts the second-highest score for government indebtedness among all countries.

TOP 25 COUNTRIES IN FINANCES IN RETIREMENT SUB-INDEX

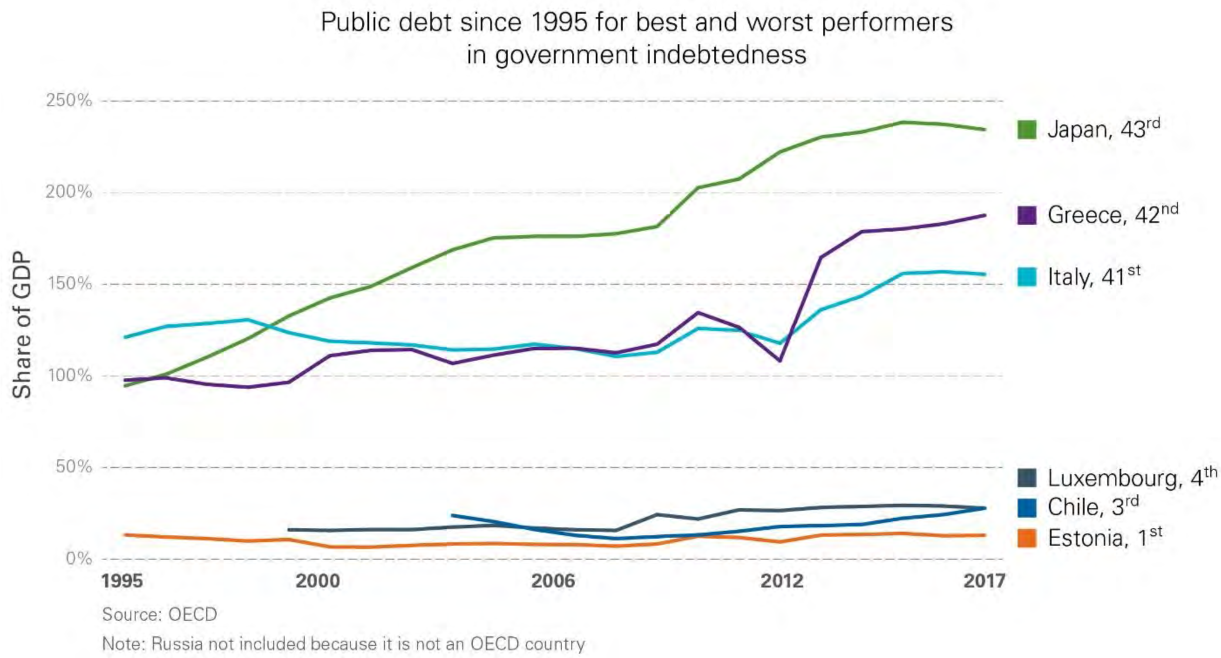
COLOR SCALE
91% - 100%
81% - 90%
71% - 80%
61% - 70%
51% - 60%
41% - 50%
31% - 40%
21% - 30%
11% - 20%
0% - 10%

COUNTRY	RANKING			SCORE		
	2018	2017	2016	2018	2017	2016
New Zealand	1	2	3	79%	79%	78%
Singapore	2	1	2	79%	79%	79%
Chile	3	3	1	78%	78%	80%
Australia	4	5	5	78%	77%	77%
Switzerland	5	4	4	78%	77%	77%
Korea, Rep.	6	6	6	76%	76%	76%
Estonia	7	7	8	75%	74%	73%
Canada	8	8	7	74%	73%	73%
United States	9	10	10	72%	71%	71%
Ireland	10	11	20	71%	71%	68%
Iceland	11	13	19	71%	70%	68%
Israel	12	12	13	71%	70%	69%
Lithuania	13	17	11	69%	68%	70%
China	14	20	24	69%	66%	66%
Czech Republic	15	18	21	69%	68%	67%
Latvia	16	16	14	69%	68%	68%
Poland	17	15	18	68%	69%	68%
Slovak Republic	18	19	17	68%	68%	68%
Malta	19	23	25	67%	65%	65%
Sweden	20	14	16	67%	69%	68%
Mexico	21	25	26	66%	64%	64%
Slovenia	22	26	29	65%	64%	62%
Spain	23	27	28	64%	63%	63%
Finland	24	22	23	63%	65%	66%
Luxembourg	25	29	12	62%	62%	69%

Spotlight: Public debt has escalated rapidly for some countries in the past two decades

Countries with the lowest scores in the government indebtedness indicator have typically increased levels of public debt significantly since 1995. Japan's public debt, which in 1995 was less than 100% of GDP, more than doubled to 235% of GDP in 2016. Greece's public debt also jumps from less than 100% of GDP in 1995 to 188% in 2016. Among all OECD countries in the GRI, Japan and Greece record the largest increase in public debt since 1995.

Italy has the third-lowest score for government indebtedness. While the country's public debt was greater than 100% in 1995, debt levels have not increased to the same degree as that of Japan and Greece. Over the course of 20 years, public debt levels in Japan and Greece have gone from being lower than Italy's to significantly higher.



At the other end of the spectrum, Estonia has the highest score for government indebtedness among all GRI countries. Public debt in Estonia decreased slightly from 13.3% of GDP in 1995 to 13.1% in 2016. Other top-performing OECD countries in government indebtedness include Chile at third and Luxembourg at fourth, although data for these countries is only available since 2003 and 1999 respectively. Only nine out of 35 OECD countries in the GRI have decreased public debt since 1995 or the earliest recorded year.

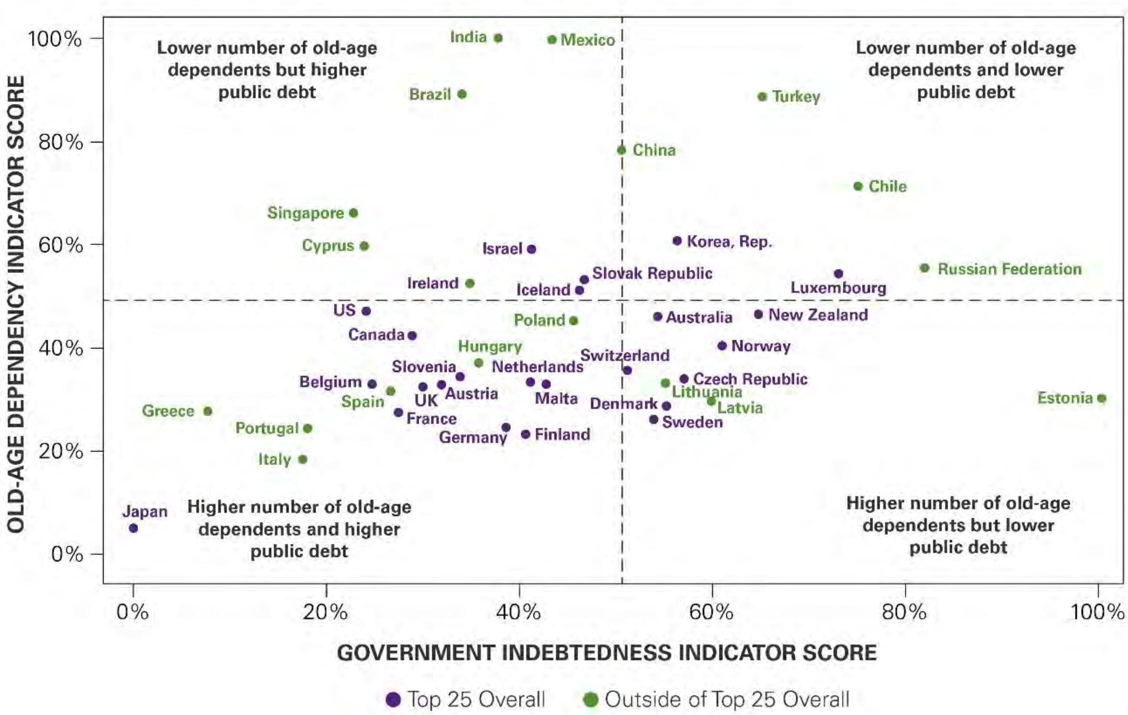
In contrast to the worst-performing countries in terms of indicator score, public debt levels for the best performers have been relatively flat since 1995. While public debt as a percentage of GDP has increased by at least 30% for Japan, Greece and Italy, public debt has changed by just 11.7% for Luxembourg and less than 5% for Chile and Estonia. These countries have perhaps benefited from having less volatility in their debt levels over the years.

Spotlight: Higher levels of public debt could prove devastating for older countries without reform

Japan has the lowest score among all GRI countries for both the old-age dependency and government indebtedness indicators. Meanwhile, Estonia has the highest score for government indebtedness and Mexico and India have the joint highest old-age dependency score.

Many countries with low scores for the old-age dependency indicator also perform poorly in the government indebtedness indicator. The countries in the bottom left quadrant titled "higher number of old-age dependents and higher public debt" have scores of less than 50% for both old-age dependency and government indebtedness. Countries in this quadrant could be storing up serious problems in the future as more citizens reach retirement age and social security payments are due.

Old-age dependency and government indebtedness comparison



Countries with relatively good overall retirement conditions are more likely to have older populations and some will have higher levels of public debt. The bottom left quadrant includes countries with relatively low overall GRI scores like Greece, Portugal and Spain but also includes historically high-performing countries like Canada, the Netherlands and Germany. Approximately half (12) of the top 25 countries feature in this quadrant – significantly more than the other quadrants. Meanwhile, six of the top ten overall countries sit in the "higher number of old-age dependents but lower public debt" quadrant. The majority of the top 25 overall countries therefore have older populations with a relatively small proportion of working-age people supporting retirees.

South Korea and Luxembourg are the only top 25 overall countries in the desirable "lower number of old-age dependents and lower public debt" quadrant. The other countries in this quadrant, such as China, Turkey and Russia, are relatively low performers in the overall stakes. Countries in this group have favorable working demographics and low levels of public debt. The last remaining quadrant, the upper-left "lower number of old-age dependents but higher public debt" group, includes top 25 overall countries like Iceland, Israel and Ireland as well as nations languishing near the bottom of the overall rankings like India and Brazil.

Among OECD countries, Greece, Italy and Portugal have the highest percentage of GDP channeled to public spending on pensions. These countries also have some of the worst scores for the government indebtedness indicator in the GRI: Greece, Italy and Portugal rank second-worst, third-worst and fourth-worst respectively. Other countries spending large amounts of public money on pensions tend not to achieve good scores for the government indebtedness indicator. Indeed, all the countries in the table below spend at least 10% of GDP on pensions but none feature in the top ten for government indebtedness. As the number of workers for every old-age dependent continues to decline in these countries, those nations not implementing reforms and adjusting rates of spending on pensions could see levels of public debt climb. And if historical trends are anything to go by, this scenario is likely to play out – OECD countries on average have increased their public expenditure on old-age and survivors' cash benefits from 5.7% of GDP in 1980 to 6.9% in 1995 and 8.2% in 2013.

Pension spending and public debt

Country	Public social spending on pensions (2013, % of GDP)	GRI 2018 government indebtness rank
Greece	17.4	42nd
Italy	16.3	41st
Portugal	14.0	40th
France	13.8	34th
Austria	13.4	31st
Slovenia	11.8	30th
Spain	11.4	35th
Finland	11.1	24th
Poland	10.3	19th
Hungary	10.3	27th
Japan	10.2	43rd
Belgium	10.2	36th
Germany	10.1	25th

Quality of Life

Denmark and Finland take the top two spots respectively in the Quality of Life sub-index while India finishes bottom for the second year in a row. Some indicators within Quality of Life have undergone significant movement, partly due to methodology changes to the original data.

Denmark has the highest sub-index score among all GRI countries. It finishes in the top ten for all indicators, ranking third in both happiness and air quality, fifth in environmental factors and tenth in biodiversity.

After ranking ninth last year, Australia drops two spots to 11th and falls out of the top ten. It has lower scores for the happiness and biodiversity indicators and, despite improving slightly from last year, has the eighth-lowest score for environmental factors. Taking Australia's spot in the top ten is Canada, which moves six places from 15th last year to ninth this year on the back of better scores for biodiversity and air quality. It manages top ten finishes for air quality and happiness, ranking second and seventh respectively.

TOP 10 COUNTRIES IN QUALITY OF LIFE SUB-INDEX

Country	2016	Ranking change	2017	Ranking change	2018
Denmark	92%	► 0	94%	► 0	94%
Finland	91%	▲ 2	92%	► 0	93%
Switzerland	92%	▼ 2	92%	▲ 1	92%
Norway	91%	► 0	92%	▼ 1	92%
New Zealand	90%	► 0	91%	▲ 1	90%
Sweden	91%	► 0	91%	▼ 1	90%
Iceland	88%	► 0	88%	► 0	88%
Austria	86%	► 0	86%	► 0	87%
Canada	82%	▼ 4	81%	▲ 6	83%
Ireland	82%	▲ 2	83%	► 0	83%

▲►▼ Ranking change 2016 2017 2018

The countries registering the most significant improvement are those sitting in the bottom tier of the rankings. Turkey, Portugal, Greece and Hungary achieve the largest gain in sub-index score but still finish in the bottom ten with rankings of 41st, 35th, 37th and 36th respectively. Portugal, Greece and Hungary record the largest indicator improvement in happiness, yet all have scores in the bottom ten, while Turkey sees the biggest gain in biodiversity but still has the lowest score among all GRI countries.

Singapore, Brazil and Chile suffer the largest falls in sub-index scores. For these countries, the air quality indicator sees the most significant drop but declines in happiness also play a part. Singapore and Brazil have lower scores for both biodiversity and environmental factors, while Chile actually improves in both of these indicators.

India ranks last in the Quality of Life sub-index with a lower score than last year. The environmental factors indicator is the only indicator in which it does not rank last or second to last.

TOP 25 COUNTRIES IN QUALITY OF LIFE SUB-INDEX

COLOR SCALE
91% - 100%
81% - 90%
71% - 80%
61% - 70%
51% - 60%
41% - 50%
31% - 40%
21% - 30%
11% - 20%
0% - 10%

COUNTRY	RANKING			SCORE		
	2018	2017	2016	2018	2017	2016
Denmark	1	1	1	94%	94%	92%
Finland	2	2	4	93%	92%	91%
Switzerland	3	4	2	92%	92%	92%
Norway	4	3	3	92%	92%	91%
New Zealand	5	6	6	90%	91%	90%
Sweden	6	5	5	90%	91%	91%
Iceland	7	7	7	88%	88%	88%
Austria	8	8	8	87%	86%	86%
Canada	9	15	11	83%	81%	82%
Ireland	10	10	12	83%	83%	82%
Australia	11	9	13	83%	84%	81%
United Kingdom	12	14	15	83%	81%	80%
Netherlands	13	13	14	83%	81%	80%
Germany	14	12	10	83%	82%	82%
Belgium	15	18	18	80%	78%	78%
France	16	17	17	80%	79%	78%
Luxembourg	17	20	21	80%	77%	75%
Israel	18	16	19	78%	79%	78%
United States	19	19	16	77%	78%	79%
Brazil	20	11	9	77%	82%	86%
Spain	21	22	23	76%	77%	74%
Czech Republic	22	23	24	75%	75%	74%
Chile	23	21	20	73%	77%	76%
Mexico	24	24	22	72%	74%	75%
Italy	25	26	26	70%	69%	68%

References

Central Intelligence Agency (2017), The World Factbook. Accessible online at: https://www.cia.gov/library/publications/the-world-factbook/index.html

Country statistical agencies, central banks, and ministries of finance, economy, and trade; available at http://unstats.un.org/unsd/methods/inter-natlinks/sd_natstat.asp; and http://www.bis.org/cbanks.htm

Dasgupta, P. and Weale, M. (1992), "On Measuring the Quality of Life", World Development, Vol. 20:1, pp. 119-131.

Emerson, J.W., A. Hsu, M.A. Levy, A. de Sherbinin, V. Mara, D.C. Esty, and M. Jaiteh (2012), 2012 Environmental Performance Index and Pilot Trend Environmental Performance Index. New Haven: Yale Center for Environmental Law and Policy.

Helliwell, J., Layard, R., & Sachs, J. (2018). "World Happiness Report 2018", New York: Sustainable Development Solutions Network.

Hsu, A. et al. (2018). 2018 Environmental Performance Index. New Haven, CT: Yale University. Available: www.epi.yale.edu.

International Labour Organization (ILO). ILO modeled estimates. https://www.ilo.org/ilostat

Klugman, Rodriguez and Choi (2011), "The HDI 2010: New Controversies, Old Critiques", Human Development Research Paper 2011/1, UNDP, New York.

Organization for Economic Co-operation and Development (2017), OECD.Stat. http://stats.oecd.org/

Statistical Office of the European Communities (2017), *Eurostat*. Luxembourg. http://ec.europa.eu/eurostat/data/database

U.S. Energy Information Administration (2017). http://www.eia.gov/environment/data.cfm

World Bank (2017), World Development Indicators 2017. Washington, DC. http://data.worldbank.org/data-catalog/world-development-indicators

World Bank (2017), Worldwide Governance Indicators, 2017 Update. Washington, DC. http://info.worldbank.org/governance/wgi/index.aspx#home

World Health Organization and UNI CEF (2017), WHO/UNI CEF Joint Monitoring Program for Water Supply and Sanitation. Geneva and New York. https://washdata.org/

Framework

Index	Sub-index	Policy Category Weight (% of Index)	Indicators	Indicator Weight (% of Sub-Index)	Data Source	Latest Data Available	Target	Low performance benchmark	Statistical transformation
Health Index	Life Expectancy Index	GEOMEAN	Life expectancy at birth	1	World Bank WDI 2017	2015	Sample Maximum (83.84 years, Japan)	Sample Minimum (68.33 years, India)	None
	Health Expenditure Per Capita Index	GEOMEAN	Health expenditure per capita, PPP (constant 2011 international $)	1	World Bank WDI 2017	2014	Sample Maximum ($9,402.54, USA)	Sample Minimum ($267.41, India)	Natural Logarithm
	Non-Insured Health Expenditure Index	GEOMEAN	Out-of-pocket health expenditure (% of total health expenditure)	1	World Bank WDI 2017	2014	Sample Minimum (5.22%, Netherlands)	100%	None
Material Wellbeing Index	Income Equality Index	GEOMEAN	GINI Index	1	Eurostat, OECD, World Bank WDI 2017, CIA World Factbook	Between 2011 and 2017 depending on Country	Sample Minimum (23.60, Iceland)	Sample Maximum (51.30, Brazil)	Natural Logarithm
	Income Per Capita Index	GEOMEAN	GNI per capita, PPP (current international $)	1	World Bank WDI 2017	2016	Sample Maximum ($85,190, Singapore)	Sample Minimum ($6,500, India)	Natural Logarithm
	Unemployment Index	GEOMEAN	Unemployment (% of total labor force) (modeled ILO estimate)	1	World Bank WDI 2017	2017	3% Unemployment	Sample Maximum (23.10%, Greece)	Natural Logarithm
Finances in Retirement Index	Institutional Strength Index	0.5	Average of World Bank Governance Indicators	1	World Bank Worldwide Governance Indicators 2017	2016	Maximum on Scale (2.5)	Minimum on Scale (-2.5)	Natural Logarithm
	Investment Environment Index	0.5	Age dependency ratio, old (% of working age population)	GEOMEAN	World Bank WDI 2017	2016	10%	50%	Natural Logarithm
			Banking nonperforming loans to total gross loans (%)	GEOMEAN	IMF Financial Soundness Indicators	2017, 2016, 2014	Sample Minimum (0.21%, Luxembourg)	Sample Maximum (47.20%, Greece)	Natural Logarithm
			Inflation, consumer prices (% annual)	GEOMEAN	World Bank WDI 2017	2012 to 2016	2%	Sample Maximum (8.45%, Russian Federation)	Natural Logarithm
			Real interest rates (%)	GEOMEAN	World Bank WDI 2017, OECD	2012 to 2016	20%	0%	Natural Logarithm
			Public Debt (% of GDP)	GEOMEAN	CIA World Factbook	2017	Sample Minimum (9.49%, Estonia)	Sample Maximum (239.18%, Japan)	Natural Logarithm
			Tax Burden (% of GDP)	GEOMEAN	Country statistical agencies, central banks, and ministries of finance economy	2017	Outlier-adjusted Sample Minimum (17.44%, Mexico)	Sample Maximum (46.62%, Denmark)	Natural Logarithm
Quality of Life Index	Air Quality Index (EPI 2018)	0.125 GEOMEAN	Household Solid Fuels	0.4	Environmental Performance Index 2018	2016	3.43 DALY rate per 100,000 persons	5698.97	Natural Logarithm
			Air pollution - PM2.5 Exposure	0.3	Environmental Performance Index 2018	2015	10 ug/m3	44.44 ug/m3	Natural Logarithm
			Air pollution - PM2.5 Exceedance	0.3	Environmental Performance Index 2018	2015	0%	86.96%	None
	Water and Sanitation Index	0.125 GEOMEAN	Improved water source (% of population with access)	0.5	World Bank WDI 2017, WHO Global Health Obeservatory Data Repository	2015	100% of population with access	36%	Natural Algorithm
			Improved sanitation facilities (% of population with access)	0.5	World Bank WDI 2017, WHO Global Health Obeservatory Data Repository	2015	100% of population with access	11.4%	Natural Algorithm
	Biodiversity and Habitat Index (EPI 2018)	0.125 GEOMEAN	Marine Protected Areas	0.2	Environmental Performance Index 2018	2017	10% of country's exclusive economic zone (EEZ) underprotection by a nationally designated marine protected area	0%	Natural Logarithm, alpha 0.0000122 added
			Terrestrial Protected Areas (National Biome Weights)	0.2	Environmental Performance Index 2018	2017	17% of EEZ	0%	None
			Terrestial Protected Areas (Global Biome Weights)	0.2	Environmental Performance Index 2018	2017	17% of EEZ	0%	None
			Species Protection Index	0.2	Environmental Performance Index 2018	2014	17% of habitat	0%	None
			Representativeness Index	0.1	Environmental Performance Index 2018	2016	0.22	0	None
			Species Habitat Index	0.1	Environmental Performance Index 2018	2014	100% of habitat	93.40%	None
	Environmental Factors Index	0.125 GEOMEAN	CO2 emissions per capita	0.33	US Energy Information Administration (EIA), World Bank WDI 2017	2015	1262 kg CO2 eq. (Estimated value associated with 50% reduction in global GHG emissions by 2050, against 1990 levels)	19588.33059	Natural Logarithm
			CO2 emissions per GDP	0.33	US Energy Information Administration (EIA), World Bank WDI 2017	2015	0.07642 kg CO2 eq. (Estimated value associated with 50% reduction in global GHG emissions by 2050, against 1990 levels)	1.532823116	Natural Logarithm
			CO2 emissions per electricity generation	0.165	US Energy Information Administration (EIA), World Bank WDI 2017	2015	0 grams CO2 per KWh	8.453269722	Natural Logarithm
			Renewable electricity	0.165	US Energy Information Administration (EIA), World Bank WDI 2017	2015	100% electricity from renewable sources	0%	None
	Happiness Index	0.5 GEOMEAN	Happiness (0-10)	1	World Happiness Report 2018	2017	Sample Maximum (7.63, Finland)	Sample Minimum (4.19, India)	Natural Logarithm

Appendix A

Methodology

The Natixis CoreData Global Retirement Index is a composite welfare index which combines 18 target-oriented indicators, grouped into four thematic sub-indices.

The four sub-indices cover four relevant considerations for welfare in old age and are:

Health Index

Material Wellbeing Index

Quality of Life / Environmental Index

Finances in Retirement Index

Constructing the Indicators

The first step in expanding the index is to construct the 18 indicators. These are constructed by selecting and preparing the raw data obtained from reliable secondary sources, and then transforming it into normalized indices.

In order to create normalized indices, minima and maxima need to be established. As a target-oriented performance index, the maxima are determined as ideal outcomes. The selection of target varies from variable to variable, and will be explored in greater depth later on.

The minima are in fact the opposite, and are defined as lower performance benchmarks, which mark the worst possible scenario. In some cases, they will refer to subsistence minimum levels and in others, simply as the worst observed value in the sample for that variable.

These indicators are created, following Emerson, et al. (2012)[40] and based on a "proximity-to-target" methodology by which "each country's performance on any given indicator is measured based on its position within a range" established by the lower performance benchmark and the target, on a scale from 0.01 (instead of 0 to facilitate further calculation) to 1, where 0.01 is equal or lower than the lower performance benchmark and 1 equal or higher than the target.

The general formula to normalize the indicators is then given by:

$$Indicator = \frac{\text{Observed value} - \text{lower performance benchmark}}{\text{Target} - \text{lower performance benchmark}}$$

However, this formula is, in certain cases, adapted to the characteristics of the data for each variable.

Again, following Emerson et al. (2012), most indicators are transformed into logarithms[41] due to the high level of skewness of the data. This has the advantage of identifying not only differences between the worst and the best performers, but it more clearly differentiates between top performing countries, allowing to better distinguish variations among them.

Moreover, using logarithms allows for better identification of differences across the whole scale, distinguishing between differences in performance which are equal in the absolute but very different proportionally.

Also, logarithmic functions are a better representation of variables which have decreasing marginal welfare benefits, such as income.

Once the indicators have been created, they are aggregated by obtaining their geometric mean[42] to obtain the thematic indices. The geometric mean offers a number of advantages over the arithmetic mean[43]; this will be discussed later in this chapter[44].

The four thematic sub-indices are constructed using the indicators in the following way:

1. **The Health in Retirement Index**: this sub-index is obtained by taking the geometric mean of the following indicators:

[40] Emerson, J.W., A. Hsu, M.A. Levy, A. de Sherbinin, V. Mara, D.C. Esty, and M. Jaiteh (2012), 2012 Environmental Performance Index and Pilot Trend Environmental Performance Index. New Haven: Yale Center for Environmental Law and Policy.

[41] Logarithmic form: variables with skewed distributions are transformed into logarithmic form by taking natural logarithms of the values to make the distribution less skewed. When calculating an indicator we transform into logarithmic form by doing the following:
Where:

t = target or sample maximum
m = lower performance benchmark or sample minimum
x = value of the variable

non-logarithmic indicator = (x-m) / (t-m) ⟶ take logs ⟶ indicator in logarithmic form = [ln(x)-ln(m)] / [ln(t)-ln(m)]

[42] Geometric mean is a representation of the typical value or central tendency of a series of numbers calculated as the *n*th root of the product of *n* numbers. Geometric mean = $\sqrt[n]{x_1 \times x_2 \times \ldots \times x_n}$

[43] Arithmetic mean (or average) is a representation of the typical value or central tendency of a series of numbers calculated as the sum of all the values in the series and divided by the number in the series. Arithmetic mean = $\frac{x_1 + x_2 + \ldots + x_n}{n}$

[44] See *Constructing the Global Retirement Index* on page 81.

a. **Life expectancy Index**: obtained using data from the World Bank (WB)'s World Development Indicators (WDI) 2017. The target for this indicator is the sample maximum which is equal to 83.84 years, and the low performance benchmark is equal to 68.33 years, a figure observed as the sample minimum.

b. **Health expenditure per capita Index**: obtained using data on health expenditure per capita, PPP (constant 2011 international $) from WB's WDI 2017. The target set for this indicator is the sample maximum, equal to $9402.54 USD, and the low performance benchmark is equal to the sample minimum of $267.41. The indicator is transformed into logarithms, as the marginal returns to extra expenditure are decreasing.

c. **Non-insured health expenditure Index**: this indicator is included to take into account the level of expenditure in health that is not insured. The smaller the proportion of expenditure in healthcare that is uninsured, the higher the probability of having access to healthcare. This indicator is calculated using data on out-of-pocket health expenditure (percentage of total health expenditure), included in the WB's WDI 2017. The target for this indicator is equal to the sample minimum of 5.22% and the low performance benchmark is equal to 100%, which means that none of the population is covered by health insurance.

2. **The Material Wellbeing in Retirement Index**: this sub-index measures the ability of a country's population to provide for their material needs. The following indicators are aggregated by obtaining their geometric mean to obtain a single measure:

a. Income per capita Index: this indicator is calculated using data for the gross national income per capita, PPP (current International $) from the WB's WDI 2017. The purchasing power parity (PPP) version is used as it provides a better approximation to the real purchasing power of incomes across countries. The target used for this indicator is the sample maximum of $85,190 USD, and the low performance benchmark is equal to the sample minimum of $6,500 USD. Logarithmic transformation is applied to calculate the indicator.

b. Income equality Index: this indicator is included as it has been generally accepted that average levels of income in a society cannot on their own measure material welfare, and including a measure of equality ensures that countries with higher and more equally distributed income get a better score. This index is constructed using the GINI index with data obtained from Eurostat, the Organization for Economic Co-operation and Development (OECD), the WB's WDI 2017 and the CIA World Factbook. The target is set at 23.60, which is the sample minimum. The low performance benchmark is set at 51.30, which is the sample maximum. The index is presented in a logarithmic form.

c. Unemployment Index: a measure of unemployment was included in this index, despite the fact that its focus is on people who have already retired from the labor market. This is because societies with high levels of unemployment will see their social security systems under pressure, putting in danger the financing and provision of services for the elderly. Moreover, retirees in countries with low unemployment levels will have a better possibility of complementing their pension incomes with employment income, which is becoming increasingly necessary and common. High levels of unemployment are also indicative of a country undergoing economic problems and it is likely that this will affect the living standards of those in retirement. The target for this index is 3% unemployment, at which level structural and cyclical unemployment can be assumed to be 0 and only frictional unemployment persists, which indicates practical full employment. The low performance benchmark is set at 23.10%, which is the sample maximum. The index undergoes a logarithmic transformation and the raw data used for this index was sourced from the WB's WDI 2017.

3. **Finances in Retirement Index**: this sub-index captures the soundness of a country's financial system as well as the level of returns to savings and investment and the preservation of the purchasing power of savings. It is calculated as the arithmetic mean of the institutional strength index and the investment environment index, which is in itself the geometric mean of six indicators of the soundness of government finances and the strength of the financial system. The rationale behind this construction is that while a favorable investment environment is extremely important for the finances of retirees, this will only be long lasting and stable in the presence of sound institutions, low levels of corruption, strong property rights and a strong regulatory framework. Hence, good governance is a necessary condition for long-term financial strength and stability and as much receives an equal weight.

a. **Institutional Strength Index**: is calculated under logarithms after obtaining the arithmetic mean of the estimates of governance from six different dimensions (Voice and Accountability, Political Stability and Absence of Violence/Terrorism, Government Effectiveness, Regulatory Quality, Rule of Law, and Control of Corruption) of the WB's Worldwide Governance Indicators (2017 Update). The target level is set equal to the maximum on the scale used by the indicators, which is +2.5, while the lower performance benchmark is equal to the lowest value of the scale, -2.5.

b. **Investment Environment Index**: this is calculated as the geometric mean of the following indicators:

I. **Old-age dependency Index**: this indicator is included because a high dependency ratio poses a severe threat to the capacity of society to pay for the care of the elderly, as well as risks reducing the value of savings in the long run, through several channels such as a fall in asset prices and a fall in output, among others. This index is transformed into logarithms and is calculated using data on old-age dependency ratio (percentage of working-age population) from the WB's WDI 2017. The target value is equal to 10%, which reflects healthy demographics, where for every old-age dependent there are 10 people in the working force. The low performance benchmark is equal to 50%, as it is potentially unsustainable to have less than two workers for every old-age dependent.

II. **Inflation Index**: this is important due to the fact that high inflation will reduce the purchasing power of savings and pensions, which can affect retirees disproportionately. The data used is on annual consumer price inflation and is sourced from the WB's WDI 2017. The value for each country is the five-year average from 2012 to 2016. The target is 2%, which is a level of inflation pursued by major central banks, and considered to be sufficiently close to price stability and sufficiently far from deflation to provide some buffer from either. The low performance benchmark is set at the sample maximum 8.45%. This indicator undergoes a logarithmic transformation when calculated.

III. **Real interest rate Index**: this is included as higher interest rates will increase the returns to investment and saving, and in turn increase the level of wealth of retirees, who tend to benefit more than other age groups. Real interest rate is used instead of nominal interest rate to eliminate the effect of inflation. The data for this indicator is sourced from the WB's WDI 2017 and is completed from the OECD[45,46]. The value for each country is the five-year average from 2012 to 2016. The target is 20% and the low performance benchmark is 0%. The data is multiplied by 100 before logarithmic transformation applied.

IV. **Tax pressure Index**: the importance of this indicator lies in the fact that higher levels of taxation will decrease the level of disposable income of retirees and affect their financial situation. Data used is the tax burden from country statistical agencies, central banks, and ministries of finance, economy, and trade, which measures the total taxes collected as percentage of GDP. The target is set at the outlier-adjusted sample minimum of 17.44% of GDP while the low performance benchmark is the sample maximum of 46.62% of GDP. This indicator is calculated in logarithmic form.

V. **Bank non-performing loan Index**: this indicator captures the strength of the banking system by looking at the proportion of loans that are defaulted on. This index is transformed into logarithms and is constructed using the data observed from the IMF Financial Soundness Indicators database. The target for this index is set equal to the sample minimum of 0.21% and the low performance benchmark is the sample maximum of 47.20%.

VI. **Government indebtedness Index**: captures the soundness and sustainability of government finances and serves as a predictor of future levels of taxation. The data used for this index is sourced from the CIA World Factbook and undergoes a logarithmic transformation to construct the index. The target level is set equal to the sample minimum of 9.49% and the low performance benchmark is the sample maximum of 239.18%.

4. **Quality of Life Index**: this sub-index captures the level of happiness and fulfillment in a society as well as the effect of natural environment factors on the Quality of Life of individuals. It is constructed as the geometric mean of the happiness index and the natural environment index.

   a. **Happiness Index**: this data is taken from the World Happiness Report, which calculates scores for happiness based on responses by people asked to evaluate the quality of their current lives on a scale of 0 to 10, averaged over the years 2015-2017. The indicator is presented in the logarithmic form. The target is set at the sample maximum, which is an average score of 7.63, and the low performance benchmark is set at the sample minimum of 4.19.

   b. **Natural Environment Index**: this is calculated as the geometric mean of the following indicators, which measure the natural environment quality of a country and the effects of pollution on humans. The factors selection method follows that in GRI 2017, by reference to the Environmental Performance Index (EPI) 2018.

I. **Air quality Index**: this index is calculated as the weighted average of household solid fuels (40% weight), population weighted exposure to PM2.5 (30% weight) and PM2.5 exceedance (30% weight). The data is obtained from EPI 2018.

[45] Latest data on annual consumer price inflation and 10-year government bond yields are used to calculate the real interest rate (real interest rate = nominal interest rate – inflation) for those countries missing data from the WDI.

[46] Long-term interest rates are obtained from OECD for the following countries: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Latvia, Lithuania, Luxembourg, Netherlands, Norway, Poland, Portugal, Slovak Republic, Slovenia, Spain, and Sweden. Real interest rates are calculated by subtracting inflation from the long-term interest rate.

II. **Water and sanitation Index**: captures the level of infrastructure providing people with access to improved drinking water and access to an improved source of sanitation. This index is calculated as the average of the two indicators (after logarithms transformation). The benchmark selection is based on that in EPI 2012. Target is 100% of population with access for both indicators, and the low performance benchmark is 36% (1st percentile) for access to drinking water index and 11.4% (5th percentile) for access to sanitation index. The data used is obtained from the World Health Organization Global Health Observatory Data Repository and the WB's WDI 2017.

III. **Biodiversity and habitat Index**: provides an insight into a country's protection of its ecosystem. The higher the score is, the more a country is capable to ensure a wide range of "ecosystem service" like flood control and soil renewal, the production of commodities, and spiritual and aesthetic fulfillment will remain available for current and future generations. This index is calculated as the weighted average of marine protected areas (20% weight), national terrestrial protected areas (20% weight), global terrestrial protected areas (20% weight), the species protection index (20% weight), the species habitat index (10% weight) and the representativeness index (10% weight). The data is obtained from EPI 2018.

IV. **Environmental Factors Index**: this index is included due to the fact that the impacts of environmental factors will dramatically affect human health, water resources, agriculture, and ecosystems. Following the methodology of that in EPI 2012, the index is calculated as the weighted average of CO_2 emissions per capita (1/3 weight), CO_2 emissions per GDP (1/3 weight), CO_2 emissions per electricity generation (1/6 weight) and renewable electricity (1/6 weight). Logarithmic transformation is applied for all indicators except for renewable energy. The data is sourced from the U.S. Energy Information Administration (EIA) and the WB's WDI 2017.

Constructing the Global Retirement Index

The four sub-indices are then aggregated into the Global Retirement Index by obtaining their geometric mean. The geometric mean was chosen over the arithmetic mean as the functional form of the index in order to address the issues of perfect substitutability between the different indices when using the arithmetic mean.

In this sense, Klugman, Rodriguez and Choi (2011)[47] argue that the use of an arithmetic mean is problematic because it implies that a decrease in the level of one of the sub-indices can be offset by an equal increase in the level of another sub-index without taking into account the level of each variable. This poses problems from a welfare point of view. For example, a fall in the level of health cannot be assumed to be offset by an increase in the level of income of a one-by-one basis and at a constant rate. Thus, perfect substitutability does not apply when analyzing the effects of different factors on welfare.

The opposite alternative, full complementarity, would also be problematic, as it would assume that the only way of increasing wellbeing is by providing two components at the same time (Klugman, Rodriguez and Choi, 2011), and so for example, an increase in the level of health would have no effect on welfare if it is not accompanied by an improvement in the other three sub-indices.

In this light, it makes sense to assume that there is some level of complementarity and some level of substitutability between the different parameters in the index. On one hand, a worsening of one of the indicators can be partially offset by an improvement of another one, but we can also assume that at least a basic level of health, financial services, material provision and quality of life is necessary in order to enjoy a good retirement.

In the end, each of the 43 countries is awarded a score between 0% and 100% for their suitability and convenience for retirees. A score of 100% would present the ideal country to retire to, with a great healthcare system and an outstanding health record, a very high quality of life and a well-preserved environment with low levels of pollution, a sound financial system offering high rates of true return and a very high level of material wealth.

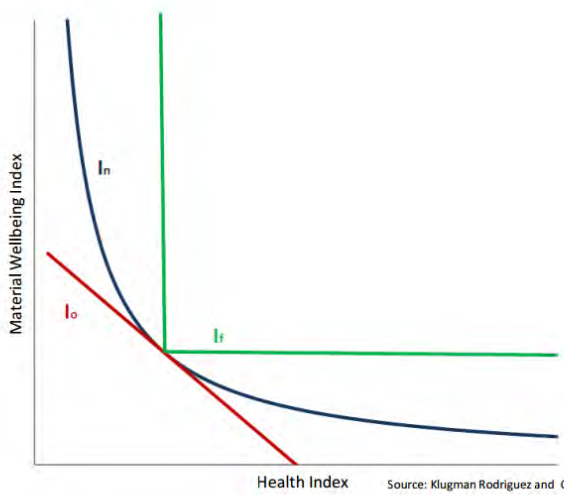
The chart graphically shows the three cases:

1. **Perfect substitutability (Io):** where the effect on the GRI score of a unit decrease in one of the sub-indices can be perfectly offset by a unit increase in another sub-index. For example, the GRI score will not change after a 1% decrease in the Health Index score if accompanied by a 1% decrease in the Material Wellbeing Index. This assumes that welfare remains unchanged if a decrease in the health of the population is matched by a proportional increase in their Material Wellbeing, which is problematic (e.g. If taken to the extreme it means that the welfare of a society with middle levels of income and good health could be equal to that of a very rich society affected by a deadly epidemic.)

2. **Perfect complementarity (If):** where the effect on the GRI score of a unit increase in one of the sub-indices is zero if not accompanied by an equal increase in all the other sub-indices. This means that a 1% increase in the Health Index would not increase the overall GRI score unless accompanied by a 1% increase in the other four sub-indices. (I.e. assumes that an increase in Health is not an increase in overall welfare unless Material Wellbeing, Finances and Quality of Life all increase concurrently.)

3. **Unit-elastic substitution (In):** this is the assumption made in the construction of the GRI by using the geometric means. It means that the sub-indices become perfect substitutes as their levels approach the high end of the scale (100%) and perfect complements as their levels approach the low end of the scale (0%). As a result, when a country scores very low on one or more sub-indices, an increase to a high score on another sub-index will result in a less than proportional increase in the overall GRI score. This is consistent with the assumption that at least a basic level of health, financial services, material provision and quality of life is necessary in order to enjoy a good retirement.

The geometric mean also offers an advantage over the arithmetic mean and other aggregation methods in that the results do not vary due to differences in the scales in which the variables are measured.

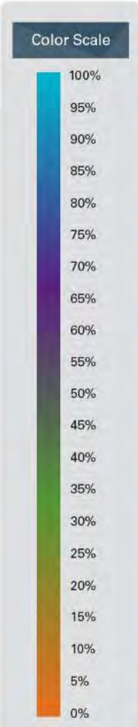


Source: Klugman Rodriguez and Choi (2011)

[47] Klugman, Rodriguez and Choi (2011), “The HDI 2010: New Controversies, Old Critiques”, Human Development Research Paper 2011/1, UNDP, New York.

Appendix B: Full Rankings

Full Rankings: Global Retirement Index 2018



Rank #	Country	Health Index	Finances in Retirement Index	Quality of Life Index	Material Wellbeing Index	Global Retirement Index
1	Switzerland	87%	78%	92%	80%	84%
2	Iceland	85%	71%	88%	93%	84%
3	Norway	90%	60%	92%	87%	81%
4	Sweden	89%	67%	90%	71%	78%
5	New Zealand	85%	79%	90%	63%	78%
6	Australia	85%	78%	83%	66%	78%
7	Ireland	82%	71%	83%	73%	77%
8	Denmark	85%	59%	94%	74%	77%
9	Canada	87%	74%	83%	65%	77%
10	Netherlands	90%	58%	83%	80%	76%
11	Luxembourg	92%	62%	80%	73%	76%
12	Finland	81%	63%	93%	69%	75%
13	Germany	86%	57%	83%	79%	75%
14	Austria	86%	54%	87%	76%	74%
15	Czech Republic	72%	69%	75%	82%	74%
16	United States	86%	72%	77%	61%	73%
17	United Kingdom	83%	57%	83%	71%	73%
18	Belgium	83%	59%	80%	71%	73%
19	Israel	76%	71%	78%	63%	72%
20	Malta	77%	67%	69%	73%	71%
21	France	90%	57%	80%	60%	70%
22	Japan	88%	55%	68%	75%	70%
23	Slovenia	79%	65%	68%	69%	70%
24	Korea, Rep.	72%	76%	54%	75%	69%
25	Slovak Republic	65%	68%	69%	64%	66%
26	Poland	63%	68%	65%	66%	65%
27	Estonia	62%	75%	65%	57%	65%
28	Singapore	69%	79%	54%	53%	63%
29	Italy	83%	52%	70%	51%	63%
30	Hungary	59%	60%	58%	70%	62%
31	Spain	81%	64%	76%	36%	61%
32	Portugal	75%	61%	59%	51%	61%
33	Lithuania	55%	69%	68%	50%	60%
34	Chile	64%	78%	73%	30%	58%
35	Latvia	45%	69%	68%	49%	57%
36	Cyprus	62%	53%	62%	49%	56%
37	Mexico	51%	66%	72%	30%	52%
38	Russian Federation	37%	43%	56%	52%	46%
39	Turkey	53%	47%	46%	36%	45%
40	China	47%	69%	39%	32%	45%
41	Greece	70%	46%	56%	14%	40%
42	Brazil	54%	55%	77%	9%	38%
43	India	3%	56%	6%	16%	11%

The views and opinions expressed may change based on market and other conditions. This material is provided for informational purposes only and should not be construed as investment advice. There can be no assurance that developments will transpire as forecasted. Actual results may vary.

All investing involves risk, including the risk of loss. No investment strategy or risk management technique can guarantee return or eliminate risk in all market environments.

Outside the United States, this communication is for information only and is intended for investment service providers or other Professional Clients. This material must not be used with Retail Investors. This material may not be redistributed, published, or reproduced, in whole or in part. Although Natixis Investment Managers believes the information provided in this material to be reliable, including that from third party sources, it does not guarantee the accuracy, adequacy or completeness of such information.

In the EU (ex UK): Provided by Natixis Investment Managers S.A. or one of its branch offices listed below. Natixis Investment Managers S.A. is a Luxembourg management company that is authorized by the Commission de Surveillance du Secteur Financier and is incorporated under Luxembourg laws and registered under n. B 115843. Registered office of Natixis Investment Managers S.A.: 2, rue Jean Monnet, L-2180 Luxembourg, Grand Duchy of Luxembourg. France: Natixis Investment Managers Distribution (n.509 471 173 RCS Paris). Registered office: 43 avenue Pierre Mendès France, 75013 Paris. Italy: Natixis Investment Managers S.A., Succursale Italiana (Bank of Italy Register of Italian Asset Management Companies no 23458.3). Registered office: Via Larga, 2 - 20122, Milan, Italy. Germany: Natixis Investment Managers S.A., Zweigniederlassung Deutschland (Registration number: HRB 88541). Registered office: Im Trutz Frankfurt 55, Westend Carrée, 7. Floor, Frankfurt am Main 60322, Germany. Netherlands: Natixis Investment Managers, Nederlands (Registration number 50774670). Registered office: Stadsplateau 7, 3521AZ Utrecht, the Netherlands. Sweden: Natixis Investment Managers, Nordics Filial (Registration number 516405-9601 - Swedish Companies Registration Office). Registered office: Kungsgatan 48 5tr, Stockholm 111 35, Sweden. Spain: Natixis Investment Managers, Sucursal en España. Serrano n°90, 6th Floor, 28006 Madrid, Spain.

In Switzerland: Provided by Natixis Investment Managers, Switzerland Sàrl, Rue du Vieux Collège 10, 1204 Geneva, Switzerland or its representative office in Zurich, Schweizergasse 6, 8001 Zürich.

In the UK: Provided by Natixis Investment Managers UK Limited, authorized and regulated by the Financial Conduct Authority (register no. 190258). Registered Office: Natixis Investment Managers UK Limited, One Carter Lane, London, EC4V 5ER.

In the DIFC: Distributed in and from the DIFC financial district to Professional Clients only by Natixis Investment Managers Middle East (DIFC Branch) which is regulated by the DFSA. Related financial products or services are only available to persons who have sufficient financial experience and understanding to participate in financial markets within the DIFC, and qualify as Professional Clients as defined by the DFSA. Registered office: Office 603 - Level 6, Currency House Tower 2, PO Box 118257, DIFC, Dubai, United Arab Emirates.

In Singapore: Provided by Natixis Investment Managers Singapore (name registration no. 53102724D), a division of Ostrum Asset Management Asia Limited (company registration no. 199801044D). Registered address of Natixis Investment Managers Singapore: 5 Shenton Way, #22-05 UIC Building, Singapore 068808.

In Taiwan: Provided by Natixis Investment Managers Securities Investment Consulting (Taipei) Co., Ltd., a Securities Investment Consulting Enterprise regulated by the Financial Supervisory Commission of the R.O.C. Registered address: 16F-1, No. 76, Section 2, Tun Hwa South Road, Taipei, Taiwan, Da-An District, 106 (Ruentex Financial Building I), R.O.C., license number 2017 FSC SICE No. 018, Tel. +886 2 2784 5777.

In Japan: Provided by Natixis Investment Managers Japan Co., Ltd., Registration No.: Director-General of the Kanto Local Financial Bureau (kinsho) No. 425. Content of Business: The Company conducts discretionary asset management business and investment advisory and agency business as a Financial Instruments Business Operator. Registered address: 1-4-5, Roppongi, Minato-ku, Tokyo.

In Hong Kong: Provided by Natixis Investment Managers Hong Kong Limited to institutional/ corporate professional investors only. Please note that the content of the above website has not been reviewed or approved by the HK SFC. It may contain information about funds that are not authorized by the SFC.

In Australia: Provided by Natixis Investment Managers Australia Pty Limited (ABN 60 088 786 289) (AFSL No. 246830) and is intended for the general information of financial advisers and wholesale clients only.

In New Zealand: This document is intended for the general information of New Zealand wholesale investors only and does not constitute financial advice. This is not a regulated offer for the purposes of the Financial Markets Conduct Act 2013 (FMCA) and is only available to New Zealand investors who have certified that they meet the requirements in the FMCA for wholesale investors. Natixis Investment Managers Australia Pty Limited is not a registered financial service provider in New Zealand.

In Latin America: Provided by Natixis Investment Managers S.A.

In Colombia: Provided by Natixis Investment Managers S.A. Oficina de Representación (Colombia) to professional clients for informational purposes only as permitted under Decree 2555 of 2010. Any products, services or investments referred to herein are rendered exclusively outside of Colombia.

In Mexico: Provided by Natixis IM Mexico, S. de R.L. de C.V., which is not a regulated financial entity or an investment manager in terms of the Mexican Securities Market Law (Ley del Mercado de Valores) and is not registered with the Comisión Nacional Bancaria y de Valores (CNBV) or any other Mexican authority. Any products, services or investments referred to herein that require authorization or license are rendered exclusively outside of Mexico. Natixis Investment Managers is an entity organized under the laws of France and is not authorized by or registered with the CNBV or any other Mexican authority to operate within Mexico as an investment manager in terms of the Mexican Securities Market Law (Ley del Mercado de Valores). Any use of the expression or reference contained herein to "Investment Managers" is made to Natixis Investment Managers and/or any of the investment management subsidiaries of Natixis Investment Managers, which are also not authorized by or registered with the CNBV or any other Mexican authority to operate within Mexico as investment managers.

In Uruguay: Provided by Natixis Investment Managers Uruguay S.A., a duly registered investment advisor, authorized and supervised by the Central Bank of Uruguay. Office: San Lucar 1491, oficina 102B, Montevideo, Uruguay, CP 11500.

The above referenced entities are business development units of Natixis Investment Managers, the holding company of a diverse line-up of specialized investment management and distribution entities worldwide. The investment management subsidiaries of Natixis Investment Managers conduct any regulated activities only in and from the jurisdictions in which they are licensed or authorized. Their services and the products they manage are not available to all investors in all jurisdictions.

In Canada: This material is provided by Natixis Investment Managers Canada LP, 145 King Street West, Suite 1500, Toronto, ON M5H 1J8.

In the United States: Provided by Natixis Distribution, L.P., 888 Boylston St., Boston, MA 02199. Natixis Investment Managers includes all of the investment management and distribution entities affiliated with Natixis Distribution, L.P. and Natixis Investment Managers S.A.

This material should not be considered a solicitation to buy or an offer to sell any product or service to any person in any jurisdiction where such activity would be unlawful.

RC18-0718
2162775.1.2