NATIXIS
INVESTMENT MANAGERS

2019 Global Retirement Index

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

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Retirement Security in the 21st Century

Ensuring retirement security is a challenge facing every country around the globe. Traditionally, it is a problem viewed through a financial lens with the discussion focused on personal, employer, and government retirement funding models. The objective has been to help retirees generate a sustainable income to carry them through decades of life after work. While this outlook has been instrumental in establishing better tools for savings and stronger incentives to save, there is more to the equation in the 21st century.

Rapidly aging populations have undercut the math behind retirement benefits as fewer people pay into national systems and more people take money out. Policy makers and employers are shifting a greater share of the funding responsibility to individuals with defined contribution solutions. Ten-plus years of dovish fiscal policy has forced a generation of retirees to annuitize savings at ultra-low rates, raising the stakes on their ability to generate income and preserve capital over the long term. All while rapidly advancing effects of climate change continue to pressure retirees with greater health risks and a higher cost of living.

With the 2019 Natixis Global Retirement Index we seek to offer insight into how a wide range of factors affect the lives of retirees by asking four direct questions: Will they be able to generate the income they need to sustain themselves through retirement? Can they be confident the financial systems supporting their retirement funding will be resilient through short-term disruptions? Do they have access to the healthcare needed to address the physical challenges of aging? What will their quality of life be like during this vulnerable point of life?

As investment managers, we emphasize the financial factors of retirement security, where we believe our active approach to investing can deliver the greatest benefit over the long term. But we also recognize that retirement savings and investing is only part of the picture. Our most recent investor survey reveals much about the uncertainty individuals share about retirement security. Among 9,100 respondents in 25 countries, only three in ten said they thought not saving enough was a risk to their personal retirement security. More than half worried about the risks posed by healthcare and longer care costs. And despite relative low levels of inflation over the past decade, four in ten worried about its effect on their retirement.[1]

Retirement security is a complex, multi-dimensional issue and there will be no single solution to the problem of ensuring that, after a life of work, individuals can live with dignity in retirement. With the Global Retirement Index, it is our goal to initiate a dialogue with policy makers, employers, individuals, and the financial industry about how to best address the needs of retirees for generations to come.

Jean Raby
Chief Executive Officer

1 Natixis Global Survey of Individual Investors, conducted by CoreData Research, February-March 2019. Survey included 9,100 investors in 25 countries.

Global Security. Personal Risks.

From uncertain economics to aging demographics to climate change, retirement security is exposed to a wide range of 21st century risks. The underlying issues have sweeping implications for a sustainable society. While the issues need to be evaluated from global and national perspectives, the ultimate risks to retirement security lie closer to home.

Big, long-range global issues like these have immediate implications for individuals and institutions alike. For example, interest rate policies have a direct effect on retirees' ability to produce a sustainable income. Aging populations force pension providers into tough decisions about how to provide meaningful benefits to retirees. And rising temperatures and sea levels pose increased financial pressures for millions of individuals today.

Now in its 7th year, the Natixis Global Retirement Index provides a status report on retirement security in 44 of the most developed countries and economies around the world. Examining 18 critical factors in the areas of finances in retirement, material wellbeing, health, and quality of life, the Index offers a comparative tool for evaluating retirement security on a global scale.

To better illustrate the risks posed to individuals and institutions, our 2019 report offers a more in-depth look at three pressing risks and their implications for retirement security.

- **Interest rates:** Low rates may stimulate borrowing, but also present a significant hurdle for those saving toward retirement and those looking to generate income.
- **Demographics:** Rapidly aging populations pose one of the biggest risks to pension planning, but longevity also represents a key risk for retirees.
- **Climate change:** A long-term risk to global sustainability presents an immediate financial risk today.

Retirement policy makers, pension and plan sponsors, and individuals around the globe face significant risks. On one side of the equation is the viability of fundamental assumptions for providing retirement benefits. On the other are the financial risks individuals are forced to assume in retirement saving and the ability of public and private institutions to deliver benefits over the long term.

Getting it right has always required a balancing act of financial, political, and personal discipline. But in 2019, the bar has been raised and the consequences are greater, making it critical to understand the risks to delivering on global retirement security.

Interest rates trapped near historic lows

It's been more than a decade since central banks introduced interest rate cuts to boost economies across the globe during the 2008 financial crisis. In the short term, lowering rates meant borrowers got access to cash and, even though savers were challenged by lower yields, many found this was offset as the value of their assets increased.

Over the long term, lower rates have become a significant retirement risk. When rates stay low for a long time, investors discover that, as higher priced bonds mature, they are stuck with reinvesting at lower rates. Adding insult to injury, many find that annuitizing assets at low rates is unsustainable. Ten years after the crisis, every 25-bps cut off rates means a $25 cut from income earned off $10,000, $250 off $100,000, and $2,500 off $1 million.

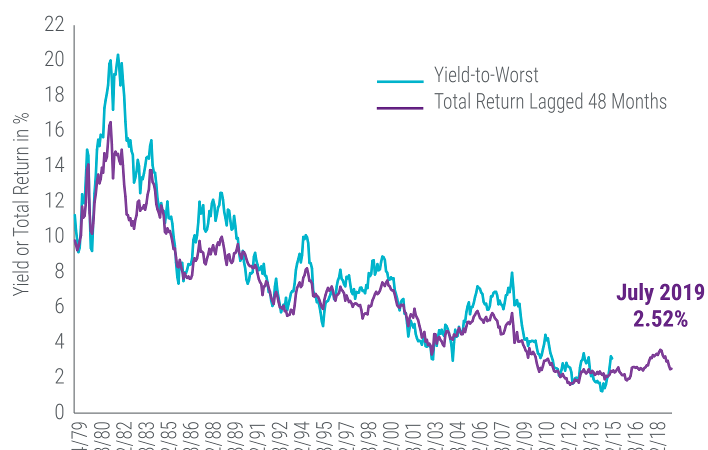
Compounding the risk are the steps needed to replace that income shortfall. Low rates can force retirees into riskier assets as they keep pace with their needs for current income. This is problematic because many retirees may not have the time they need to recoup any losses due to a market downturn.

More than a personal problem

It's not just individual investors who face greater risks. Low rates also impact pensions by inflating the future value of pension liabilities. This puts a strain on portfolio managers to make up the difference. They also have to pursue riskier assets to ensure they have the assets needed to meet those ballooning future liabilities.

Respondents in the 2018 Natixis Global Survey of Institutional Investors report an average return assumption of 6.7%[2] for the year. While this is 50 basis points lower than the previous year, they need to take on significant equity risk. With the Bloomberg Barclays US Aggregate bond index returning about 2.5% (as of July 2019), pension managers need to pursue equity returns of 9.5% in a portfolio allocated 60% to equities and 40% bonds to meet expectations of 6.7%. Individuals on the other hand would need equity returns of 17.8% to meet their 11.7% long-term return expectations (above inflation).[3] Achieving institutional investors' goal may not seem all that risky when the S&P 500® delivered 17%[4] in the first half of 2019. The same can't be said for 2018, when it lost 14% in Q4.[4]

Equity returns needed to reach institutional and individual investors' overall return expectations



Assumed Bond Return	Stock/Bond Mix	Equity Return to Reach 6.7%?	Equity Return to Reach 11.7%?
2.5%	30%/70%	16.5%	33.2%
2.5%	35%/65%	14.5%	28.8%
2.5%	40%/60%	13.0%	25.5%
2.5%	45%/55%	11.8%	22.9%
2.5%	50%/50%	10.9%	20.9%
2.5%	55%/45%	10.1%	19.2%
2.5%	60%/40%	9.5%	17.8%
2.5%	65%/35%	9.0%	16.7%
2.5%	70%/30%	8.5%	15.6%

Source: Bloomberg, Natixis Investment Strategies Group, April 1979 – July 2019 (Monthly, displayed annually)
Performance data shown is based on past performance and is no guarantee of, and not necessarily indicative of, future results.

Rates impact federal pension systems as well. In the U.S., for example, the Social Security Administration's Old Age and Survivor's Insurance trust fund, which holds assets to fund retirement benefits, earns interest on Treasury Bonds. In the long run, low rates limit the earning potential of the trust, amplifying the risk to coffers that are estimated to be depleted by 2034[5] – just about the time that the last members of the Baby Boom generation begin taking benefits.

2 Natixis Global Survey of Institutional Investors, conducted by CoreData Research, October-November 2018. Survey included 500 institutional investors in 28 countries.
3 Natixis Global Survey of Individual Investors, conducted by CoreData Research, February-March 2019. Survey included 9,100 individual investors in 25 countries.
4 Bloomberg, Natixis Investment Strategies Group
5 Social Security Administration. A Summary of the 2019 Annual Reports. (2019). https://www.ssa.gov/oact/TRSUM/index.html

Where interest rate policy stands today

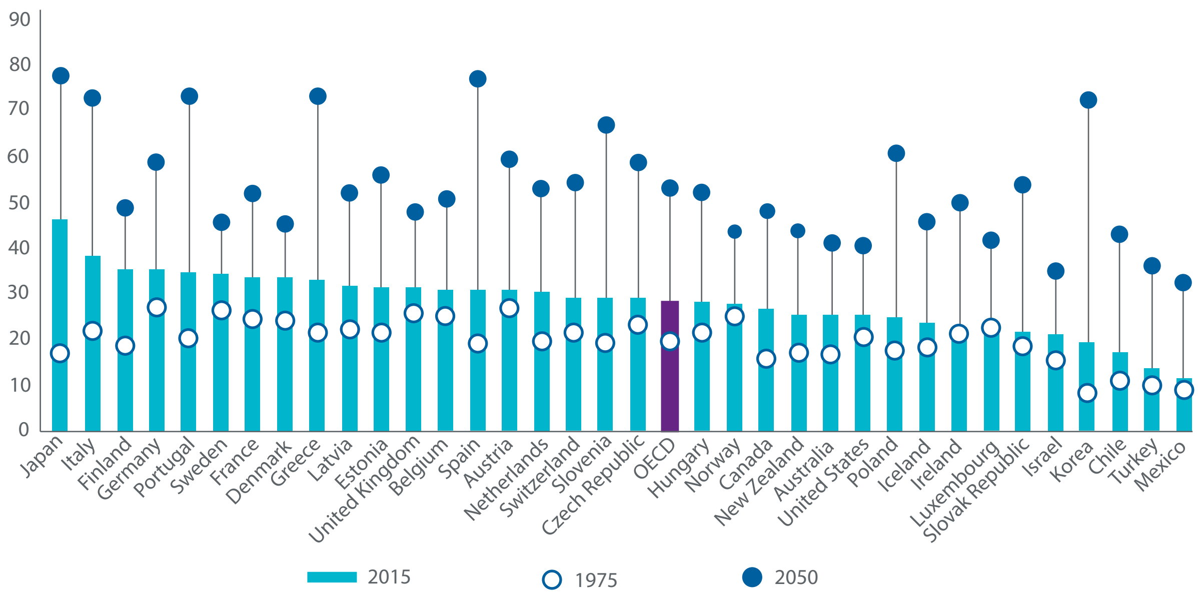
After 10+ years, interest rates don't appear to be going up anytime soon. Even after two rate hikes in two years, the Bank of England rate is stuck at 75 bps. Financial plans made in 2007 that forecasted generous yields near 6% now look wildly optimistic, as retirees can expect yields of less than 1% from their fixed income investments.

Japan has been besieged by low rates and low inflation for 25+ years, and no immediate relief is in sight. In fact, the Bank of Japan plans to hold off on any rate hikes until at least the middle of 2020.

Financial plans made in 2007 that forecasted generous yields near 6% now look wildly optimistic, as retirees can expect yields of less than 1% from their fixed income investments.

The old age dependency ratio will almost double in the next 35 years on average

Number of people older than 65 years per 100 people of working age (15–64), 1975–2050



Source: OECD (2019), Pension spending (indicator). doi: 10.1787/a041f4ef-en (Accessed on 13 August 2019)

In the U.S., the Federal Reserve has reversed course on plans for normalization, plotting one or more cuts for the second half of the year. In Europe, the European Central Bank remains in a holding pattern, announcing on June 6 that it would hold off until the middle of 2020 for its first rate hike in nearly a decade. That, too, may change as concerns about slow economic growth have led to rumblings of a rate cut in the second half of 2019.

The risks to retirement investing

Low rates raise the investment risks for individuals and institutions alike. Proper planning will need to account for investment risk as higher-priced, long-term bonds mature and are replaced with bonds issued at today's lower rates. In many instances, it means investing in higher risk assets such as equities, thus exposing portfolios to greater volatility. It adds up to timing risk as investors seek to avoid losses that can diminish asset values and increase liabilities for the long term.

Demographics are eroding the foundations of retirement security

Between 1960 and 2015, the world population increased from 3 billion to 7 billion people in just 55 years. While continued population growth strains social and environmental resources, this alone is not the biggest demographic challenge to global retirement security. The bigger threat is that while the population is growing larger, it's also growing older.[6]

In terms of retirement security, the old age dependency ratio is a critical factor. This measure, which looks at the number of people age 65 and above for every 100 workers (age 15–64), is a key fundamental consideration for retirement systems across the globe. In essence, it provides a baseline for how many people can put money into the system, compared to the number likely to take money out.

Globally, the old age dependency ratio has increased from 8.6 in 1960 to 12.6 in 2015.[6] It's a significant jump, but the global number alone doesn't tell the whole story. According to the United Nations, the impact of aging populations is most pronounced in more developed countries, where the ratio is now close to 30.0. The most telling point of this trend came in 2018 when, for the first time in history, the number of people aged 65 and older outnumbered children under the age of five.[6]

The most telling point of this trend came in 2018 when, for the first time in history, the number of people aged 65 and older outnumbered children under the age of five.

It only looks to increase with time as by 2050, old age dependency in the developed world is expected to reach 46.40 and, by 2070, 49.54.[6] In essence, by the time those born in 2000 reach retirement age, half of the population in the developed world will be age 65 or older.

What it means for retirement security

Aging populations undermine the math behind pension planning. Designed at a time when there were more workers and fewer retirees, pension policies will be stressed by a large number of pensioners who will live longer on average. UN projections show that individuals in developed regions who reach age 60 in 2015 will live an average of 23 more years.[6] By 2065, Generation Z retirees should plan for living another 28 years, and current systems will be challenged to keep up.

The math behind demographic risks to retirement security

	2015	2050
Total GDP (Million US dollars)	48,101,115	93,465,100
Pension spending (% of GDP)	8.90%	9.50%
Actual pension spending (Million US dollars)	4,280,999	8,879,185

What does this mean for 2050?

- OECD projects that pension spending will grow from 8.9% of GDP in 2013–2015 to as much as 9.5% in 2050. That's a **$4.6 trillion total increase in public spending on pensions.** By way of comparison, the US GDP has grown by an average of only 2% annually since 2000.
- Due to aging demographics, there will be **12 million fewer working age people to pay into the system.**
- Compounding the fewer workers paying into the system, there will be **163 million more elderly people age 65+** potentially requiring benefits.

Sources: OECD (2019), Pension spending (indicator); UN World Population Prospects 2019

6 United Nations. World Population Prospects 2019. Statista. https://population.un.org/wpp/

While some developed countries like the United States may actually experience a modest decline in pension spending, the impact of demographic change will be greater in large, developing economies:

- China's old age dependency ratio could rise from approximately 13% in 2015 to 44% in 2050.[7] OECD projects that pension spending in China will more than double from 4.1%% in 2013–2015 to 9.5% by 2050.[8]
- Spending in Brazil will increase by about 85% (9.1%–16.8%).[8]
- Russia will experience a 36% jump in spending (9.1%–12.4%).[8]

India is a rare example in which, even though the old age dependency ratio will increase, pension spending is not expected to increase above where it stands today – 1% of GDP. This is tied to low levels of pension coverage, rather than demographics.

Hard choices for achieving retirement security

The size and scale of this demographic shift leaves policymakers with few choices in how to address the funding crunch, none of which make for popular politics. They can: 1) increase taxes, 2) raise the qualified retirement age, or 3) cut benefits.

In Japan, a country with the longest life expectancy (84) and zero to negative population growth, it adds up to an old age dependency ratio of 46%.[9] Today, Prime Minister Shinzo Abe's administration is weighing whether to increase the retirement age from 65 to 70 or even 75. In a related move designed to address the effect of negative population growth, Japan is also considering how to relax immigration policies that have been among the most restrictive globally.

The risks to retirement planning

Aging demographics present clear risks to retirement systems and pensions around the world. The fact that policymakers and administrators need to account for an ever-increasing life span results in dramatic organic growth in pension liabilities. Add to it dovish central bank interest rate policies in Europe, Japan, and the U.S., and the liabilities are exponentially greater.

For individuals, longevity risk is the key challenge in retirement planning. Savings assumptions are not given, but can be grounded with experience. Long-term market performance should provide some direction for return assumptions. But the one variable that may be harder to project is how long you will live.

The rising financial pressures presented by climate change

Even with evidence that temperatures have increased, sea levels have risen, and storms have grown more severe over the past 100 years, the risk of climate change is often viewed through a long-term lens. But today, climate change presents tangible health and financial risks to millions of retirees and challenges policymakers around the world.

The financial risk is massive considering that 40% of the world's population, or 2.4 billion people, lives within 60 miles of the coast. Ten percent lives in coastal areas that are less than 10 meters above sea level.

Over the last 130 years, the World Health Organization (WHO) reports the world has warmed by 0.85°C.[10] The trend continues as data shows that the world has become successively warmer in each of the last three decades. In human terms, the trend toward global warming – rising sea levels, severe storms, drought, wildfire, and other related factors – WHO projects that climate change is expected to cause 250,000 additional deaths per year between 2030 and 2050. Similarly, the U.S. Environmental Protection Agency reports that extreme heat has increased risk of illness among older adults, especially those with chronic illnesses.[11]

On the financial side of the equation, the 2018 US Climate Assessment projects annual losses in some economic sectors to reach hundreds of billions of dollars by 2100 if global warming continues unabated and says, "Climate change creates new risks and exacerbates existing vulnerabilities in communities across the U.S., presenting growing challenges to human health and the rate of economic growth."[12]

7 Statista: United Nations. "Children and old-age dependency ratio in China from 1990 to 2100." Chart. June 4, 2017. Statista. Accessed July 29, 2019. https://www.statista.com/statistics/251535/child-and-old-age-dependency-ratio-in-china/

8 OECD Pension Spending Indicator

9 World Bank. Age dependency ratio, old (% of working-age population). (2018). https://data.worldbank.org/indicator/SP.POP.DPND.OL

10 World Health Organization. Climate change and health (2018). https://www.who.int/news-room/fact-sheets/detail/climate-change-and-health

11 "Climate Change and Extreme Heat. What You Can Do to Prepare." United States Environmental Protection Agency. Published October 2016. https://www.epa.gov/sites/production/files/2016-10/documents/extreme-heat-guidebook.pdf

12 Jay, A., D.R. Reidmiller, C.W. Avery, D. Barrie, B.J. DeAngelo, A. Dave, M. Dzaugis, M. Kolian, K.L.M. Lewis, K. Reeves, and D. Winner, 2018: Overview. In Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment, Volume II [Reidmiller, D.R., C.W. Avery, D.R. Easterling, K.E. Kunkel, K.L.M. Lewis, T.K. Maycock, and B.C. Stewart (eds.)]. U.S. Global Change Research Program, Washington, DC, USA, pp. 33–71. doi: 10.7930/NCA4.2018.CH1

The outlook may be cause for long-term action, but present financial risks are growing. The Munich Reinsurance Company, the world's largest reinsurer, reports that natural disasters caused $350 billion in damages during 2017 alone,[13] and that 2018 was the fourth costliest year since 1980 in terms of insured losses due, in large part, to severe events in the second half of the year.[14]

The company cautions that property insurance premiums could become a social problem as people in low and average income brackets may no longer be able to afford premiums. "If the risk from wildfires, flooding, storms, or hail is increasing, the only sustainable option will be to increase our risk prices accordingly."

Climate change risks to individuals and policy makers

Individuals	Policy Makers
Health	
• Climate change is expected to cause 250,000 additional deaths between 2030 and 2050.[15] • More than 240 million people are expected to be without access to an improved water source by 2050.[15] • Household air pollution causes 4.3 million deaths per year; ambient air pollution causes 3 million deaths per year.[15]	• The direct damage costs to health are estimated to be USD 2–4 billion/year by 2030.[15] • Reduced labor productivity related to poor health due to air pollution is projected to cause an overall GDP loss of 0.4% by 2060.[16] • Increased health expenditures due to climate change for non-OECD Europe, China, Russia and the Caspian region are projected to cause 1.1% drop in GDP by 2060.[17]
Property/Assets	
• 2018 saw $160 billion in losses from natural catastrophes in 2018 (half of them insured). Property insurance premiums could become a social problem as people in low and average income brackets may no longer be able to afford premiums.[18] • Between 2005 and 2016, home values depreciated by $15 billion across the Eastern Seaboard of the United States.[19]	• OECD estimates $6.9 trillion annually in infrastructure financing is needed through 2030 to meet climate and development objectives.[20] • From 1980 to 2017, Europe experienced €453 billion in losses due to extreme weather and climate-related events.[21] • More than $226 billion in commercial, industrial, road, rail, and residential assets will be at risk from sea level rise alone by 2100, if greenhouse gas emissions continue at high levels.[22]
Safety	
• 40% of the world's population (2.4 billion people) lives within 100km of the coast.[23] • 10% of the world (600 million) lives in coastal areas that are less than 10 meters above sea level.[23] • Extreme events, such as flooding and drought, create challenges for food distribution if roads and waterways are damaged or made inaccessible.[24]	• Between 2005 and 2014, the Federal Emergency Management Agency's public assistance program provided $45 billion in inflation-adjusted funds to US state and local governments to rebuild public infrastructure.[25] • By 2050, global water demand is expected to increase by 55% with little scope for expanding irrigation water use under current policy.[26]

13 Munich Re. Media Information. Extreme storms, wildfires and droughts cause heavy nat cat losses in 2018, January 8, 2019.

14 Löw, Petra. "The natural disasters of 2018 in figures." Munich Re., August 1, 2019. https://www.munichre.com/topics-online/en/climate-change-and-natural-disasters/natural-disasters/the-natural-disasters-of-2018-in-figures.html

15 WHO Climate change and health (2018)

16 OECD (2016). The Economic Consequences of Outdoor Air Pollution, OECD Publishing, Paris. Page 76. https://dx.doi.org/10.1787/9789264257474-en

17 OECD (2016). The Economic Consequences of Outdoor Air Pollution. Page 78.

18 Löw, Petra. "The natural disasters of 2018 in figures." Munich Re.

19 "Rising Seas Swallow $403 Million in New England Home Values." First Street Foundation, January 22, 2019. Methodology: https://firststreet.org/research/methodology/

20 OECD. Financing Climate Futures (Summary in English): Rethinking Infrastructure DOI:https://doi.org/10.1787/4d36800f-en

21 European Environment Agency. Economic losses from climate-related extremes in Europe. Updated April 2, 2019. https://www.eea.europa.eu/data-and-maps/indicators/direct-losses-from-weather-disasters-3/assessment-2

22 Compound Costs. Climate Change Is Damaging Australia's Economy. Climate Council of Australia.

23 UN Ocean Conference Fact Sheet

24 "Climate Impacts on Human Health." United States Environmental Protection Agency. https://archive.epa.gov/epa/climate-impacts/climate-impacts-human-health.html

25 What We Don't Know About State Spending on Natural Disasters Could Cost Us." Pew Trusts, June 19, 2018. https://www.pewtrusts.org/en/research-and-analysis/reports/2018/06/19/what-we-dont-know-about-state-spending-on-natural-disasters-could-cost-us

26 "OECD Environmental Outlook to 2050: The Consequences of Inaction – Key Facts and Figures." OECD. https://www.oecd.org/env/indicators-modelling-outlooks/oecdenvironmentaloutlookto2050theconsequencesofinaction-keyfactsandfigures.htm

The financial risk is massive considering that 40% of the world's population, or 2.4 billion people, lives within 60 miles of the coast. Ten percent lives in coastal areas that are less than 10 meters above sea level.[27] Considering that many retirees are living on a fixed income, sharp climate-driven insurance rate hikes could upend financial plans. In many instances, a primary home may be the single largest personal asset owned by individuals. Without insurance, retirees could be financially wiped out by extreme weather damage.

For policymakers, climate change could exacerbate budgets that are already stretched thin. Storms and storm-related damage put higher demands on public safety resources. Beyond the human toll, storms, fires, mudslides, and deep freezes can destroy or shorten the functional lifespan of critical infrastructure and utilities.

In Australia, the rising sea levels pose a threat to coastal cities that rises into the hundreds of billions of dollars. According to a Climate Council report, more than $226 billion USD in commercial, industrial, and residential assets and public infrastructure on the Australian Coast are potentially exposed to the risks of climate change.[28]

The risks to retirement

Climate change has significant implications for global retirement security. The same factors that affect environmental sustainability over the long term have an immediate impact on retirees today. While the health-related issues such as respiratory illness are readily apparent, the financial impact may not be as top of mind. Retirees are finding insurance costs escalating as insurers seek to keep pace with climate and weather-related property damage. It adds up to increased financial pressure for many individuals who want to maintain their quality of life on a fixed income.

Global security. Personal risks.

Interest rates, demographics, and climate change are just three of many challenges to global retirement security. Policy makers, employers, and individuals all need to take action to manage the risks. Understanding the impact is a critical first step. The Natixis Global Retirement Index is designed to open a conversation about what steps need to be taken to ensure retirement security on a global scale. The answers will be addressed in policy discussion about national retirement systems around the world. In the design of employer pensions and workplace savings plans. In careful financial planning by individuals. And in the development of new, relevant solutions by asset managers that help individuals and institutions attain retirement security goals.

27 United Nations. The Ocean Conference Fact Sheet: People and Oceans. (2017). https://www.un.org/sustainabledevelopment/wp-content/uploads/2017/05/Ocean-fact-sheet-package.pdf

28 "Compound Costs: How Climate Change Is Damaging Australia's Economy." Climate Council of Australia. Updated May 14, 2019. https://www.climatecouncil.org.au/wp-content/uploads/2019/05/costs-of-climate-change-report-v3.pdf

Key Findings

Ireland

ranks fourth overall after ranking seventh last year and 14th two years ago.

Japan

has the highest scores for the life expectancy and employment indicators but the lowest scores for the old-age dependency and government indebtedness indicators.

North America

has the highest overall GRI score by region, followed closely by Western Europe. Both regions have good scores for the Material Wellbeing, Health and Quality of Life sub-indices, but North America has the highest score for Finances while Western Europe has the second-lowest score.

Western Europe

has 15 countries finishing in the top 25 for the third year in a row.

Luxembourg

breaks into the top ten overall this year by moving up one spot from 11th last year. Luxembourg replaces the Netherlands, which ranked 10th last year.

Overall Top 3

Iceland, Switzerland and Norway are the top three overall countries this year. Iceland moves up one spot while Switzerland moves down one spot and Norway remains the same rank.

Top Nordic Countries

Sweden and Denmark, along with Norway and Iceland, maintain the strong performance of the Nordic countries in the top ten overall. Sweden ranks sixth while Denmark ranks seventh overall.

Some countries in the top ten overall perform better in certain sub-indices compared to others. Seven of the countries finishing in the top ten overall also finish in the top ten for the Quality of Life sub-index compared to only four for Material Wellbeing. Six apiece finishing in the top ten overall also finish in the top ten for the Finances and Health sub-indices.

New Zealand and Australia

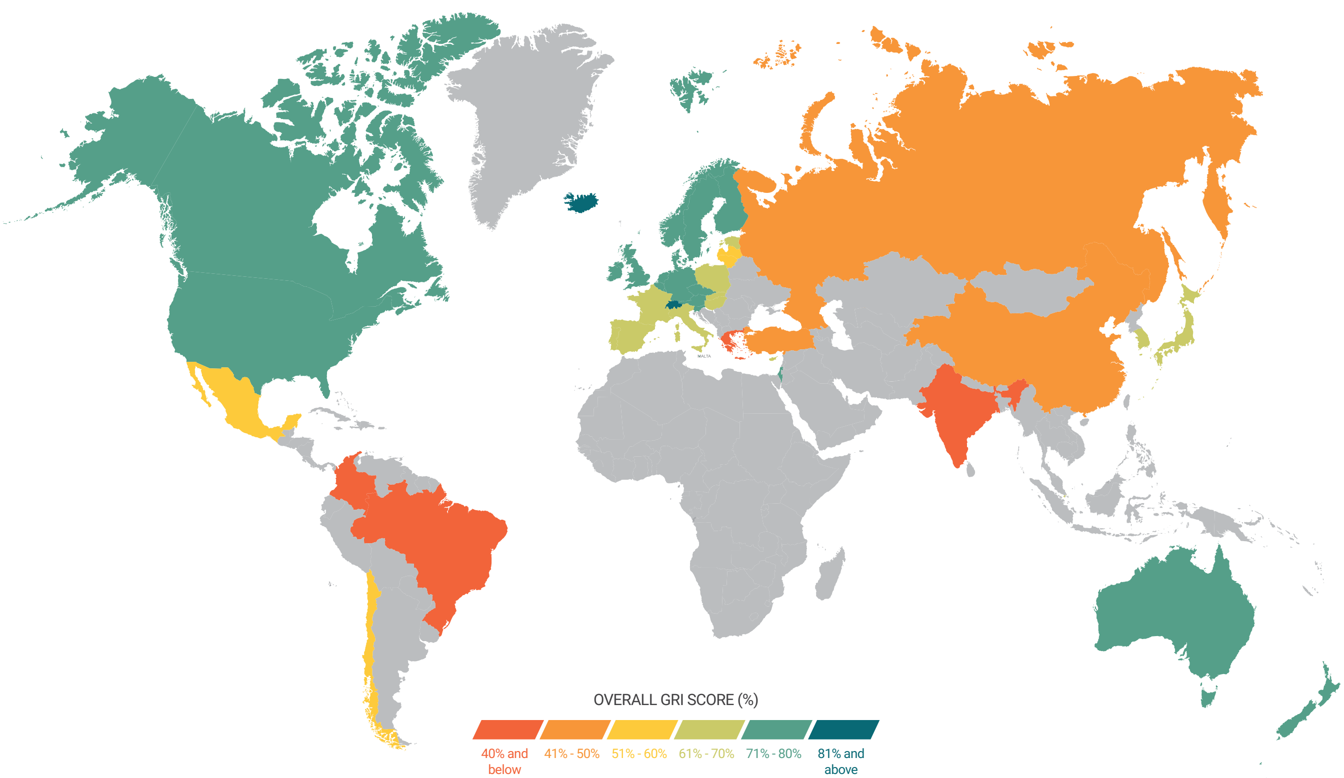
make the top ten for the third year in a row. New Zealand ranks 5th again this year while Australia moves down three spots to 9th overall.

The Global Retirement Index 2019

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.

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 44 nations studied. See page 75 for the full list of countries.



Framework

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 seventh 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.

Methodology Update:

Colombia Joins the 2019 GRI

Colombia signed the accession agreement to become a member of the OECD in May 2018. We therefore added Colombia to the GRI country list, thereby pushing up the number of countries in the index to 44.

The year-on-year scores and rankings in this year's report were calculated retroactively as if Colombia had been part of the country list in previous years. Since none of Colombia's indicators are target or low performance benchmarks, all overall, sub-index, and indicator scores remain the same as in previous publications.

However, there are differences in overall rankings for the two countries finishing behind Colombia, namely Brazil and India, and differences in individual indicator rankings across all countries. For example, Colombia performs particularly well in a few Finances indicators, such as old-age dependency at third and tax pressure at fifth, thereby pushing down the indicator rankings of other countries who would have been higher had Colombia not been included.

Therefore, it is important to note indicator rankings from previous publications should not be compared to the rankings in this year's report. Year-on-year changes in ranking should only be compared using the data in this year's publication.

	Ranking	Score
2019	42	40%
2018	41	40%
2017	41	42%

Sub-Index and Indicator Rankings	2019	2018	2017
Health Index	49%	49%	50%
Quality of Life Index	71%	73%	78%
Material Wellbeing Index	11%	11%	11%
Finances in Retirement Index	65%	67%	68%

Timeline of countries joining the OECD

1961
The OECD is officially founded with 17 countries.

Netherlands and Luxembourg join shortly after.

1962
Italy

1964
Japan

1969
Finland

1971
Australia

1973
New Zealand

1994
Mexico

1995
Czech Republic

1996
Hungary
Poland
Korea

2000
Slovak Republic

2010
Chile
Israel
Slovenia
Estonia

2016
Latvia

2018
May: **Colombia**
July: Lithuania

The Best Performers

The top countries in this year's GRI are Iceland, Switzerland and Norway. Despite recording a slight score decline, Iceland moves up one spot into pole position while Switzerland slips one place into second. Norway remains in third with a score of 80%. And Luxembourg moves up one spot from 11th last year to break into the top ten, replacing the Netherlands which ranked 10th last year.

Ireland continues to make strong progress. After featuring in the top ten for the first time last year, the country climbs three more spots to grab a fourth-place finish with a score of 78%. Ireland has staged an impressive rise up the rankings table from two years ago when it finished 14th. While Ireland represents progress, New Zealand and Australia represent consistency – both sit in the top ten for the third year in a row. Steady-Eddie New Zealand (5th) has the same score and ranking as last year, while Australia slips three spots to ninth with a slightly lower score of 77%. Sweden and Denmark, ranking sixth and seventh respectively, join Iceland and Norway in the top ten to complete a good showing for the Nordic countries. Sweden falls two places compared to last year but Denmark nudges up one spot. Elsewhere, Canada crawls one place up the rankings table to eighth overall with a score of 77%.

Countries with strong overall rankings tend to perform well in the Finances sub-index. Six of the countries finishing in the top ten overall – New Zealand, Switzerland, Australia, Canada, Iceland and Ireland – also rank in the top ten for Finances. High-ranking countries overall are also more likely to achieve top ten finishes in certain indicators with Finances. Seven of the top ten overall also rank in the top ten for bank nonperforming loans, for example, while a further seven finish in the top ten for governance. These strong performers also have manageable levels of inflation. But this trend does not extend to all indicators — high fliers Denmark and Sweden finish in the bottom ten for both old-age dependency and tax pressure.

A strong performance in the Material Wellbeing sub-index does not necessarily translate into a high overall ranking. Indeed, the correlation between a top ten overall ranking and a top ten sub-index ranking is weakest for Material Wellbeing. Only four countries – Iceland, Norway, Switzerland and Denmark – finish in the top ten in both the overall and Material Wellbeing rankings. Iceland again leads the way this year, ranking first in the sub-index and achieving top ten finishes for all three indicators. Norway and Denmark finish in the top ten for both income equality and income per capita, with the former country ranking seventh and fourth respectively and the latter ranking ninth for both indicators. But neither country makes it into the top ten for the employment indicator. Meanwhile, Luxembourg, Sweden, Ireland, Canada, Australia and New Zealand finish in the top ten overall but fail to finish in the top ten for Material Wellbeing. Of these countries only Luxembourg and Ireland notch up top ten indicator finishes – the former ranks second and the latter fifth for income per capita.

TOP 10 Countries in 2019 GRI

Rank	Country	2019	Ranking change	2018	Ranking change	2017
1	Iceland	83%	▲1	84%	▲1	82%
2	Switzerland	83%	▼1	84%	▲1	84%
3	Norway	80%	►0	81%	▼2	86%
4	Ireland	78%	▲3	77%	▲7	74%
5	New Zealand	78%	►0	78%	►0	80%
6	Sweden	77%	▼2	78%	►0	80%
7	Denmark	77%	▲1	77%	►0	77%
8	Canada	77%	▲1	77%	▲2	76%
9	Australia	77%	▼3	78%	►0	78%
10	Luxembourg	76%	▲1	76%	▼1	76%

▲►▼ Ranking change   2019   2018   2017

There is a stronger correlation between overall and sub-index ranking when it comes to Quality of Life. Seven countries finishing in the top ten overall achieve top ten rankings in Quality of Life: Denmark, Switzerland, Norway, New Zealand, Sweden, Iceland and Ireland. Seven of the top ten overall performers rank in the top ten for air quality, while seven rank in the top ten for happiness and six rank in the top ten for environmental factors. Luxembourg, Canada and Australia represent those countries in the top ten overall that fail to finish in the upper echelon for Quality of Life, ranking 11th, 13th and 15th respectively.

Six of the top ten overall – Luxembourg, Norway, Sweden, Switzerland, Canada and Ireland – also make the top ten for the Health sub-index. Luxembourg remains in pole position in the sub-index and moves to second in the insured health expenditure indicator. Norway, ranking third in the sub-index, finishes in the top ten for all three indicators. All countries in the top ten overall have at least one Health indicator in the upper ten. Australia, Iceland, Denmark and New Zealand represent those countries finishing in the top ten overall but not featuring in the upper ten for Health.

TOP 25 Countries in 2019 GRI

Rank	Country	Health Index	Finances in Retirement Index	Quality of Life Index	Material Wellbeing Index	Global Retirement Index
1	Iceland	85%	72%	86%	91%	83%
2	Switzerland	88%	77%	91%	78%	83%
3	Norway	90%	59%	90%	86%	80%
4	Ireland	87%	72%	83%	71%	78%
5	New Zealand	83%	79%	89%	62%	78%
6	Sweden	88%	65%	89%	72%	77%
7	Denmark	85%	60%	93%	75%	77%
8	Canada	87%	73%	82%	68%	77%
9	Australia	85%	77%	81%	66%	77%
10	Luxembourg	91%	60%	83%	74%	76%
11	Netherlands	87%	57%	82%	82%	76%
12	Finland	83%	62%	92%	68%	75%
13	Germany	85%	56%	82%	79%	75%
14	Czech Republic	72%	69%	75%	83%	75%
15	Austria	84%	54%	87%	75%	74%
16	Israel	79%	70%	77%	66%	73%
17	United Kingdom	83%	56%	85%	69%	72%
18	United States	86%	71%	76%	58%	72%
19	Slovenia	79%	65%	71%	72%	71%
20	Malta	75%	66%	68%	76%	71%
21	Belgium	83%	51%	80%	73%	71%
22	France	89%	55%	81%	61%	70%
23	Japan	90%	55%	68%	72%	70%
24	Korea, Rep.	72%	75%	53%	74%	68%
25	Slovak Republic	64%	67%	69%	68%	67%

Color Scale

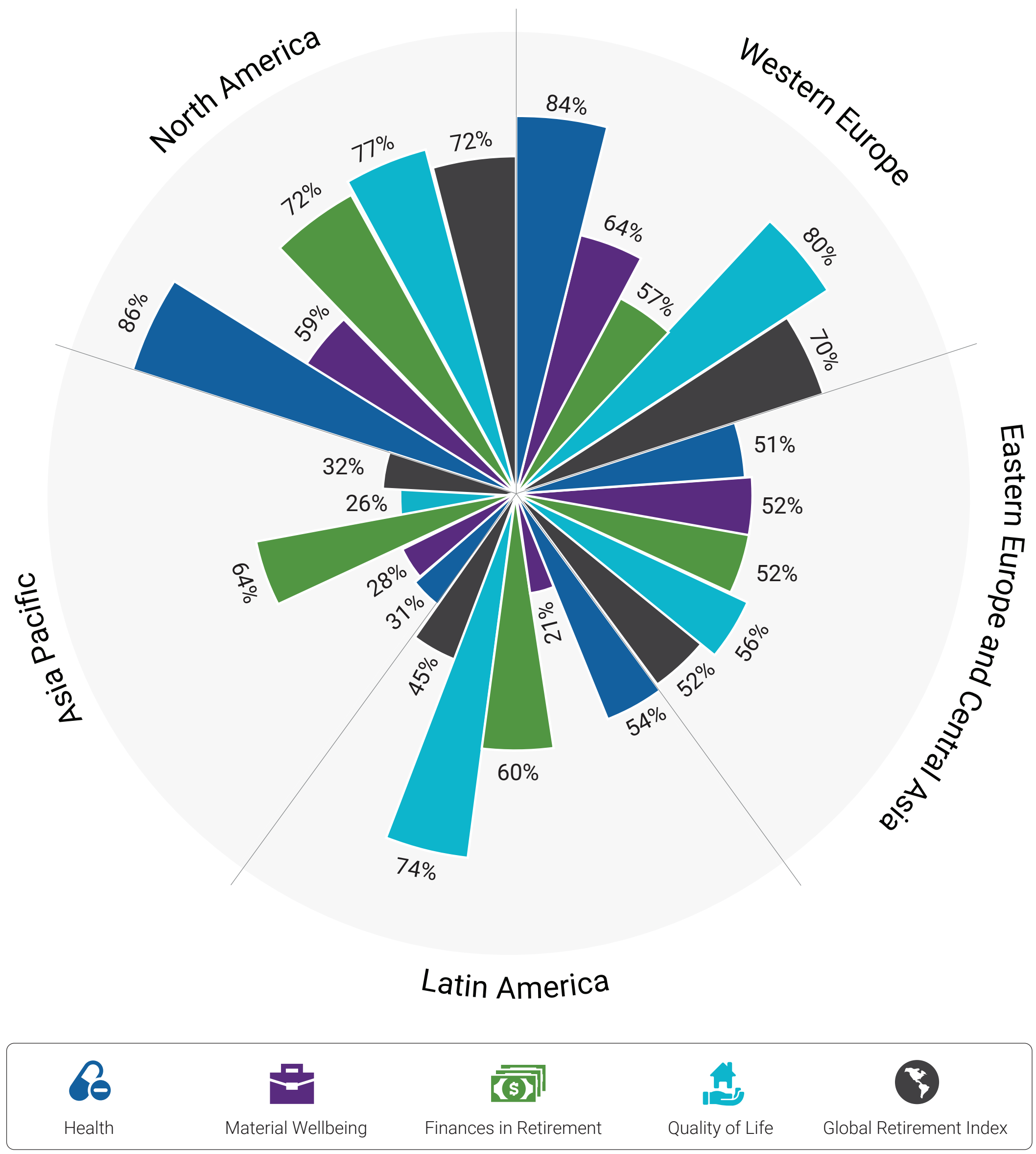
- 81% and above
- 71%-80%
- 61%-70%
- 51%-60%
- 41%-50%
- 40% and below

Regional Perspective

North America has the highest overall regional GRI score, closely followed by Western Europe (70%) in second place. There is some distance between the dominant block of North America and Western Europe and the rest of the pack. The region with the next highest overall score after Western Europe is Eastern Europe and Central Asia with a score of 52%.

North America has a lower overall score this year due to declines in all four sub-indices. But underlining its dominant position, it again achieves the highest score for the Health and Finances sub-indices and ranks second in Material Wellbeing and Quality of Life. Both the U.S. and Canada scoop the plaudits in the Health sub-index. The U.S. ranks first and third, respectively, for the health expenditure per capita and insured health expenditure indicators while Canada finishes in pole position in life expectancy. Both countries also perform strongly in the Finances sub-index, racking up multiple top ten indicator finishes.

TOP Region in the 2019 GRI



Western Europe finishes second overall this year. The region boasts the highest score in the Material Wellbeing and Quality of Life sub-indices and second-highest in Health, but falters in Finances where it finishes with the second-lowest score. The region stages an improvement in Quality of Life and Material Wellbeing compared to last year, but loses ground in Finances and Health with lower scores. Western European countries make up nine of the top ten in the Quality of Life sub-index and eight of the top ten in Material Wellbeing. And seven European countries feature in the top ten for the Health sub-index. But Finances acts as a drag on regional performance, with six Western European countries sitting in the bottom ten of the sub-index. More encouragingly, Switzerland, Iceland and Ireland make the top ten for Finances.

Finishing third in the regional stakes, Eastern Europe and Central Asia ranks third in the Material Wellbeing sub-index, fourth in Health and Quality of Life and last in Finances. The region improves its performance in the Health, Finances and Material Wellbeing sub-indices compared to last year but records a lower

SPOTLIGHT:

The rise of the Celtic Tiger

Ireland has stormed up the rankings over the past three years. The country has climbed from 14th overall in 2017 to seventh last year and into the top five this year by finishing fourth.

A closer examination of sub-index and indicator ranking changes since 2017 reveals that a much-improved display in the Health sub-index has powered Ireland's charge up the overall rankings. Ireland's ranking in the Health sub-index went from 19th in 2018 and 2017 to ninth this year, with its health expenditure per capita indicator moving from 17th for the previous two years to sixth.

Ireland also makes good progress in a Finances indicator, with its tax pressure ranking improving to eighth this year from 14th in 2017. Meanwhile its performance in Quality of Life, where it has a sub-index ranking of tenth for the third year in a row, is a story of consistency. But while Ireland improved significantly in the Material Wellbeing sub-index last year, moving from 22nd to 16th, it takes a step back this year. Gains made last year have been reversed with worse rankings for the income equality and employment indicators, despite registering a slight score improvement for the latter.

Ireland's experience should provide encouragement to those countries being held back from recording a strong overall score due to the performance of a few wayward indicators. If those lagging indicators are able to match the performance of the rest of the pack, then a place awaits in the GRI elites.

Selected three-year sub-index and indicator rankings for Ireland

Sub-Index/Indicator	2019	2018	2017	Sub-Index/Indicator	2019	2018	2017
Health	**9**	**19**	**19**	**Finances in Retirement**	**9**	**10**	**11**
Life Expectancy	18	21	21	Old-Age Dependency	14	15	15
Health Expenditure per capita	6	17	17	Tax Pressure	8	7	14
Insured Health Expenditure	14	18	18	Government Indebtedness	27	29	30
Material Wellbeing	**16**	**12**	**22**	**Quality of Life**	**10**	**10**	**10**
Income Equality	19	16	20	Happiness	15	13	14
Income per Capita	5	6	6	Biodiversity and Habitat	28	28	31
Employment	27	24	34	Environmental Factors	15	14	16

score for Quality of Life. While Turkey and Latvia rank seventh from bottom and tenth from bottom in Material Wellbeing, the Czech Republic sits high up the sub-index table in third place with top ten finishes in several indicators. Meanwhile, half of the Eastern European countries finish in the bottom ten for the Health sub-index and four sit in the bottom ten for Quality of Life. Even though only Russia and Turkey rank in the bottom ten for the Finances sub-index, the region as a whole finishes in last place. This is due to the disproportionate effect that the large populations of Russia and Turkey exert on the population-weighted sub-index regional score.

Latin America finishes fourth overall this year. It ranks third in the Health, Finances and Quality of Life sub-indices and last in Material Wellbeing. The region improves in both the Material Wellbeing and Health sub-indices from last year but has lower scores in Finances and Quality of Life. All four Latin American countries rank in the bottom ten for Material Wellbeing and three sit in the bottom ten for Health. But while Brazil ranks ninth from bottom in Finances, Chile has the fifth-highest sub-index score with multiple top ten indicator finishes. No Latin American country ranks in the top or bottom ten for Quality of Life.

Asia Pacific has the lowest overall regional score. It finishes second in the Finances sub-index, fourth in Material Wellbeing and fifth in both Health and Quality of Life. The region improves in the Finances, Health and Quality of Life sub-indices but has a weaker score in Material Wellbeing. Finances represents a particular bright spot, with Singapore, New Zealand, Australia and South Korea finishing first, second, fourth and sixth respectively in the sub-index. China and India, with the largest populations among all GRI countries, rank in the bottom six for all sub-indices except Finances, thus dragging down the region's population-weighted sub-index scores. Japan sits near the bottom of the pack for Finances, ranking seventh from last, while Singapore and South Korea finish fourth from last and fifth from last respectively in Quality of Life.

SPOTLIGHT:

Japan's demographic challenges

Japan's mediocre overall score, ranking 23rd, is a result of the good and the bad – the country has some of the best and worst indicator performances among all GRI countries. This mixed set of indicator results reflects the powerful demographic forces shaping the country.

Japan performs very well in the Health sub-index, where it ranks second overall. It boasts the highest life expectancy among all GRI countries and has the eighth-highest score for insured health expenditure.

Japan's key rankings

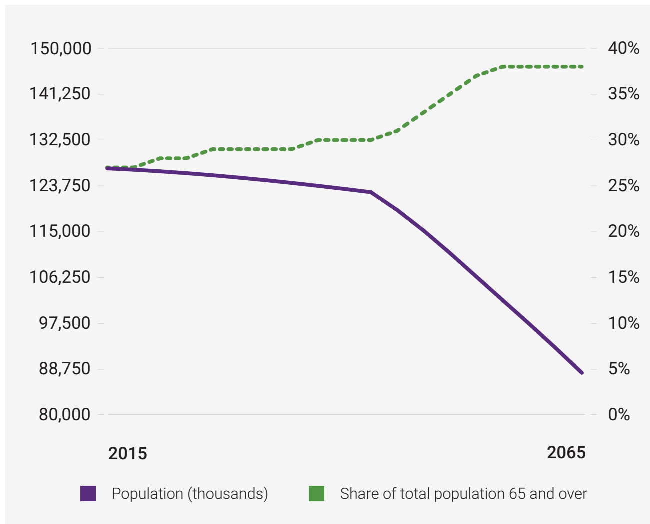
Indicator	2019	2018	2017
Top Performing			
Life Expectancy	1	1	1
Employment	1	1	2
Insured Health Expenditure	8	12	12
Bank Nonperforming Loans	10	12	14
Bottom Performing			
Old-Age Dependency	44	44	44
Government Indebtedness	44	44	44
Happiness	37	34	32

Japan's top and bottom performing indicators

But a blessing in one indicator is proving a curse in another. While individuals are living longer, Japan has one of the lowest fertility rates in the OECD. The combination of longer life expectancy and low birth rate means the country has a relatively small proportion of working-age individuals supporting those in retirement. Consequently, Japan has the lowest score for old-age dependency among all GRI countries.

A high proportion of old-age dependents also means a large percentage of the population depend on social security payments, thereby driving up public debt. Japan has the lowest score for government indebtedness among all GRI countries. Japan's FY2018 budget hit a record 97.7 trillion yen, with social security spending — the largest budget item – rising 500 billion yen to a record 33 trillion yen.[29] Furthermore, according to projections from Japan's National Institute of Population and Social Security Research, the share of the population aged 65 years and older will increase from 28% currently to 38% in 2065. At the same time, total population will shrink by 30%.[30] Without any policy changes, this vicious circle will likely result in even higher social security payments and further increases in public debt.

Japan's future population will consist of a larger share of retirees



Source: National Institute of Population and Social Security Research

But one thing riding in Japan's favor is the fact it has the highest score for the employment indicator among all countries. So while the country has a small proportion of working-age adults relative to those of retirement age, a high percentage of the population are working and therefore able to support its retirees.

Japan's indicator performances underline its vulnerability to some of these demographic headwinds. In the absence of a single silver bullet solution, the country will need to adopt a multi-pronged approach to tackle these issues. And with the demographic time bomb ticking away, it will need to take prompt and decisive action.

[29] 'Highlights of the Draft FY2019 Budget', Ministry of Finance, Japan. https://www.mof.go.jp/english/budget/budget/fy2019/01.pdf
[30] Japan's National Institute of Population and Social Security Research. http://www.ipss.go.jp/p-info/e/psj2017/PSJ2017.asp

The Top 25:

Year-on-Year Trends

The top three overall countries have consistently featured in this elite trio for the previous three years, with Iceland, Switzerland and Norway all trading off finishing first in overall rankings.

Western Europe continues to dominate as a region, with 15 countries featuring in the top 25 for the third successive year. Asia Pacific and Eastern Europe both have four nations in the best 25, while North America has two. No Latin American country sits in the top 25.

Slovenia, Israel, the Slovak Republic and Ireland record the largest positive overall score changes among the upper 25 this year, all improving by more than 0.5%. Ireland continues its impressive rise from last year, moving up three spots to fourth overall on the back of improvements in the Health and Finances sub-indices. Slovenia and the Slovak Republic both better their overall scores due to stronger finishes in the Material Wellbeing and Quality of Life sub-indices, while Israel climbs three places because of improvements in Health and Material Wellbeing.

Conversely, Belgium, the U.S. and Sweden suffer the largest drops in overall score among the top 25 compared to last year. Belgium sees its score in the Finances sub-index slide significantly due to its five-year average for real interest rates dropping below zero. It also has a slightly lower score in the Quality of Life sub-index. Sweden drops out of the top five to rank sixth overall because of lower scores in the Finances, Quality of Life and Health sub-indices. And the U.S. falls two spots to 18th as a result of lower scores in all four sub-indices.

The overall top 25 represents a static group. No country has either entered or exited the top 25 for the past three years.

Year-On-Year (YoY) Top 25 Countries in the 2019 GRI

Country	Ranking 2019	Ranking 2018	Ranking 2017	Trend in Ranking [2017-2019]	Score 2019	Score 2018	Score 2017
Iceland	1	2	3		83%	84%	82%
Switzerland	2	1	2		83%	84%	84%
Norway	3	3	1		80%	81%	86%
Ireland	4	7	14		78%	77%	74%
New Zealand	5	5	5		78%	78%	80%
Sweden	6	4	4		77%	78%	80%
Denmark	7	8	8		77%	77%	77%
Canada	8	9	11		77%	77%	76%
Australia	9	6	6		77%	78%	78%
Luxembourg	10	11	10		76%	76%	76%
Netherlands	11	10	9		76%	76%	77%
Finland	12	12	12		75%	75%	76%
Germany	13	13	7		75%	75%	77%
Czech Republic	14	15	16		75%	74%	72%
Austria	15	14	13		74%	74%	75%
Israel	16	19	20		73%	72%	71%
United Kingdom	17	17	18		72%	73%	72%
United States	18	16	17		72%	73%	72%
Slovenia	19	23	24		71%	70%	68%
Malta	20	20	21		71%	71%	70%
Belgium	21	18	15		71%	73%	73%
France	22	21	19		70%	70%	71%
Japan	23	22	22		70%	70%	70%
Korea, Rep.	24	24	23		68%	69%	68%
Slovak Republic	25	25	25		67%	66%	66%

Color Scale

- 81% and above
- 71%-80%
- 61%-70%
- 51%-60%
- 41%-50%
- 40% and below

Changes in 2018

- Increase
- Consistent
- Decrease

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 finishes in the top ten for the Health sub-index. Japan has moved up four spots to second while Norway rounds out the top three with the same ranking as last year. All three finish in the top ten for insured health expenditure and have at least one other indicator finishing in the top ten with Japan finishing first for life expectancy and Luxembourg finishing third for health expenditure per capita. Norway is the only GRI country to have a top ten finish for all indicators.

France moves down two spots to fourth this year in the sub-index because of a lower score in the life expectancy indicator, resulting in its indicator rank dropping six spots to 12th. It improves in both the insured health expenditure, where it now has the highest indicator score among all GRI countries after ranking second last year, and the health expenditure per capita indicator where it ranks 13th. Sweden, maintaining its fifth-place finish in the sub-index, has the eighth highest score for the health expenditure per capita indicator.

Some countries have very strong performances in two out of the three indicators but fall short in the third. Switzerland, for example, ranks second for both life expectancy and health expenditure per capita but finishes 31st in insured health expenditure. Switzerland's indicator scores are still good enough for it to finish sixth in the sub-index, but if its performance for insured health expenditure was on par with its other two indicators it would easily rank first in the sub-index.

The United States, Germany and Denmark are other examples. The U.S. finishes first for the health expenditure per capita and third for the insured health expenditure indicator but only 30th for life expectancy. Germany and Denmark finish fifth and 10th respectively for the health expenditure per capita indicator and sixth and ninth respectively for the insured health expenditure indicator. However, the former finishes 27th for life expectancy while the other finishes 26th. While all three of these countries have favorable sub-index scores, if the life expectancy scores matched the performance in the other two indicators they would rank even higher in the Health sub-index.

Singapore has the largest improvement in the Health sub-index. Its main improvement is in the insured health expenditure indicator where it improves its score significantly compared to last year. There is still room for improvement in this indicator since, even though it moves up five spots, it has the seventh-lowest score among all GRI countries. It also has a comparatively modest increase in its score for the life expectancy indicator, where it moves up three spots to fourth.

TOP 10 Countries in Health Sub-Index

Country	2019	Ranking change	2018	Ranking change	2017
Luxembourg	91%	►0	92%	►0	92%
Japan	90%	▲4	88%	►0	88%
Norway	90%	►0	90%	►0	89%
France	89%	▼2	90%	►0	90%
Sweden	88%	►0	89%	►0	88%
Switzerland	88%	▲1	87%	▲1	87%
Netherlands	87%	▼3	90%	►0	89%
Canada	87%	►0	87%	▲1	87%
Ireland	87%	▲10	82%	►0	82%
United States	86%	►0	86%	▼3	87%

Ranking change 2019 2018 2017

Ireland is the second-largest sub-index improvement this year. It moves ten spots in the sub-index rankings to ninth and has a particularly strong performance in the health expenditure per capita indicator, where it now ranks sixth among all GRI countries. It also improves in the insured health expenditure where it ranks 14th.

Ireland kicks Austria out of the top ten, where it ranked 9th last year and now ranks 15th. Austria has the largest score drop in the Health sub-index among all GRI countries because of lower scores in both the life expectancy and insured health expenditure indicators. It still salvages a top ten finish in the health expenditure per capita indicator by ranking ninth.

For the third year in a row, India has the lowest score for the Health sub-index. It ranks last for all three indicators.

Top 25 Countries in Health Sub-Index

Country	Ranking			Score		
	2019	2018	2017	2019	2018	2017
Luxembourg	1	1	1	91%	92%	92%
Japan	2	6	6	90%	88%	88%
Norway	3	3	3	90%	90%	89%
France	4	2	2	89%	90%	90%
Sweden	5	5	5	88%	89%	88%
Switzerland	6	7	8	88%	87%	87%
Netherlands	7	4	4	87%	90%	89%
Canada	8	8	9	87%	87%	87%
Ireland	9	19	19	87%	82%	82%
United States	10	10	7	86%	86%	87%
Australia	11	13	13	85%	85%	85%
Germany	12	11	10	85%	86%	86%
Iceland	13	12	15	85%	85%	84%
Denmark	14	14	14	85%	85%	84%
Austria	15	9	11	84%	86%	85%
New Zealand	16	15	12	83%	85%	85%
Belgium	17	17	17	83%	83%	82%
United Kingdom	18	16	16	83%	83%	83%
Finland	19	20	20	83%	81%	81%
Italy	20	18	18	81%	83%	82%
Spain	21	21	21	81%	81%	81%
Slovenia	22	22	22	79%	79%	78%
Israel	23	24	24	79%	76%	76%
Singapore	24	29	28	77%	69%	70%
Malta	25	23	23	75%	77%	77%

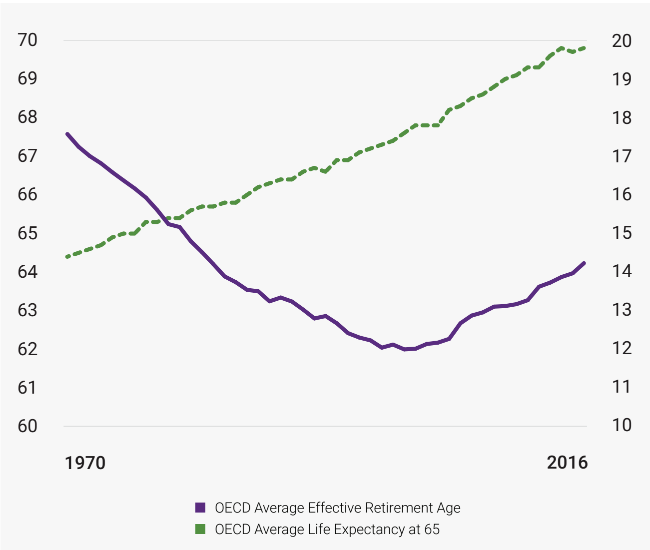
Color Scale
91% - 100%
81% - 90%
71% - 80%
61% - 70%
51% - 60%
41% - 50%
31% - 40%
21% - 30%
11% - 20%
1% - 10%

SPOTLIGHT:

Longevity in OECD countries

A country's life expectancy is a key metric of its health status. Improvements in life expectancy are linked to societal gains like better sanitation and education and declining late-life mortality. Average life expectancy at 65 in OECD countries has increased from 14.4 years in 1970 to 19.8 years in 2016.

OECD life expectancy has increased while retirement age has decreased



Source: OECD, WDI

Increasing life expectancy has also influenced the number of years individuals spend working. The OECD defines the average effective age of retirement as the average effective age at which older workers withdraw from the labor force. In contrast to life expectancy at 65, this has been trending downwards in OECD countries. In 1970, the average effective age was 67.6 while in 2017 it was 64.4. Most countries in the OECD have lowered their effective retirement age since 1970 with Poland, Ireland and Switzerland seeing the largest falls in average effective retirement age. South Korea, Turkey and Chile are the only three OECD countries whose effective retirement age has increased since 1970. The gap between life expectancy and average retirement age, in effect the number of years spent in retirement, has therefore been growing in OECD countries since 1970.

Even though the average OECD effective retirement age in 2017 is less than it was in 1970, the trend has been reversing somewhat in recent years. After reaching its nadir in 2000, the average retirement age has been creeping up every year since then. These increases in retirement age could be a bellwether of pension reform. In Australia, for example, the average retirement age is currently 65 and a half years but is set to increase to 67 by 2023. The following table summarizes other notable policy changes in some OECD countries.

Multiple OECD countries set to increase retirement age

Country	Current retirement pension age	Summary of policy changes
Australia	65 and 6 months	Rising to age 67 by July 2023
Denmark	65	Rising to age 67 from 2019 to 2022 and 68 by 2030; rising based on life expectancy starting in 2035
Germany	65 and 7 months	Rising to age 67 by 2029
Italy	66 and 7 months	Rising to age 67 in 2019; thereafter rising based on increases in life expectancy
South Korea	61	Rising to age 65 by 2034
Spain	65 and 6 months	Rising to age 67 by 2027
United States	66	Rising to age 67 by 2027

Note: Current retirement pension ages as of March 2018 for the U.S., September 2018 for Denmark, Germany, Italy and Spain and March 2019 for South Korea

Source: Social Security Programs Throughout the World

Compared to 1970, individuals in OECD countries are living longer but retiring sooner. And life expectancy is only going to increase. The average life expectancy at birth in the OECD in 2017 was 80.6, with this figure set to rise to 85.2 for those born between 2045 and 2050 and 88.8 for those born between 2075 and 2080.[31]

[31] "World Population Prospects: The 2017 Revision." World Population Prospects, 2017.

One consequence of individuals living longer but retiring earlier is that of potentially outliving assets. Individuals who haven't saved enough to keep up with their increased life expectancy face the danger of living in poverty or relying on relatives in their old age. Meanwhile, government expenditure will rise in line with increases in pension, healthcare and welfare spending.

Average public pension spending as a percentage of GDP in OECD countries increased from 5.5% in 1980 to 7.5% in 2015. Public pension spending has increased to an even greater degree in countries with longer life expectancies. Japan, Switzerland, Spain and Italy – those countries with the four highest scores for the life expectancy indicator – have increased their public pension spending by percentage points of 5.6, 1.0, 5.0 and 7.6 respectively. That compares to the 2 percentage point average increase for OECD countries. Those OECD countries with longer life expectancies are increasing their public pension spending as a result of greater longevity risk.

OECD pension spending has gone up since 1980

Country	1980 Pension Spending (Public, % of GDP)	2015 Pension Spending (Public, % of GDP)
Japan	3.7	9.4
Switzerland	5.5	6.5
Spain	6.1	11.0
Italy	8.6	16.2
OECD Average	5.5	7.5

Source: OECD

Individuals can continue working beyond the minimum benefit eligibility age in order to stave off longevity risk. South Korea and Japan serve as two examples – while they have some of the longest life expectancies in the GRI, they also have the two largest effective retirement ages among OECD countries. But the opposite dynamics apply in countries where people have relatively high life expectancies but are retiring sooner with more years spent in retirement. Luxembourg and France, for example, rank fifth and eighth respectively in the life expectancy indicator but have the second-lowest and third-lowest effective retirement ages among all OECD countries.

South Korea and Japan staving off longevity risk by working past retirement age

Country	Life Expectancy Indicator Rank	Effective retirement age	Years spent in retirement
Japan	1	70.0	14.1
Luxembourg	5	60.2	22.5
Korea, Rep.	6	73.0	9.6
France	8	60.6	22.0
Mexico	31	69.0	8.3
OECD Average	–	64.4	16.2

Source: OECD

Individuals will need to perform a careful calculus. The amount they think they will need to save for retirement may not be enough because of their increased life expectancy. As such, they will need to save more in their prime earning years. If this is still not enough, or they are nearing the minimum benefit eligibility age, they may need to work beyond their expected retirement age. Individuals must understand and accept this harsh reality before making the necessary preparatory steps.

Material Wellbeing

Iceland, Norway and the Czech Republic retain their first, second and third place rankings, respectively, in the Material Wellbeing sub-index from last year. Iceland has maintained its first-place rank (tied) in the unemployment indicator and seventh place rank in the income per capita indicator. It has dropped two places in income equality from first to third, and its Material Wellbeing score has declined modestly from 93% to 91% this year – still its highest score in any sub-index. Norway has maintained its fourth-place rank in income per capita but declined two spots in unemployment (tied for 10th to 12th) and three spots in income equality (fourth to seventh). Its Material Wellbeing score has declined one percentage point from 87% to 86%. The Czech Republic has maintained its 26th place rank in income per capita and improved its unemployment indicator ranking to first (tied) and income equality indicator from fifth to fourth. Its Material Wellbeing score has increased from 82% to 83%.

Malta has moved into the top 10 from 13th to seventh this year. It has increased its ranking (six spots) more than any other country in the Material Wellbeing sub-index. It has also modestly improved its ranking in each indicator. In income equality it improved from 13th to 12th, in unemployment it increased from 14th to 13th and in income per capita from 24th to 22nd. Japan has moved out of the top 10, from ninth last year to 13th this year. It has maintained its first (tied) ranking in unemployment and 17th spot in income per capita but declined four spots to 29th in income equality.

Another notable improvement is Cyprus, which has moved five spots in Material Welling, from 35th last year to 30th. Cyprus has improved its income equality ranking two spots to 21st and its unemployment two spots to 39th.

Japan and Ireland have fallen in ranking the most in Material Wellbeing, four spots each. Ireland falls from 12th last year to 16th this year. Ireland has improved one spot in income per capita to fifth but declined three spots in unemployment to 27th and three spots in income equality to 19th.

TOP 10 Countries in Material Wellbeing Sub-Index

Country	2019	Ranking change	2018	Ranking change	2017
Iceland	91%	►0	93%	▲1	88%
Norway	86%	►0	87%	▼1	91%
Czech Republic	83%	►0	82%	▲3	76%
Netherlands	82%	▲1	80%	▲6	75%
Germany	79%	▲1	79%	▲1	76%
Switzerland	78%	▼2	80%	▼1	81%
Malta	76%	▲6	73%	►0	72%
Denmark	75%	▲2	74%	▼2	75%
Austria	75%	▼2	76%	▼3	77%
Korea, Rep.	74%	▼2	75%	▲2	75%

▲►▼ Ranking change 2019 2018 2017

Israel has improved seven spots in the unemployment indicator, more than any other country across Material Wellbeing indicators, from 18th (tied) to 11th this year. Its score has improved from 63% to 66% in Material Wellbeing. Switzerland has declined eight spots in the unemployment indicator, more than any other country across Material Wellbeing indicators. Its Material Wellbeing score declined two percentage points, to 78%.

New Zealand and the United States scored particularly poorly in this category compared to the other sub-indices, with scores of 62% and 58%, respectively. This compares to overall scores in the GRI of 78% and 72%. They rank 26th and 28th in Material Wellbeing, partially due to the United States ranking 37th and New Zealand ranking 32nd in income equality.

For the second year in a row, Brazil has the worst score in the Material Wellbeing sub-index. It ranks last in income equality and 42nd in income per capita and unemployment.

Top 25 Countries in Material Wellbeing Sub-Index

Country	Ranking			Score		
	2019	2018	2017	2019	2018	2017
Iceland	1	1	2	91%	93%	88%
Norway	2	2	1	86%	87%	91%
Czech Republic	3	3	6	83%	82%	76%
Netherlands	4	5	11	82%	80%	75%
Germany	5	6	7	79%	79%	76%
Switzerland	6	4	3	78%	80%	81%
Malta	7	13	13	76%	73%	72%
Denmark	8	10	8	75%	74%	75%
Austria	9	7	4	75%	76%	77%
Korea, Rep.	10	8	10	74%	75%	75%
Luxembourg	11	11	5	74%	73%	77%
Belgium	12	14	14	73%	71%	70%
Japan	13	9	12	72%	75%	74%
Slovenia	14	18	17	72%	69%	66%
Sweden	15	15	9	72%	71%	75%
Ireland	16	12	22	71%	73%	64%
Hungary	17	17	21	70%	70%	64%
United Kingdom	18	16	15	69%	71%	68%
Slovak Republic	19	23	25	68%	64%	60%
Finland	20	19	16	68%	69%	68%
Canada	21	22	20	68%	65%	65%
Poland	22	20	26	68%	66%	60%
Israel	23	24	24	66%	63%	61%
Australia	24	21	18	66%	66%	66%
Estonia	25	28	27	62%	57%	58%

Color Scale
91% - 100%
81% - 90%
71% - 80%
61% - 70%
51% - 60%
41% - 50%
31% - 40%
21% - 30%
11% - 20%
1% - 10%

SPOTLIGHT:

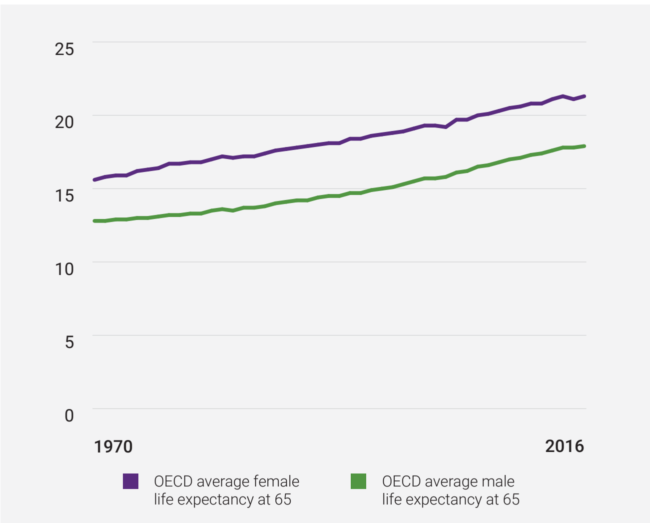
Gender misbalance

Women are faced with a distinct set of circumstances impacting their material wellbeing compared to men. If left unchecked, such circumstances could potentially derail their retirement security.

Women, on average, live longer than men. Life expectancy at 65 for women in OECD countries is 21.3 years compared to 17.9 years for men, as of 2016. Back in 1970, life expectancy at 65 for women was 15.6 years and 12.8 years for men, so life expectancy at 65 for both genders has undergone a similar percentage increase over the past half century.

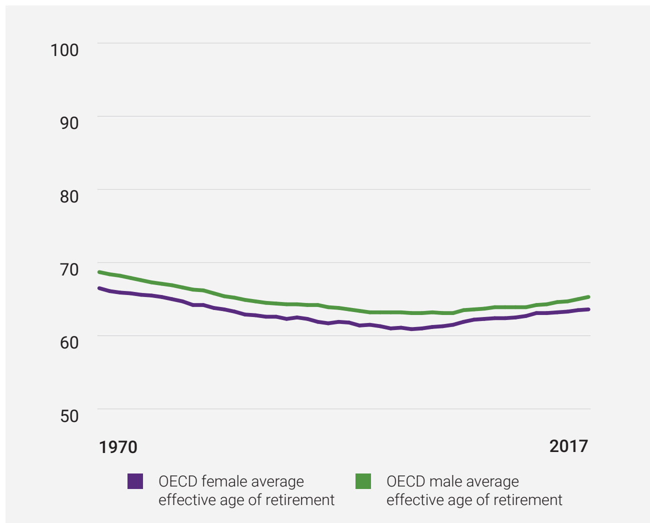
In addition to living longer, women also tend to retire earlier than men. The average effective age of retirement for women in OECD countries stands at 63.6 compared to 65.3 for men. The combination of women retiring earlier and living longer than men puts them at greater risk of outliving their assets in retirement.

Women live longer than men



Source: OECD

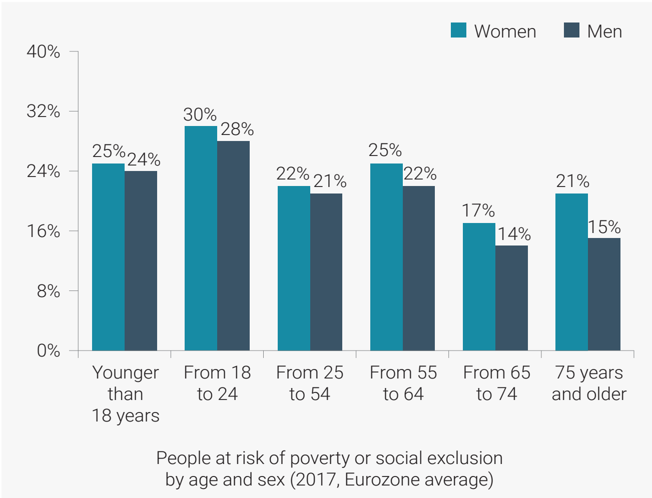
... and retire sooner



Source: OECD

The risk of poverty or social exclusion is similar for men and women aged 18 years and older living in countries in the Eurozone. Women in the Eurozone on average have an at-risk-of-poverty or social exclusion (AROPE) rate of 23% while the rate for men is 21%. However, the difference between women and men's AROPE rates increase as they get older. In the Eurozone, the average AROPE rate for womenis 25% vs 22% for men aged 55 to 64; 17% vs 14% for men aged 65 to 74; and 21% vs 15% for men aged 75 years or over. Women, who generally live longer than men, are at higher risk of poverty in their later years.

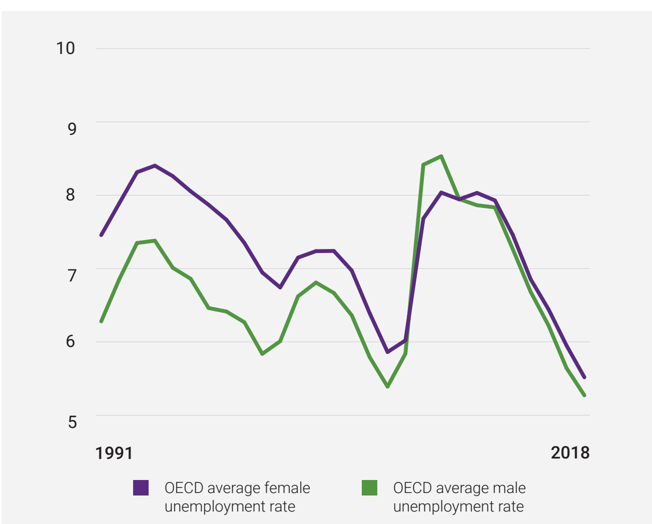
A higher share of elderly women live in poverty compared to elderly men



Source: Eurostat

Historically, unemployment has been higher for women than men. The average unemployment rate in OECD countries in 1991 was 7.46% for women and 6.28% for men. Although the difference between female and male unemployment has since reduced, the unemployment rate for women remains higher. In 2018, the unemployment rate was 5.52% for women and 5.27% for men. Lower levels of employment, combined with discriminatory wage practices and their historical role as primary homemakers, mean that women can have less money saved for retirement.

Women have historically faced higher unemployment compared to men



Source: WDI

Women face a unique set of barriers which potentially threaten their retirement security. While conditions are improving in some areas, women will need to be aware of the challenges they face in order to enjoy a secure retirement.

Finances in Retirement

Singapore marginally beats New Zealand for the top spot in the Finances sub-index, both with rounded scores of 79% the past three years. This compares to a low of 52% in both Quality of Life and Material Wellbeing for Singapore, making Finances in Retirement its best sub-index performance. Indicators for Singapore remain largely the same, besides a two-spot drop in interest rates. New Zealand also experienced a downward shift in interest rate ranking but improved on tax pressure and government indebtedness. The sub-index top 10 continue to jockey for position but remain largely unchanged – nine countries in the top 10 were also in the top 10 last year.

Iceland moves into the top 10, from 11th last year to eighth this year. Iceland improved its ranking in inflation, interest rates, tax pressure, government indebtedness and governance. Estonia moves out of the top 10, from seventh to 11th. It worsened in rank for bank nonperforming loans and tax pressure.

Switzerland and Chile have swapped places, with Switzerland third and Chile fifth. Chile modestly worsened in rank for bank nonperforming loans, government indebtedness and governance. Chile dropped most significantly in interest rates – eight spots from 10th to 18th. It still has its highest score in Finances in Retirement at 76%, compared to a low of 29% in Material Wellbeing. Switzerland on the other hand has improved one spot in rank in old-age dependency and interest rates while falling in rank in tax pressure, government indebtedness and governance.

India, which surges to 27th from 36th in Finances in Retirement last year, made rank improvements in governance, interest rates and inflation. It maintains top positioning in old-age dependency and tax pressure (tied). Cyprus has jumped eight spots, from 40th to 32nd with rank improvements in tax pressure and government indebtedness. Belgium has dropped ten spots in Finances in Retirement, from 31st to 41st. Both government indebtedness and governance have contributed to the decline.

The biggest indicator ranking gains include China's improvement in inflation, Slovenia's improvement in bank nonperforming loans and Israel's improvement in interest rates. All accounted for double-digit upward shifts. The biggest indicator ranking falls are Latvia's and Estonia's fall in bank nonperforming loans, which both fell nine spots.

Norway scored just 59% in the Finances in Retirement sub-index, compared to 80% as its overall GRI score. It dropped two spots this year to 31st in the sub-index. Norway's worse indicator rankings in this sub-index are inflation (37th), interest rates (34th) and tax pressure (34th). While it improved in bank performing

TOP 10 Countries in Finances in Retirement Sub-Index

Country	2019	Ranking change	2018	Ranking change	2017
Singapore	79%	▲1	79%	▼1	79%
New Zealand	79%	▼1	79%	▲1	79%
Switzerland	77%	▲2	78%	▼1	77%
Australia	77%	►0	78%	▲1	77%
Chile	76%	▼2	78%	►0	78%
Korea, Rep.	75%	►0	76%	►0	76%
Canada	73%	▲1	74%	►0	73%
Iceland	72%	▲3	71%	▲2	70%
Ireland	72%	▲1	71%	▲1	71%
United States	71%	▼1	72%	▲1	71%

▲►▼ Ranking change 2019 2018 2017

loans, interest rates, tax pressure and governance from 2018, it worsened in government indebtedness and inflation.

Korea has its highest sub-index score in Finances in Retirement. It has a score of 75%, compared to a low of 53% in Quality of Life. Korea's rank at sixth can be contributed in part to its spot in second for bank nonperforming loans.

Turkey has the lowest Finances in Retirement sub-index score, replacing Russia. It has the lowest ranking in inflation and second lowest in governance. Russia now moves to 42nd, maintaining its worst rank in governance but improving six spots in tax pressure, two spots in interest rates and one spot (out of last place) in inflation.

Top 25 Countries in Finances in Retirement Sub-Index

Country	Ranking			Score		
	2019	2018	2017	2019	2018	2017
Singapore	1	2	1	79%	79%	79%
New Zealand	2	1	2	79%	79%	79%
Switzerland	3	5	4	77%	78%	77%
Australia	4	4	5	77%	78%	77%
Chile	5	3	3	76%	78%	78%
Korea, Rep.	6	6	6	75%	76%	76%
Canada	7	8	8	73%	74%	73%
Iceland	8	11	13	72%	71%	70%
Ireland	9	10	11	72%	71%	71%
United States	10	9	10	71%	72%	71%
Estonia	11	7	7	71%	75%	74%
Israel	12	12	12	70%	71%	70%
Czech Republic	13	15	19	69%	69%	68%
China	14	14	21	69%	69%	66%
Lithuania	15	13	18	68%	69%	68%
Slovak Republic	16	18	20	67%	68%	68%
Poland	17	17	15	66%	68%	69%
Malta	18	20	24	66%	67%	65%
Latvia	19	16	17	66%	69%	68%
Colombia	20	19	16	65%	67%	68%
Slovenia	21	23	27	65%	65%	64%
Sweden	22	21	14	65%	67%	69%
Mexico	23	22	26	64%	66%	64%
Spain	24	24	28	63%	64%	63%
Finland	25	25	23	62%	63%	65%

Color Scale

- 91% - 100%
- 81% - 90%
- 71% - 80%
- 61% - 70%
- 51% - 60%
- 41% - 50%
- 31% - 40%
- 21% - 30%
- 11% - 20%
- 1% - 10%

SPOTLIGHT:

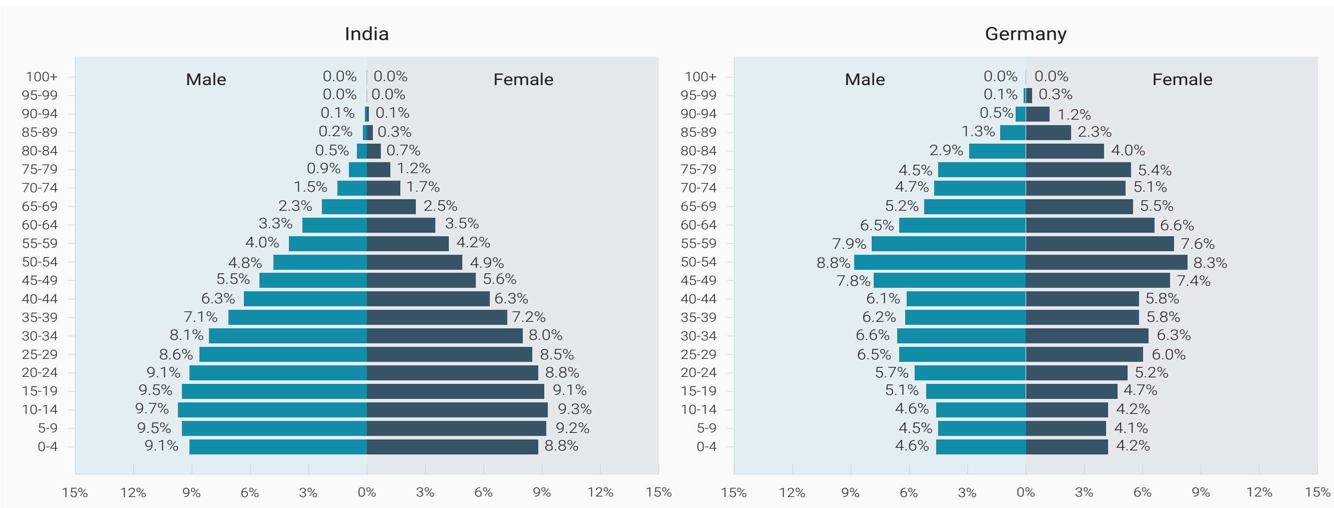
Old-age dependency

Demographic imbalances in some OECD countries resulting from large old-age dependency ratios could compromise retiree security.

Countries with a relatively higher proportion of working-age adults are better equipped to support retirees. As Baby Boomers age out of the workforce, responsibility for contributing to the public pension system will fall on younger workers' shoulders.

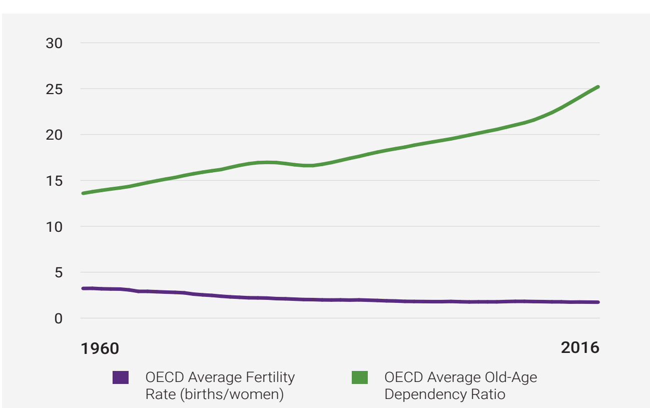
Some countries are better equipped to handle this shift in responsibility because of their demographics. There is a significant difference between the typical population distribution by age of an advanced economy and an emerging economy. Developing countries in the GRI such as India, Mexico and Colombia typically have age distributions skewed to the right with a larger share of the population being younger. On the other hand, the age distributions of developed countries such as Germany, Japan and Italy are typically skewed to the left with a larger share of the population being older.

Developed and developing countries have different age distributions



Source: U.N. World Population Prospects

Fertility rates going down while old-age dependency ratios are going up



Source: WDI

Decreasing fertility rates, particularly among developed countries, further contribute to demographic imbalances. Fertility rates in OECD countries have been steadily going down since 1960. When birth rates are low and populations are aging, fewer new workers are able to replace retirees withdrawing from the labor force. Old-age dependency ratios are therefore higher and the risk of working-age adults not being able to adequately support retirees increases.

Old-age dependency ratios have been increasing in OECD countries. Japan, Italy and Germany – countries ranking in the bottom five for the old-age dependency indicator – have increased their old-age dependency ratios from 8.8, 14.5 and 17.1 respectively in 1960 to 45.0, 36.3 and 32.8 respectively in 2017.

Reversing these demographic trends will prove a difficult task. The 2017 U.N. World Population Prospects estimates that the proportion of old-age dependents will almost double in OECD countries by 2050. This will result in the average old-age dependency ratio increasing from 25.1 in 2015 to 28.2 in 2020, 35.5 in 2030 and 48.0 in 2050.

Old-age dependency ratios set to increase across the board

Country	2015	2020	2030	2050
India	8.6	9.8	12.4	19.8
Mexico	9.8	11.3	15.0	29.2
Colombia	10.2	12.6	18.8	33.0
Germany	32.1	34.2	44.9	54.4
Italy	35.0	38.1	48.3	66.2
Japan	42.7	47.8	52.7	71.2
OECD Average	25.1	28.2	35.5	48.0

Source: U.N. World Population Prospects

Higher old-age dependency ratios can significantly impact public finances. A smaller proportion of working age adults can result in tax revenues from social security and payroll falling. Absent any increase in tax rates, countries may be forced to borrow more money to pay for social security obligations and pension liabilities. Countries with high old-age dependency ratios are already feeling the impact on public finances. The countries in the GRI with the four lowest scores for the old-age dependency indicator also finish in the bottom five in either the tax pressure or government indebtedness indicators.

Countries with high old-age dependency ratios struggle in other areas

Country	Old-Age Dependency Indicator Ranking	Tax Pressure Indicator Ranking	Government Indebtedness Indicator Ranking	Employment Indicator Ranking
Finland	42	40	25	35
Italy	43	39	42	40
Japan	44	16	44	1
Portugal	41	28	41	34

Increasing the minimum benefit eligibility age provides a potential solution for governments looking to cut pension liabilities. But recent protests in Brazil in response to discussion about raising the minimum retirement age to 65 demonstrate the political difficulty of pursuing such action.

The problem could be mitigated by individuals voluntarily opting to work beyond the minimum benefit eligibility age of retirement. Japan, for example, has the highest old-age dependency ratio, but the age at which individuals actually retire is relatively high compared to other OECD countries. It also has the highest employment rate among all OECD countries, helping provide a more robust tax base.

However, not all countries with high old-age dependency ratios have the option of working themselves out of the problem. Italy, unlike Japan, is dealing with high levels of unemployment for example. With the fifth-lowest score for the employment indicator, Italy is struggling more with the task of actually employing working-age adults than that of simply convincing them to work past retirement age. Meanwhile, both countries are struggling with high levels of public debt – Japan has the lowest score and Italy the third-lowest for government indebtedness among all GRI countries. Any further increases in debt to support public pensions would therefore put additional pressure on already-stretched public finances.

The data clearly shows that all countries are facing the similar problem of having enough working-age adults to provide for a larger share of retirees. But at the same time, all countries have their own unique circumstances working for or against them. Each country will therefore need to utilize the policy tools which they have at their disposal and which are best suited to their needs to solve the old-age dependency problem.

Quality of Life

Denmark and Finland take the top two spots respectively in the Quality of Life sub-index. Denmark has the highest sub-index score among all GRI countries at 93%. It finishes second in personal wellbeing, third in the air quality indicator and sixth in environmental factors. Finland is first in personal wellbeing and fourth in air quality.

The United Kingdom moved into the top 10 in this sub-index to ninth, compared to 12th last year and 14th two years ago. It ranks second in biodiversity and habitat and 14th in personal wellbeing. Canada moved out of the top 10, from ninth last year to 13th this year. Personal wellbeing went from seventh in 2018 to ninth this year. Canada also ranks 36th in biodiversity and habitat.

Luxembourg (17th to 11th this year) and Lithuania (32nd to 26th this year) have registered the most significant improvement in the Quality of Life sub-index, each moving up six spots in the ranking. Lithuania moved up in rank one spot in personal wellbeing, from 31st to 30th. It also ranks well overall in biodiversity and habitat, ranked 12th the past two years. Luxembourg improved in environmental factors (37th to 33rd this year) and personal wellbeing (16th to 13th this year). It also ranks well in biodiversity and habitat at fourth. Its score has improved from 77% in 2017 to 83% this year in Quality of Life.

Australia (11th to 15th), Canada (9th to 13th) and Malta (28th to 32nd) have declined in rank the most, moving down four spots. Malta's indicator rankings have stayed stable from last year. Its Quality of Life sub-index score has diminished one percentage point from 69% last year to 68% this year. Australia has fallen in rank in environmental factors (36th to 39th this year) and personal wellbeing (10th to 11th this year). It ranks the highest in air quality index and tied for highest in water and sanitation.

Chile saw the largest decline in any of the Quality of Life indicator rankings. Last year Chile was 10th in environmental factors, while this year the country moved down to 17th. Latvia saw the greatest improvement in any of the Quality of Life indicator rankings. In the environmental factors indicator, Latvia moved up from 18th last year to 12th this year.

Korea has its worst score in any sub-index for Quality of Life at 53%, compared to its overall GRI score of 68%. Korea ranked 35th or worse in all indicators in the index. India ranks last in the Quality of Life sub-index with the same score as last year. The environmental factors indicator is the only indicator in which it does not rank last or second to last.

TOP 10 Countries in Quality of Life Sub-Index

Country	2019	Ranking change	2018	Ranking change	2017
Denmark	93%	►0	94%	►0	94%
Finland	92%	►0	93%	►0	92%
Switzerland	91%	►0	92%	▲1	92%
Norway	90%	►0	92%	▼1	92%
New Zealand	89%	►0	90%	▲1	91%
Sweden	89%	►0	90%	▼1	91%
Austria	87%	▲1	87%	►0	86%
Iceland	86%	▼1	88%	►0	88%
United Kingdom	85%	▲3	83%	▲2	81%
Ireland	83%	►0	83%	►0	83%

▲►▼ Ranking change 2019 2018 2017

Top 25 Countries in Quality of Life Sub-Index

Country	Ranking			Score		
	2019	2018	2017	2019	2018	2017
Denmark	1	1	1	93%	94%	94%
Finland	2	2	2	92%	93%	92%
Switzerland	3	3	4	91%	92%	92%
Norway	4	4	3	90%	92%	92%
New Zealand	5	5	6	89%	90%	91%
Sweden	6	6	5	89%	90%	91%
Austria	7	8	8	87%	87%	86%
Iceland	8	7	7	86%	88%	88%
United Kingdom	9	12	14	85%	83%	81%
Ireland	10	10	10	83%	83%	83%
Luxembourg	11	17	21	83%	80%	77%
Netherlands	12	13	13	82%	83%	81%
Canada	13	9	15	82%	83%	81%
Germany	14	14	12	82%	83%	82%
Australia	15	11	9	81%	83%	84%
France	16	16	17	81%	80%	79%
Belgium	17	15	18	80%	80%	78%
Israel	18	18	16	77%	78%	79%
Spain	19	21	23	77%	76%	77%
United States	20	19	19	76%	77%	78%
Brazil	21	20	11	75%	77%	82%
Czech Republic	22	22	24	75%	75%	75%
Mexico	23	25	25	74%	72%	74%
Italy	24	26	27	73%	70%	69%
Chile	25	23	22	72%	73%	77%

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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.

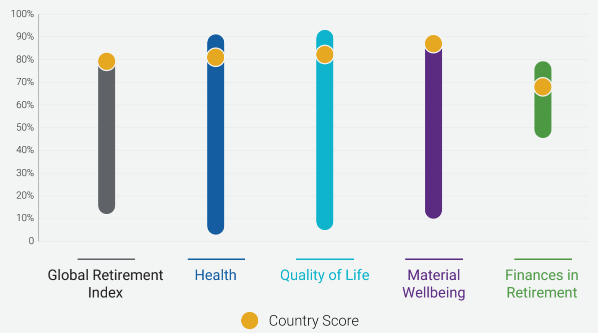
The goal of the country analysis is to obtain an adequate proxy for changes in retirement conditions in a particular country by comparing year-on-year performance and movements in ranking.

Iceland

1

Global Retirement Index

Ranking		Score	
2019: 1	2018: 2	2019: 83%	2018: 84%
	2017: 3		2017: 82%



Sub-Index and Indicator Rankings	2019	2018	2017	Change (2019)	Change (2018)
Health Index	85%	85%	84%	→	↑
Quality of Life Index	86%	88%	88%	↓	→
Material Wellbeing Index	91%	93%	88%	↓	↑
Finances in Retirement Index	72%	71%	70%	↑	↑
Old-Age Dependency	51%	53%	55%	↓	↓
Bank Non-Performing Loans	61%	59%	62%	↑	↓
Inflation	93%	74%	65%	↑	↑
Interest Rates	81%	80%	79%	↑	↑
Tax Pressure	19%	23%	21%	↓	↑
Government Indebtedness	53%	47%	41%	↑	↑
Governance	90%	90%	90%	→	→

Iceland moves into first place in the GRI this year with a score of 83%. Although the country has a slightly lower score than last year, it grabs the top spot because Switzerland, last year's winner, registers a larger score decline. Iceland improves its score in both the Finances (8th) and Health (13th) sub-indices compared to last year. Lower scores in the Material Wellbeing (1st) and Quality of Life (8th) sub-indices account for the country's lower overall score.

Iceland has the highest score for the Material Wellbeing sub-index for the second year in a row. Despite lower scores in income equality (slipping from top spot to third) and income per capita, all three indicators feature in the top ten.

Iceland still ranks in the top ten (8th) in the Quality of Life sub-index despite falling one spot due to lower scores in the happiness and environmental factors indicators. Still, the country has the fourth-highest score for the former indicator and eighth-highest for the latter for the second year in a row. The country also ranks in the top ten (6th) for the air quality indicator.

Meanwhile, Iceland enters the top ten in the Finances sub-index, moving from 11th last year to 8th, with all indicators except for tax pressure and old-age dependency improving. It achieves a top ten finish in the interest rates indicator (7th).

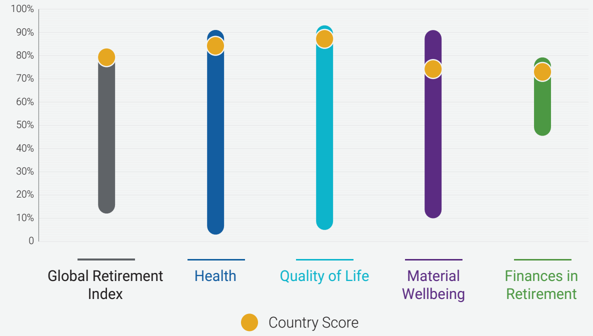
Health (13th) represents the only sub-index in which Iceland ranks outside the top ten, despite finishing with a slightly higher score than last year. The country manages a top ten indicator finish in life expectancy (8th), albeit with a marginally lower score than last year. And it improves its showing in the health expenditure per capita and insured health expenditure indicators (both ranking 17th) from last year.

Switzerland

2

Global Retirement Index

Ranking		Score	
2019: 2	2018: 1	2019: 83%	2018: 84%
	2017: 2		2017: 84%



Sub-Index and Indicator Rankings	2019	2018	2017	Change (2019)	Change (2018)
Health Index	88%	87%	87%	↑	→
Quality of Life Index	91%	92%	92%	↓	→
Material Wellbeing Index	78%	80%	81%	↓	↓
Finances in Retirement Index	77%	78%	77%	↓	↑
Old-Age Dependency	37%	38%	39%	↓	↓
Bank Non-Performing Loans	90%	77%	77%	↑	→
Inflation	100%	100%	100%	→	→
Interest Rates	76%	75%	75%	↑	→
Tax Pressure	41%	52%	47%	↓	↑
Government Indebtedness	52%	51%	53%	↑	↓
Governance	93%	93%	93%	→	→

Switzerland drops one spot to second overall in this year's GRI. It has the distinction of being the only country in the GRI with top ten finishes in all four sub-indices. Against this, it registers lower scores in three sub-indices.

Switzerland falls down the rankings in the Material Wellbeing (6th) sub-index due to lower scores in all three indicators. The employment indicator slips from 10th last year to 18th but the country maintains its third-place finish in the income per capita indicator.

A lower score in the happiness indicator drags down Switzerland's overall score in the Quality of Life (3rd) sub-index. However, it still ranks sixth in the happiness indicator. And the country boasts the highest score for the environmental factors indicator.

Switzerland also sees its Finances (3rd) sub-index score decline, despite climbing two places up the rankings. Indeed, the country's performance in this sub-index represents something of a mixed bag: despite lower scores for the tax pressure, old-age dependency and governance indicators, it features in the top ten in governance (4th) and bank nonperforming loans (5th).

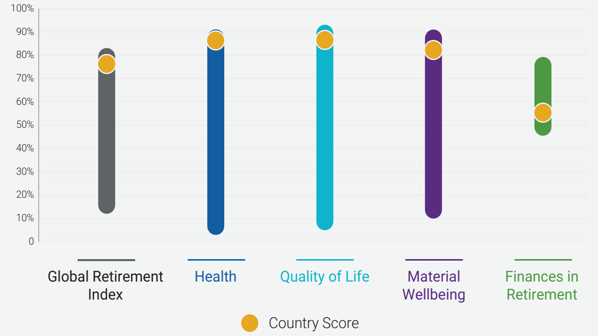
Switzerland improves its Health (6th) sub-index score compared to last year on the back of a better performance in the health expenditure per capita indicator. The country finishes second in both life expectancy and health expenditure per capita.

Norway

3

Global Retirement Index

Ranking		Score	
3 (2019)	2018: 3	80% (2019)	2018: 81%
	2017: 1		2017: 86%



Sub-Index and Indicator Rankings	2019	2018	2017	Change (2019)	Change (2018)
Health Index	90%	90%	89%	→	↑
Quality of Life Index	90%	92%	92%	↓	→
Material Wellbeing Index	86%	87%	91%	↓	↓
Finances in Retirement Index	59%	60%	73%	↓	↓
Old-Age Dependency	41%	42%	43%	↓	↓
Bank Non-Performing Loans	87%	67%	68%	↑	↓
Inflation	89%	96%	100%	↓	↓
Interest Rates	1%	1%	56%	→	↓
Tax Pressure	16%	21%	20%	↓	↑
Government Indebtedness	57%	61%	68%	↓	↓
Governance	93%	93%	93%	→	→

Norway remains in third place overall with a slightly lower score than last year. The country registers score declines in the Quality of Life (4th), Material Wellbeing (2nd) and Finances (31st) sub-indices.

The dip in performance for Quality of Life is driven by lower scores in both the happiness and environmental factors indicators. More positively, the country boasts top ten finishes in happiness (3rd), environmental factors (4th) and air quality (8th).

Lower scores for the income equality (7th) and income per capita (4th) indicators drag down Norway's showing in the Material Wellbeing sub-index. However, the country stages an improvement in its employment indicator compared to last year.

Norway's Finances sub-index score falls due to lower scores for the inflation, tax pressure, government indebtedness and old-age dependency indicators compared to last year. While the country improves in governance (2nd) and bank nonperforming loans (6th), it narrowly avoids a bottom ten finish in the tax pressure indicator. Norway's disappointing performance in Finances, where it ranks a lowly 31st, is holding the country back from achieving pole position in the GRI. Finances therefore represents something of an Achilles heel for Norway, a consistently strong performer in the GRI.

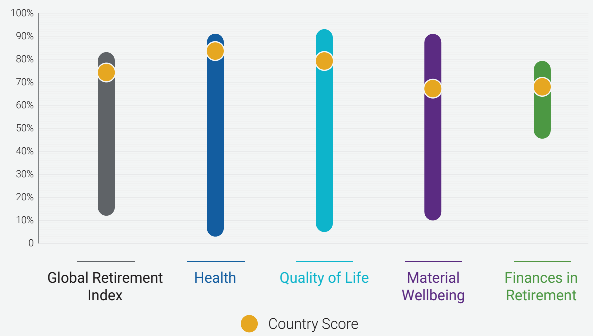
Norway improves its score in the Health (3rd) sub-index where it achieves the feat of being the only country in the GRI to grab a top ten finish in all three indicators. It records its largest score improvement in the life expectancy indicator (6th) and also moves into the top ten (10th) for insured health expenditure. And despite seeing its score for the health expenditure per capita indicator slip slightly from last year, it maintains its 4th place ranking to round off an impressive display in the Health arena.

Ireland

4

Global Retirement Index

Ranking			Score		
2019	4		2019	78%	
2018	7		2018	77%	
2017	14		2017	74%	



Sub-Index and Indicator Rankings	2019	2018	2017	Change (2019)	Change (2018)
Health Index	87%	82%	82%	↑	→
Quality of Life Index	83%	83%	83%	→	→
Material Wellbeing Index	71%	73%	64%	↓	↑
Finances in Retirement Index	72%	71%	71%	↑	→
Old-Age Dependency	52%	54%	56%	↓	↓
Bank Non-Performing Loans	37%	26%	31%	↑	↓
Inflation	100%	100%	100%	→	→
Interest Rates	67%	72%	78%	↓	↓
Tax Pressure	57%	69%	40%	↓	↑
Government Indebtedness	38%	35%	36%	↑	↓
Governance	88%	89%	90%	↓	↓

Ireland jumps three spots to fourth overall this year, continuing an impressive climb in the rankings from 14th two years ago and 7th last year. Improvements in the Health (9th) and Finances (9th) sub-indices boost its overall score.

Within the Health sub-index, Ireland notches up better scores in insured health expenditure and health expenditure per capita, the latter of which is the only indicator finishing in the top ten (6th).

The country's improved performance in Finances is powered by higher scores for bank nonperforming loans and government indebtedness. While the country ranks seventh-worst among all GRI countries for bank nonperforming loans, it maintains a top ten finish in the tax pressure indicator (8th).

Ireland sees its Quality of Life (10th) sub-index score dip slightly due to lower scores for environmental factors and happiness. But its performance in air quality, the sole indicator finishing in the top ten, offers signs of encouragement.

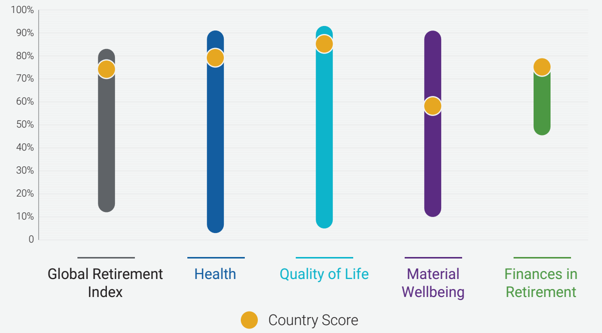
Material Wellbeing (16th) is Ireland's only sub-index not ranking in the top ten. The major culprit is a lower score for income equality which drives down the sub-index score. But the country can point to an improved performance in the income per capita indicator, where it climbs into fifth place, as cause for cheer.

New Zealand

5

Global Retirement Index

Ranking			Score		
2019	2018	2017	2019	2018	2017
5	5	5	78%	78%	80%



Sub-Index and Indicator Rankings	2019	2018	2017	Change (2019)	Change (2018)
Health Index	83%	85%	85%	↓	→
Quality of Life Index	89%	90%	91%	↓	↓
Material Wellbeing Index	62%	63%	66%	↓	↓
Finances in Retirement Index	79%	79%	79%	→	→
Old-Age Dependency	47%	48%	49%	↓	↓
Bank Non-Performing Loans	96%	84%	84%	↑	→
Inflation	100%	100%	100%	→	→
Interest Rates	76%	79%	81%	↓	↓
Tax Pressure	30%	36%	34%	↓	↑
Government Indebtedness	67%	65%	66%	↑	↓
Governance	94%	94%	94%	→	→

Finishing 5th overall for the third year in a row, New Zealand's consistent and impressive performance continues. The country finishes in the top ten in both the Finances (2nd) and Quality of Life (5th) sub-indices. Its overall score slips slightly from last year due to lower scores in all four sub-indices.

New Zealand suffers its largest sub-index decline in Health (16th), with weaker scores for both the health expenditure per capita and insured health expenditure indicators. But it still manages a top ten finish in insured health expenditure (7th), while its score for life expectancy remains static.

A poorer score in the happiness indicator drags down New Zealand's Quality of Life sub-index score. However, top ten finishes in air quality (5th), happiness (8th) and environmental factors (9th) mean Quality of Life still represents one of New Zealand's highest ranked sub-indices.

Meanwhile, the country continues its strong showing in Finances, the country's highest-ranked sub-index (2). The country can take pride from top ten finishes in governance (1st), bank nonperforming loans (4th) and government indebtedness (5th), all of which stage an improvement from last year. Against this, poorer performances in the tax pressure, interest rate and old-age dependency indicators result in a slightly lower sub-index score.

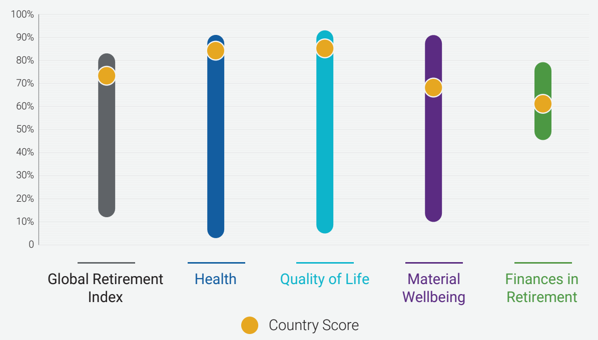
Material Wellbeing (26th) represents New Zealand's lowest-ranking sub-index. A diminished showing in the income equality and income per capita indicators serve to drive down the sub-index score. None of its indicators feature in the top ten. But the employment indicator, which sees a slight improvement in score, represents a sole bright spot.

Sweden

6

Global Retirement Index

Ranking		Score	
6 (2019)	2018: 4	77% (2019)	2018: 78%
	2017: 4		2017: 80%



Sub-Index and Indicator Rankings	2019	2018	2017	Change (2019)	Change (2018)
Health Index	88%	89%	88%	↓	↑
Quality of Life Index	89%	90%	91%	↓	↓
Material Wellbeing Index	72%	71%	75%	↑	↓
Finances in Retirement Index	65%	67%	69%	↓	↓
Old-Age Dependency	28%	29%	28%	↓	↑
Bank Non-Performing Loans	96%	71%	70%	↑	↑
Inflation	100%	100%	100%	→	→
Interest Rates	55%	61%	61%	↓	→
Tax Pressure	3%	7%	13%	↓	↓
Government Indebtedness	53%	54%	54%	↓	→
Governance	92%	92%	92%	→	→

Sweden drops two places in the rankings table to sixth overall in this year's GRI. The country has lower scores in the Finances (22nd), Quality of Life (6th) and Health (5th) sub-indices compared to last year but a higher score in Material Wellbeing (15th).

Sweden's score for Finances drops on the back of declines in all indicators except bank nonperforming loans. Bottom-ten indicator finishes in tax pressure (4th from bottom) and old-age dependency (6th from bottom) are balanced by top-ten performances in bank nonperforming loans (3rd) and governance (5th).

A major culprit for Sweden's drop in overall score is Quality of Life, where environmental factors (5th) and happiness (7th) both suffer score declines from last year. However, both indicators nevertheless feature in the top ten and help prop up the country's robust Quality of Life ranking. No other indicators in the sub-index break into the top ten.

In the Health sub-index, Sweden improves slightly in both health expenditure per capita and life expectancy but not enough to offset a lower score for life expectancy. The country achieves an impressive 8th place ranking in health expenditure per capita.

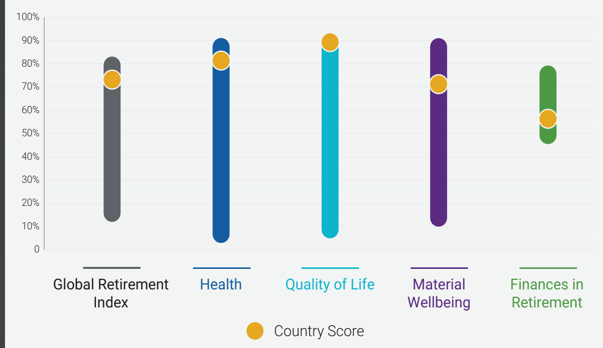
Sweden marginally improves its performance in the Material Wellbeing arena. It has a higher score for the employment indicator but lower scores for both income equality and income per capita. A middle-of-the-road performance is reflected in the fact that none of its indicators place in the top or bottom ten.

Denmark

7

Global Retirement Index

Ranking		Score	
7 (2019)	2018: 8	77% (2019)	2018: 77%
	2017: 8		2017: 77%



Sub-Index and Indicator Rankings	2019	2018	2017	Change (2019)	Change (2018)
Health Index	85%	85%	84%	→	↑
Quality of Life Index	93%	94%	94%	↓	→
Material Wellbeing Index	75%	74%	75%	↑	↓
Finances in Retirement Index	60%	59%	59%	↑	→
Old-Age Dependency	30%	31%	33%	↓	↓
Bank Non-Performing Loans	65%	54%	49%	↑	↑
Inflation	100%	100%	100%	→	→
Interest Rates	44%	40%	39%	↑	↑
Tax Pressure	1%	1%	1%	→	→
Government Indebtedness	57%	56%	53%	↑	↑
Governance	91%	92%	92%	↓	→

Denmark nudges up one spot to 7th overall in this year's GRI, fueled by better scores in the Material Wellbeing (8th) and Finances (30th) sub-indices. Denmark can take particular pride from its performance in the Quality of Life (1st) sub-index, where it boasts the highest score among all countries.

The country's improved standing in Material Wellbeing is fueled by a better score for the employment indicator. But with employment the only indicator not sitting in the top ten, there is room for further improvement on this front. Leading by example are income equality and income per capita, both ranking 9th.

Denmark's stronger performance in the Finances sub-index is driven by improved scores for bank nonperforming loans, interest rate and government indebtedness. But indicator rankings within the sub-index paint a varied picture. While governance and government indebtedness rank in the top ten (both 9th), Denmark has the lowest tax pressure indicator score among all GRI countries and the ninth-lowest score for old-age dependency.

Denmark retains its top spot in the Quality of Life sub-index. However, declines in both the environmental factors and happiness indicators translate into a slightly lower sub-index score than last year. But this marginal dip in performance by no means takes the shine off a sparkling set of top ten indicator rankings including happiness (2nd), air quality (3rd), environmental factors (6th) and biodiversity (10th).

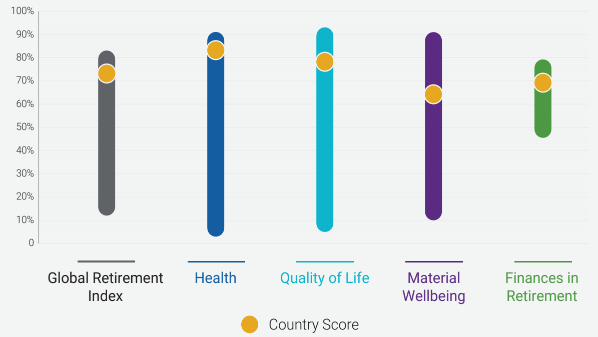
Health (14th) is the other sub-index registering a slightly reduced score from last year. But while Denmark finishes with a lower life expectancy indicator score, it manages to maintain top ten rankings in both insured health expenditure (9th) and health expenditure per capita (10th).

Canada

8

Global Retirement Index

Ranking		Score	
8 (2019)	9 (2018)	77% (2019)	77% (2018)
	11 (2017)		76% (2017)



Sub-Index and Indicator Rankings	2019	2018	2017	Change (2019)	Change (2018)
Health Index	87%	87%	87%	→	→
Quality of Life Index	82%	83%	81%	↓	↑
Material Wellbeing Index	68%	65%	65%	↑	→
Finances in Retirement Index	73%	74%	73%	↓	↑
Old-Age Dependency	42%	44%	46%	↓	↓
Bank Non-Performing Loans	100%	85%	81%	↑	↑
Inflation	100%	100%	100%	→	→
Interest Rates	67%	70%	66%	↓	↑
Tax Pressure	31%	38%	38%	↓	→
Government Indebtedness	29%	29%	31%	→	↓
Governance	92%	92%	91%	→	↑

Canada crawls up one place in this year's GRI to finish eighth overall. The country sees its overall score improve on the back of better performances in both the Material Wellbeing (21st) and Health (8th) sub-indices.

Higher scores for the employment and income equality indicators lift Canada's Material Wellbeing sub-index score. No indicators finish in the top or bottom ten, reflecting its middle of the pack sub-index ranking.

The Health sub-index also returns a better score because of improvements to all three indicators. But while Health is one of only two sub-indices to feature in the top ten, only one Health indicator — life expectancy (10th) — ranks in the upper echelon.

Canada's other sub-index ranking in the top ten is Finances (7th). The sub-index score suffers a slight decline from last year due to weaker results for the tax pressure, interest rate and old-age dependency indicators. However, Canada has the highest score for bank nonperforming loans and the seventh-highest for governance, marking impressive gains for both indicators. But there is room for improvement in the government indebtedness arena, where the country escapes a bottom ten finish by just one place.

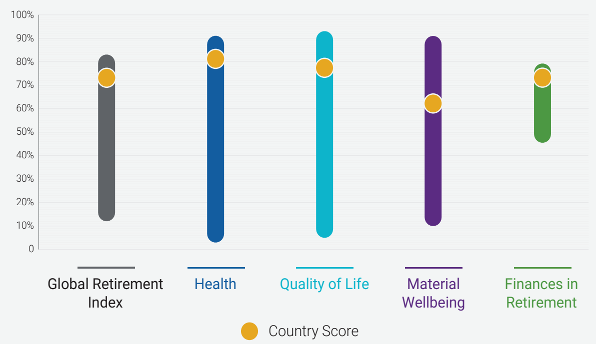
The country records its largest score decline in the Quality of Life (13th) sub-index, where the happiness and environmental factors indicators weigh on performance. But top ten finishes in air quality (2nd) and happiness (9th) are encouraging signs.

Australia

9

Global Retirement Index

Ranking		Score	
2019: 9	2018: 6	2019: 77%	2018: 78%
	2017: 6		2017: 78%



Sub-Index and Indicator Rankings	2019	2018	2017	Change (2019)	Change (2018)
Health Index	85%	85%	85%	→	→
Quality of Life Index	81%	83%	84%	↓	↓
Material Wellbeing Index	66%	66%	66%	→	→
Finances in Retirement Index	77%	78%	77%	↓	↑
Old-Age Dependency	46%	48%	49%	↓	↓
Bank Non-Performing Loans	82%	72%	71%	↑	↑
Inflation	100%	100%	90%	→	↑
Interest Rates	82%	83%	81%	↓	↑
Tax Pressure	40%	52%	46%	↓	↑
Government Indebtedness	53%	55%	60%	↓	↓
Governance	90%	90%	90%	→	→

Australia slides three places to ninth this year, with lower scores in Quality of Life (15th) and Finances (4th) pushing down the country's overall performance. Australia improves in both the Health (11th) and Material Wellbeing (24th) sub-indices.

The country's Quality of Life score deteriorates this year due to weaker performances in the happiness and environmental factors indicators. Elsewhere, a mixed set of results sees it grab the highest score among all countries for air quality but slip to sixth-lowest for environmental factors.

Australia performs best in Finances, where it achieves a high-flying ranking (4th). Top ten finishes in interest rates (6th) and bank nonperforming loans (8th) bolster a strong sub-index performance. However, the country registers a slightly subdued sub-index score compared to last year on the back of weaker performances in tax pressure, government indebtedness, interest rate, old-age dependency and governance.

Better finishes in both the health expenditure per capita and insured health expenditure indicators lift Australia's Health sub-index score. It achieves a top ten ranking for life expectancy (7th), despite recording a slightly depressed indicator score.

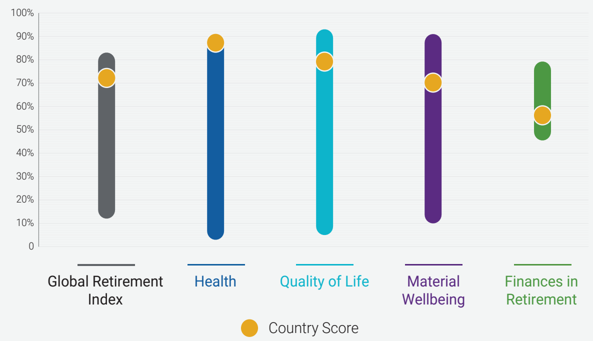
Improvements in the income equality and employment indicators explain Australia's higher score for Material Wellbeing. But no indicator finishes in the top ten, reflecting a middle of the road sub-index ranking.

Luxembourg

10

Global Retirement Index

Ranking		Score	
2019: 10	2018: 11	2019: 76%	2018: 76%
	2017: 10		2017: 76%



Sub-Index and Indicator Rankings	2019	2018	2017	Change (2019)	Change (2018)
Health Index	91%	92%	92%	↓	→
Quality of Life Index	83%	80%	77%	↑	↑
Material Wellbeing Index	74%	73%	77%	↑	↓
Finances in Retirement Index	60%	62%	62%	↓	→
Old-Age Dependency	55%	56%	57%	↓	↓
Bank Non-Performing Loans	83%	100%	100%	↓	→
Inflation	100%	100%	100%	→	→
Interest Rates	1%	1%	1%	→	→
Tax Pressure	18%	24%	22%	↓	↑
Government Indebtedness	71%	73%	76%	↓	↓
Governance	92%	92%	92%	→	→

Luxembourg edges up one spot to tenth overall this year. Higher scores in the Quality of Life (11th) and Material Wellbeing (11th) sub-indices translate into a slightly improved overall score.

Better scores in the environmental factors and happiness indicators help power Luxembourg's climb up the Quality of Life rankings. The country moves out of the bottom ten in environmental factors, where it languished eighth from bottom last year, and secures a fourth-place ranking in biodiversity. None of its other indicators finish in the top or bottom ten.

The country also manages a better performance in the Material Wellbeing sub-index, where improvements in the employment indicator offset lower scores in income equality and income per capita. Still, income per capita ranks second among all GRI countries for the third year in a row.

Luxembourg boasts the highest score for the Health (1st) sub-index among all GRI countries. Its sub-index score declines slightly compared to last year due to lower scores in health expenditure per capita and life expectancy. But this does not spoil a stellar performance in which the country secures best of class finishes for insured health expenditure (2nd) and health expenditure per capita (3rd) while narrowly missing out on a top ten life expectancy ranking.

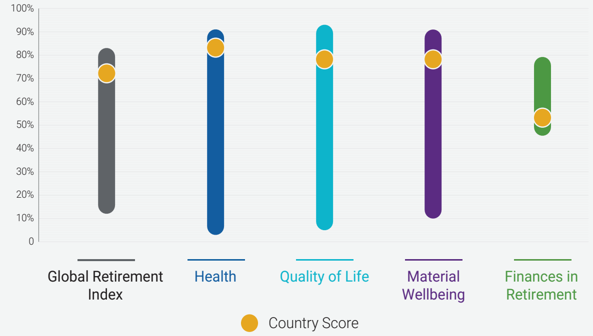
Luxembourg has a lower sub-index score for Finances (28th) than last year. The country registers its sharpest decline in the bank nonperforming loans indicator, followed by tax pressure, government indebtedness, old-age dependency and governance. Meanwhile, its five-year average for real interest rates remains below zero. Top ten rankings in government indebtedness (3rd), governance (8th) and bank nonperforming loans (7th) are not enough to secure it a higher sub-index score.

Netherlands

11

Global Retirement Index

Ranking		Score	
11 (2019)	2018: 10	76% (2019)	2018: 76%
	2017: 9		2017: 77%



Sub-Index and Indicator Rankings	2019	2018	2017	Change (2019)	Change (2018)
Health Index	87%	90%	89%	↓	↑
Quality of Life Index	82%	83%	81%	↓	↑
Material Wellbeing Index	82%	80%	75%	↑	↑
Finances in Retirement Index	57%	58%	64%	↓	↓
Old-Age Dependency	34%	35%	36%	↓	↓
Bank Non-Performing Loans	67%	55%	54%	↑	↑
Inflation	100%	100%	100%	→	→
Interest Rates	1%	1%	14%	→	↓
Tax Pressure	14%	21%	25%	↓	↓
Government Indebtedness	43%	42%	41%	↑	↑
Governance	92%	92%	92%	→	→

The Netherlands slides down one spot to 11th this year with a slightly lower overall score. The country posts weaker scores in the Health (7th), Quality of Life (12th) and Finances (33rd) sub-indices but returns a higher score for Material Wellbeing (4th).

The Netherlands slips in the Health sub-index because of lower scores in the insured health expenditure and life expectancy indicators. However, it achieves top ten finishes in insured health expenditure (4th) and health expenditure per capita (7th).

The country's decline in Quality of Life can be attributed to drops in its happiness and environmental factors indicator scores. These scores sit at opposite ends of the rankings: the Netherlands has the seventh-lowest score for environmental factors but the fifth-highest for happiness.

The country's Finances sub-index also suffers a decline, with lower scores for the tax pressure and old-age dependency indicators weighing on results. While its five-year average for real interest rates remains below zero, it has the ninth-lowest tax pressure indicator score among all GRI countries. More encouragingly, it manages an improved performance in bank nonperforming loans, government indebtedness and governance, the latter of which features in the top ten with a ranking of sixth.

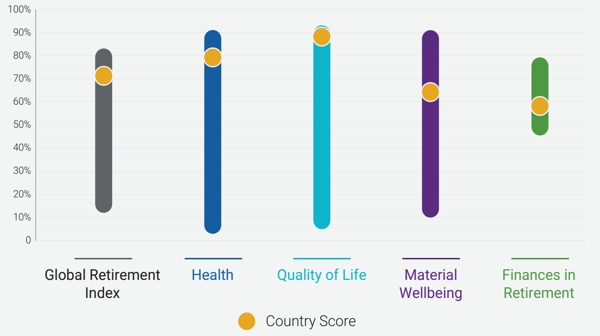
Meanwhile, the Netherlands improves in the Material Wellbeing sub-index compared to last year. A better showing in the employment indicator offsets lower scores in income equality and income per capita. It has top ten finishes in all three indicators, with income equality ranking 8th and both income per capita and employment ranking 10th.

Finland

12

Global Retirement Index

Ranking		Score	
12 (2019)	12 (2018)	75% (2019)	75% (2018)
	12 (2017)		76% (2017)



Sub-Index and Indicator Rankings	2019	2018	2017	Change (2019)	Change (2018)
Health Index	83%	81%	81%	↑	→
Quality of Life Index	92%	93%	92%	↓	↑
Material Wellbeing Index	68%	69%	68%	↓	↑
Finances in Retirement Index	62%	63%	65%	↓	↓
Old-Age Dependency	24%	26%	27%	↓	↓
Bank Non-Performing Loans	74%	61%	84%	↑	↓
Inflation	100%	100%	100%	→	→
Interest Rates	45%	36%	27%	↑	↑
Tax Pressure	3%	6%	11%	↓	↓
Government Indebtedness	41%	41%	43%	→	↓
Governance	93%	92%	93%	↑	↓

Finland remains at 12th overall this year. The country has a slightly lower overall score due to weaker results for Material Wellbeing (20th), Finances (25th) and Quality of Life (2nd). However, the Health (19th) sub-index improves.

Lower scores in all three Material Wellbeing indicators account for the country's weaker sub-index finish. Income equality ranks an impressive fifth but, at the other end of the performance spectrum, employment sinks to the tenth-lowest among all GRI countries.

Finland also declines in the Finances sub-index due to weaker tax pressure, old-age dependency and government indebtedness indicator scores. Bottom ten finishes in old-age dependency (third-lowest) and government indebtedness (fifth-lowest) act as particular performance drags. However, improvements in governance — which moves up one place to third — as well as bank nonperforming loans and interest rates represent bright spots.

A lower score for Quality of Life can be attributed to Finland's environmental factors indicator. But it retains the highest score for the happiness indicator among all GRI countries and also achieves a top ten ranking in air quality (4th).

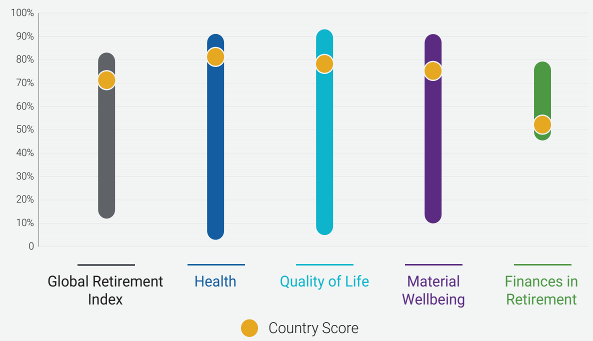
Finland manages to improve both its ranking and score in the Health sub-index, where higher finishes for health expenditure per capita and life expectancy are balanced by a lower score in the insured health expenditure indicator. None of its indicators break into the top ten.

Germany

13

Global Retirement Index

Ranking		Score	
13 (2019)	13 (2018)	75% (2019)	75% (2018)
	7 (2017)		77% (2017)



Sub-Index and Indicator Rankings	2019	2018	2017	Change (2019)	Change (2018)
Health Index	85%	86%	86%	↓	→
Quality of Life Index	82%	83%	82%	↓	↑
Material Wellbeing Index	79%	79%	76%	→	↑
Finances in Retirement Index	56%	57%	66%	↓	↓
Old-Age Dependency	26%	27%	27%	↓	→
Bank Non-Performing Loans	72%	62%	56%	↑	↑
Inflation	100%	100%	100%	→	→
Interest Rates	1%	1%	33%	→	↓
Tax Pressure	17%	24%	26%	↓	↓
Government Indebtedness	40%	39%	39%	↑	→
Governance	90%	90%	90%	→	→

Germany keeps its 13th place ranking this year but declines in all four sub-indices account for a slightly lower overall score.

A more subdued performance in the environmental factors and happiness indicators drags down Germany's Quality of Life (14th) sub-index score. However, the country achieves the highest score among all GRI countries for the biodiversity and habitat indicator.

Germany also declines in the Finances (35th) sub-index, with lower scores in the tax pressure, old-age dependency and governance indicators. For the third year in a row, the country has the fifth-lowest score for the old-age dependency indicator among all GRI countries.

Its five-year average for real interest rates is also below zero, contributing to a subpar sub-index score. But higher scores for bank nonperforming loans and government indebtedness represent bright spots.

Health (12th) slips down a place in the rankings due to a lower life expectancy indicator score. But Germany improves in both the health expenditure per capita and insured health expenditure indicators, ranking fifth and sixth respectively.

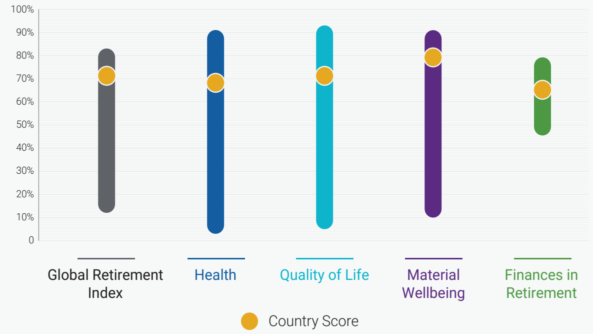
The country also suffers a performance drop in Material Wellbeing (5th), with improvements in employment — which ranks in the top ten (8th) — and income equality not enough to offset a decline in income per capita.

Czech Republic

14

Global Retirement Index

Ranking		Score	
14 (2019)	2018: 15	75% (2019)	2018: 74%
	2017: 16		2017: 72%



Sub-Index and Indicator Rankings	2019	2018	2017	Change (2019)	Change (2018)
Health Index	72%	72%	70%	→	↑
Quality of Life Index	75%	75%	75%	→	→
Material Wellbeing Index	83%	82%	76%	↑	↑
Finances in Retirement Index	69%	69%	68%	→	↑
Old-Age Dependency	34%	36%	38%	↓	↓
Bank Non-Performing Loans	67%	47%	41%	↑	↑
Inflation	100%	100%	100%	→	→
Interest Rates	74%	75%	78%	↓	↓
Tax Pressure	25%	34%	31%	↓	↑
Government Indebtedness	58%	57%	56%	↑	↑
Governance	84%	83%	83%	↑	→

The Czech Republic moves up one spot in the rankings to 14th. Improvements in the Material Wellbeing (3rd), Quality of Life (22nd) and Finances (13th) sub-indices boost its overall score.

The Czech Republic's stronger score in Material Wellbeing, which represents the country's highest-ranking sub-index, reflects improvements in employment and income equality. Both indicators feature in the top ten — the country has the highest score for employment among all GRI countries and the fourth-highest for income equality.

An improved happiness indicator score helps the Czech Republic achieve a better finish in Quality of Life than last year. Meanwhile a strong showing in biodiversity, where it boasts the eighth-highest score, is balanced by weaker performances in air quality and environmental factors where it has the eighth-lowest and tenth-lowest indicator scores respectively.

The country's Finances sub-index stages an improvement on the back of a significantly higher score for bank nonperforming loans, followed by smaller gains in the government indebtedness and governance indicators. It finishes in the top ten for government indebtedness (7th).

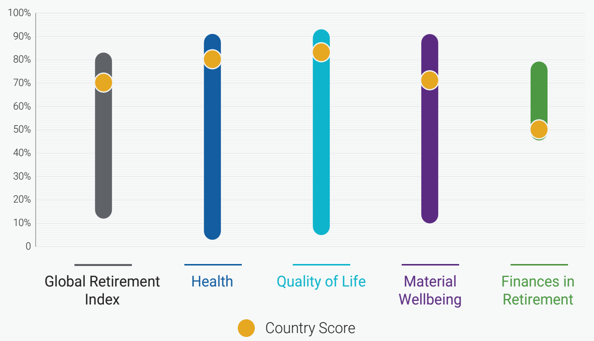
Health (28th) is the Czech Republic's only sub-index to fall compared to last year. Improvements in health expenditure per capita and insured health expenditure are not enough to offset a lower score in the life expectancy indicator.

Austria

15

Global Retirement Index

Ranking		Score	
15 (2019)	2018: 14	74% (2019)	2018: 74%
	2017: 13		2017: 75%



Sub-Index and Indicator Rankings	2019	2018	2017	Change (2019)	Change (2018)
Health Index	84%	86%	85%	↓	↑
Quality of Life Index	87%	87%	86%	→	↑
Material Wellbeing Index	75%	76%	77%	↓	↓
Finances in Retirement Index	54%	54%	55%	→	↓
Old-Age Dependency	34%	35%	36%	↓	↓
Bank Non-Performing Loans	65%	55%	49%	↑	↑
Inflation	100%	100%	98%	→	↑
Interest Rates	1%	1%	1%	→	→
Tax Pressure	6%	7%	13%	↓	↓
Government Indebtedness	33%	32%	33%	↑	↓
Governance	89%	89%	90%	→	↓

Austria slips one spot in the overall GRI rankings to 15th. Declines in the Health (15th) and Material Wellbeing (9th) sub-indices account for a lower overall score than last year. More positively, the country has a stronger score in Finances (39th) and a better ranking for Quality of Life (7th).

Austria tumbles six places in the Health sub-index rankings to 15th. The weaker sub-index score is a consequence of lower scores in the life expectancy and insured health expenditure indicators. More positively, it finishes in the top ten for the health expenditure per capita indicator (9th).

Although Austria achieves a top ten finish in Material Wellbeing, it sees its sub-index performance deteriorate because of lower scores in income equality and income per capita. Nevertheless, both indicators still make the top ten with income per capita ranking eighth and income equality ninth.

The Finances sub-index represents the area where Austria has improved the most. A higher score for bank nonperforming loans boosts its sub-index performance, which is further bolstered by more modest gains in government indebtedness and governance. However, there is room for improvement elsewhere – the country has the seventh-lowest tax pressure indicator score and its five-year average for real interest rates is below zero.

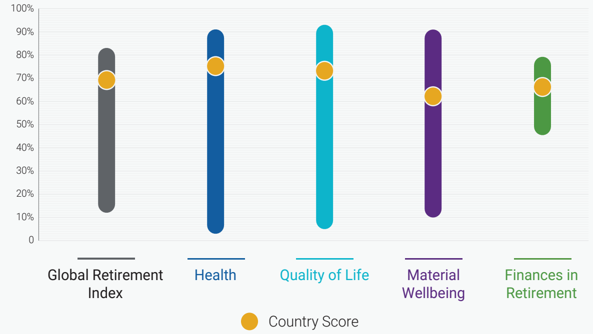
Austria's Quality of Life sub-index score is the same as last year. Both the environmental factors (7th) and happiness (10th) indicators make it into the top ten, with the former registering a lower score and the latter a higher score.

Israel

16

Global Retirement Index

Ranking		Score	
16 (2019)	2018: 19	73% (2019)	2018: 72%
	2017: 20		2017: 71%



Sub-Index and Indicator Rankings	2019	2018	2017	Change (2019)	Change (2018)
Health Index	79%	76%	76%	↑	→
Quality of Life Index	77%	78%	79%	↓	↓
Material Wellbeing Index	66%	63%	61%	↑	↑
Finances in Retirement Index	70%	71%	70%	↓	↑
Old-Age Dependency	59%	60%	62%	↓	↓
Bank Non-Performing Loans	76%	66%	62%	↑	↑
Inflation	100%	100%	100%	→	→
Interest Rates	72%	69%	70%	↑	↓
Tax Pressure	32%	40%	37%	↓	↑
Government Indebtedness	41%	42%	42%	↓	→
Governance	80%	81%	80%	↓	↑

Israel climbs three spots to finish 16th overall this year. While Israel stages only a modest improvement, its rise up the rankings results from the three countries which were ahead of it last year suffering score declines. Higher scores for the Health (23rd) and Material Wellbeing (23rd) sub-indices account for an improved overall score.

A better performance in the Health sub-index is a function of improvements in all three indicators. While none of its indicators featured in the top ten last year, this year sees life expectancy move up five spots to grab a ninth-placed finish.

Israel also achieves a higher score in the Material Wellbeing sub-index on the back of a large gain in the employment indicator, serving to cancel out lower income per capita and income equality scores. The employment indicator misses out on a top ten ranking by just one spot.

Finances (12th) represents Israel's highest ranking sub-index, although it sees its score decline. While it records an improved performance in bank nonperforming loans and interest rates, scores for the tax pressure, old-age dependency, governance and government indebtedness indicators all decline. No indicators finish in the top ten.

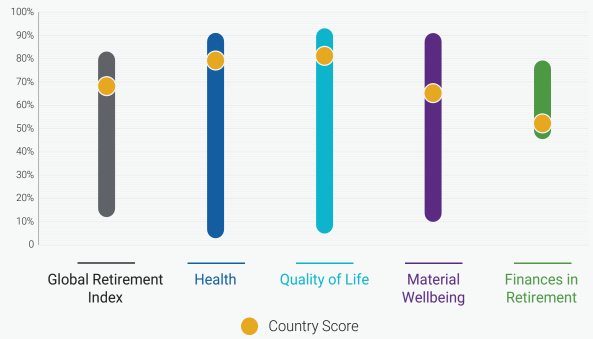
Israel's Quality of Life (18th) score drops the most among all sub-indices. A slight improvement in the environmental factors indicator fails to offset a lower score for happiness, while its biodiversity indicator is the fifth-lowest among all GRI countries.

United Kingdom

17

Global Retirement Index

Ranking			Score		
2019: 17	2018	17	2019: 72%	2018	73%
	2017	18		2017	72%



Sub-Index and Indicator Rankings	2019	2018	2017	Change (2019)	Change (2018)
Health Index	83%	83%	83%	→	→
Quality of Life Index	85%	83%	81%	↑	↑
Material Wellbeing Index	69%	71%	68%	↓	↑
Finances in Retirement Index	56%	57%	58%	↓	↓
Old-Age Dependency	34%	35%	37%	↓	↓
Bank Non-Performing Loans	77%	72%	71%	↑	↑
Inflation	100%	100%	91%	→	↑
Interest Rates	1%	1%	1%	→	→
Tax Pressure	27%	37%	33%	↓	↑
Government Indebtedness	30%	31%	32%	↓	↓
Governance	88%	89%	90%	↓	↓

The United Kingdom keeps its 17th place ranking but sees its overall score slip marginally. The lower overall score is a function of declines in the Material Wellbeing (18th), Finances (34th) and Health (18th) sub-indices. However, it has a higher score in Quality of Life (9th).

Subdued scores in the income equality and income per capita indicators weigh on the UK's Material Wellbeing performance. A gain in the employment indicator is not enough to cancel out lower scores in the other two indicators.

The UK's decline in Finances can be attributed to a drop in the tax pressure indicator, along with more muted falls in old-age dependency, governance and government indebtedness. Its five-year average for real interest rates, which is below zero, acts as a further brake on performance. And the country falls out of the top ten for bank nonperforming loans (11th) after sliding four spots, despite managing to improve its indicator score. None of its indicators feature in either the top or bottom ten.

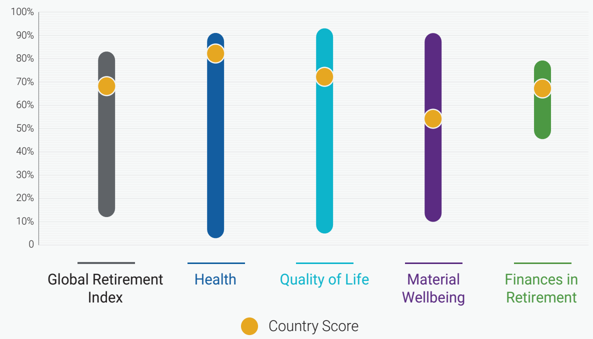
Below par performances in life expectancy and insured health expenditure drive down the UK's Health sub-index score. None of its indicators sit in the top or bottom ten. The UK breaks into the top ten in the Quality of Life sub-index and records a stronger score. The country's biodiversity indicator ranks second out of all GRI countries and an improvement in the happiness indicator offsets a lower environmental factors score.

United States

18

Global Retirement Index

Ranking			Score		
18 (2019)	2018	16	72% (2019)	2018	73%
	2017	17		2017	72%



Sub-Index and Indicator Rankings	2019	2018	2017	Change (2019)	Change (2018)
Health Index	86%	86%	87%	→	↓
Quality of Life Index	76%	77%	78%	↓	↓
Material Wellbeing Index	58%	61%	57%	↓	↑
Finances in Retirement Index	71%	72%	71%	↓	↑
Old-Age Dependency	47%	49%	50%	↓	↓
Bank Non-Performing Loans	82%	69%	64%	↑	↑
Inflation	100%	100%	100%	→	→
Interest Rates	69%	68%	66%	↑	↑
Tax Pressure	47%	58%	50%	↓	↑
Government Indebtedness	24%	25%	27%	↓	↓
Governance	87%	87%	87%	→	→

The United States falls two spots in the overall rankings to 18th. Weaker finishes in all four sub-indices depress its overall score.

The country's Material Wellbeing (28th) performance takes a hit because of lower income equality and income per capita scores. However, these two indicators sit at opposite ends of the performance spectrum, with income equality ranking eighth-lowest and income per capita sixth-highest among all GRI countries. Its score for the employment indicator is higher than last year.

A lower score for the happiness indicator weighs on the country's Quality of Life (20th) sub-index performance. A slight improvement in the environmental factors indicator is not enough to lift it out of the bottom ten, finishing ninth-lowest among all GRI countries. The air quality indicator, where the country achieves the seventh-highest score, represents a bright spot.

A weaker performance in the tax pressure indicator is the primary cause of a lower score in the Finances (10th) sub-index. The old-age dependency and government indebtedness indicators see more modest falls. Meanwhile, the US languishes in the bottom ten for government indebtedness, ranking sixth-lowest among all GRI countries. More encouragingly, the country achieves top ten finishes in nonperforming loans (9th) and tax pressure (10th).

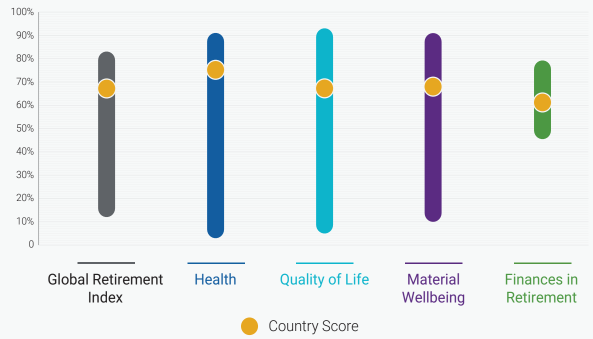
The US sees its Health (10th) sub-index score fall due to a weaker showing in the life expectancy indicator. But it manages to improve its performance in insured health expenditure, which climbs up the rankings from 6th to 3rd. In addition, it boasts the highest score for the health expenditure per capita indicator among all GRI countries.

Slovenia

19

Global Retirement Index

Ranking		Score	
19 (2019)	2018: 23	71% (2019)	2018: 70%
	2017: 24		2017: 68%



Sub-Index and Indicator Rankings	2019	2018	2017	Change (2019)	Change (2018)
Health Index	79%	79%	78%	→	↑
Quality of Life Index	71%	68%	66%	↑	↑
Material Wellbeing Index	72%	69%	66%	↑	↑
Finances in Retirement Index	65%	65%	64%	→	↑
Old-Age Dependency	34%	37%	39%	↓	↓
Bank Non-Performing Loans	68%	44%	33%	↑	↑
Inflation	100%	100%	100%	→	→
Interest Rates	70%	74%	76%	↓	↓
Tax Pressure	18%	25%	25%	↓	→
Government Indebtedness	35%	34%	34%	↑	→
Governance	83%	83%	82%	→	↑

Slovenia ascends four places up the GRI rankings to 19th this year. Its overall score increases due to improvements in the Material Wellbeing (14th) and Quality of Life (28th) sub-indices.

Material Wellbeing is both Slovenia's highest ranking sub-index and the sub-index to improve the most from last year. The higher sub-index score results from better employment and income equality indicator scores. The country now lays claim to having the second-highest score for income equality among all GRI countries.

While Quality of Life represents Slovenia's lowest ranking sub-index, the country nevertheless improves its performance on the back of a higher happiness indicator score. Elsewhere, a mixed set of results sees biodiversity ranking third but air quality finishing tenth-last among all GRI countries.

Although Slovenia moves two places up the Finances (21st) rankings, its sub-index score slips slightly due to lower scores in the tax pressure, interest rates, old-age dependency and governance indicators. But a notable improvement in bank nonperforming loans pulls it out from the bottom of the rankings. No indicators feature in the top or bottom ten.

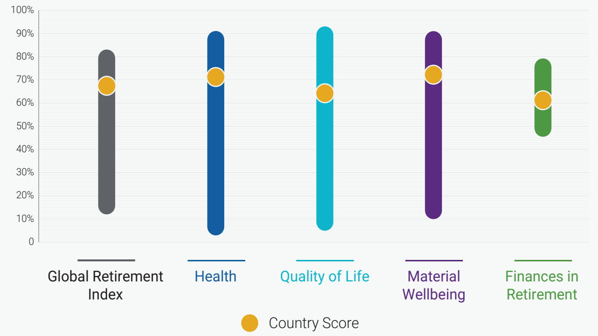
Slovenia's Health (22nd) sub-index score is marginally lower than last year because of a weaker finish in the life expectancy indicator. On a brighter note, the health expenditure per capita and insured health expenditure indicators both stage an improvement, with the latter achieving a fifth-place finish among all GRI countries.

Malta

20

Global Retirement Index

Ranking			Score		
20 (2019)	2018	20	71% (2019)	2018	71%
	2017	21		2017	70%



Sub-Index and Indicator Rankings	2019	2018	2017	Change (2019)	Change (2018)
Health Index	75%	77%	77%	↓	→
Quality of Life Index	68%	69%	68%	↓	↑
Material Wellbeing Index	76%	73%	72%	↑	↑
Finances in Retirement Index	66%	67%	65%	↓	↑
Old-Age Dependency	33%	35%	34%	↓	↑
Bank Non-Performing Loans	55%	40%	31%	↑	↑
Inflation	100%	100%	100%	→	→
Interest Rates	N/A	69%	69%		→
Tax Pressure	26%	36%	27%	↓	↑
Government Indebtedness	46%	43%	42%	↑	↑
Governance	85%	84%	85%	↑	↓

Malta again finishes in 20th position but the country sees its overall score dip slightly. It records lower scores in the Health (25th), Finances (18th) and Quality of Life (32nd) sub-indices, but improves in Material Wellbeing (7th).

Malta's decline in the Health sub-index is mainly attributed to a lower score in the insured health expenditure indicator — which now ranks fifth-worst among all GRI countries — and a more modest fall in life expectancy. On a more positive note, the health expenditure per capita indicator improves on last year.

Meanwhile, the country has a more subdued performance in the Finances sub-index due to score declines in the tax pressure and old-age dependency indicators. More brightly, its bank nonperforming loans indicator — which ranked eighth-worst last year — climbs up four places, while the government indebtedness and governance indicators also improve.

Malta also declines in the Quality of Life sub-index, with its environmental factors score rooted to the bottom of the table at second-lowest. Elsewhere, a lower environmental factors indicator score is partially offset by a higher happiness score.

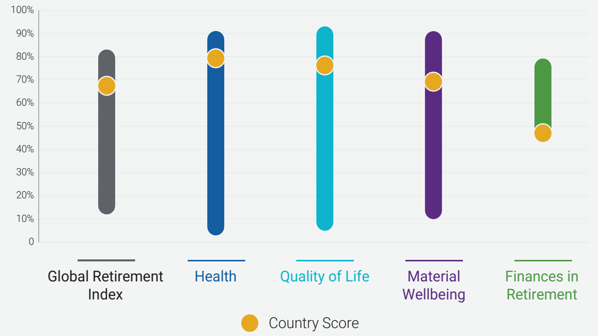
Malta makes good progress in Material Wellbeing, ranking 7th. It betters last year's sub-index performance with a significantly higher score in the employment indicator along with a more modest increase in income per capita. Despite ranking in the upper echelon of the sub-index, none of its indicators finish in the top ten.

Belgium

21

Global Retirement Index

Ranking			Score		
21 (2019)	2018	18	71% (2019)	2018	73%
	2017	15		2017	73%



Sub-Index and Indicator Rankings	2019	2018	2017	Change (2019)	Change (2018)
Health Index	83%	83%	82%	→	↑
Quality of Life Index	80%	80%	78%	→	↑
Material Wellbeing Index	73%	71%	70%	↑	↑
Finances in Retirement Index	51%	59%	62%	↓	↓
Old-Age Dependency	34%	35%	36%	↓	↓
Bank Non-Performing Loans	64%	50%	48%	↑	↑
Inflation	100%	100%	100%	→	→
Interest Rates	1%	46%	57%	↓	↓
Tax Pressure	3%	4%	10%	↓	↓
Government Indebtedness	25%	25%	26%	→	↓
Governance	86%	87%	87%	↓	→

Belgium falls three spots in the GRI rankings to 21st overall. Declines in the Finances (41st) and Quality of Life (17th) sub-indices drag down the country's overall score. But it has higher scores in Material Wellbeing (12th) and Health (17th) compared to last year.

Belgium suffers a precipitous decline in the Finances sub-index where it plummets 10 places in the rankings and sees its score fall by 8%. The major culprit is the interest rate indicator score, which drops to just 1% on behalf of the country's five-year average for real interest rates falling near zero. The governance, old-age dependency, tax pressure and government indebtedness indicators also record score falls but to a lesser extent. Belgium has the third-worst score for tax pressure and seventh-worst score for government indebtedness. An improvement in the bank nonperforming loans indicator offers a glimpse of progress.

A drop in performance for the happiness indicator accounts for a slightly lower Quality of Life sub-index score. But the country can point to the fact it has the seventh-highest biodiversity indicator score among all GRI nations as cause for optimism.

Meanwhile, Belgium betters its score in the Health sub-index compared to last year with higher scores in the health expenditure per capita and insured health expenditure indicators. None of its indicators make the top or bottom ten, reflecting its middle of the pack sub-index ranking.

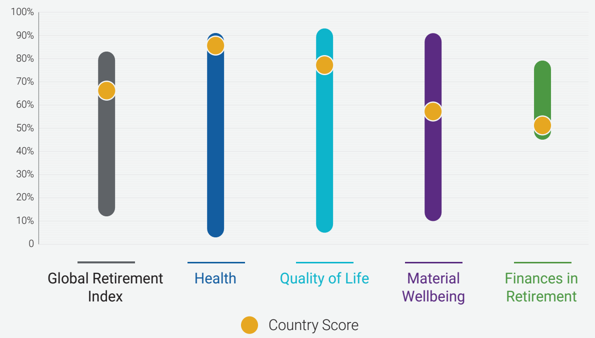
Material Wellbeing represents Belgium's highest-ranking sub-index and also the area in which it registers its greatest improvement. A better finish in the employment indicator largely accounts for a higher sub-index score. The country can also take encouragement from clocking up the sixth-highest score for income equality among all GRI countries.

France

22

Global Retirement Index

Ranking		Score	
22 (2019)	2018: 21	70% (2019)	2018: 70%
	2017: 19		2017: 71%



Sub-Index and Indicator Rankings	2019	2018	2017	Change (2019)	Change (2018)
Health Index	89%	90%	90%	↓	→
Quality of Life Index	81%	80%	79%	↑	↑
Material Wellbeing Index	61%	60%	61%	↑	↓
Finances in Retirement Index	55%	57%	61%	↓	↓
Old-Age Dependency	28%	30%	30%	↓	→
Bank Non-Performing Loans	58%	49%	46%	↑	↑
Inflation	100%	100%	100%	→	→
Interest Rates	55%	58%	61%	↓	↓
Tax Pressure	1%	2%	9%	↓	↓
Government Indebtedness	27%	28%	29%	↓	↓
Governance	85%	84%	85%	↑	↓

France slips down one spot in the ranking to 22nd overall this year. It has lower scores for the Finances (37th) and Health (4th) sub-indices compared to last year but higher scores for Material Wellbeing (27th) and Quality of Life (16th).

Weaker scores in the interest rates, old-age dependency, tax pressure and government indebtedness indicators act as a drag on the Finances sub-index, where France finishes in the bottom ten. The poor sub-index ranking correlates with bottom ten finishes in the tax pressure (second from last), old-age dependency (seventh from last) and government indebtedness (tenth from last) indicators. More positively, it notches up higher scores in bank nonperforming loans and governance.

France also records a lower score in the Health sub-index despite managing a top ten finish. The weaker sub-index performance is fueled by a lower score for life expectancy, where it drops six places after ranking sixth last year. However, it moves up one spot in the insured health expenditure rankings to claim the highest indicator score among all GRI countries.

The country improves its showing in Material Wellbeing due to gains in the employment indicator. Nevertheless, it still has the eighth-lowest score for employment. None of its indicators make the top ten.

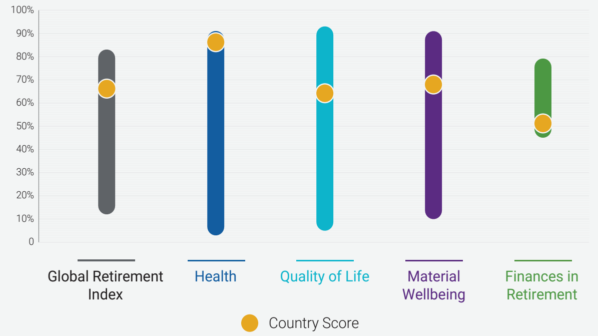
France records its greatest improvement in the Quality of Life sub-index. It has the sixth-highest score for biodiversity and ninth-highest for air quality and also improves its happiness score. And despite seeing its environmental factors score drop slightly, it still ranks tenth-highest for the indicator.

Japan

23

Global Retirement Index

Ranking		Score	
23 (2019)	2018: 22	70% (2019)	2018: 70%
	2017: 22		2017: 70%



Sub-Index and Indicator Rankings	2019	2018	2017	Change (2019)	Change (2018)
Health Index	90%	88%	88%	↑	→
Quality of Life Index	68%	68%	65%	→	↑
Material Wellbeing Index	72%	75%	74%	↓	↑
Finances in Retirement Index	55%	55%	56%	→	↓
Old-Age Dependency	7%	8%	9%	↓	↓
Bank Non-Performing Loans	79%	66%	64%	↑	↑
Inflation	100%	100%	100%	→	→
Interest Rates	49%	55%	74%	↓	↓
Tax Pressure	33%	38%	39%	↓	↓
Government Indebtedness	1%	1%	1%	→	→
Governance	88%	88%	88%	→	→

Japan descends one place in the rankings table to 23rd this year. The country finishes with a slightly lower overall score due to weaker performances in the Material Wellbeing (13th) and Finances (38th) sub-indices. But it has higher scores in Health (2nd) and Quality of Life (33rd).

Japan's weaker Material Wellbeing score results from declines in the income equality and income per capita indicators. But it retains the distinction of having the highest score for the employment indicator among all GRI countries.

Lower scores for the interest rates, tax pressure and old-age dependency indicators push down Japan's Finances sub-index score. The old-age dependency and government indebtedness indicators, where the country records the lowest scores among all GRI countries, represent particular areas of concern. But bright spots are represented by bank nonperforming loans, where Japan moves into the top ten, and governance where the country achieves a slightly improved performance.

Japan makes the most progress in Health, its highest-ranking sub-index. A better sub-index score is largely due to improvements in the health expenditure per capita and insured health expenditure indicators. With the highest score for life expectancy among all GRI countries and a top ten finish for insured health expenditure (8th), Japan powers up the Health rankings to take second spot.

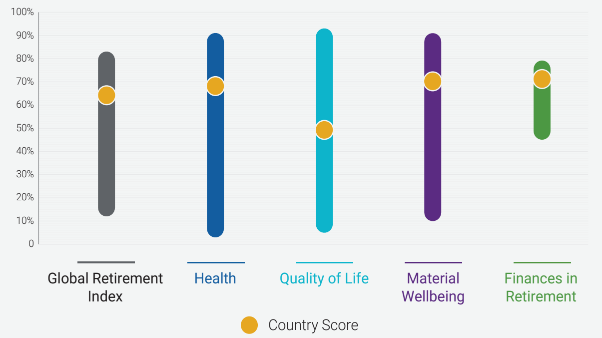
Within Quality of Life, gains in the happiness indicator are offset by a lower score for environmental factors. But the country should look to make further gains in the happiness indicator, where it ranks eighth-lowest among all GRI countries.

Korea, Rep.

24

Global Retirement Index

Ranking		Score	
24 (2019)	2018: 24	68% (2019)	2018: 69%
	2017: 23		2017: 68%



Sub-Index and Indicator Rankings	2019	2018	2017	Change (2019)	Change (2018)
Health Index	72%	72%	73%	→	↓
Quality of Life Index	53%	54%	53%	↓	↑
Material Wellbeing Index	74%	75%	75%	↓	→
Finances in Retirement Index	75%	76%	76%	↓	→
Old-Age Dependency	60%	62%	63%	↓	↓
Bank Non-Performing Loans	97%	85%	80%	↑	↑
Inflation	100%	100%	100%	→	→
Interest Rates	71%	74%	77%	↓	↓
Tax Pressure	46%	62%	54%	↓	↑
Government Indebtedness	54%	57%	60%	↓	↓
Governance	82%	81%	81%	↑	→

South Korea's GRI ranking stays static at 24th. It has a slightly weaker overall score compared to last year because of lower scores in the Finances (6th), Material Wellbeing (10th) and Quality of Life (40th) sub-indices. The country has a higher score for Health (27th).

Although Finances is South Korea's highest ranking sub-index, it is also the area in which the country suffers its greatest score drop from last year. It has weaker finishes in the tax pressure, interest rates, old-age dependency and government indebtedness indicators. But on the other hand the country notches up some top ten performances, with the second-highest score for bank nonperforming loans and ninth-highest score for old-age dependency. And the tax pressure and government indebtedness indicators narrowly miss the top cut, ranking 11th and 12th respectively.

Meanwhile, lower scores in the income equality and employment indicators weigh on the country's Material Wellbeing sub-index score. However, it has the ninth-highest employment score among all GRI participants and an improvement in the income per capita indicator provides further cause for optimism.

The country also registers a lower score for Quality of Life due to a weaker performance in the environmental factors indicator. The sub-index's low ranking is attributable to several bottom ten finishes including biodiversity (third from last), environmental factors (fourth from last), air quality (seventh from last) and happiness (tenth from last). However, the happiness indicator improves on last year.

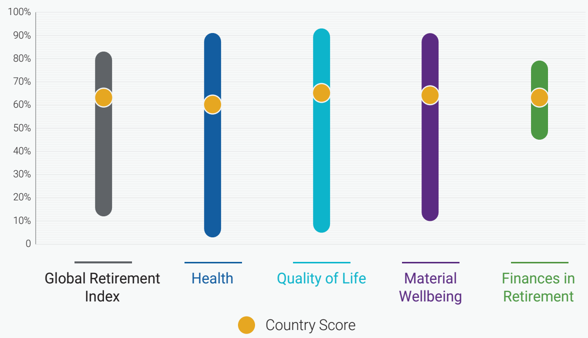
South Korea makes progress in the Health sub-index. It has higher scores in the health expenditure per capita and insured health expenditure indicators, but ranks sixth from last for the latter.

Slovak, Rep.

25

Global Retirement Index

Ranking		Score	
25 (2019)	2018: 25	67% (2019)	2018: 66%
	2017: 25		2017: 66%



Sub-Index and Indicator Rankings	2019	2018	2017	Change (2019)	Change (2018)
Health Index	64%	65%	65%	↓	→
Quality of Life Index	69%	69%	71%	→	↓
Material Wellbeing Index	68%	64%	60%	↑	↑
Finances in Retirement Index	67%	68%	68%	↓	→
Old-Age Dependency	52%	55%	59%	↓	↓
Bank Non-Performing Loans	56%	46%	42%	↑	↑
Inflation	100%	100%	100%	→	→
Interest Rates	63%	65%	64%	↓	↑
Tax Pressure	28%	37%	37%	↓	→
Government Indebtedness	47%	47%	48%	→	↓
Governance	80%	80%	80%	→	→

The Slovak Republic remains at 25th this year with a higher overall score. It improves because of better scores in the Material Wellbeing (19th) and Quality of Life (29th) sub-indices.

The country records its largest sub-index improvement in Material Wellbeing. The Slovak Republic now has the highest income equality score of all GRI countries and also registers a significant increase in its employment indicator score. However, progress needs to be made in employment and income per capita, with both indicators narrowly escaping the bottom ten.

The Slovak Republic also notches up a higher score in Quality of Life where an improvement in the happiness indicator offsets a weaker performance in environmental factors. It also performs robustly in biodiversity where it is only one spot away from finishing in the top ten. Less encouragingly, the country has the sixth-lowest score for air quality.

Weaker scores for life expectancy, which ranks tenth from last, and health expenditure per capita see the Slovak Republic slip down the Health (33rd) rankings and return a lower sub-index score. But an improved insured health expenditure indicator score points to signs of progress.

The Slovak Republic moves up two places in Finances (16th), which represents the country's highest ranking sub-index. But despite improving in bank nonperforming loans, it has a lower Finances score due to weaker performances in the tax pressure, old-age dependency, interest rates, government indebtedness and governance indicators. No indicators feature in the top or bottom ten.

What can the BRICs learn from this aging 'crisis'?

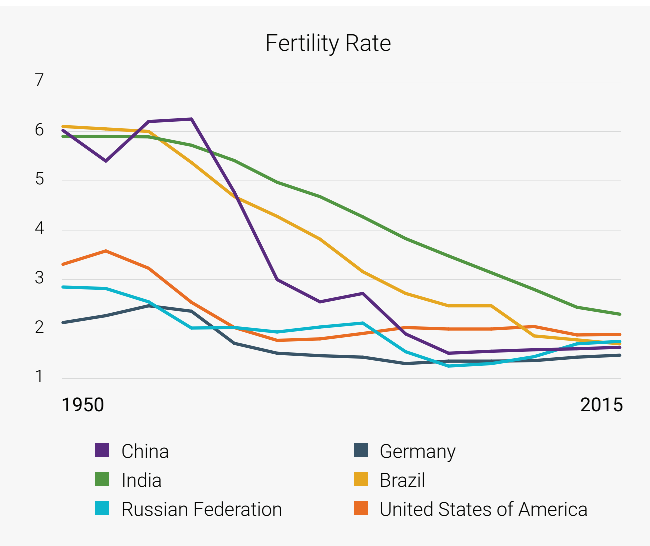
In 2016 the GRI narrowed its focus to developed countries in order to understand how these graying nations are grappling with the consequences of aging. But the GRI also includes the BRIC countries, allowing us to track these rising economic powers and see if there are any lessons the BRIC countries can glean from their developed counterparts.

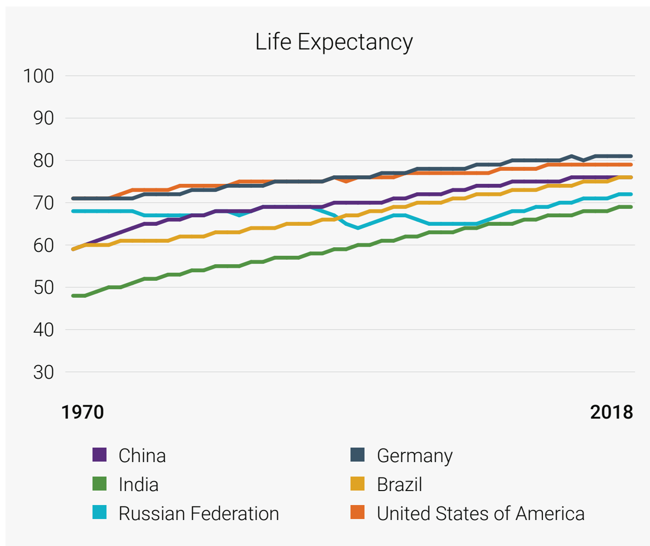
BRICs in a demographic sweet spot now…

While the developed countries have more or less completed the 'demographic transition', the BRIC countries are still reaping the demographic dividend – the growth in an economy resulting from shifts in population structure. As these countries continue to develop and undergo the demographic transition, their fertility rates have steadily declined while life expectancy has increased – resulting in higher labor force participation.

The BRIC countries are currently in a demographic sweet spot with a relatively young population and therefore favorable dependency ratios. Brazil, China and India have a much lower elderly population than most developed countries at 8.5%, 10.6% and 5.9% respectively. Russia, arguably the most developed of the four, has a higher elderly population at 14.1%, but still below the United States at 15.4%, France at 19.7% and Germany at 21.4%.

Reaping the demographic dividend





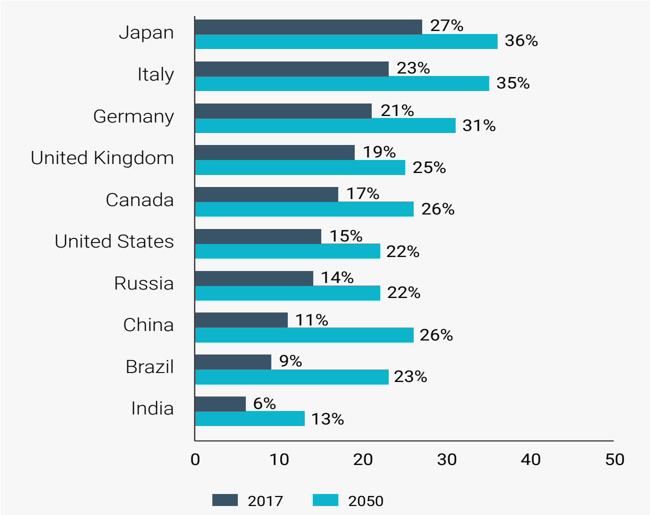
…but they could be heading into rougher waters

However, Brazil, Russia, and China are in late-dividend phase, compared to India which is still in early-dividend phase.[32] As these countries continue to age, they will arrive at the same position as developed countries today. Indeed, by 2050 elderly populations in these countries are projected to not only catch up with but, in some cases, surpass advanced economies. Brazil, Russia and China are expected to have higher elderly populations than the US and Australia in 2050.

As the elderly populations increase in these countries so, too, will their old-age dependency ratios. Brazil, Russia and China are projected to have similar old-age dependency ratios to the US, UK and Canada in 2050.

[32] 'Development Goals in an Era of Demographic Change', Global Monitoring Report 2015/2016, a joint publication of the World Bank Group and the International Monetary Fund.

Elderly population in BRICs set to increase by 2050



But while the BRIC countries would have to contend with similar population dynamics to those faced by developed countries today, the problem could be compounded if they are not able to catch up in other areas such as GDP per capita or equitable distribution of income. Such a scenario would result in elderly societies that are both poor and have little means of supporting themselves. India and China already have very high poverty rates. Indeed, India is home to a quarter of the world's poor.[33]

Old-age dependency ratio projections

Country	2015	2020	2030	2050
India	8.6	9.8	12.4	19.8
Brazil	11.4	13.7	19.8	36.7
China	13.3	17.3	25.3	44.0
Russian Federation	19.4	23.3	30.5	36.5
United States of America	22.1	25.7	33.2	36.4
Canada	23.8	28.0	38.1	43.8
United Kingdom	28.2	30.1	36.0	43.6
Germany	32.1	34.2	44.9	54.4
Italy	35.0	38.1	48.3	66.2
Japan	42.7	47.8	52.7	71.2

All of the BRIC countries face their own unique challenges as they navigate their way through the demographic transition. But India perhaps has the biggest set of hurdles to overcome in the next few years, as evidenced from its performance in the GRI and its indicator rankings. A rapidly increasing population means India has to work harder than most countries to incorporate its working age population into the labor force. At the same time, the country needs to make progress on issues like gender gaps in the workforce and educational attainment to facilitate a better labor supply. Secondary enrolment in India still lags behind all advanced countries and its BRIC peers. When this is combined with other issues characteristic of early-dividend countries such as rapid urbanization – something that almost always leads to an increase in slum living – it is clear that India has its work cut out. A quarter (24%) of India's urban population already lives in urban slums.[34] The situation on the retirement front is equally bleak, with just one in ten Indian workers earning any kind of formal pension benefit whether public or private.[35]

Meanwhile, Brazil's rapid decline in fertility and increased longevity is set to triple its elderly population (60 and above) from 11.7% in 2015 to 29.3% in 2050.[36] This is exacerbated by the fact the retirement age in Brazil is 55 (if starting working age 20), after which workers earn 70% of their salary for the remainder of their lives.[37] This situation will become that much more difficult to sustain as the workforce begins to shrink. Encouragingly, Brazil is now looking to reform its pension system and increase the retirement age to 65.

China also faces pressing population challenges. The country's workforce is shrinking due to a falling labor force participation rate. And like Brazil, China has a low retirement age (60 for men, 55 for female white-collar workers and 50 for female blue-collar employees), which acts as a further drag on public finances.

Russia faces similar challenges to developed countries as it moves toward becoming a post-demographic dividend country. These include increasing old-age dependency ratios and higher spending on pensions and healthcare.

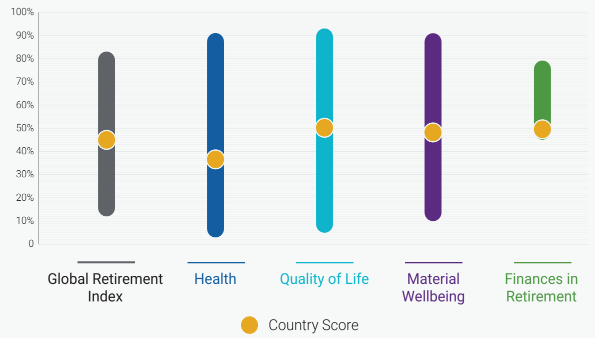
[33] https://blogs.worldbank.org/opendata/half-world-s-poor-live-just-5-countries
[34] World Bank. https://data.worldbank.org/indicator/EN.POP.SLUM.UR.ZS?view=chart
[35] OECD (2017), Pensions at a Glance 2017: OECD and G20 Indicators, OECD Publishing, Paris. https://doi.org/10.1787/pension_glance-2017-en.
[36] 'World Population Prospects: The 2015 Revision', United Nations, 2015
[37] OECD Policy Memo, Pension Reform in Brazil, April 2017. https://www.oecd.org/brazil/reforming-brazil-pension-system-april-2017-oecd-policy-memo.pdf

Russian Federation

38

Global Retirement Index

Ranking		Score	
38 (2019)	2018: 38	48% (2019)	2018: 46%
	2017: 40		2017: 45%



Sub-Index and Indicator Rankings	2019	2018	2017	Change (2019)	Change (2018)
Health Index	40%	37%	36%	↑	↑
Quality of Life Index	54%	56%	58%	↓	↓
Material Wellbeing Index	52%	52%	47%	→	↑
Finances in Retirement Index	47%	43%	41%	↑	↑
Old-Age Dependency	55%	57%	60%	↓	↓
Bank Non-Performing Loans	30%	28%	30%	↑	↓
Inflation	3%	1%	1%	↑	→
Interest Rates	83%	81%	51%	↑	↑
Tax Pressure	60%	48%	27%	↑	↑
Government Indebtedness	79%	82%	82%	↓	→
Governance	58%	57%	57%	↑	→

Russia remains at 38th overall this year. The country has a higher overall score due to improvements in Finances (42nd), Health (43rd) and Material Wellbeing (31st).

The country improves the most in the Finances sub-index. It notches up a higher score than last year due to better returns in the tax pressure, interest rate, inflation, bank nonperforming loans and governance indicators. Government indebtedness (2nd), interest rates (5th) and tax pressure (7th) all feature in the top ten. Against this, high inflation and disappointing performances in governance (last) and bank nonperforming loans (fourth from last) result in a low sub-index ranking (42nd).

Russia stages an improvement in the Health sub-index on the back of higher scores for the insured health expenditure and life expectancy indicators. But bottom ten indicator performances in life expectancy (second from last), health expenditure per capita (seventh from last) and insured health expenditure (eighth from last) condemn it to a low sub-index ranking.

Russia also manages to improve in the Material Wellbeing stakes due to higher scores for income per capita and employment. Against this, income per capita ranks seventh from last and income equality ninth from last.

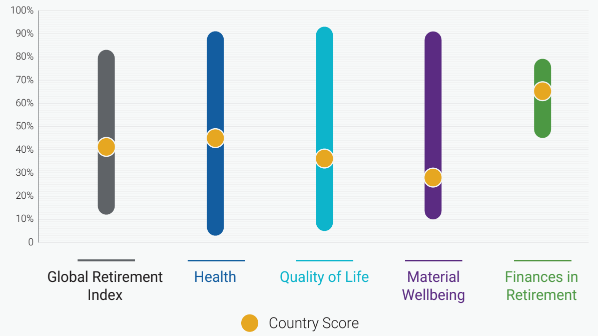
Quality of Life (39th) represents Russia's only sub-index to suffer a weaker score than last year. It has lower scores for the happiness and environmental factors indicators. And several indicators rank in the bottom ten – including environmental factors (third from last), happiness (fifth from last) and biodiversity (sixth from last).

China

39

Global Retirement Index

Ranking		Score	
39 (2019)	2018: 40	45% (2019)	2018: 45%
	2017: 38		2017: 50%



Sub-Index and Indicator Rankings	2019	2018	2017	Change (2019)	Change (2018)
Health Index	49%	47%	47%	↑	→
Quality of Life Index	40%	39%	41%	↑	↓
Material Wellbeing Index	32%	32%	49%	→	↓
Finances in Retirement Index	69%	69%	66%	→	↑
Old-Age Dependency	75%	79%	83%	↓	↓
Bank Non-Performing Loans	67%	61%	61%	↑	→
Inflation	100%	95%	77%	↑	↑
Interest Rates	76%	78%	75%	↓	↑
Tax Pressure	80%	100%	75%	↓	↑
Government Indebtedness	49%	51%	54%	↓	↓
Governance	64%	63%	63%	↑	→

China edges up one spot to 39th overall this year. The country has a higher overall score due to improvements in the Health (42nd) and Quality of Life (43rd) sub-indices.

The country records its biggest improvement in the Health sub-index as a result of better scores in health expenditure per capita and insured health expenditure. But all three indicators in the sub-index finish in the bottom ten, with health expenditure per capita ranking second from last, life expectancy ninth from last and insured health expenditure tenth from last.

A higher score in the happiness indicator powers China's improvement in the Quality of Life sub-index. But with all indicators finishing in the bottom ten, the country still needs to make progress on a number of fronts. Both happiness and air quality rank second from last, environmental factors fifth from last and biodiversity eighth from last.

Despite being the country's highest-ranking sub-index, China records a decline in Finances (14th) on the back of lower scores for the tax pressure, old-age dependency, government indebtedness and interest rate indicators. It also has the fourth-lowest score for governance. But elsewhere its performance is strong. The country boasts top ten finishes in tax pressure (fourth), old-age dependency (sixth) and interest rates (tenth) and notches up higher scores in bank nonperforming loans, inflation and governance.

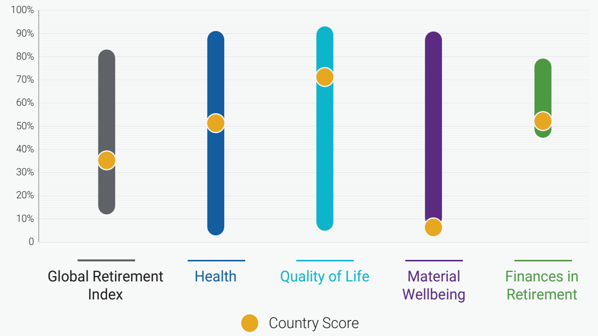
China also slips in the Material Wellbeing (39th) sub-index. It has lower scores in the employment and income equality indicators but ekes out a stronger performance in income per capita. The country ranks fourth from last for both income equality and income per capita.

Brazil

43

Global Retirement Index

Ranking			Score		
43 (2019)	2018	43	39% (2019)	2018	38%
	2017	42		2017	41%



Sub-Index and Indicator Rankings	2019	2018	2017	Change (2019)	Change (2018)
Health Index	55%	54%	52%	↑	↑
Quality of Life Index	75%	77%	82%	↓	↓
Material Wellbeing Index	10%	9%	12%	↑	↓
Finances in Retirement Index	56%	55%	57%	↑	↓
Old-Age Dependency	87%	89%	92%	↓	↓
Bank Non-Performing Loans	57%	47%	46%	↑	↑
Inflation	17%	12%	18%	↑	↓
Interest Rates	100%	100%	100%	→	→
Tax Pressure	29%	38%	33%	↓	↑
Government Indebtedness	31%	35%	38%	↓	↓
Governance	67%	68%	67%	↓	↑

Brazil ranks 43rd for the second successive year but has a slightly higher overall score. The improvement results from higher scores in the Health (36th), Material Wellbeing (44th) and Finances (36th) sub-indices.

Brazil's better showing in Health is driven by higher scores in the health expenditure per capita and life expectancy indicators – despite both ranking a lowly sixth from bottom.

An improvement in the employment indicator helps Brazil finish with a higher Material Wellbeing score. Nevertheless, it ranks in the bottom ten for all indicators with the lowest score for income equality and third-lowest for both income per capita and employment.

Brazil also betters last year's performance in Finances, with higher scores in bank nonperforming loans and inflation. It achieves top ten indicator finishes for interest rates (1st) and old-age dependency (5th), but on the flipside has the fifth-lowest score for governance.

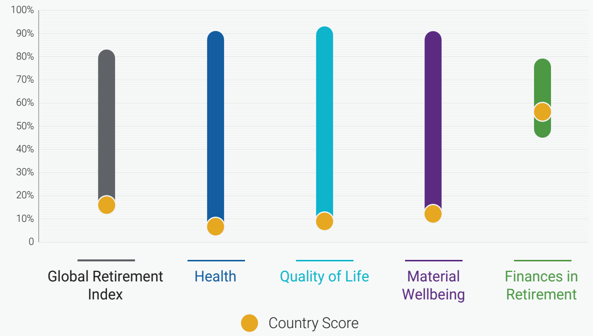
Quality of Life (21st) is Brazil's only sub-index with a lower score than last year is. An impressive display in environmental factors – where it boasts the second-highest score among all GRI countries – is not enough to counteract a lower happiness score.

India

44

Global Retirement Index

Ranking		Score	
2019: 44	2018: 44	2019: 12%	2018: 11%
	2017: 44		2017: 12%



Sub-Index and Indicator Rankings	2019	2018	2017	Change (2019)	Change (2018)
Health Index	3%	3%	3%	→	→
Quality of Life Index	5%	6%	7%	↓	↓
Material Wellbeing Index	16%	16%	17%	→	↓
Finances in Retirement Index	60%	56%	53%	↑	↑
Old-Age Dependency	100%	100%	100%	→	→
Bank Non-Performing Loans	31%	29%	34%	↑	↓
Inflation	23%	10%	4%	↑	↑
Interest Rates	84%	83%	81%	↑	↑
Tax Pressure	100%	100%	84%	→	↑
Government Indebtedness	37%	38%	41%	↓	↓
Governance	68%	67%	66%	↑	↑

India remains at 44th overall this year but has a higher score due to a better performance in Finances (27th).

India's highest-ranking sub-index, Finances, stages an improvement on the back of higher scores for inflation, bank nonperforming loans, interest rates and governance. But its sub-index still represents a mixed bag of results — low rankings in bank nonperforming loans (fifth from last) and governance (seventh from last) sit alongside high rankings for tax pressure and old-age dependency (both first) and interest rates (fourth).

India has a lower score in Health (44th) due to a weaker performance in the insured health expenditure indicator. All three indicators are rooted to the very bottom of the ranking tables.

The country also slips in Material Wellbeing (41st), where it has a weaker finish in income equality but manages a slight improvement in employment. Elsewhere, its performance is one of contrasts – India has the worst score among all GRI countries for income per capita but the sixth-highest for employment.

India's decline in Quality of Life (44th) is mainly due to a lower environmental factors score. But the country must look to make progress across the board. It has the lowest score in happiness, air quality and water and sanitation and the second-lowest in biodiversity.

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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 2019	2016	Sample Maximum (83.98 years, Japan)	Sample Minimum (68.56 years, India)	None
	Health Expenditure Per Capita Index	GEOMEAN	Current health expenditure per capita, PPP (current international $)	1	World Bank WDI 2019	2015	Sample Maximum ($9,535.95, USA)	Sample Minimum ($237.72, India)	Natural Logarithm
	Non-Insured Health Expenditure Index	GEOMEAN	Out-of-pocket expenditure (% of current health expenditure)	1	World Bank WDI 2019	2015	Sample Minimum (6.80%, France)	100%	None
Material Wellbeing Index	Income Equality Index	GEOMEAN	GINI Index	1	Eurostat, OECD, World Bank WDI 2019, CIA World Factbook	Between 2011 and 2018 depending on Country	Sample Minimum (23.20, Slovak Republic)	Sample Maximum (51.30, Brazil)	Natural Logarithm
	Income per Capita Index	GEOMEAN	GNI per capita, PPP (current international $)	1	World Bank WDI 2019	2017	Sample Maximum ($90,570, Singapore)	Sample Minimum ($6,980, India)	Natural Logarithm
	Unemployment Index	GEOMEAN	Unemployment (% of total labor force) (modeled ILO estimate)	1	World Bank WDI 2019	2018	3% Unemployment	Sample Maximum (21.10%, Greece)	Natural Logarithm
Finances in Retirement Index	Institutional Strength Index	0.5	Average of World Bank Governance Indicators	1	World Bank Worldwide Governance Indicators 2018	2017	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 2019	2017	10%	50%	Natural Logarithm
			Bank nonperforming loans to total gross loans (%)	GEOMEAN	IMF Financial Soundness Indicators	2018, 2017, 2016	Sample Minimum (0.41%, Canada)	Sample Maximum (44.14%, Greece)	Natural Logarithm
			Inflation, consumer prices (% annual)	GEOMEAN	World Bank WDI 2019	2013 to 2017	2%	Sample Maximum (8.59%, Turkey)	Natural Logarithm
			Real interest rate (%)	GEOMEAN	World Bank WDI 2019, OECD	2013 to 2017	20%	0%	Natural Logarithm
			Public Debt (% of GDP)	GEOMEAN	CIA World Factbook	2018	Sample Minimum (8.80%, Estonia)	Sample Maximum (236.40%, Japan)	Natural Logarithm
			Tax Burden (% of GDP)	GEOMEAN	Country statistical agencies, central banks, and ministries of finance economy	2018	Outlier-adjusted Sample Minimum (13.71%, Singapore)	Sample Maximum (45.90%, 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 2019	2015	100% of population with access	36%	Natural Algorithm
			Improved sanitation facilities (% of population with access)	0.5	World Bank WDI 2019	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) under protection 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
			Terrestrial 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	22%	3%	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 2019	2016	1262 kg CO2 eq. (Estimated value associated with 50% reduction in global GHG emissions by 2050, against 1990 levels)	19,588.33	Natural Logarithm
			CO2 emissions per GDP	0.33	US Energy Information Administration (EIA), World Bank WDI 2019	2016	0.07642 kg CO2 eq. (Estimated value associated with 50% reduction in global GHG emissions by 2050, against 1990 levels)	1.53	Natural Logarithm
			CO2 emissions per electricity generation	0.165	US Energy Information Administration (EIA), World Bank WDI 2019	2016	0 grams CO2 per KWh	8.45	Natural Logarithm
			Renewable electricity	0.165	US Energy Information Administration (EIA), World Bank WDI 2019	2016	100% electricity from renewable sources	0%	None
	Happiness Index	0.5 GEOMEAN	Happiness (0-10)	1	World Happiness Report 2019	2018	Sample Maximum (7.77, Finland)	Sample Minimum (4.02, 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)[1] 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 to lower than the lower performance benchmark and 1 equal to 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[2] 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[3] to obtain the thematic indices. The geometric mean offers a number of advantages over the arithmetic mean[4]; this will be discussed later in this chapter.[5]

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

[2] 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)]

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

[4] 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 = $\frac{x_1 + x_2 + \ldots + x_n}{n}$

[5] See Constructing the Global Retirement Index on page 66.

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:

   a. **Life expectancy Index:** obtained using data from the World Bank (WB)'s World Development Indicators (WDI) 2019. The target for this indicator is the sample maximum which is equal to 83.98 years, and the low performance benchmark is equal to 68.56 years, a figure observed as the sample minimum.

   b. **Health expenditure per capita Index:** obtained using data on current health expenditure per capita, PPP (current international $) from WB's WDI 2019. The target set for this indicator is the sample maximum, equal to $9535.95 USD, and the low performance benchmark is equal to the sample minimum of $237.72. The indicator is transformed into logarithms, as the marginal returns to extra expenditure are decreasing. The GRI used a slightly different indicator last year – Health expenditure per capita, PPP (constant 2011 international $) – but the World Bank changed the measurement base of the indicator.

   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 expenditure (percentage of current health expenditure), included in the WB's WDI 2019. The target for this indicator is equal to the sample minimum of 6.80% and the low performance benchmark is equal to 100%, which means that none of the population is covered by health insurance. The GRI used a slightly different indicator last year – Out-of-pocket health expenditure (% of total expenditure on health) – but the World Bank changed the measurement base of the indicator.

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 2019. 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 $90,570 USD, and the low performance benchmark is equal to the sample minimum of $6,980 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 2019 and the CIA World Factbook. The target is set at 23.20, 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 is 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 21.10%, 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 2019.

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 such 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 (2018 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 2019. 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 fewer than two workers for every old-age dependent.

II. **In ation 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 2019. The value for each country is the five-year average from 2013 to 2017. 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 of 8.59%. 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 2019 and is completed from the OECD.[6,7] The value for each country is the five-year average from 2013 to 2017. The target is 20% and the low performance benchmark is 0%. The data is multiplied by 100 before logarithmic transformation is 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 13.71% of GDP while the low performance benchmark is the sample maximum of 45.90% of GDP. This indicator is calculated in logarithmic form.

IV. **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 0.41% and the low performance benchmark is the sample maximum of 44.14%.

V. **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 8.80% and the low performance benchmark is the sample maximum of 236.40%.

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 2016–2018. The indicator is presented in the logarithmic form. The target is set at the sample maximum, which is an average score of 7.77, and the low performance benchmark is set at the sample minimum of 4.02.

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 2018, by reference to the Environmental Performance Index (EPI) 2018.

[6] 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.

[7] 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.

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 so there is no change in the data from last year.

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). Target is 100% of population with access for both indicators, and the low performance benchmark is 36% (1st percentile) for the access to drinking water index and 11.4% (5th percentile) for the access to sanitation index. The data used is obtained from the WB's WDI 2019.

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 so there is no change in the data from last year.

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. The index is calculated as the weighted average of CO2 emissions per capita (1/3 weight), CO2 emissions per GDP (1/3 weight), CO2 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 2019.

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)[8] 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 on 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 44 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.

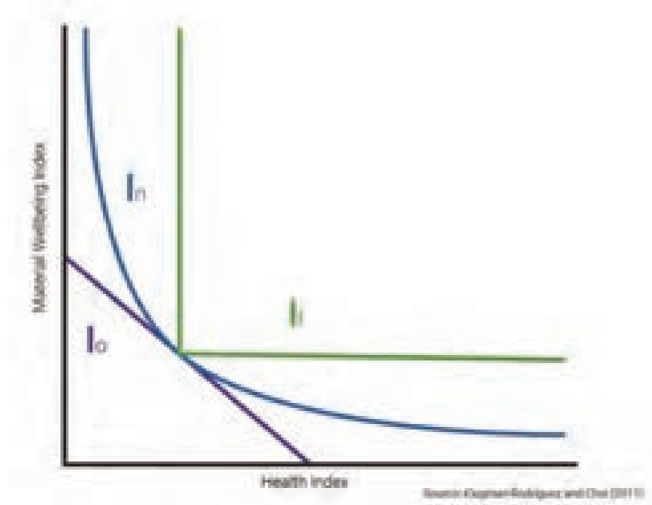
The chart graphically shows the three cases:

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.



[8] 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 2019

Rank	Country	Health Index	Finances in Retirement Index	Quality of Life Index	Material Wellbeing Index	Global Retirement Index
1	Iceland	85%	72%	86%	91%	83%
2	Switzerland	88%	77%	91%	78%	83%
3	Norway	90%	59%	90%	86%	80%
4	Ireland	87%	72%	83%	71%	78%
5	New Zealand	83%	79%	89%	62%	78%
6	Sweden	88%	65%	89%	72%	77%
7	Denmark	85%	60%	93%	75%	77%
8	Canada	87%	73%	82%	68%	77%
9	Australia	85%	77%	81%	66%	77%
10	Luxembourg	91%	60%	83%	74%	76%
11	Netherlands	87%	57%	82%	82%	76%
12	Finland	83%	62%	92%	68%	75%
13	Germany	85%	56%	82%	79%	75%
14	Czech Republic	72%	69%	75%	83%	75%
15	Austria	84%	54%	87%	75%	74%
16	Israel	79%	70%	77%	66%	73%
17	United Kingdom	83%	56%	85%	69%	72%
18	United States	86%	71%	76%	58%	72%
19	Slovenia	79%	65%	71%	72%	71%
20	Malta	75%	66%	68%	76%	71%
21	Belgium	83%	51%	80%	73%	71%
22	France	89%	55%	81%	61%	70%
23	Japan	90%	55%	68%	72%	70%
24	Korea, Rep.	72%	75%	53%	74%	68%
25	Slovak Republic	64%	67%	69%	68%	67%
26	Estonia	65%	71%	69%	62%	67%
27	Poland	63%	66%	65%	68%	66%
28	Singapore	77%	79%	52%	52%	64%
29	Portugal	75%	61%	66%	55%	64%
30	Italy	81%	53%	73%	51%	63%
31	Spain	81%	63%	77%	40%	63%
32	Hungary	58%	60%	62%	70%	62%
33	Cyprus	65%	59%	67%	52%	61%
34	Lithuania	53%	68%	71%	51%	60%
35	Latvia	49%	66%	69%	49%	57%
36	Chile	66%	76%	72%	29%	57%
37	Mexico	52%	64%	74%	42%	56%
38	Russian Federation	40%	47%	54%	52%	48%
39	China	49%	69%	40%	32%	45%
40	Turkey	54%	45%	46%	34%	44%
41	Greece	70%	45%	57%	14%	40%
42	Colombia	49%	65%	71%	11%	40%
43	Brazil	55%	56%	75%	10%	39%
44	India	3%	60%	5%	16%	12%

Color Scale

- 81% and above
- 71%-80%
- 61%-70%
- 51%-60%
- 41%-50%
- 40% and below

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