



PERSONAL RESPONSIBILITY. PUBLIC TRUST.

2016 Natixis Global Retirement Index



2016 GLOBAL RETIREMENT INDEX

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About the Global Retirement Index

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

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

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

The sub-indices provide insight into which particular characteristics are driving an improvement or worsening each country's position. Data has been tracked consistently to provide a basis for year-over-year comparison.

This is the fourth year Natixis Global Asset Management and CoreData have produced the GRI to help policy makers, employers and individuals across the globe.

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.

Change in methodology

Natixis Global Asset Management's Global Retirement Index is an international comparison tool. It is our goal to improve on the index's framework every year as we are able to discern ongoing trends. With that in mind, we have made two main methodology changes this year – we will be using the 5-year average of real interest rates and inflation, and we will be moving to a shorter country list of 43 countries. The change to a 5-year average of real interest rates and inflation ensures we have a longer-term perspective of these variables to match the rest of the variables in the report. The move to a shorter country list allows us to focus more specifically on issues facing retirement systems across the globe. We look at the most pressing issues and some of the best practices to tackle them.

While retirement funding is emerging as a major challenge for most economies around the world, the problem is unequivocally more pressing in developed nations due to a massive demographic transition that is changing the retirement landscapes in these economies. Retirement systems are still at nascent stages in many developing countries, and the provision of state retirement security is sometimes not well-developed as a concept.

It is important to note that all references to movements from last year are based on back-tested data and are considering the new methodology and the shorter list of countries, since this year's rankings aren't directly comparable to the rankings in last year's report.

The current index includes the International Monetary Fund advanced economies¹, Organisation for Economic Cooperation and Development² and BRIC (Brazil, Russia, India, and China) countries. Thirty-four of the 43 countries in the new GRI list are part of the IMF advanced economies list. Of the nine countries not in the IMF advanced economies list, five are OECD (Chile, Hungary, Mexico, Poland and Turkey) and four are BRICs.

¹ <https://www.imf.org/external/pubs/ft/weo/2015/02/weodata/groups.htm#ae>

² Taiwan, Hong Kong SAR and San Marino are part of the IMF Advanced Economies list but not included in the GRI because of data availability issues.



FINANCES IN RETIREMENT

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



QUALITY OF LIFE

- > Happiness
- > Air Quality
- > Water and Sanitation
- > Biodiversity and Habitat
- > Climate Change and Energy



MATERIAL WELLBEING

- > Income Equality
- > Income per Capita
- > Unemployment



HEALTH

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

A FRAMEWORK FOR GLOBAL ANALYSIS

The Global Retirement Index is intended to be a comparison tool that provides a global benchmark to evaluate and compare the suitability of countries in meeting the needs of retirees worldwide.

To provide a clear view into retirement security in each country, the Index considers four main factors:

- **Finances in Retirement:** considers access to quality financial services and the ability to preserve savings
- **Material Wellbeing:** examines retirees' ability to live comfortably in retirement
- **Health:** evaluates retiree access to quality health services
- **Quality of Life:** focuses on whether a country can provide a clean, safe environment in which to live

Sub-indices are calculated for each factor and individual rankings are determined by each country's score combined across all four factors.

Personal responsibility. Public trust.

2016 Natixis Global Retirement Index

Retirement was once a simple proposition: Individuals worked a lifetime and saved, employers provided a pension, and payroll taxes funded government benefits. The end result was a predictable income stream, generated from three stable sources that could provide a financially secure retirement. But demographics and economics have rendered old models unsustainable. In response to surging populations and expanding lifespans, employers continue to shift the responsibility of retirement funding to the individual, and policy makers are challenged to respond.

It's clear that in the coming decades, individuals will need to assume a greater share of retirement funding, but even as they do it's important to remember that ensuring retirement security is not solely their responsibility. Policy makers and employers still need to ensure workers have the tools, resources and education they need to be successful.

Evaluation and comparison of policy

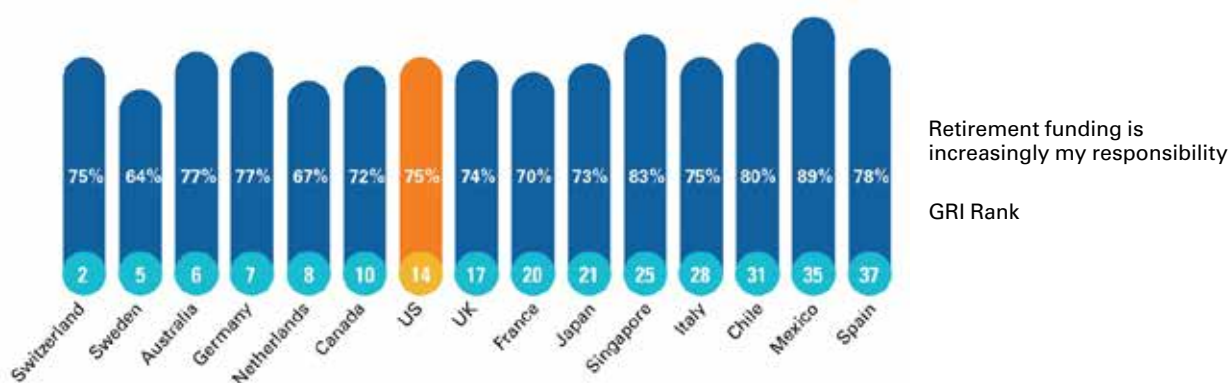
The Natixis Global Retirement Index is intended to provide a comparison tool for best practices in financial and retirement policy. Our goals are to examine the wide array of options at the disposal of policy makers, employers and individuals, look at the effective applications worldwide, and provide insight into how all parties can be engaged to advance retirement security globally.

This is not intended to be a theoretical exercise. Retirement policy alone cannot ensure security; the world is much too complex. Our index also examines other critical factors that impact the lives of retirees. While we emphasize finances in retirement most heavily, the index includes considerations for material wellbeing, health, and quality of life to provide a more holistic view.

Most of all, we focus on issues related to finances in retirement, as they have the most direct connection to how we as asset managers can work with policy makers, employers and individuals to help workers retire with dignity.

The shift is on

Individuals are well aware of the challenge ahead of them. Seventy-seven percent of those we spoke with in our 2016 Global Survey of Individual Investors³ told us they believe they will have to assume greater responsibility for funding their retirement. In Switzerland, a country that consistently ranks near the top, and number two this year, we still find that three-quarters of investors believe that the responsibility for funding retirement is on their shoulders.



Seven in ten investors globally rank retirement as a top financial planning priority, yet they may not have an accurate picture of what it will take to be successful. On average, individuals worldwide believe they will need to replace 64% of pre-retirement income for life after work, an estimate that is well short of the 75%–80% most experts believe is a realistic benchmark. A simple solution to shoring up this potential shortfall is to save more, but historically individuals have not always had the free income to increase savings and have sometimes failed to act in their best interest.

³ Natixis Global Asset Management, Global Survey of Individual Investors conducted by CoreData Research, February–March 2016. Survey included 7,100 investors in 22 countries.

Demographics pressure traditional retirement models

Aging populations pose a threat to the economics behind social welfare and retirement systems globally. Europe, where state-funded pensions are the backbone of retirement security, may feel the greatest pressure over the next half century. The number of individuals above the age of 65 in EU member countries is expected to increase from less than 20% to close to one-third of the population by 2060.

The effects of this shift will be greatest in those member countries where annual tax revenues fund retirement benefits. Where the EU currently has close to four working people for every person of retirement age, the old age dependency ratio is expected to double by 2060, leaving just two working age people for every one retiree.

With fewer workers supporting a greater number of retirees, policy makers who rely on current retirement models would be left with just three options: reduce retirement benefits, increase taxes and/or increase statutory retirement age. These may all play a role, but in reality, a greater share of the responsibility will shift to employers, who will need to ensure workplace benefits are available, and individuals, who will need to take full advantage of those benefits to ensure a more secure retirement.

EUROPE'S AGING POPULATION

AGE	2014	2060
14 and under	16%	15%
15–64	66%	57%
65 and over	19%	28%

Source: EuroStat

Retirement at work

A workplace defined contribution scheme can be one of the most effective tools for generating retirement savings, and many individuals take advantage of this benefit. Among the 7,100 individuals from 22 countries included in our 2016 Global Survey of Individual Investors, 62% said they participate in a workplace retirement program. But considering that our survey respondents are relatively high earners with an average of U.S. \$200,000 (or Purchase Price Parity [PPP] equivalent) in investable assets, the 38% who say they do not participate may be troubling.⁴

We see some of the highest numbers of respondents participating in workplace retirement plans in Colombia/Peru (87%), Chile (85%), Hong Kong (76%), and Taiwan (73%). Each of these countries has well-developed policies that focus on workplace savings plans.

Among the countries with the lowest levels of reported participation are Italy (42%), Spain (43%), and Singapore (55%). In each of these countries, workers rely on government pension benefits for a significant share of their retirement funding. For some, this state-centric funding model may be working today, but there are many questions as to whether it will be sustainable as the population in each country ages, the cost of living rises, and fewer of the workers needed to fund benefits enter the system.

Financial professionals seem to have a clear understanding of this challenge: Eight in ten of those included in our 2014 Global Survey of Financial Advisors are concerned about the impact that unsustainable government pension programs will have on their clients' investments.⁵

4 Natixis Global Asset Management, Global Survey of Individual Investors conducted by CoreData Research, February–March 2016. Survey included 7,100 investors in 22 countries.

5 Natixis Global Asset Management, Global Survey of Financial Advisors conducted by CoreData Research, September 2014. Survey included 1,800 financial advisors in 10 countries.

Fulfilling the public trust

Globally, there must be a trust that all parties who can help create positive outcomes for individuals are doing their part to advance retirement security. In this, our fourth annual Global Retirement Index, we offer:

- An examination of top performing countries for retirement security in 2016.
- An analysis of best practices for sound retirement policy.
- An assessment of what can be done by policy makers, employers, individuals and asset managers to shore up retirement security globally.

We believe it is our responsibility to provide a catalyst to drive the conversation on retirement security, not just by offering ideas but also by illuminating the issue with hard facts about what's working and what's not. In the end, it's less about creating global standards and more about empowering policy makers, employers, individuals and asset managers to make smart decisions that will help advance retirement security.

Learning from the leaders

Implications from the 2016 Natixis Global Retirement Index

Norway sits atop the 2016 Natixis Global Retirement Index. But its placement on the index is less about outperforming other countries and more about its ability to navigate a complex set of factors that contribute to retirement security.

2016's Top 25 Countries for Retirement Security

With 17 countries in the top 25, Europe dominates the GRI country rankings in 2016. The majority of these European nations are in the Western part of the continent. Many of these countries have well-established public benefits systems and a strong defined benefits culture providing workers with a stable base for retirement funding. Australia and New Zealand both rank high and earn broad recognition for the strength of their Superannuation and KiwiSaver defined contribution systems.

TOP 25 COUNTRIES IN THE 2016 GRI

COLOR SCALE	Rank	Country	Health Index	Finances in Retirement Index	Quality of Life Index	Material Wellbeing Index	Global Retirement Index
91%-100%	1	Norway	90%	72%	91%	95%	86%
81%-90%	2	Switzerland	88%	77%	92%	80%	84%
71%-80%	3	Iceland	86%	68%	88%	81%	80%
61%-70%	4	New Zealand	85%	78%	90%	68%	80%
51%-60%	5	Sweden	86%	68%	91%	74%	79%
41%-50%	6	Australia	86%	77%	81%	70%	78%
31%-40%	7	Germany	87%	67%	82%	80%	78%
21%-30%	8	Netherlands	91%	68%	80%	76%	78%
11%-20%	9	Austria	86%	63%	86%	77%	77%
0%-10%	10	Canada	87%	73%	82%	70%	77%
	11	Finland	82%	66%	91%	72%	77%
	12	Denmark	85%	59%	92%	75%	77%
	13	Luxembourg	92%	69%	75%	71%	76%
	14	United States	87%	71%	79%	59%	73%
	15	Belgium	82%	61%	78%	71%	73%
	16	Ireland	83%	68%	82%	58%	72%
	17	United Kingdom	84%	56%	80%	68%	71%
	18	Czech Republic	71%	67%	74%	73%	71%
	19	Israel	77%	69%	78%	62%	71%
	20	France	89%	60%	78%	60%	71%
	21	Japan	88%	55%	64%	76%	70%
	22	Korea, Rep.	72%	76%	52%	79%	69%
	23	Malta	74%	65%	66%	71%	69%
	24	Slovenia	79%	62%	63%	67%	67%
	25	Singapore	68%	79%	60%	56%	65%

Norway: strengthening the three pillars

Like most Western countries, Norway's retirement system is built upon three pillars: government benefits, employer pensions, and personal savings. In recent years, each of these pillars has been strengthened through smart fiscal policy and good economic fortune: In 2011, new income-based provisions were added to the government pension that's supported by Norway's \$850 billion sovereign wealth fund. This complements a 2006 policy that strengthened occupational pensions by introducing compulsory workplace savings. Personal savings have benefited from a robust economy with low levels of income inequality, low inflation, and low unemployment.

But as much as Norway sets a benchmark for retirement security, recent economic developments underscore just how fragile this foundation can be. With an economy that is heavily reliant on North Sea oil, Norway has felt the effects of a worldwide collapse in commodities prices. As oil prices plunged in 2015 and early 2016, so did employment. In the two years ending December 31, 2015, employment in the Norwegian petroleum industry has shrunk by 11%. Despite a modest rebound in recent months, oil has had a broader impact on the Norwegian economy as well as income-sensitive retirees, as the country's benchmark interest rate was cut to 0.5% in March 2016. Some experts predict it will go even lower by 2017, a rate that will stress those reliant on income generated by savings and investments to fund retirement.

Compounding the impact on retirement security, Norway tapped its sovereign wealth fund for \$781 million in January 2016 to address increased unemployment in its oil-dependent Southern and Western regions. This marks the first time Norway has had to dip into its sovereign wealth fund, which is the world's largest. State spending is further stressed by migration. More than 30,000 asylum-seekers have arrived in Norway in 2015 and into 2016. Not only are policy makers concerned with funding integration programs, but, over the long term, these new arrivals will need to be factored into Norway's retirement system.

Despite these short-term challenges, Norway's public policy is still well-positioned to ensure retirement security, as are policies and practices in other countries ranked among our top ten for 2016.

Northern Europe dominates the top ten

Seven of the top ten performers on the index are found in Northern Europe. In general, these countries (Norway, Switzerland, Iceland, Sweden, Germany, Netherlands, and Austria) present many favorable conditions for retirees. In general, they have well-funded government pension systems and a strong defined benefits culture (albeit a culture that's transitioning to defined contribution), and traditionally they have had strong, growing economies and a strong social safety net that includes access to public healthcare systems.

Iceland underscores importance of a stable financial system

Iceland is a standout in the region, thanks largely to improvements in its Finances in Retirement scores. Iceland continues to be a positive example of strong retirement policies. The tax-funded public pension system is means-tested and provides three parts which allow for basic pension as well as the opportunity to buy additional pension rights or contribute to an individual pension. Occupational pensions in Iceland are compulsory and all workers between the ages of 16 and 70 are required to contribute. The minimum contribution for occupational schemes is 12% of earnings. (The employee pays 4% of total wages and the employer pays 8%.)

This system helps place Iceland in the top ten, but fiscal management propels them into the number three position. Despite the recent Panama Papers Scandal and the subsequent resignation of Prime Minister Sigmundur Davíð Gunnlaugsson, Iceland carefully navigated its banking crisis. Policy makers have managed inflation, reduced government debt levels and seen non-performing bank loans decrease. As we see in Norway, this demonstrates the close link between monetary policy and retirement security.

It is important to note that while Iceland is a small country, and its Northern European culture emphasizes the collective good which can make it easier to achieve a consensus on policy decisions, there are lessons to be learned from its actions. The direct effect of these decisions on the retirement security of its citizens is an example of the need to manage a wide range of variables beyond pension policies to attain the critical goal of ensuring retirement security.

Australian rules

Two representatives from Oceania also rank among the best countries for retirement security by 2016: Australia and New Zealand. Both have implemented workplace plans that have proven to be effective solutions for driving retirement savings.

Introduced in 1992, Australia's Superannuation program wasn't the world's first compulsory workplace savings program (Switzerland, for example, launched its program in 1985), but it has become the centerpiece of what is viewed by many to be one of the best retirement systems in the world. Retirement policy here begins with a means-tested Age Pension funded by tax revenue. Superannuation provides a paternal solution for retirement savings by which employers are required to contribute 9.5% of an individual's earnings to a private pension. Savings are further enhanced by voluntary contributions from individuals. In total, it adds up to be one of the world's largest pension markets, with \$1.5 trillion in assets as of the end of September 2015.⁶

The concept has traveled well across the Tasman Sea and New Zealand adopted a workplace solution known as the KiwiSaver in 2007. The program also established auto-enrollment provisions that place every new hire over the age of 18 in a company plan, with an opt-out option for those who choose not to participate. The adoption of this automated approach is growing globally as policy makers and employers look to ensure more workers take part in retirement savings.

The best of the best

Individually, each country in our top ten provides solid best practices for ensuring retirement security, and collectively they highlight four core trends which we believe policy makers should consider. These include:

- **Access:** An aging workforce and increased lifespans in many Western countries are making pay-as-you-go government benefits and traditional employer pension models unsustainable, but as more of the funding responsibility shifts to individuals, public policy makers are ensuring workers have access to alternatives.
- **Incentives:** Greater scrutiny of tax burdens has led some to question the value and fairness of tax incentives for retirement savings. Smart policy is protecting and looking to expand these short-term incentives in order to alleviate the long-term budget implications for providing entitlements to retirees.
- **Engagement:** While automatic enrollment in workplace retirement plans is a step in the right direction, good policy also ensures that workers have the right balance of investments and education to ensure they maximize the benefits of plan participation.
- **Economics:** Retirement security extends well beyond the savings vehicles themselves and includes consideration for a growing population that will be living on a fixed income for many years to come. Monetary, fiscal, and healthcare policies all play a critical role in ensuring that retirees are self-sufficient.

With individuals assuming greater responsibility for their retirement funding, it will be up to policy makers, employers and the investment industry at large to manage these factors effectively, build innovative solutions, and ultimately earn the trust of individuals worldwide who need to be supported in their pursuit of a secure retirement.

⁶ <http://www.austrade.gov.au/news/economic-analysis/australian-pension-funds-growth-among-the-worlds-highest>

The tools for building public trust

Opportunities for making a smooth transition to individual responsibility

For more than 125 years, the goal of achieving security in retirement has led society across the world to pay-as-you-go retirement systems. Famously first implemented in Germany under Otto von Bismarck, old-age social insurance programs allowed workers to contribute a small amount of earnings to ensure they would have an income when they were “disabled from work by age and invalidity.”

But even as they were introduced, these plans recognized the challenge of sustainability and addressed it through policy. In Germany, the minimum retirement age was set at 70 (and lowered to 65 in 1916) at a time when individual life expectancy was only 45 years. The model was simply designed to provide benefits to a small number of workers for a short period of time. Over the years that followed, life expectancy has expanded, the population has grown and the math has only gotten worse.

Employers have recognized that traditional defined benefit pension schemes have the same shortcomings. As they look to manage liabilities that can now extend 20 or 30 years or more, most have transitioned to defined contribution plans that provide a path to accumulating retirement assets with fewer long-term liabilities. This is one reason why there are only five companies in the FTSE 100⁷ that still accept new members in their defined benefits plan;⁸ for the most part, the rest have closed out enrollments and moved on to a defined contribution solution that leaves individuals to manage the liability of running out of money.

Access is the focus of retirement policy

Now as more of the liabilities and responsibilities of funding retirement are shifting to the individual, policy makers are wise to ensure that workers are actually set up to succeed. Analysis of our Global Retirement Index suggests that the most effective solution to providing greater access is a shared responsibility between government, employers and ultimately individuals.

One point of particular focus has been the workplace. In number one Norway, new policy was implemented in 2006 that calls for employers to fund private retirement accounts for workers with contributions of 2%. Additional provisions allow for more paternal employers to fund an additional, voluntary defined contribution plan at 3%–6%.

Efforts to enhance and expand workplace or occupational savings plans take different forms globally:

- The Superannuation model implemented in Australia requires employers to contribute a minimum of 9.5% to employee accounts, while encouraging workers to make additional contributions. The program does not replace basic, minimum government benefits but instead reduces reliance on the public pension system.
- To further extend the effectiveness of workplace solutions the U.K. introduced in 2012, standards were set that automatically enroll new employees in their employer’s defined contribution scheme as a means of ensuring that individuals are started on the path to retirement savings from the outset. This feature, which is also part of New Zealand’s KiwiSaver and other programs globally, usually provides an opt-out option for those who choose to forgo participation. The U.K. plans to review the effectiveness of this policy in 2017.
- The Chilean model puts more emphasis on individual savings, creating a savings vehicle and minimum contribution levels of 10% of earnings to ensure workers accumulate much-needed retirement assets. Similarly, it does not replace the government retirement benefits, but instead shares the pension funding liability with individuals. The model, which has been adopted by ten other countries in South and Central America and the Caribbean, also provides options for taking distributions ranging from programmed withdrawals to a range of annuity choices.
- In seeking to address the demographic concerns facing many European pension systems, Spain has announced measures that will adjust pension parameters every five years based on changing life expectancies. The Independent Authority for Fiscal Responsibility – a new public agency – has been created to provide an opinion on proposed annual adjustments of benefits.
- In Switzerland, where the state pension targets pension replacement of 30% of final salary, contributions to occupational schemes are backed with a minimum interest rate guarantee from the government.
- In the Nordics, workplace savings emphasize collective, multi-employer arrangements that provide greater continuity in and portability of retirement assets.

⁷ The Financial Times Stock Exchange 100 Index represents the 100 largest blue chip companies listed on the London Stock Exchange that meet the FTSE’s size and liquidity screening.

⁸ KPMG, The Future of Defined Benefits Pension Provisions, June 2015.

- Japan is broadening access to the national pension system by reducing the qualifying period from 25 years to 10 beginning in 2017. In addition, a nominal freeze on pension benefits has been abolished and replaced with a new macroeconomic indexation which looks to wages and prices to determine benefits increases.

While setting standards for workplace savings is often an effective tool for establishing workplace savings vehicles, policy makers are also relying on incentives to help drive participation.

Incentives

Policy makers have long understood the positive effect that tax incentives have on retirement savings. In the U.S. the tax code allows individuals to make pre-tax contributions to qualified retirement savings vehicles, which makes participation more attractive. Across the globe, policy makers are finding that favorable tax treatment is a powerful tool to drive positive behavior in retirement savings.

While there are calls in some corners for the reduction or elimination of tax incentives as a means toward addressing income inequality, these efforts have not taken hold. Instead, tax incentives continue to be the key tool for policy makers in increasing individual retirement savings.

- In the U.K., contributions to Individual Savings Accounts (ISA) are tax-free up to £15,240 (\$22,000), helping to reinforce personal savings toward retirement outside of workplace plans. Individual Retirement Accounts in the U.S. have similar tax treatment with income restrictions as well.
- China introduced tax incentives on retirement savings that allow individuals to contribute up to 4% of annual salary (up to certain limits) to their enterprise annuities and occupational annuities. Employer contributions of up to 8.3% of annual salary are also tax-exempt. In a unique twist, investment returns in the program are exempt from individual income tax as well.
- One of the key steps to retirement security is to start saving early. Student loan debt can often be a barrier to getting younger workers to save. In the U.S., 34% of Millennials (age 18-35) and 19% of Generation X (age 36-50) report that high levels of student loan debt keep them from participating in their employer's defined contribution plan.
- The rising cost of education is not isolated to the U.S. It has been announced that tuition fees in the U.K. will be allowed to increase above the £9,000 cap currently in place, and discussion is under way in Australia to shift more of the educational funding burden to students.
- In the U.S., employers are introducing student loan benefits that provide financial assistance for paying off debt incurred in pursuit of an education. The end result would free up more personal cash to be contributed to retirement savings, giving employees a leg up on getting started.

While much emphasis is placed on access to and participation in retirement plans, the greater challenge comes after employees are enrolled. Participation can be seen as a minimum standard, and successfully ensuring retirement security can often be dependent upon employees engaging with their retirement savings plan to take full advantage of the benefits it may provide.

From participation to full engagement

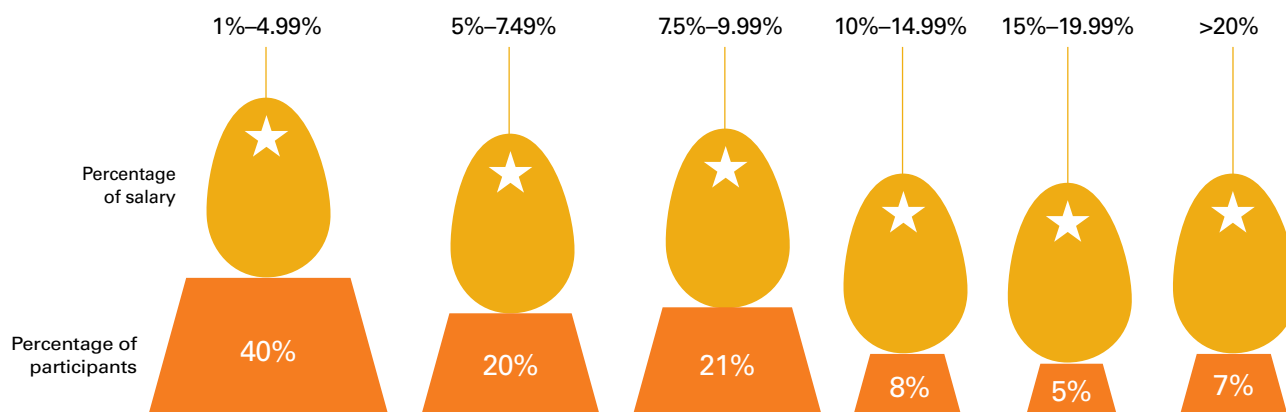
Our recent survey of defined contribution plan participants in the U.S. highlights the challenge of getting employees to engage with their retirement plan. Contribution levels are low, with 60% saying they contribute between 1% and 7.49% of earnings to their retirement account – of this, 40% say they contribute only between 1% and 4.99%. Workers over the age of 50 have the opportunity to take advantage of catch-up contributions of up to \$6,000 above standard contribution limits, yet only 36% of those surveyed actually take advantage of this provision.⁹

Not saving enough: a threat to retirement security

Highlighting a prime example of the need to engage individuals in their retirement savings programs are the results from our survey of defined contribution plan participants in the U.S. In this focused study, we find that even when individuals have access to a retirement plan, they may not be maximizing contributions. The largest percentage of participants in the U.S. contribute less than 5% of income toward retirement savings.

⁹ Natixis Global Asset Management, Survey of U.S. Defined Contribution Plan Participants conducted by CoreData Research, August 2015. Survey included 1,000 U.S. workers, 750 being plan participants and 250 being non-participants

NOT SAVING ENOUGH IS A MAJOR THREAT TO RETIREMENT SECURITY



Percentage of participants totals more than 100% due to rounding.

The first step may be getting employees to participate, and auto-enrollment features seem to be the natural fit for meeting this goal. The next step is increasing contributions. Here many employers have added auto-escalation features that allow workers to automatically increase their contribution rate annually. But there are still challenges to this model as well. Much is needed to get employees to engage so they can make informed decisions about managing their assets.

We note that while almost half of the 750 participants surveyed in the U.S. were brought to their plan through auto-enrollment, only 53% have actually modified their investment from the qualified default investment alternative chosen for them when they entered the plan.⁹ Often, lifecycle funds are selected for this option as many provide an age-based solution for the participant. But not all participants share the same life goals, challenges and needs.

To get workers beyond basic participation to full engagement, plan sponsors and policy makers have a wide range of tools at their disposal:

- Where feasible, the company match may be the best starting point. Following common wisdom in the defined contribution market, employees tend to contribute enough to maximize the company match. In cases where there is no match, this can be the first step to increasing engagement. Where it is low, an increase can also help encourage employee contributions.
- Education is another area of focus. Plan communications tend to cover the features of the plan and some basic financial education, but perhaps what's needed is advice. Maximizing their plan contribution and investments can be complex propositions for individuals who may not have a sound financial background. One-on-one advice or even automated advice may be effective solutions.
- The financial advice industry is facing increased regulatory scrutiny, not just in the U.K. and U.S., but also across Europe and Asia, as regulators seek to ensure investors' interests are put first. It is critical to ensure investors are on equal footing with those who advise them. The 2016 Natixis Global Survey of Individual Investors reports that investors find significant value in professional advice – particularly in its role in achieving retirement goals. Sixty-four percent of the 7,100 individuals who participated in the survey say professional advice is worth the fee, and nearly seven in ten say that investors who work with an advisor are more likely to meet their goals. What they want from an advisor is clear from our data: They want help making more informed investment decisions, they want better solutions for managing risk, and they want help setting goals and establishing plans.¹⁰

⁹ Natixis Global Asset Management, Survey of U.S. Defined Contribution Plan Participants conducted by CoreData Research, August 2015. Survey included 1,000 U.S. workers, 750 being plan participants and 250 being non-participants

¹⁰ Natixis Global Asset Management, Global Survey of Individual Investors conducted by CoreData Research, February–March 2016. Survey included 7,100 investors from 22 countries.

- In the U.K., the recent implementation of Retail Distribution Review standards comes at the same time as the Pension Freedom Act, which abolished mandatory annuitization of pension pots at retirement. As a result, financial professionals are limited to the role of investment advisor or financial planner, potentially limiting access to advice at a time when millions of pensioners will be presented with their life savings in one lump sum.
- France has announced that as of 2016, all of those covered under its government pension system will have an electronic tool to view relevant data such as work history and past contributions. It will also provide projected pension benefits from the public system and mandatory workplace programs. This holistic view of benefits could prove to be a highly effective tool for increasing the engagement of workers. Knowing where they stand now should allow individuals to make informed decisions about other steps they may need to make in order to shore up retirement.

In terms of driving greater engagement, it's likely that a better-informed worker is a better plan participant.

More than retirement policy

Retirement security is not achieved solely through policies focused on savings vehicles, plan participation and contribution rates. The wellbeing of retirees is innately tied to the broader regional and global economy. Monetary policy, economic policy, healthcare policy and even environmental policy all have a strong influence on the outcomes retirees experience. Our Global Retirement Index is designed to evaluate how these and other factors shape the lives of retirees worldwide. While we emphasize more direct retirement policy throughout this report, there is a place for a broader discussion.

Among the chief challenges facing retirees in today's economy is their ability to sustain a minimum quality of life. Historically, inflation has been the chief concern of retirees. While living on a fixed income it's critical for individuals to maximize their buying power. Given the low levels of inflation globally and potential deflation in some economies that has come on the heels of the global financial crisis, this may not be the primary concern at this point in time. But another factor is causing greater concern: low interest rates.

Quantitative easing measures have left much of the developed world with historically low interest rates for an extended period of time. While this is a boon for those wanting to borrow, it is a challenge for those needing to manage limited assets carefully. It's common to see promotions for savings accounts paying 1% or less in interest. Better returns may be found in the global stock markets, but as recent events show, volatility can quickly erode principal. For those no longer in their earning years, it means accepting little or no growth on their assets with the hope that inflation remains low, or losing principal at a point in life when there may not be enough time to get back to whole.

Decisions to back off tapering will need to be carefully weighed. While low rates free up credit for one part of the population, they also restrict the earning power of another.

Beyond monetary policy, retirees face critical challenges that policy makers must be aware of: Old age often brings greater reliance on healthcare. Europe shows leadership in this area, representing seven of the top ten countries in the health sub-index. Health policy in the region tends to favor national programs that are publicly funded with taxes, as in their retirement systems they also include privately funded components. The models are designed to ensure the availability of healthcare across their populations.

For decision makers, it will be critical to take a holistic view on retirement. Beyond direct retirement benefits, policy makers have a wide range of issues to consider in ensuring security for retirees.

Meeting trust with personal and public measures

Recommendations for retirement security

Retirement may have once been simple, but economics and demographics have broken the old models. Achieving retirement security in the 21st century will require new ideas for engaging policy makers, employers, and most importantly individuals. It will also require innovation from asset managers to provide real investment solutions for managing both the accumulation of assets and their distribution into a stable income stream.

Retirement security is a worthy goal. The wellbeing of individuals around the world depends on it. It's an effort that will challenge all parties to be more resourceful and think differently about how to help individuals achieve the best outcomes. We see unique opportunities for all parties.

Strategies to enhance and protect retirement benefits

Policy makers across the globe face the difficult challenge of maintaining a sustainable level of pension benefits to cover the most basic needs of retirees while also setting standards to help individuals meet their personal responsibility. Access may be the single most critical objective. We know that in the U.S. alone, one-third of workers don't have access to a workplace retirement plan.¹¹ Coverage is better in some countries, worse in others.

Sound policy decisions that encourage and incentivize employers to offer retirement plans are a critical starting point. Programs that help employers pool employees in collective schemes have proven not only to make it easier to provide access, but also to address portability as members of a more mobile work force move through a career. Incentives that make it more attractive to provide access to workplace plans hold promise, especially for smaller companies.

Policy decisions should not be limited to employers and should address the needs and challenges of individuals as well. Tax incentives have proven highly effective in getting individuals to save and should be continued. One area of particular focus would be to provide those working in the growing "gig economy" as independent contractors and consultants with access to savings vehicles with tax incentives.

Making workplace plans work

Employers are a key link to security. Beyond the clear benefits to employees, providing access to a retirement savings scheme has significant benefits to employers as well, helping to attract and retain talent. Automatic enrollment is a good first step to building participation by placing new employees in the plan and leaving it up to them to opt out. Employers can also help drive deeper engagement with participants through automatic escalation features that allow individuals that opt in to gradually increase their contribution rate annually.

Advice is another step that helps enhance plan participation. Where practical, providing access to a one-on-one meeting with a financial professional can help participants to set goals, obtain a better education on investing and risk, and maximize participation. Our own U.S. research shows that those individuals who have financial advisors have saved significantly more in their plan than those who don't.¹² It amounts to taking a more paternal view of the retirement scheme, which may better enable individuals to retire with greater security.

¹¹ "Supporting New Savings Opportunities", blog.dol.gov, February 2016.

¹² Natixis Global Asset Management, Survey of U.S. Defined Contribution Plan Participants conducted by CoreData Research, August 2015. Survey included 1,000 U.S. workers, 750 being plan participants and 250 being non-participants.

Personal responsibility requires action

Individuals know they are taking on a greater share of retirement funding. Fulfilling that responsibility starts with some clear basic first steps. Start saving early and maximize all the resources at your disposal. Individuals who have been introduced to a plan through auto-enrollment should take the next step and get engaged with their savings.

Individuals should also understand how their plan operates and know their options for choosing and managing investments. Make sure the investments are right for you: Many default investment options are age-based and provide a basic measure of risk, but individual circumstances vary from person to person. Participants should make their investments match their personal goals and time horizon. Take advantage of automatic escalation to slowly but surely increase contribution rates. Responsibility is realized by following through on the details.

Putting the individual first

Asset managers are the fourth critical stakeholder in retirement security. As providers of the investments that fund retirement, it's important for members of the asset management industry to look critically at what individuals need, how they behave, and what they are trying to accomplish. Understanding these basics can help drive product innovation both for accumulating a retirement nest egg and for turning those assets into reliable cash flow in retirement.

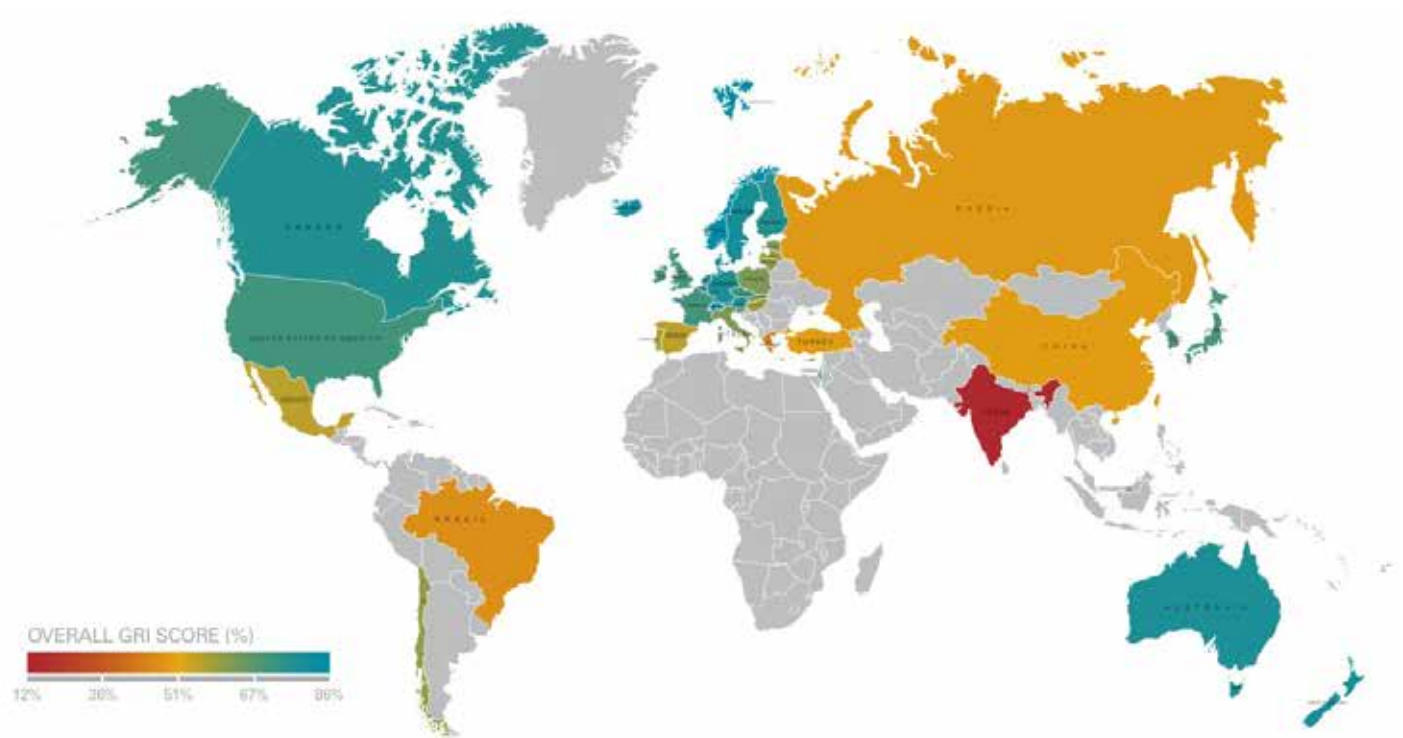
Achieving retirement security is a big goal, but it is within reach, particularly if all stakeholders do their part. Globally, there are many best practices to learn from and incorporate in sound strategies. With the Natixis Global Retirement Index, we hope to have shed light on some of those tactics.

The Global Retirement Index 2016

Evaluating the progression of different countries and assessing their potential risk factors are key elements of the GRI. A static representation of a country's current conditions, without looking to the past or future, would misrepresent the true level of security for retirees. The GRI takes into account economic development, policy and political modifications, demographic changes and environmental conservation when assessing retiree welfare.

The map below features the results of the 2016 GRI. The cooler colors represent higher overall GRI performance, while the warmer colors indicate poorer performance. European countries account for seven of the top ten performers. Of the three non-European countries in the top ten, two are from Asia Pacific and the other is located in North America. The bottom is mostly composed of BRIC countries, although China actually performs better than Turkey and Greece.

GLOBAL RETIREMENT INDEX 2016



1. Norway

Norway ranks first overall in this year's GRI with a score of 86%. This year's GRI places a renewed focus on developed countries and refines its methodology for some of the sub-indices. Under the new methodology, Norway's performance in the Finances in Retirement and Quality of Life sub-indices helped it maintain its number one position from 2015. A country with an extremely high quality of life, an outstanding healthcare system and a sound financial system, it has superb scores across the board, garnering the highest score in the Material Wellbeing sub-index, the third highest for both the Quality of Life and Health sub-indices and is in the top ten for Finances in Retirement.





Within the Finances in Retirement sub-index, Norway performs particularly well when it comes to inflation and governance. While Norway has relatively low levels of public debt, Norwegians face higher tax burdens than some of the other OECD countries in the list. Maintaining these current low levels of public debt is very desirable from the perspective of retirees since Norway's old-age dependency, while lower than many European countries, is fairly high and potentially higher levels of public debt would make it more difficult for Norway to provide for its citizens in retirement.

The country's performance in the Material Wellbeing sub-index is exceptional as it has the second highest score in every single indicator. It succeeds in having comparatively low levels of income inequality (as measured by the Gini coefficient) while maintaining one of the highest incomes per capita among all countries in the GRI. Norway is the only country to score at least 90% in both the income equality and income per capita indicators.

Norway's top ten placing in health expenditure per capita and non-insured health expenditure led to its excellent score in the health sub-index. In the Quality of Life sub-index, Norway's superior score is driven by its top five ranking in the indicators for happiness, climate change and air quality.



• Sub-Index and Indicator Rankings •

 Finances in Retirement	72%
Old-Age Dependency	45%
Bank Non-Performing Loans	66%
Inflation	100%
Interest Rates	61%
Tax Pressure	14%
Government Indebtedness	65%
Governance	93%
 Health Index	90%
 Quality of Life Index	91%
 Material Wellbeing Index	95%

2015 scores and rankings were calculated using the revised methodology and new list of countries implemented in GRI 2016.

2. Switzerland

Second place in this year's GRI, which focuses more closely on the developed world, belongs to Switzerland, with a score of 84%. Switzerland's score for tax pressure improved compared to last year. Its improvement in overall score is also partly due to improvements in inflation and governance. With exceptional performance in 2016, Switzerland maintains its number two spot it held in 2015. Together with Norway, Switzerland is the only other country with a top ten spot in all four sub-indices. It ranks second in Quality of Life, fourth in both Material Wellbeing and Finances in Retirement and sixth in Health.





Underlying Switzerland's top five placement in the Material Wellbeing sub-index is the country's superlative performance in the income per capita and unemployment indicators which place it in the top ten.

In terms of Finances, Swiss retirees benefit from favorable levels of inflation and low taxation and Switzerland ranks among the top ten in both of these indicators. Furthermore, it is one of the top five countries for both bank non-performing loans and governance. The country registers very good improvements within the World Bank governance indicators compared to last year.

Switzerland's best comparative sub-index performance was Quality of Life. It has the highest score for climate change and the second highest score for happiness. Despite not ranking as high as the other indicators, the air quality and biodiversity scores are both above 80%.



• Sub-Index and Indicator Rankings •

 Finances in Retirement	77%
Old-Age Dependency	40%
Bank Non-Performing Loans	77%
Inflation	100%
Interest Rates	74%
Tax Pressure	47%
Government Indebtedness	52%
Governance	93%
 Health Index	88%
 Quality of Life Index	92%
 Material Wellbeing Index	80%

2015 scores and rankings were calculated using the revised methodology and new list of countries implemented in GRI 2016.

3. Iceland

Iceland retains its number three position from 2015 in this year's GRI with a score of 80%. Based on our enhanced methodology, Iceland scores among the ten best countries for Material Wellbeing (2nd), Quality of Life (7th) and Health (10th).

Iceland's performance in the Finances in Retirement sub-index is not as strong as its other sub-indices. Its scores for tax pressures, government indebtedness and bank non-performing loans rank toward the middle. Iceland is nurturing stability and has continued to improve its financial and economic situation since heading off long-term damage from the high profile bank collapses between 2008 and 2011. While levels of public debt remain relatively high, they are on the way down toward more sustainable levels. Banks are looking forward to the lifting of capital controls in the upcoming year, and non-performing bank loans, meanwhile, are down.

The country places highly in the Material Wellbeing sub-index mainly driven by its strong performance in all three indicators. Its scores for unemployment and income equality ranked in the best ten countries in the GRI. Iceland also performed very well in the Health sub-index.

Iceland scores well in the Quality of Life sub-index as evidenced by its top five placing in the happiness and climate change indicators.



• Sub-Index and Indicator Rankings •

	Finances in Retirement	68%
	Old-Age Dependency	57%
	Bank Non-Performing Loans	44%
	Inflation	54%
	Interest Rates	81%
	Tax Pressure	25%
	Government Indebtedness	34%
	Governance	90%
	Health Index	86%
	Quality of Life Index	88%
	Material Wellbeing Index	81%

2015 scores and rankings were calculated using the revised methodology and new list of countries implemented in GRI 2016.

4. New Zealand

Fourth place in this year's GRI is home to New Zealand which garnered a score of 80%. Its scores have placed it in the top ten for Finances in Retirement (3rd) and Quality of Life (6th). Low inflation, growing interest rates and relatively low levels of public debt all contribute to strong macroeconomic conditions. New Zealand also offers an excellent quality of life and healthcare as well. A better performance in the inflation indicator along with improvements in the tax pressure and unemployment indicators helped boost New Zealand's performance from number five last year, albeit under the new methodology.

New Zealand's highly rated governance score highlights the country's impressive Finances ranking. In addition to finishing first in this indicator, it placed in the top ten for inflation, bank non-performing loans and government indebtedness. Public debt is projected to fall every year over the course of the next five years according to IMF projections which is beneficial for retirees. In terms of old-age dependency, while New Zealand performs better than most European countries, it still lags behind the Asian countries in the GRI and some in the OECD like Mexico and Turkey.

New Zealand ranks highly in air quality and happiness which drives its sixth place position in the Quality of Life sub-index. It also has a comparatively good score in climate change. New Zealand's health sub-index score is also solid. The country's non-insured health expenditure ranks fourth among all countries in the GRI.

New Zealand's lowest score is for the Material Wellbeing sub-index. None of New Zealand's scores within this index ranked among the top ten and its income per capita lags that of other advanced economies.



• Sub-Index and Indicator Rankings •

	Finances in Retirement	78%
	Old-Age Dependency	51%
	Bank Non-Performing Loans	73%
	Inflation	100%
	Interest Rates	73%
	Tax Pressure	33%
	Government Indebtedness	61%
	Governance	94%
	Health Index	85%
	Quality of Life Index	90%
	Material Wellbeing Index	68%

2015 scores and rankings were calculated using the revised methodology and new list of countries implemented in GRI 2016.

5. Sweden

Sweden ranks fifth overall in this year's GRI with a score of 79%. Under our revised methodology, Sweden's biggest sub-index improvement compared to last year is Finances in Retirement, led by improvements in the tax pressure and bank non-performing loans indicator scores. Despite these improvements, Sweden did drop one spot from fourth place in 2015. Its scores in the Quality of Life and Material Wellbeing sub-indices qualify it for a place in the top ten while its performance in the Health and Finances sub-indices are still strong despite not making the top ten.

Sweden's Finances in Retirement sub-index was a bit of a mixed bag for the country. They had top ten finishes in inflation, governance and bank non-performing loans while simultaneously having one of the worst performances in the GRI in tax pressure and old-age dependency. While their tax burden is high, having to provide for an older population does not seem to have had an adverse effect on public debt as they managed to score relatively high in government indebtedness. However, this will be a trend to watch for as more Swedes retire and, as a result, government expenditures rise to provide for them.

Sweden's scores for both income equality and income per capita qualify it for a top ten place which helps ensure its high placement in the Material Wellbeing sub-index. However, its unemployment ranking is middle of the pack.

Sweden's top ten placing in air quality, climate change and happiness drives its superior score in the Quality of Life sub-index. Other than water and sanitation, biodiversity was the only indicator that did not make the top ten. Sweden scores relatively well in the Health sub-index as well. Sweden's highly rated healthcare system continues to be reinforced by its high life expectancy, health expenditures per capita, and non-insured health expenditure, all of which rank very high.



• Sub-Index and Indicator Rankings •

	Finances in Retirement	68%
	Old-Age Dependency	30%
	Bank Non-Performing Loans	69%
	Inflation	100%
	Interest Rates	63%
	Tax Pressure	10%
	Government Indebtedness	55%
	Governance	92%
	Health Index	86%
	Quality of Life Index	91%
	Material Wellbeing Index	74%

2015 scores and rankings were calculated using the revised methodology and new list of countries implemented in GRI 2016.

6. Australia

Australia ranks 6th overall in this year's GRI with a score of 78%. Under the new methodology that concentrates on developed countries, Australia maintains its number six position from 2015 with positive performance in Finances in Retirement and solid performances in the remaining sub-indices. The Quality of Life and Finances in Retirement sub-indices are responsible for gains in Australia's overall score as the country managed to improve its personal wellbeing score and significantly improved its score for tax pressures.





The country's stellar performance in Finances in Retirement is driven by strong rankings in governance (10th), interest rates (7th) and bank non-performing loans (8th). It also achieves a top ten finish in government indebtedness and tax pressures. Australia also has low rates of inflation which means more purchasing power for Australian retirees. However, Australia's highly praised public services may prove to be the country's Achilles heel and could even be contributing to rising unemployment. Generous social security benefits, including unemployment payments, available to Australian citizens could be among the causes of increasing government expenditure and adding to the national deficit.

Australia's second best sub-index performance is in Health, where it performs especially well in life expectancy and health expenditure per capita. Its score for non-insured health expenditure is slightly better than that for health expenditure per capita.

Meanwhile, Australia has an impressive Quality of Life ranking due to strong performances in the happiness indicator and air quality indicators. Australia also manages a top twenty ranking in the Material Wellbeing sub-index. While its income equality scores can still improve, Australia performed fairly well in the income per capita and unemployment indicators.



• Sub-Index and Indicator Rankings •

 Finances in Retirement	77%
Old-Age Dependency	51%
Bank Non-Performing Loans	70%
Inflation	84%
Interest Rates	81%
Tax Pressure	45%
Government Indebtedness	61%
Governance	91%
 Health Index	86%
 Quality of Life Index	81%
 Material Wellbeing Index	70%

2015 scores and rankings were calculated using the revised methodology and new list of countries implemented in GRI 2016.

7. Germany

With a score of 78%, Germany moves up from number 12 in 2015 to 7th for 2016. Germany's improvement in the tax pressure indicator makes a significant contribution to its overall ranking. The largest economy and exporter in the European Union with a GDP* of over \$3 trillion, Germany's performance in the 2016 GRI is excellent. Low levels of inequality, low rates of unemployment and a high income per capita combine to provide an excellent lifestyle for retirees.

However, Germany's performance in the Finances in Retirement sub-index was not as good as its performance in the other sub-indices. It has among the lowest scores for old-age dependency in the GRI and is in the bottom ten for both tax pressures and interest rates. While Germany's score for bank non-performing loans is not particularly poor, low interest rates have hit profitability in the banking sector and this has generated an unfavorable investment environment that could have negative consequences for retirees. And while the country's public debt is currently at sustainable levels, its high old-age dependency ratio could create a challenging environment for public finances further down the road. Against this, inflation remains at favorable levels and the country scores very well in governance.

Within Material Wellbeing, Germany performs best in the income per capita and unemployment stakes, achieving top ten rankings for both. Especially encouraging is the fact that in every year since 2009, unemployment as a percentage of the total labor force has decreased, while GNI** per capita has increased.

In the Health sub-index, Germany achieves good scores in health expenditure per capita and non-insured health expenditure. The country's performance in the Quality of Life sub-index was also very good.



• Sub-Index and Indicator Rankings •

	Finances in Retirement	67%
	Old-Age Dependency	28%
	Bank Non-Performing Loans	55%
	Inflation	100%
	Interest Rates	48%
	Tax Pressure	22%
	Government Indebtedness	38%
	Governance	91%
	Health Index	87%
	Quality of Life Index	82%
	Material Wellbeing Index	80%

2015 scores and rankings were calculated using the revised methodology and new list of countries implemented in GRI 2016.

* Gross Domestic Product (GDP) is the monetary value of all goods and services produced by a country - in this case annually.

** Gross National Income (GNI) is a country's GDP plus net income received from overseas.

8. Netherlands

The Netherlands ranks eighth in this year's GRI with a score of 78%. Progress in the tax pressure, bank non-performing loans and government indebtedness indicators within the Finances in Retirement sub-index leads the way for the Netherlands. Based on our enhanced methodology the country recedes slightly from its 2015 number seven ranking, but the Netherlands still achieves top ten finishes in both the Health (2nd) and Material Wellbeing (8th) sub-indices.

In terms of the Finances in Retirement sub-index, the Netherlands ranks 15th overall. The country has high scores for governance and also has low levels of inflation. However, tax burden is fairly high in the Netherlands and low interest rates are not favorable for savers and retirees. Like most European countries, Netherlands' aging population presents a demographic challenge although it ranks in the mid-range among OECD countries in terms of the old age dependency ratio.

The Netherlands has the highest score for non-insured health expenditure. This very impressive performance, coupled with a top five rank in health expenditure per capita, explains its stellar showing in the Health sub-index. And top ten scores for income per capita and income equality drive the country's high ranking in the Material Wellbeing sub-index.

The Netherlands scores relatively well in the Quality of Life sub-index. It ranks seventh in happiness while biodiversity and habitat, water and sanitation, and air quality are all highly ranked as well.



• Sub-Index and Indicator Rankings •

	Finances in Retirement	68%
	Old-Age Dependency	38%
	Bank Non-Performing Loans	51%
	Inflation	100%
	Interest Rates	47%
	Tax Pressure	21%
	Government Indebtedness	40%
	Governance	92%
	Health Index	91%
	Quality of Life Index	80%
	Material Wellbeing Index	76%

2015 scores and rankings were calculated using the revised methodology and new list of countries implemented in GRI 2016.

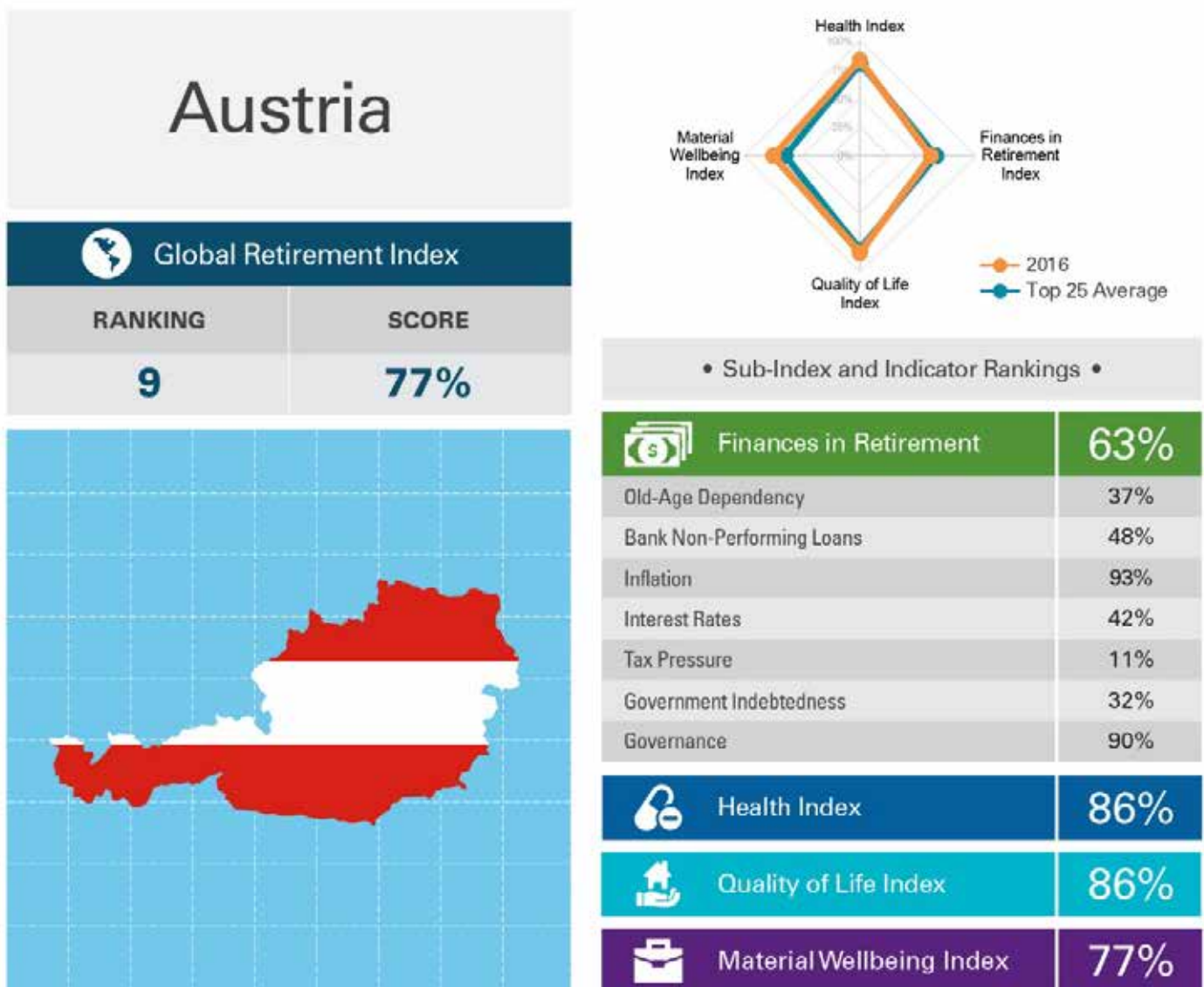
9. Austria

Austria scores 77% under our revised methodology, ranking the country 9th overall in this year's GRI, a slight change from its 8th position in 2015. The country scores well in the Material Wellbeing and Quality of Life sub-indices. However, a decline in the Health and Material Wellbeing scores contributed to Austria's drop in overall score from last year. Austria's scores in all three indicators within health fell from last year and its scores for income per capita and unemployment declined as well.

The country has a middle of the pack ranking in Finances in Retirement with a relatively poor showing in tax pressures, interest rates, government indebtedness and old-age dependency. However, a strong performance in governance helps boost its overall Finances in Retirement score. Low inflation levels help it maintain a decent Finances score.

Within Material Wellbeing, Austria scores highest in unemployment and income per capita. And within Quality of Life, the country's strongest performance is in water and sanitation, climate change and happiness. The country also manages to notch up good performances in the remaining Quality of Life indicators.

Austria also performs strongly in Health with high scores for health expenditure per capita.



2015 scores and rankings were calculated using the revised methodology and new list of countries implemented in GRI 2016.

10. Canada

Under a new methodology and focus on developed countries, Canada ranks tenth in this year's GRI with an overall score of 77%. It makes the top ten in Finances in Retirement (7th) and Health (9th) but just misses out on a top ten rank for Quality of Life (11th).

Canada's performance in the Finances in Retirement sub-index is something of a mixed bag. It performs strongly in a number of indicators within the sub-index with bank non-performing loans and governance indicators all featuring in the overall top ten. Low interest rates and relatively high government indebtedness do not bode well for Canadian retirees and thus pull down the country's sub-index score. However, given it shares close economic ties with the United States, Canada is benefiting from the recovery in the United States.

A country known for its social benefit programs, Canada maintains low levels of inequality and high levels of income per capita and thus performs fairly well in the Material Well-Being sub-index.

Canada's impressive score in the Health sub-index is driven by its strong performance in health expenditure per capita, non-insured health expenditure and life expectancy. Within the Quality of Life sub-index, meanwhile, it registers its best performance in happiness and air quality. Renewable electricity generation is high which is an encouraging sign for environmentally conscious retirees.

Canada



Global Retirement Index

RANKING

10

SCORE

77%



• Sub-Index and Indicator Rankings •



Finances in Retirement

73%



Old-Age Dependency

48%



Bank Non-Performing Loans

84%



Inflation

100%



Interest Rates

57%



Tax Pressure

37%



Government Indebtedness

32%



Governance

91%



Health Index

87%



Quality of Life Index

82%



Material Wellbeing Index

70%

11. Finland

A score of 77% sees Finland drop under our new methodology from 9th in 2015 to 11th place this year. It performed well in the Quality of Life (4th) and Material Wellbeing (12th) sub-indices while falling in the middle ground in the indices for Health and Finances in Retirement. Finland's decline in performance from 2015 is because of poorer performances in both the unemployment and income per capita indicators within the Material Wellbeing sub-index.

In terms of Finances, Finland performs well in the governance, bank non-performing loans and inflation indicators. In fact, Finland ranks second in the governance indicator and the bank non-performing loans indicator. However, Finland's old age dependency ratio is on the rise and will probably increase its fiscal strain in the future. Meanwhile Finland's tax burden is also among the highest in the OECD.

Finland's best score within the Material Wellbeing sub-index is for income equality. It also has relatively high levels of income per capita. However, the country's levels of unemployment continue to increase resulting in a lower rank for this indicator.

Its strong Quality of Life score is driven by placing fifth for the happiness and air quality indicators. Finland's score for water and sanitation is also remarkably high. While Finland's performance in the Health sub-index was not exceptional, it still performed well.



• Sub-Index and Indicator Rankings •

	Finances in Retirement	66%
	Old-Age Dependency	30%
	Bank Non-Performing Loans	84%
	Inflation	100%
	Interest Rates	42%
	Tax Pressure	8%
	Government Indebtedness	44%
	Governance	94%
	Health Index	82%
	Quality of Life Index	91%
	Material Wellbeing Index	72%

2015 scores and rankings were calculated using the revised methodology and new list of countries implemented in GRI 2016.

12. Denmark

Denmark comes in 12th place in this year's GRI with a score of 77%. Despite Denmark falling from its number 11 ranking last year, its scores are still high relative to other countries. The country registered minor declines in the Finances in Retirement and Health sub-indices. But bolstered by its excellent healthcare system and high quality of life, Denmark continues to be an attractive destination for potential retirees. It is the highest scoring country in the Quality of Life sub-index and ninth in the Material Wellbeing sub-index.

In the Finances in Retirement sub-index, Denmark performs exceptionally in some indicators and less well in others. It has very high scores in the governance indicator and favorable levels of inflation. However, the country's tax burden is extremely high; it has the worst score for tax pressures of all the countries in the GRI. Denmark also ranks poorly when it comes to old-age dependency and interest rates.

One of the highlights in Denmark's stellar performance in the Quality of Life sub-index is having the highest ranking for happiness of any country in the GRI. It is also in the ten top performing countries when it comes to climate change and has favorable rankings for biodiversity and habitat and air quality. Within Material Wellbeing, Denmark's income per capita of \$46,210 is well-accomplished considering it is the ninth highest among all countries in the GRI. The country also has relatively low levels of inequality.

Denmark's Health sub-index score is also very high. It ranks among the top ten in health expenditure per capita and non-insured health expenditure and has high scores for life expectancy as well.



• Sub-Index and Indicator Rankings •

	Finances in Retirement	59%
	Old-Age Dependency	34%
	Bank Non-Performing Loans	43%
	Inflation	100%
	Interest Rates	43%
	Tax Pressure	1%
	Government Indebtedness	54%
	Governance	92%
	Health Index	85%
	Quality of Life Index	92%
	Material Wellbeing Index	75%

2015 scores and rankings were calculated using the revised methodology and new list of countries implemented in GRI 2016.

13. Luxembourg

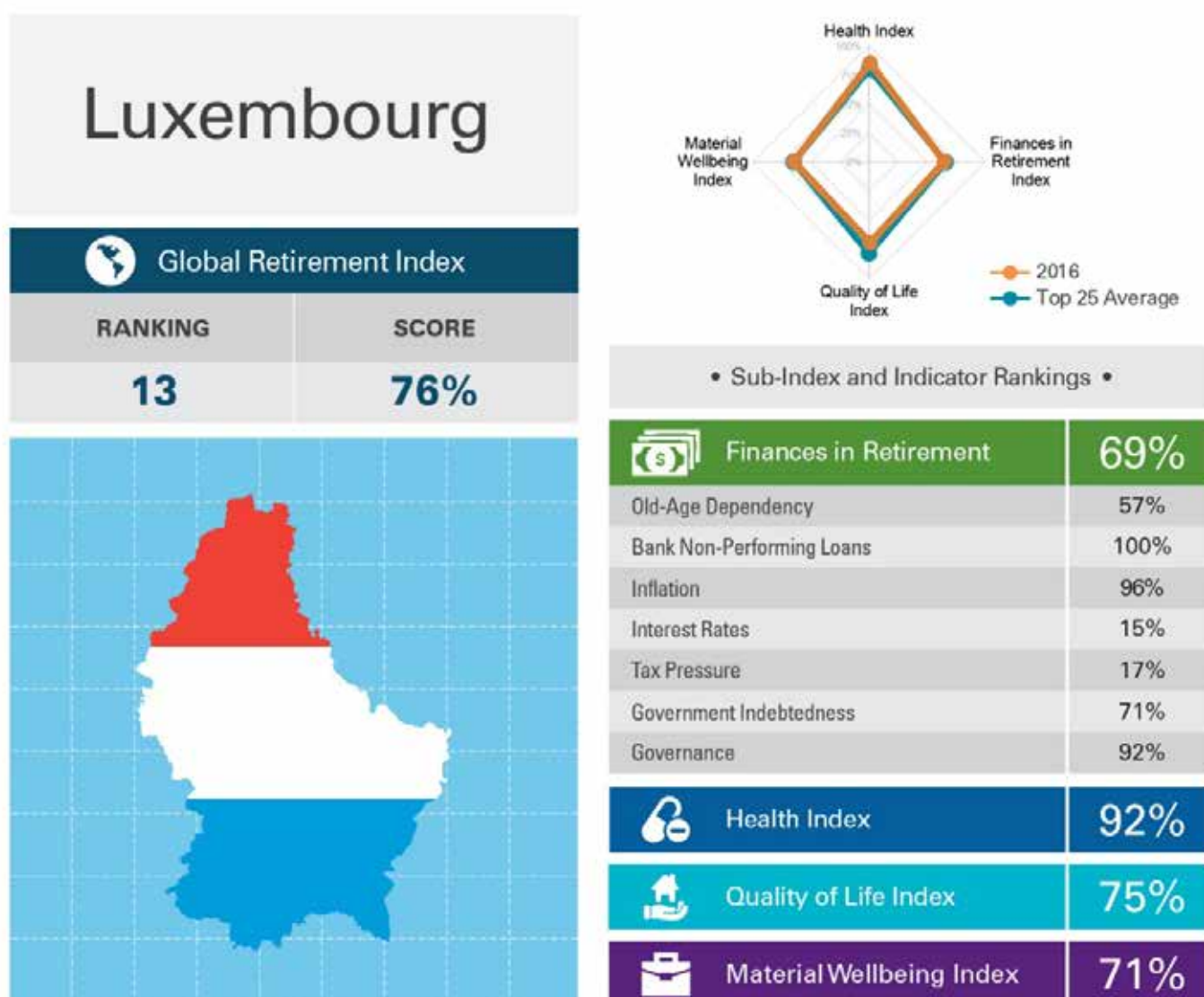
Luxembourg maintains its place at 13th overall in this year's GRI with a score of 76%. Its current ranking must be considered in light of our revised methodology. Much of the country's success is driven by having top fifteen placements in both Finances in Retirement and Material Wellbeing and the highest score in the Health sub-index. Interest rate and tax pressure indicators are contributors to its progress in Finances, demonstrating how much these factors can contribute to retirement security.

Ranking 12th in Finances in Retirement, Luxembourg has some of the best performing indicator scores among all the countries under review. It has the lowest proportion of bank non-performing loans (1st) of any country in the GRI while ranking 4th for government indebtedness and 8th for governance. Its scores for inflation were also strong. However, the country has some of the worst rankings for interest rates (38th) and tax pressure (35th).

Luxembourg has an extremely high income per capita (3rd) which significantly bolsters its Material Wellbeing score (15th). While unemployment has increased, it still remains below average for a Western European country. Job creation from financial service exports has offset the unemployment rate somewhat, as have increases in economic growth through the ECB's quantitative easing program.

Luxembourg's first place in Health was a result of high scores in all three indicators making up the sub-index. Both life expectancy and health expenditures per capita remain among the highest of the GRI countries.

Within Quality of Life, Luxembourg is the highest ranked for biodiversity and habitat and scores relatively well in the happiness indicator.



2015 scores and rankings were calculated using the revised methodology and new list of countries implemented in GRI 2016.

14. United States

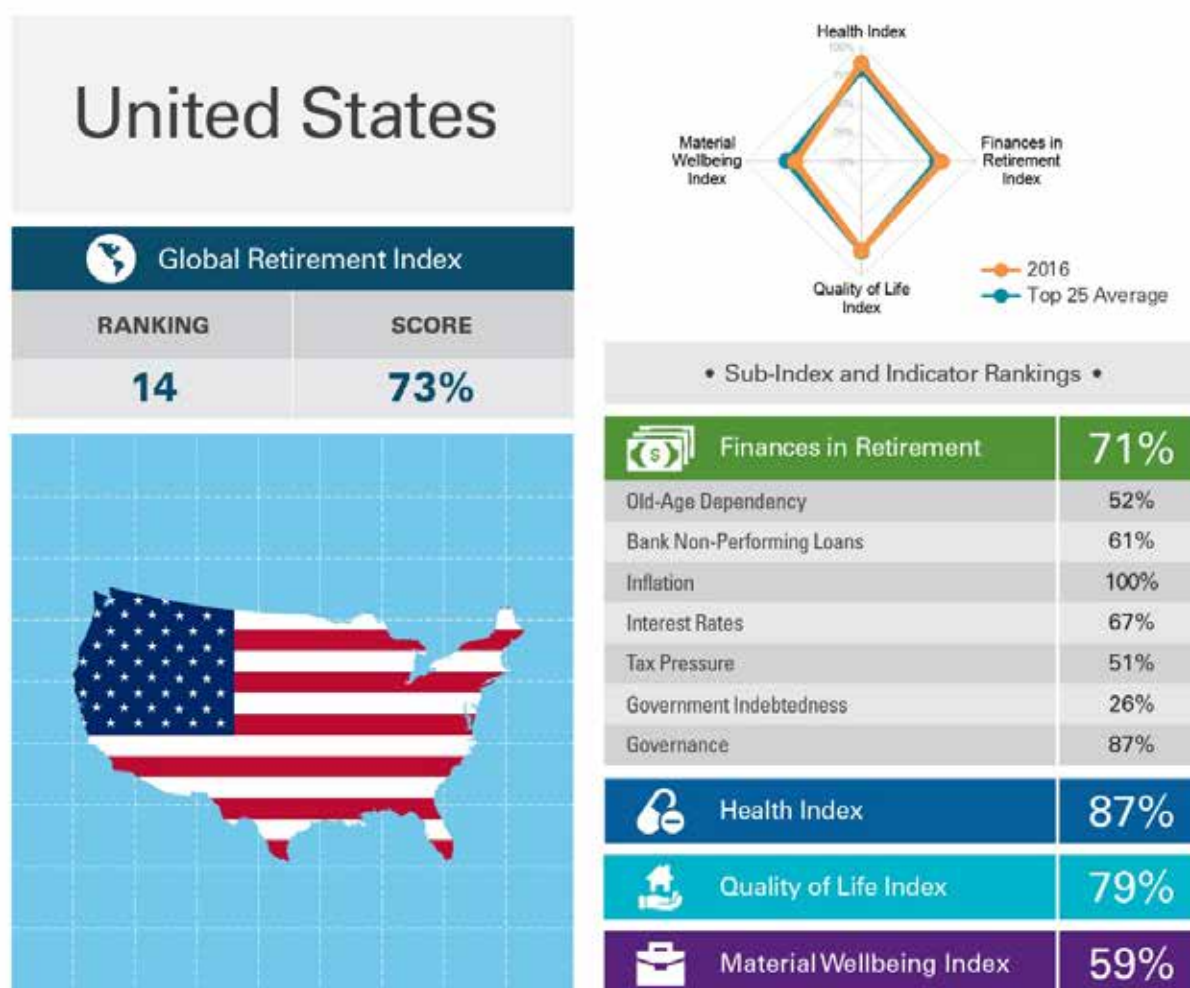
Under the revised methodology and developed world focus, the U.S. places 14th in this year's GRI, with a score of 73%. The U.S. ranks in the top ten for health (7th) and finances (10th) while ranking 16th in Quality of Life and 25th in Material Wellbeing. Improvements within the Material Wellbeing and Finances sub-indices mostly drive the United States' positive change in overall score. The country notably progressed in unemployment and tax pressure.

With a few exceptions, the United States' performance is solid in most indicators making up the Finances in Retirement sub-index. It has had relatively low levels of inflation over the past five years and performs fairly well in bank non-performing loans and governance indicators. However, relatively high levels of public debt and increasing tax burdens decreased their scores in this sub-index. Although the government deficit is expected to decline slightly, rising expenses in the long term seem inevitable as more baby boomers reach retirement age. This will increase Medicare expenditures, which already constitute close to a fifth of the federal budget. With a rate hike late last year and further hikes expected this year, the interest rate environment in the U.S. is better than the negative yield environment in some European countries.

Despite enjoying one of the highest levels of income per capita (5th), the United States ranks among the lowest in income equality (37th). Along with Singapore, it is the only country to rank among the top five for income per capita while simultaneously being in the bottom ten for income equality. Meanwhile unemployment has been on a downward trend and the country is looking to reach levels close to full employment.

The United States has the highest health expenditure per capita of any other country in the GRI. It is also amongst the highest levels of non-insured health expenditure (6th).

The United States performed moderately well in Quality of Life sub-index but poor performance in a few indicators held back its overall score. The U.S. is bottom ten in the climate change indicator and is still one of the leading producers of CO₂ emissions. However, President Obama has proposed legislation as part of the Clean Power Plan that could steeply reduce emissions by 2030.



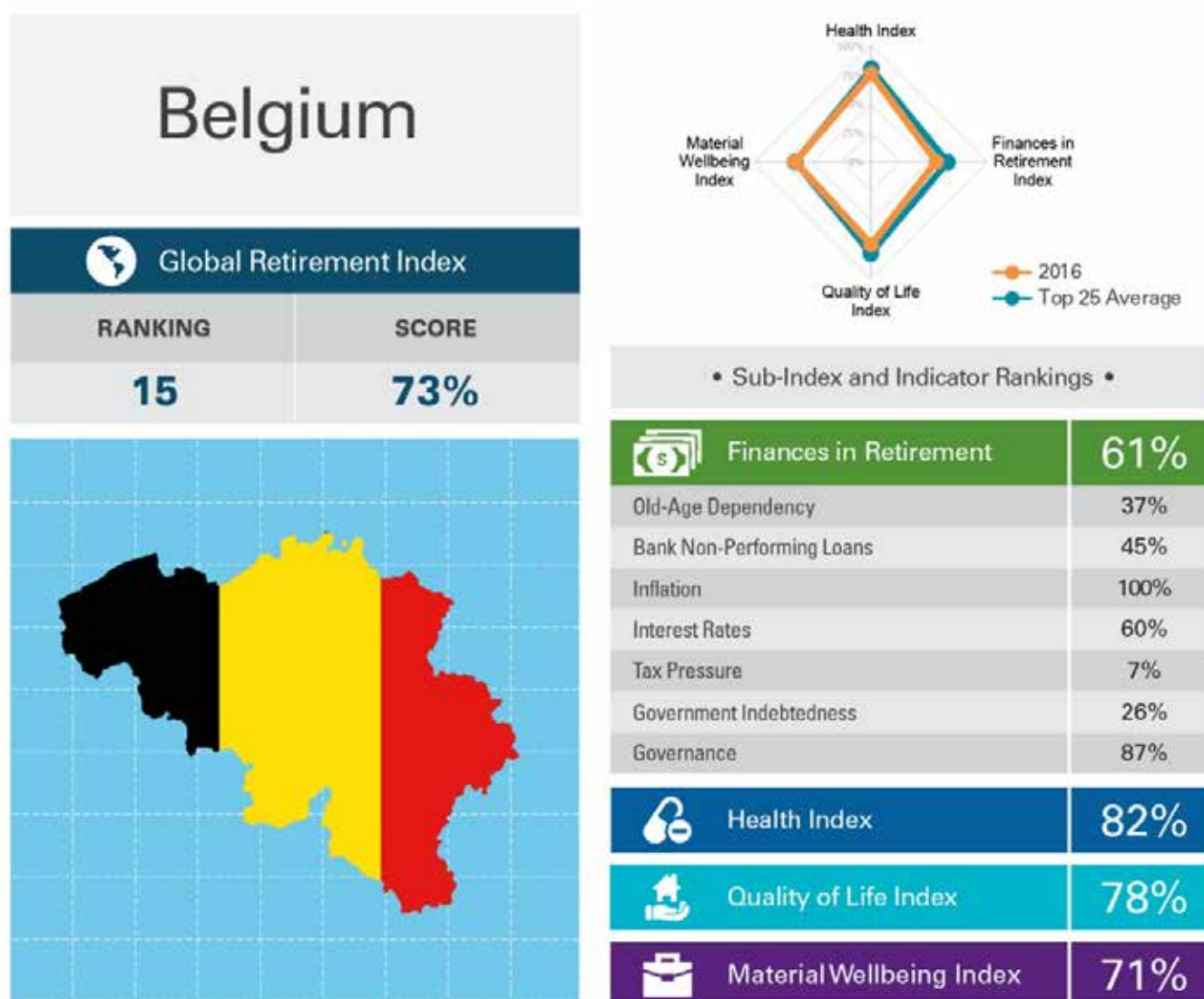
15. Belgium

Belgium comes in at 15th place, with an overall score of 73%. The highest scores it garners this year are in the sub-indices for Material Wellbeing (14th), Quality of Life (18th) and Health (19th). In the 2016 GRI that takes a targeted look at retiree welfare in the developed world, Belgium drops one place from 2015 under our revised methodology, despite improvements in tax pressure and bank non-performing loans.

The country's best scores within the Material Wellbeing sub-index are for income equality and income per capita. However, its unemployment levels are quite high. Belgium also scored relatively well in the happiness indicator. Belgium's performance in the Health sub-index is highlighted by a top ten placing in health expenditure per capita. Despite this, healthcare expenditures have been cited as an area where public spending can be made much more efficient.

Belgium has struggled with high levels of public debt as a result of increased expenditures for social benefits and reverberations from the financial crisis. Indeed, its score for government indebtedness is the seventh lowest among all countries in the GRI. Belgium also has among the highest tax burdens so further increases in taxes to address public debt would not bode well for retirees. In fact, of all countries in the GRI, only Italy has a lower average of the tax pressure and government indebtedness scores than Belgium.

The future of Belgium's retirement system has been a hot topic among the country's politicians. The government recognizes the fiscal costs of a growing old-age dependency ratio (27.7%) and increasing numbers of working-age citizens not in work and receiving generous social security benefits. Specifically, age-related government spending is estimated to rise at an increasing rate through 2040. Notable policy proposals include raising the retirement age from 65 to 67 by 2030 and pension reform for working pensioners 65 years and older.



2015 scores and rankings were calculated using the revised methodology and new list of countries implemented in GRI 2016.

16. Ireland

Ireland comes in at 16th in this year's GRI with a score of 72%. The country performs best in the Quality of Life sub-index. Under the revised methodology, Ireland improved from 19th position in 2015 because of progress in tax pressure and government indebtedness within the Finances in Retirement sub-index and unemployment within the Material Wellbeing sub-index.

In terms of Finances in Retirement the country has a mixed set of performance results. On the one hand, it has low levels of inflation, has the sixth highest score for interest rates of all countries in the GRI and achieves a relatively good score for governance. But on the other hand, the country makes the bottom five for both bank non-performing loans and government indebtedness. The tax burden is relatively low so that is beneficial for retirees. Also, Ireland's old-age dependency is relatively favorable (they have the fifth lowest old-age dependency among European countries in the GRI) so, while public debt is still high, retirees should expect to be adequately supported by the younger population.

Meanwhile, Ireland achieves a relatively good showing in Health. Ireland's mediocre performance in Material Wellbeing gives it a sub-index ranking of 26th. The country has relatively high levels of unemployment and is in the bottom ten for this indicator. But despite its relatively high levels of unemployment, the country boasts an impressive income per capita of \$42,270.

Elsewhere, Ireland's solid showing in the Quality of Life sub-index is a function of a broad set of strong performance indicators. Compared to other countries in the GRI, Ireland ranks particularly well in air quality, where it has the sixth highest score.



• Sub-Index and Indicator Rankings •

	Finances in Retirement	68%
	Old-Age Dependency	59%
	Bank Non-Performing Loans	16%
	Inflation	100%
	Interest Rates	81%
	Tax Pressure	43%
	Government Indebtedness	25%
	Governance	90%
	Health Index	83%
	Quality of Life Index	82%
	Material Wellbeing Index	58%

2015 scores and rankings were calculated using the revised methodology and new list of countries implemented in GRI 2016.

17. United Kingdom

The United Kingdom drops one spot from 16th in 2015 to 17th for 2016 with a score of 71% under our revised methodology. While the country performs well in three of the four sub-indices, its overall score is dragged down by a surprisingly poor showing on the Finances in Retirement front. An increase in the unemployment indicator drove the positive change for Material Wellbeing while improvement in tax pressure relative to other countries is the main cause for the rise in the Finances sub-index.

With fairly strong economic vitals, the U.K. is leading the economic recovery among developed nations along with the U.S. Inflation has remained below the Central Bank's target rate with cheap oil lending a major hand at limiting any such pressures. Unemployment has also been on a downward trend although there are concerns about wage growth. Meanwhile, interest rates have been low like much of Europe, hurting the country's scores in this indicator.

The U.K. performs moderately well in the other GRI sub-indices however. Its highest sub-index ranking is Quality of Life, with biodiversity and habitat being the best-performing indicator. The country also performs moderately well in the happiness and climate change stakes.

Meanwhile, robust showings for non-insured health expenditure (3rd), life expectancy and health expenditure per capita help drive a solid performance in its Health sub-index. The U.K. ranks 18th in the Material Wellbeing index, with all indicators making it into the top 25 and its best-performing indicator — income per capita — coming in at 18th.



• Sub-Index and Indicator Rankings •	
Finances in Retirement	56%
Old-Age Dependency	38%
Bank Non-Performing Loans	61%
Inflation	76%
Interest Rates	1%
Tax Pressure	31%
Government Indebtedness	31%
Governance	89%
Health Index	84%
Quality of Life Index	80%
Material Wellbeing Index	68%

2015 scores and rankings were calculated using the revised methodology and new list of countries implemented in GRI 2016.

18. Czech Republic

With a score of 71%, the Czech Republic improves from 20th in 2015 to 18th under the 2016 methodology. The country's best performance comes in the Material Wellbeing sub-index where, driven by a standout showing in income equality (4th), it notches up an impressive 11th place sub-index ranking. The country improved the most in the Quality of Life, Finances and Material Wellbeing sub-indices. It saw improvements in tax pressure with mild improvements in air quality and unemployment.

The Czech Republic performs moderately well in the indicators within the Finances in Retirement sub-index. A favorable interest rate environment and low levels of inflation mean that Czech retirees can therefore expect a favorable investment environment. Against this, however, it has the fourth lowest scores among countries in the top twenty-five overall for both governance and bank non-performing loans. It also scores relatively mediocre in tax pressure but public debt is at favorable levels so public finances are relatively stable.

Meanwhile, the country's next best sub-index ranking after Material Wellbeing is Quality of Life. On the positive side, the country scores extremely well in biodiversity and habitat and has low levels of water pollution. But on the downside, both its happiness and climate change scores are mid-tier and it has the fifth worst air quality score in the GRI.

The Czech Republic continues to have a high standard of healthcare with a well insured population. The Czech Republic scores higher in both life expectancy and non-insured health expenditure than neighboring Slovak Republic and Hungary.



• Sub-Index and Indicator Rankings •

	Finances in Retirement	67%
	Old-Age Dependency	41%
	Bank Non-Performing Loans	39%
	Inflation	100%
	Interest Rates	81%
	Tax Pressure	28%
	Government Indebtedness	55%
	Governance	83%
	Health Index	71%
	Quality of Life Index	74%
	Material Wellbeing Index	73%

2015 scores and rankings were calculated using the revised methodology and new list of countries implemented in GRI 2016.

19. Israel

Israel dropped two places from 17th in 2015 to 19th in this year's GRI with a score of 71%. Israel performs best in the Finances in Retirement (13th) and Quality of Life (19th) sub-indices. Improvements in inflation, tax pressure and interest rates within Finances and happiness and air quality within Quality of Life contributed to Israel's overall score.

Israel's showing in Finances in Retirement is very much a mixed bag. It has the tenth highest score for old-age dependency in the GRI. Retirees enjoy favorable levels of inflation as annual inflation has decreased every year since 2011. It also has comparatively favorable rankings for interest rates, bank non-performing loans and tax pressures. However, it has the tenth worst score for governance and is the lowest scoring in this indicator among countries in the top twenty-five overall.

The country is ranked 23rd in Health, with life expectancy, the eighth highest of all countries, the standout performer. And it achieves a 22nd place finish for Material Wellbeing, but only the unemployment indicator manages to break into the top twenty indicator score table.

Meanwhile, a robust happiness indicator performance helps prop up Israel's position in the Quality of Life sub-index, where it ranks 19th. The country does not perform strongly in other categories, ranking particularly poorly in biodiversity and habitat and air quality where both rank in the bottom ten.



• Sub-Index and Indicator Rankings •

	Finances in Retirement	69%
	Old-Age Dependency	63%
	Bank Non-Performing Loans	57%
	Inflation	100%
	Interest Rates	75%
	Tax Pressure	37%
	Government Indebtedness	39%
	Governance	80%
	Health Index	77%
	Quality of Life Index	78%
	Material Wellbeing Index	62%

2015 scores and rankings were calculated using the revised methodology and new list of countries implemented in GRI 2016.

20. France



A narrowed focus on developed countries for the 2016 Global Retirement Index puts France in 20th place with a score of 71%. Under the revised methodology France moves down slightly from its 2015 ranking of 18th. A varied set of results sees the country perform very well in Health, moderately well in Quality of Life and Material Wellbeing, and Finances in Retirement scores lag these positives based on lower scores for tax pressure. France, however, did improve their comparative score in this indicator within the Finances sub-index. The country also saw improvements in unemployment.

The sixth largest economy in the world and the second largest in the Eurozone has strong scores for Health and Quality of Life, but its performance for Finances in Retirement lags. While France looks to address structural problems like unemployment and public debt, there is potential for stronger performance. France's productivity is among the best in the world ahead of major Eurozone economies like Germany. Labor market reforms could ensure that employers focus on creating jobs as well. This would greatly benefit France especially since the country's working age population is projected to become the largest among Eurozone peers by 2050 surpassing Germany. Another factor dragging the sub-index score down is its high tax pressure which is amongst the highest in the GRI.

France's social security system is very favorable toward retirees although it does put pressure on public spending. It also has a strong healthcare system as indicated by high scores in the Health sub-index (4th) with high insurance coverage for health expenditure. France also has a very high life expectancy and provides a high quality of life. The challenge now facing France is how policy makers will address structural problems without compromising the public services which benefit retirees and citizens.



• Sub-Index and Indicator Rankings •

 Finances in Retirement	60%
Old-Age Dependency	32%
Bank Non-Performing Loans	44%
Inflation	100%
Interest Rates	63%
Tax Pressure	6%
Government Indebtedness	29%
Governance	86%
 Health Index	89%
 Quality of Life Index	78%
 Material Wellbeing Index	60%

2015 scores and rankings were calculated using the revised methodology and new list of countries implemented in GRI 2016.

21. Japan

Japan achieves a ranking of 21st in this year's GRI, with a score of 70%. Under the revised methodology that analyzes retiree welfare in developed countries, Japan stays in the same spot from 2015 despite excellent performances in the Health and Material Wellbeing sub-indices. These are reasons for cheer but a mediocre performance in Quality of Life and a poor showing in Finances in Retirement are causes for concern.

Along with old age dependency, Japan also has the worst score for government indebtedness in the entire GRI. The need to provide for an older population while already having such high levels of public debt constitutes a significant challenge for Japan. Additionally, the country's low interest rate environment presents retirees with more challenges regarding investment opportunities.

The demographics of Japan's population represent something of a two-sided coin. On the one side, it has the highest life expectancy of all countries in the GRI, helping it achieve a top five finish in Health. But on the other side of the coin, the country has the largest old-age dependency ratio. An increasingly smaller proportion of working-age people providing for an increasingly larger proportion of retirees pose profound demographic, social and economic dangers that need to be addressed. But more positively, Japan boasts the fifth highest score in the unemployment indicator of all countries in the GRI, likely contributing to its strong finish in the Material Wellbeing sub-index.



• Sub-Index and Indicator Rankings •

	Finances in Retirement	55%
	Old-Age Dependency	11%
	Bank Non-Performing Loans	62%
	Inflation	100%
	Interest Rates	36%
	Tax Pressure	38%
	Government Indebtedness	1%
	Governance	89%
	Health Index	88%
	Quality of Life Index	64%
	Material Wellbeing Index	76%

22. Republic of Korea





With an overall score of 69%, South Korea ranks 22nd in this year's GRI. Based on our revised methodology, Korea maintains its number 22 position from 2015. A picture of contrasts sees the country perform extremely well in Material Wellbeing and Finances in Retirement but not as well in Quality of Life. Large gains in tax pressure and inflation within the Finances in Retirement sub-index are standout movements for South Korea's overall score.

In the Finances in Retirement sub-index, it achieves a stellar 6th place finish, with fourth-ranked bank non-performing loans being the standout performer. Despite ranking eighth in the old-age dependency ratio, there remain concerns about the impact of an aging population in the future and, in particular, its potential to have a detrimental impact on growth. The IMF projects South Korea to have one of the oldest populations in the OECD by 2050 with the old-age dependency ratio increasing significantly about ten years from now. Retirees therefore may not be as adequately provided for as they are currently and have been in the past, where the working-age population has been on a general upward trend since 1970. With the ninth highest score for government indebtedness and the seventh highest score for tax pressures of all countries in the GRI, government finances seem to be on a solid footing. Meanwhile, the country notches up a robust score in interest rates and also has relatively low levels of inflation.

South Korea's extremely low levels of unemployment, where the country ranks third in this indicator, powers its fifth place finish in the Material Wellbeing sub-index. Meanwhile, South Korea's Quality of Life performance is not as good as its performance in the other sub-indices. It scores third worst in both air quality and biodiversity and seventh worst for climate change.



• Sub-Index and Indicator Rankings •

 Finances in Retirement	76%
Old-Age Dependency	66%
Bank Non-Performing Loans	80%
Inflation	90%
Interest Rates	78%
Tax Pressure	55%
Government Indebtedness	60%
Governance	81%
 Health Index	72%
 Quality of Life Index	52%
 Material Wellbeing Index	79%

2015 scores and rankings were calculated using the revised methodology and new list of countries implemented in GRI 2016.

23. Malta

Malta, with an overall score of 69%, maintains the same position from 2015 at 23rd overall under the revised methodology for 2016. Malta, a small Mediterranean country with an economy heavily dependent upon tourism, remains a prosperous country and a solid performer in the GRI. Malta's score is marked by improvements in the Finances and Material Wellbeing sub-indices because of the tax pressures and unemployment indicators.





The country just makes it into the top twenty-five for Finances in Retirement but its performances in most indicators, except for inflation, are average. The population is aging and in turn, so is the old age dependency ratio. The country also has relatively high levels of government debt and tax burden both of which could negatively impact retirees. It also performs poorly in the bank non-performing loans indicator.

The country's standing in the Material Wellbeing sub-index however, where it ranks an impressive 13th, is reason for cheer. High scores for both income equality, where the country ranks tenth, and unemployment, rather than its relatively modest ranking for income per capita, fuel Malta's strong performance in this sub-index.

Malta's performance in the other sub-indices is mediocre. In Health its highest indicator score is in life expectancy and its lowest is health expenditure per capita. Finally, the country's performance on the Quality of Life front sees it achieve a top ten finish in air quality.



• Sub-Index and Indicator Rankings •

	Finances in Retirement	65%
	Old-Age Dependency	36%
	Bank Non-Performing Loans	31%
	Inflation	100%
	Interest Rates	63%
	Tax Pressure	28%
	Government Indebtedness	40%
	Governance	85%
	Health Index	74%
	Quality of Life Index	66%
	Material Wellbeing Index	71%

2015 scores and rankings were calculated using the revised methodology and new list of countries implemented in GRI 2016.

24. Slovenia

Slovenia wins the 24th spot in this year's GRI with an overall score of 67%. Slovenia's score is driven by improvements in the tax pressure indicator, as well as unemployment and other Quality of Life factors.

Slovenia's banking system has not been on a good footing, as evidenced by its bottom ten finish in bank non-performing loans, and was bailed out in 2013. The country has a relatively mediocre score for government indebtedness, where public debt has been pushed higher as a result of the bank bailouts, and the tax pressure indicator is two spots away from being in the bottom ten. But on a brighter note, the country boasts favorable levels of inflation and scores relatively well in interest rates.

Slovenia comparatively performs best in the Material Wellbeing sub-index where it ranks 20th. Furthermore, it earns the distinction of having the lowest levels of income inequality of all countries in the GRI. However, its performance in the remaining indicators is not so great — its income per capita score is mediocre and its unemployment rate borders on double digits.

On the Health front, it finishes 22nd, with a particular highlight being its seventh place finish for non-insured health expenditure.

In terms of Quality of Life (29th), the country's standout performance is in top-ranked biodiversity and habitat. But it performs relatively poorly in happiness as it ranks in the bottom ten.



• Sub-Index and Indicator Rankings •

	Finances in Retirement	62%
	Old-Age Dependency	41%
	Bank Non-Performing Loans	25%
	Inflation	100%
	Interest Rates	75%
	Tax Pressure	22%
	Government Indebtedness	34%
	Governance	82%
	Health Index	79%
	Quality of Life Index	63%
	Material Wellbeing Index	67%

2015 scores and rankings were calculated using the revised methodology and new list of countries implemented in GRI 2016.

25. Singapore

Singapore finishes this year's GRI in 25th place with a score of 65%. Under the revised methodology, the country maintains its ranking from 2015 and achieves a particularly strong score in Finances in Retirement, where it ranks second overall, while its showing in the other sub-indices is more muted.





With a few exceptions, Singapore is a standout performer when it comes to the Finances in Retirement sub-index (2nd). It boasts the lowest tax burden of all countries in the GRI, has the fourth best score for interest rates and the sixth best score for bank non-performing loans. However, the country faces some concerns regarding a rapidly aging population as the old age dependency ratio is projected to triple from current levels by 2050. The country's governance score, where it is one spot away from being in the top ten, is a further reason for optimism. Singapore also improved in the tax pressure indicator.

Meanwhile, Singapore would have performed extremely well in the Material Wellbeing sub-index had it not been for its score in income inequality. The country has the highest income per capita and lowest unemployment but on the downside has the fourth highest level of income inequality of all countries in the GRI. Singapore also improved in the tax pressure indicator.

Singapore's performance in the Health sub-index is decent, with an impressive display in the life expectancy indicator.



• Sub-Index and Indicator Rankings •

 Finances in Retirement	79%
Old-Age Dependency	74%
Bank Non-Performing Loans	75%
Inflation	70%
Interest Rates	81%
Tax Pressure	100%
Government Indebtedness	28%
Governance	91%
 Health Index	68%
 Quality of Life Index	60%
 Material Wellbeing Index	56%

2015 scores and rankings were calculated using the revised methodology and new list of countries implemented in GRI 2016.

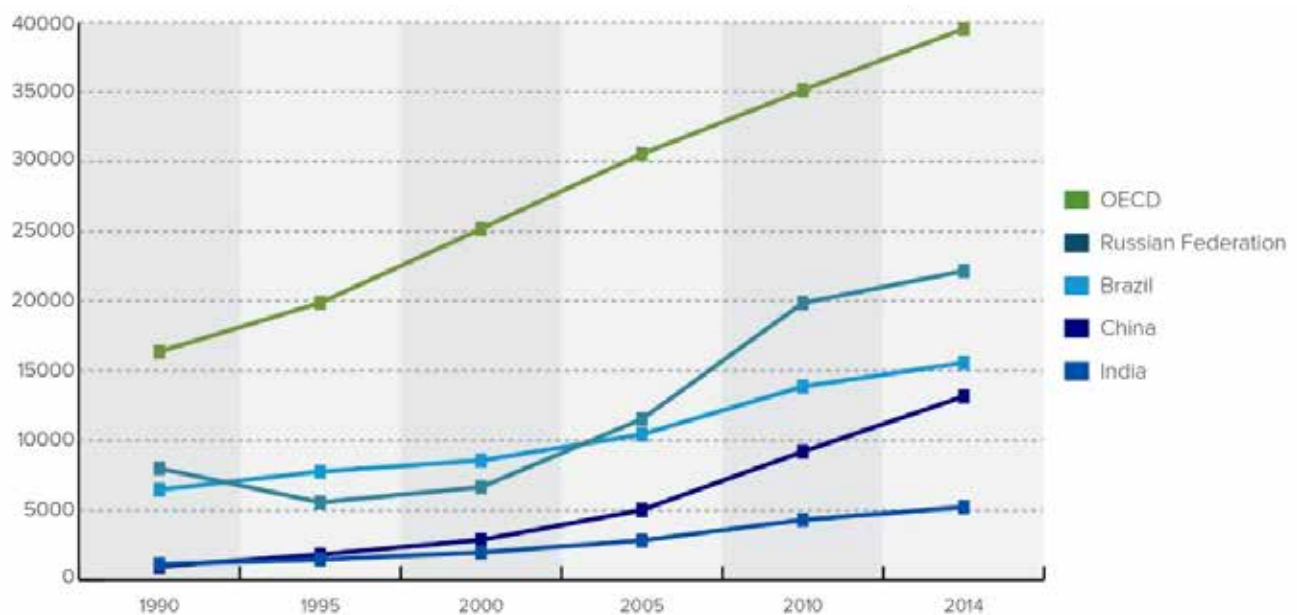
The emerging economies: Lackluster performance

Once touted as the next global economic powers, the BRIC countries (Brazil, Russia, India, and China) continue to demand particular attention when discussing retiree welfare in a global context. While the four countries show great promise in certain respects, they also face significant challenges moving forward. China's growth has slowed after decades of accelerating growth and Russia has been afflicted with geopolitical tensions which have hampered its economy. Brazil's troubled economy is also going through rough times with poorer growth than its BRIC peers. Currently, India has a favorable economic outlook, although it still has to overcome a host of other challenges.

These countries are home to approximately 42% of the world's population. As of 2014, the BRIC countries account for approximately 21.4% of GDP globally due to above average "catch-up" economic growth. Therefore, a review of retiree welfare in these nations is vital for a comprehensive understanding of the situation worldwide.

Before the global financial crisis, the BRIC nations were widely projected to converge with the OECD nations. Today, gross national income (GNI) per capita in terms of purchasing power parity for the BRICs is still far below the OECD average, although it continues to improve.

GNI PER CAPITA
PPP (CURRENT INTERNATIONAL \$)



Data from database: World Development Indicators
Last Updated: 05/02/2016

PPP: Purchasing power parity

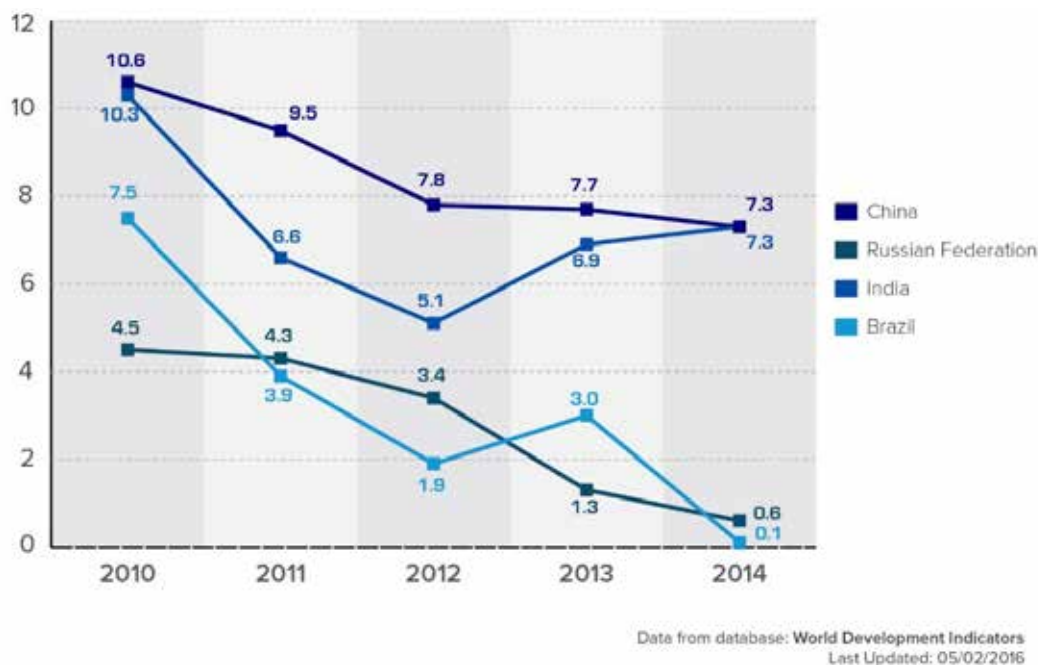
Diverging Paths?

The BRIC label is becoming less relevant as the performance of these economies continues to decouple. Nevertheless, there remain important areas of convergence.

Both Russia and Brazil slipped into technical economic recessions and are struggling with high inflation rates. The value of the ruble and the Brazilian real has declined and the price of everyday goods is increasing, which is obviously unfavorable for consumers. In 2014, annual GNI growth for Russia and Brazil was 1.1% and 2.8%, respectively, marking a decline since 2010.

Meanwhile China and India have been hit less hard with them registering GNI growth of 7.8% and 7.3%, respectively. Despite China's slowdown it continues to perform better than many countries. While China and India have been following a downward trajectory, their declines since 2010 have been relatively small compared to those of Russia and Brazil. In 2014, China and India both had annual GDP growth rates of 7.3%.

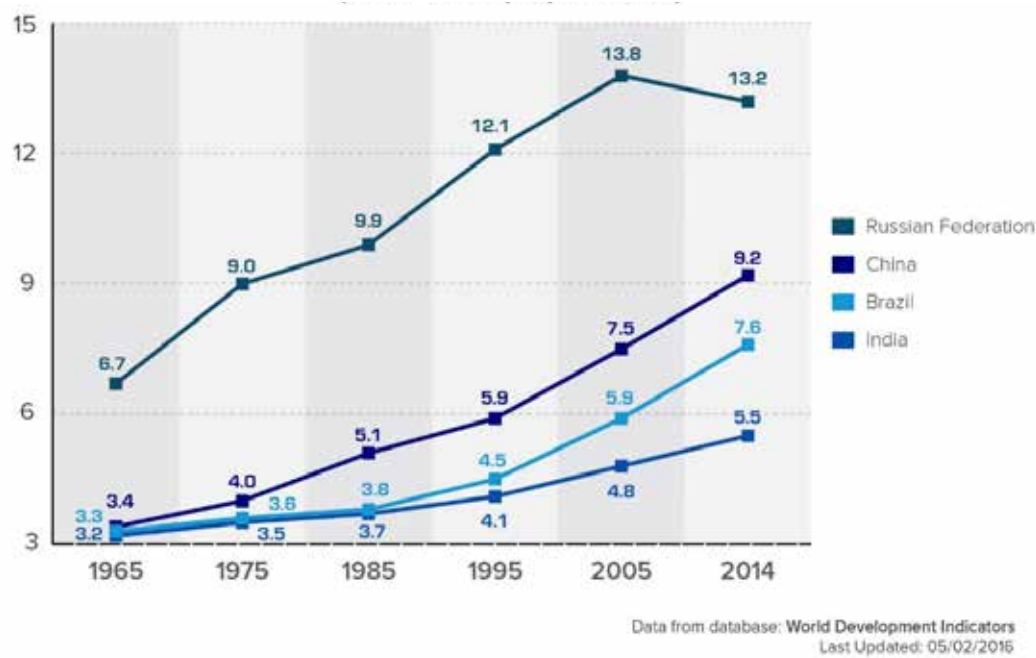
GDP GROWTH (ANNUAL %)



Demographics

While the populations of China and India are enormous compared to Russia and Brazil, some demographic similarities can still be drawn. Although people aged 65 and above represent a smaller percentage in the BRIC countries than their OECD counterparts, BRIC countries still have to deal with aging populations. Over the past 50 years, all four countries have seen a rise in the elderly population. So the question of how well equipped they are to tackle this development is key.

POPULATION AGES 65 AND ABOVE
(% OF TOTAL POPULATION)



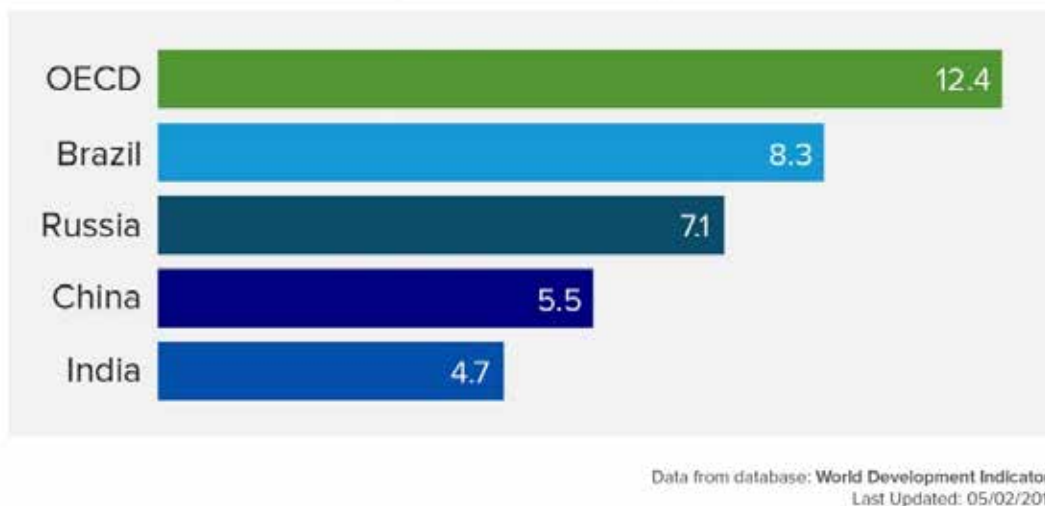
The old-age dependency ratio, defined as the proportion of people aged 65 and over who depend on the working population, has increased in the BRIC nations. The urgency of the situation has led China to repeal its decades-long one child policy and increase it to two children per couple. In reality, this change will take years to take effect.

What is pulling the BRIC countries down?

Despite their potential promise, the BRIC countries stagger at the bottom of this year's GRI. A closer look at each country reveals the factors holding them back from climbing the ranks.

The BRIC countries continue to struggle with the quality of their healthcare systems. In the Health sub-index, India ranks last, Russia ranks second to last, China ranks third to last and Brazil ranks 38th. India has a Health index score of just 4%, the lowest score in any sub-index in this year's GRI. India has the lowest ranks for health expenditure per capita, non-insured health expenditure and life expectancy out of all countries measured in this year's GRI. While people in urban areas have greater access to adequate healthcare services, India's massive rural population is still denied basic healthcare. Russia is second to last in health with a score of 40% but still a considerable jump from India. Russia ranks low in terms of non-insured health expenditure and is second to last in life expectancy. The BRIC nations will have to substantially increase spending on healthcare to improve conditions for their aging citizens.

HEALTH EXPENDITURE, TOTAL (% OF GDP 2014)



China has its lowest sub-index score in Quality of Life at 38%. Air pollution is rife, although the Chinese government has enacted measures to curb further increases. India, too, is one of the most polluted countries in the world and has the lowest happiness rank out of all countries in this year's GRI.

Brazil has its worst performance in Material Wellbeing at a score of 13% and rank of 43rd. Brazil ranks last in income equality and is 41st in income per capita. Brazil's economy is suffering heavily from low commodity prices, weak currency and diminished consumer spending.

Like its health score, Russia scores 40% in Finances in Retirement and is in last place in this sub-index. Russia's poor performance in Finances in Retirement is partially due to its last place ranking in governance. Corruption in Russia and the weakness of its rule of law are historically of great concern.

These scores underline the areas of improvement needed if the BRIC countries have any hope of falling in line with OECD countries.

38. China

China ranks 38th with a score of 47% and is the highest ranked BRIC country in the GRI. It received its highest score for its placing in the Finances in Retirement (24th) sub-index. After experiencing significant economic growth, China is attempting to transition into a period of slower and more sustainable evolution. China is the only country to improve in all four sub-indices compared to last year under the new methodology that focuses on developed countries and BRIC nations. It had the most significant improvements in the Quality of Life and Finances sub-indices with tax pressures, inflation and governance being the most important changes.

China's performance this year sees it gaining a top 30 position in the Finances in Retirement sub-index despite having one of the lowest scores for governance (42nd). With a few exceptions, China performs excellently across the board in the other indicators. It sits in the top five for old-age dependency (5th) and tax pressure (4th) and scores well in bank non-performing loans and government indebtedness as well. Retirees benefit from the favorable investment environment in China as there are low levels of inflation, relatively high real interest rates and a moderate tax burden when compared to some of the European countries.

The other sub-index scores are closer to the bottom of the list. With high levels of income inequality and an income per capita of \$13,170, it is still playing catch-up with more developed nations. It ranks low in Material Wellbeing, ranking second-lowest in income per capita and fifth-lowest in income inequality. However, China manages to gain a top 10 placement in unemployment (7th). Coming in at 41st in the Health sub-index, China's scores are among the worst in all indicators making up the index.

China stumbles when it comes to Quality of Life, with its performance in this sub-index remaining low. China is one of the worst-ranking countries when it comes to air quality and climate change, both of which can have detrimental effects on retirees living in larger cities such as Beijing.



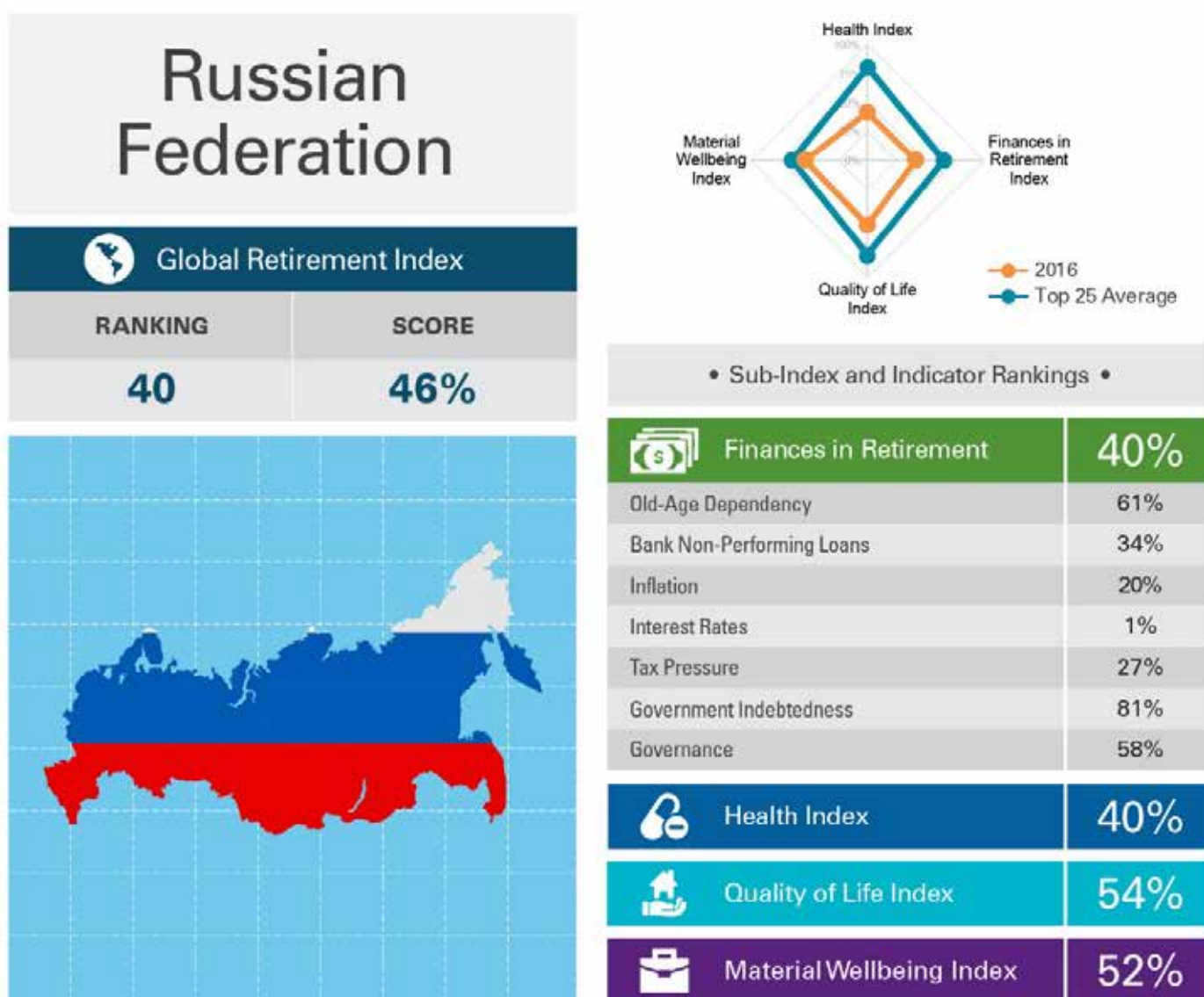
40. Russia

A score of 46% puts Russia in 40th place in this year's GRI. Its highest ranked performance is found in the Material Wellbeing (30th) sub-index. The rest of its sub-index scores are more lackluster as it comes in last for Finances in Retirement and 42nd in Health. Its poor performance in the Quality of Life sub-index finds Russia a spot in the bottom 10. The sole sub-index responsible for Russia's decline in overall score compared to last year is Finances in Retirement. Russia's score for interest rates based on the five-year average of real interest regressed significantly and the government indebtedness indicator score declined by a large measure.

Russia receives poor scores in the sub-indices for Health and Finances in Retirement. The weak performance in Health is mainly driven by low scores in all three indicators – Russia scores in the bottom three for life expectancy and non-insured health expenditure while its health expenditure per capita ranks among the bottom ten for all countries. In the Finances sub-index, Russia's excellent performance in a few indicators is not enough to counter its poor showing in others. It receives the worst score for governance in the entire GRI and also ranks poorly in inflation and interest rates. However, it does have a relatively low public debt and old age dependency ratio is also better than most countries in the GRI.

Russia's performance in the Material Wellbeing sub-index is being propped up by its low levels of unemployment since it has high levels of inequality and income per capita, while much better than the other BRIC countries, is still not as high as some of the OECD countries.

The country's relatively low Quality of Life score is driven by poor performance in multiple indicators. Russia is towards the bottom of the ranking in biodiversity and habitat and climate change.



41. Brazil

Brazil ranks 41st in this year's GRI with a score of 44%. It scores extremely well in Quality of Life (9th) but fails to achieve similar performances in any of the other sub-indices. Brazil's Material Wellbeing score was the worst in the GRI. Brazil's overall score declined this year because of slightly poorer comparative performance in the Material Wellbeing and Health sub-indices. The only notable declines were in the unemployment, income per capita and health expenditure per capita sub-indices.

Brazil shows a range of indicator performance within the Finances in Retirement sub-index. It has a favorable interest rate environment for retirees to grow their savings. Brazil also performs very well when it comes to old-age dependency (3rd). However, the country has had relatively high levels of inflation over the past five years and it continues to be above the central bank target rate. Brazil's scores are also not very favorable when it comes to tax pressure and government indebtedness. It also has a relatively low score for governance which is particularly relevant now given the political uncertainty and allegations of corruption abound in the country currently.

A positive sign for Brazil is its high quality of life. The country has made marked improvements in terms of its impact on the environment. Brazil also maintains high levels of renewable electricity. The country's best ranked indicator within Quality of Life is climate change despite this indicator actually being its comparative lowest scoring within the sub-index.

The two worst scores for Brazil are in the Health and Material Wellbeing sub-indices. They have amongst the lowest scores for life expectancy and health expenditure per capita. Within the Material Wellbeing sub-index, it ranks lowest for income equality and third lowest for income per capita.

Brazil



Global Retirement Index

RANKING

41

SCORE

44%



• Sub-Index and Indicator Rankings •



Finances in Retirement

60%



Old-Age Dependency

94%



Bank Non-Performing Loans

50%



Inflation

30%



Interest Rates

100%



Tax Pressure

30%



Government Indebtedness

41%



Governance

69%



Health Index

54%



Quality of Life Index

86%



Material Wellbeing Index

13%

43. India

In a list comprising mostly developed countries, India struggles to keep up, ranking last in the Health and Quality of Life sub-indices, second last in Finances in Retirement and third last in the Material Well-Being sub-index. India's slight positive change in score is because of comparatively insignificant changes in the Health and Finances sub-indices. India improved its score in the non-insured health expenditure, governance and interest rates indicators.

India's scores in the Finances in Retirement sub-index are much closer to the other countries, unlike the other sub-indices where it lags by big margins. India performed extremely well in old-age dependency (1st) and tax pressure (3rd). However, inflation remains persistent in the country and public debt is also on the higher side for a developing country.

Similar to its performance in the Finances sub-index, India finishes close to the bottom in that for Material Wellbeing while still having one indicator that generated an excellent score. India's ranking for unemployment (4th) is excellent but its income per capita, at \$5,630, is far behind not only the developed countries in the GRI but also its BRIC peers.

India's poor showing in the Health sub-index is because of low scores across all indicators within the sub-index. Within Quality of Life, the country has the second worst score for biodiversity in the entire GRI and the worst scores for air quality, happiness and water and sanitation. Low scores in air quality and environmental indicators reflect high levels of water and air pollution in large cities.



• Sub-Index and Indicator Rankings •

	Finances in Retirement	49%
	Old-Age Dependency	100%
	Bank Non-Performing Loans	44%
	Inflation	1%
	Interest Rates	76%
	Tax Pressure	85%
	Government Indebtedness	41%
	Governance	65%
	Health Index	4%
	Quality of Life Index	6%
	Material Wellbeing Index	18%

Health Index

The Health sub-index measures health expenditure per capita, non-insured health expenditure and life expectancy in the 43 countries included in this year's GRI. These indicators are important determinants of physical wellness and, therefore, retiree welfare.

The Health index scores range from a high of 92% for Luxembourg to a low of 4% for India. However, the top 20 comprises a much more competitive range with just 10% separating number 1 Luxembourg from number 20 Finland.

Top-ranked Luxembourg features in the top ten of all three indicators making up the index and performs especially well in terms of health expenditure per capita, where it ranks second overall. The Netherlands, at number two, ranks first in terms of non-insured health expenditure.

France takes number four spot with a score of 89% to claim its best sub-index ranking. France comes second in non-insured health expenditure and ninth in life expectancy. Japan, the top non-European country, ranks number five, partly due to its number one score in life expectancy which stands at 83 years.

Both North American countries make it into the top ten, with the United States coming in at number seven and Canada at number nine. But a somewhat mixed performance from the United States sees it ranked first in health expenditure per capita but 30th in life expectancy. Canada, meanwhile, has no stand-out indicators but turns in a balanced performance that includes its highest ranked indicator, health expenditure per capita, grabbing 8th spot.

Greece, ranked second to bottom overall in this year's GRI, has a relatively good Health sub-index score of 75% that translates into a ranking of 24th. Similarly, Spain – ranked 37th overall in this year's GRI – has a Health sub-index score of 81%. Greece and Spain both register their best sub-index performance in Health.

India scores especially poorly in Health with a score of just 4% – the lowest score in all sub-indices and one that contributes to its coming last in this year's GRI. India's dismal performance in this sub-index is highlighted by the fact that the second-worst performer in Health, Russia, achieves a score of 40%. A whole range of problems plague India's healthcare sector – a chronic shortage of hospital beds and qualified medical professionals, low coverage of health insurance, and underdeveloped infrastructure in healthcare (health IT systems, etc.) are just a few of the things India needs to improve to provide adequate healthcare to its citizens.

TOP 10 COUNTRIES IN THE HEALTH SUB-INDEX



Health Index

TOP 25 IN HEALTH SUB-INDEX

COLOR SCALE	Country	Ranking	Score
91%-100%	Luxembourg	1	92%
81%-90%	Netherlands	2	91%
71%-80%	Norway	3	90%
61%-70%	France	4	89%
51%-60%	Japan	5	88%
41%-50%	Switzerland	6	88%
31%-40%	United States	7	87%
21%-30%	Germany	8	87%
11%-20%	Canada	9	87%
0%-10%	Iceland	10	86%
	Sweden	11	86%
	Australia	12	86%
	Austria	13	86%
	New Zealand	14	85%
	Denmark	15	85%
	United Kingdom	16	84%
	Ireland	17	83%
	Italy	18	83%
	Belgium	19	82%
	Finland	20	82%
	Spain	21	81%
	Slovenia	22	79%
	Israel	23	77%
	Greece	24	75%
	Portugal	25	74%

Finances in Retirement Index

The Finances in Retirement sub-index measures the strength of a country's financial system as well as the level of returns to savings and investments. It is made up of governance, the old age dependency ratio, government indebtedness, inflation, real interest rates, tax pressures and bank non-performing loans. The range of scores in the index — from a high of 80% to a low of 40% — is much narrower than the other sub-indices.

The Finances in Retirement sub-index differs from the other sub-indices in that the usual suspects are not the top performers. Instead, seven of the top ten performers in the Finances in Retirement index are non-European countries — a rarity considering the prevalence of European countries in the GRI. Most European countries are faced with an aging population, high levels of public debt and financial repression, thus dragging down their scores in this sub-index.

Chile grabs number one spot with a score of 80%. Chile achieves a top ten ranking in three indicators, coming 2nd in government indebtedness, 6th in tax pressures and 7th in old-age dependency ratio. Chile's economy underwent a major transformation in the 1970s, often called the 'Chilean economic miracle', when the so-called 'Chicago Boys' implemented major economic reforms based on free market principles and is now a very strong economy even as it faces challenging times ahead in light of the fall in commodity prices and economic slowdown.

Singapore comes in at second, grabbing first spot in tax pressures, 4th in interest rates and 6th in bank non-performing loans and old-age dependency. Its poor performance in inflation and government indebtedness prevent it from grabbing pole position in the sub-index. New Zealand, ranking third with a score of 78%, ranks first in governance and scores high in inflation.

Estonia, one of the three European countries to feature in the top ten, ranks 8th with a score of 73% to record its highest sub-index score and sub-index ranking. Estonia comes first in government indebtedness and 10th in bank non-performing loans.

Denmark, with a score of 59% and a ranking of 34th, also records its worst sub-index performance. Despite positive performances in inflation and governance, it comes last in tax pressure.

Meanwhile, this is the only sub-index where India comes close to the other countries on the back of strong performances in the tax pressures and old-age dependency ratio indicators. Pegged to the bottom of the Finances in Retirement sub-index is Russia with a score of 40%. It comes last in governance and third to last in inflation.

TOP 10 COUNTRIES IN THE FINANCES IN RETIREMENT SUB-INDEX



Finances in Retirement Index

TOP 25 IN FINANCES IN RETIREMENT SUB-INDEX

COLOR SCALE	Country	Ranking	Score
91%-100%	Chile	1	80%
81%-90%	Singapore	2	79%
71%-80%	New Zealand	3	78%
61%-70%	Switzerland	4	77%
51%-60%	Australia	5	77%
41%-50%	Korea, Rep.	6	76%
31%-40%	Canada	7	73%
21%-30%	Estonia	8	73%
11%-20%	Norway	9	72%
0%-10%	United States	10	71%
	Lithuania	11	70%
	Luxembourg	12	69%
	Israel	13	69%
	Latvia	14	68%
	Netherlands	15	68%
	Sweden	16	68%
	Slovak Republic	17	68%
	Poland	18	68%
	Iceland	19	68%
	Ireland	20	68%
	Czech Republic	21	67%
	Germany	22	67%
	Finland	23	66%
	China	24	66%
	Malta	25	65%

Quality of Life/Natural Environment Index

The Quality of Life sub-index captures the level of happiness and fulfillment in a society as well as the effect of environmental factors on the individuals' quality of life. The sub-index takes into account self-reported levels of happiness while the environmental component assesses the air quality, water and sanitation, biodiversity and habitat and climate change and energy to evaluate Quality of Life.

The index scores range from a high of 92% in Denmark to a low of 6% in India. Denmark wins the top spot with a perfect score for happiness and high water and sanitation scores. The countries in this year's GRI perform particularly well in the water and sanitation indicator, with all countries but India scoring above 90%. Switzerland at number two, with a Quality of Life score of 92%, ranks first in the climate change and second in happiness.

Brazil and New Zealand are the two non-European countries in the top 10. New Zealand, in sixth place, has a perfect water and sanitation score and ranks fourth in air quality. Brazil comes in ninth with a score of 86%, much higher than its overall GRI score and rank at 44% and forty-first, respectively. It sits in fourth place for climate change, scores high in air quality and has an 85% score in happiness which catapult it upward in the rankings for this sub-index.

India is last in the Quality of Life sub-index with a score of 6%. India has the lowest score for air quality, happiness and water and sanitation and the second to last in biodiversity and habitat. Turkey is second last with a score of 34%, its worst performance in all the sub-indices. It also sits in last place for biodiversity and habitat.

TOP 10 COUNTRIES IN THE QUALITY OF LIFE SUB-INDEX



Quality of Life/Natural Environment Index

TOP 25 IN QUALITY OF LIFE SUB-INDEX

COLOR SCALE		Country	Ranking	Score
91%-100%		Denmark	1	92%
81%-90%		Switzerland	2	92%
71%-80%		Norway	3	91%
61%-70%		Finland	4	91%
51%-60%		Sweden	5	91%
41%-50%		New Zealand	6	90%
31%-40%		Iceland	7	88%
21%-30%		Austria	8	86%
11%-20%		Brazil	9	86%
0%-10%		Germany	10	82%
		Canada	11	82%
		Ireland	12	82%
		Australia	13	81%
		Netherlands	14	80%
		United Kingdom	15	80%
		United States	16	79%
		France	17	78%
		Belgium	18	78%
		Israel	19	78%
		Chile	20	76%
		Luxembourg	21	75%
		Mexico	22	75%
		Spain	23	74%
		Czech Republic	24	74%
		Slovak Republic	25	69%

Material Wellbeing Index

Scores for the Material Wellbeing sub-index are calculated using income per capita, unemployment and income equality. This sub-index measures the ability of retirees to support themselves in retirement.

Norway scores 95% and leads the way by quite a margin. The second ranking country this year is Iceland at 81%. Norway's score of 95% is the highest score it gained in any of the indices. Its success in Material Wellbeing can be attributed to its second place position in all three indicators. Iceland, on the other hand, ranks sixth in income equality and ninth in unemployment.

The Nordic countries perform particularly well in this index with four making the top ten – Norway, Iceland, Denmark and Sweden – and Finland following close at 12. These countries typically have high incomes per capita and low income inequality which propels them to the top of this sub-index.

Korea and Japan, the only two non-European countries in the top ten, rank well in terms of unemployment, with Korea in third place and Japan in fifth, earning them each a spot among leading performers in this sub-index.

The United States surprises by ranking twenty-fifth and scoring 59%, which is its lowest score across all sub-indices. While the U.S. ranks high in income per capita, with a fifth place slot, its income equality placing is 37th. Singapore, at twenty-seven within this sub-index, faces a similar challenge. The country ranks first in both income per capita and unemployment but is in the bottom ten for income equality.

Brazil, which places last in the Material Wellbeing index, is at the bottom of the ranks in income equality and income per capita. Second to last is Greece, which sits in last place in unemployment, which is the greatest contributor to its overall low score. Both countries have scores below 15% and their placing in the Material Wellbeing sub-index is the worst performance out of all four of their sub-indices.

TOP 10 COUNTRIES IN THE MATERIAL WELLBEING SUB-INDEX



Material Wellbeing Index

TOP 25 IN MATERIAL WELLBEING SUB-INDEX

COLOR SCALE	Country	Ranking	Score
91%-100%	Norway	1	95%
81%-90%	Iceland	2	81%
71%-80%	Germany	3	80%
61%-70%	Switzerland	4	80%
51%-60%	Korea, Rep.	5	79%
41%-50%	Austria	6	77%
31%-40%	Japan	7	76%
21%-30%	Netherlands	8	76%
11%-20%	Denmark	9	75%
0%-10%	Sweden	10	74%
	Czech Republic	11	73%
	Finland	12	72%
	Malta	13	71%
	Belgium	14	71%
	Luxembourg	15	71%
	Australia	16	70%
	Canada	17	70%
	United Kingdom	18	68%
	New Zealand	19	68%
	Slovenia	20	67%
	Hungary	21	63%
	Israel	22	62%
	France	23	60%
	Estonia	24	60%
	United States	25	59%

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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 / Natural Environment 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) 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 to or 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:

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

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

Again, following Emerson et al. (2012),¹¹ most indicators are transformed into logarithms¹² due to the high level of skewness of the data. This has the advantage of not only identifying differences between the worst and the best performers, but more clearly differentiating 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 mean¹³ to obtain the thematic indices. The geometric mean offers a number of advantages over the arithmetic mean;¹⁴ this will be discussed later in this chapter.¹⁵

¹¹ Emerson, J.W., A. Hsu, M.A. Levy, A. de Sherbinin, V. Mara, D.C. Esty, and M. Jaiteh (2012), 2012 Environmental Performance Index and Pilot Trend Environmental Performance Index. New Haven: Yale Center for Environmental Law and Policy.

¹² 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)]

¹³ Geometric mean is a representation of the typical value or central tendency of a series of numbers calculated as the *n*th root of the product of *n* numbers. Geometric mean = $\sqrt[n]{x_1 \times x_2 \times \dots \times x_n}$

¹⁴ 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 = $\frac{x_1 + x_2 + \dots + x_n}{n}$

¹⁵ See *Constructing the Global Retirement Index* on page 64

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

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

a. **Life expectancy at birth Index:** obtained using data from the World Bank (WB)'s World Development Indicators (WDI) 2015. The target for this indicator is the sample maximum which is equal to 83.33 years, and the low performance benchmark is equal to 67.66 years, a figure observed as the sample minimum.

b. **Health expenditure per capita Index:** obtained using data on health expenditure per capita, PPP (constant 2011 international \$) from WB's WDI 2015. The target set for this indicator is the sample maximum, equal to \$9145.83 USD, and the low performance benchmark is equal to the sample minimum of \$214.68. The indicator is transformed into logarithms, as the marginal returns to extra expenditure are decreasing.

c. **Non-insured health expenditure Index:** this indicator is included to take into account the level of expenditure in health that is not insured. The smaller the proportion of expenditure in healthcare that is uninsured, the higher the probability of having access to healthcare. This indicator is calculated using data on out-of-pocket health expenditure (% of total health expenditure), included in the WB's WDI 2015. The target for this indicator is equal to the sample minimum of 5.39% and the low performance benchmark is equal to 100%, which means that none of the population is covered by health insurance.

2. **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 2015. 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, that is \$80,270 USD, and the low performance benchmark is equal to the sample minimum of \$5,630 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 the WB's WDI 2015 and completed with data from the CIA World Factbook and the Organisation for Economic Co-operation and Development (OECD) database. The target is set at 25.59, which is the sample minimum. The low performance benchmark is set at 52.87, which is the sample maximum. The index is presented in a logarithmic form.

c. **Unemployment Index:** a measure of unemployment was included in this index, despite the fact that its focus is on people who have already retired from the labor market. This is because societies with high levels of unemployment will see their social security systems under pressure, putting in danger the financing and provision of services for the elderly. Moreover, retirees in countries with low unemployment levels will have a better possibility of complementing their pension incomes with employment income, which is becoming increasingly necessary and common. High levels of unemployment are also indicative of a country undergoing economics problems and it is likely that this will impact 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 26% 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 2015.

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 (2015 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 (% of working age population) from the WB's WDI 2015. The target value is equal to 10%, which reflects healthy demographics, where for every old age dependent there are 10 people in the working force. The low performance benchmark is equal to 50%, as it is potentially unsustainable to have less than 2 workers for every old age dependent.
- II. **Inflation Index:** this is important due to the fact that high inflation will reduce the purchasing power of savings and pensions, which can affect retirees disproportionately. The data used is on annual consumer price inflation and is sourced from the WB's WDI 2015. The value for each country is the five-year average from 2010 to 2014. 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 9.48%. 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 increases 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 2015 and is completed from the OECD.^{16,17} The value for each

country is the five-year average from 2010 to 2014. 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 for this index is set at the sample minimum of 13.8% of GDP while the low performance benchmark is the sample maximum of 48.58% of GDP. This indicator is calculated in logarithmic form.
 - V. **Bank non-performing loan Index:** this indicator captures the strength of the banking system by looking at the proportion of loans that are defaulted on. This index is transformed into logarithms and is constructed using the data observed from the WB's WDI 2015. The target for this index is set equal to the sample minimum of 0.21% and the low performance benchmark is the sample maximum of 44.84%.
 - VI. **Government indebtedness Index:** captures the soundness and sustainability of government finances and serves as a predictor of future levels of taxation. The data used for this index is sourced from the CIA World Factbook and undergoes a logarithmic transformation to construct the index. The target level is set equal to the sample minimum of 9.67% and the low performance benchmark is the sample maximum of 246.42%.
4. **Quality of Life and Natural Environment 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.

(real interest rate = nominal interest rate – inflation) for those countries missing data from the WDI.

¹⁷ Long-term interest rates are obtained from OECD for the following countries: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Luxembourg, Norway, Poland, Portugal, Slovak Republic, Slovenia, Spain, and Sweden. Real interest rates are calculated by subtracting inflation from the long-term interest rate.

¹⁶ Latest data on annual consumer price inflation and 10-year government bond yields are used to calculate the real interest rate

a. **Happiness Index:** this 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 2013–2015. The data is taken from the World Happiness Report. The indicator is presented in the logarithmic form. The target is set at the sample maximum, which is an average score of 7.5, and the low performance benchmark is set at the sample minimum of 4.4.

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 2015, by reference to the Environmental Performance Index (EPI) 2016.

I. **Air quality Index:** this index is calculated as the weighted average of household air quality (30% weight), population weighted exposure to PM2.5 (30% weight), PM2.5 exceedance (30% weight) and population weighted exposure to nitrogen dioxide (10%). The data is obtained from EPI 2016.

II. **Water and sanitation Index:** captures the level of infrastructure providing people with access to improved drinking water and access to an improved source of sanitation. This index is calculated as the average of the two indicators (after logarithms transformation). The benchmark selection is based on that in EPI 2012. Target is 100% of population with access for both indicators,

and the low performance benchmark is 36% (1st percentile) for access to drinking water index and 11.4% (5th percentile) for access to sanitation index. The data used is observed from the World Health Organization Global Health Observatory Data Repository and the WB's WDI 2015.

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 takes in indicators that measure biome protection, critical habitat protection, and marine protection. The data is obtained from EPI 2016.

IV. **Climate change and energy Index:** this index is included due to the fact that the impacts of climate change will dramatically affect human health, water resources, agriculture, and ecosystems. Following the methodology of that in EPI 2012, the index is calculated as 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).

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)¹⁸ argue that the use of an arithmetic mean is problematic because it implies that a decrease in the level of one of the sub-indices can be offset by an equal increase in the level of another sub-index without taking into account the level of each variable. This poses problems from a welfare point of view. For example, a fall in the level of health cannot be assumed to be offset by an increase in the level of income of a one-by-one basis and at a constant rate. Thus, perfect substitutability does not apply when analyzing the effects of different factors on welfare.

The opposite alternative, full complementarity, would also be problematic, as it would assume that the only way of increasing well-being 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, as on one hand a worsening of one of the indicators can be partially offset by an improvement of another one, but we can also assume that at least a basic level of health, financial services, material provision and quality of life is necessary in order to enjoy a good retirement.

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

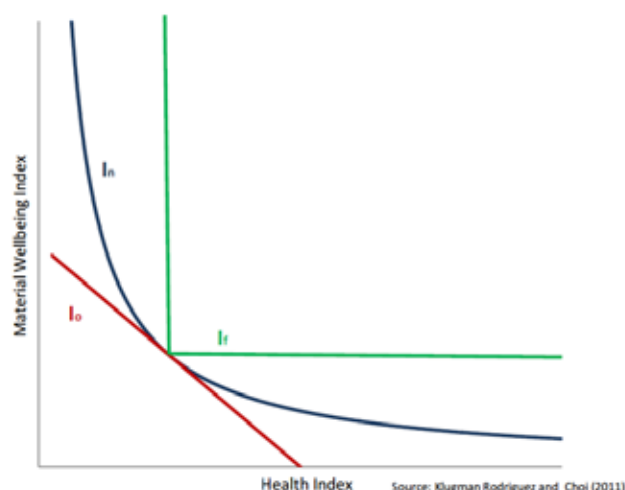
The chart graphically shows the three cases:

1. **Perfect substitutability (I_o):** 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 (I_f):** 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 4 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 (I_n):** 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.



¹⁸ Klugman, Rodriguez and Choi (2011), "The HDI 2010: New Controversies, Old Critiques", *Human Development Research Paper 2011/1*, UNDP, New York.

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 2015	2013	Sample Maximum (83.33 years, Japan)	Sample Minimum (67.66 years, India)	None
	Health Expenditure Per Capita Index	GEOMEAN	Health expenditure per capita, PPP (constant 2011 international \$)	1	World Bank WDI 2015	2012	Sample Maximum (\$9,145.83, USA)	Sample Minimum (\$214.66, India)	Natural Logarithm
	Non-insured Health Expenditure Index	GEOMEAN	Out-of-pocket health expenditure (% of total health expenditure)	1	World Bank WDI 2015	2013	Sample Minimum (5.39%, Netherlands)	100%	None
Material Wellbeing Index	Income Equality Index	GEOMEAN	GINI Index	1	World Bank WDI 2015, CIA World Factbook, OECD	Between 2008 and 2014 depending on Country	Sample Minimum (25.59, Slovenia)	Sample Maximum (52.87, Brazil)	Natural Logarithm
	Income per Capita Index	GEOMEAN	GNI per capita, PPP (Current International \$)	1	World Bank WDI 2015	2014, 2013	Sample Maximum (\$80,270, Singapore)	Sample Minimum (\$5,630, India)	Natural Logarithm
	Unemployment Index	GEOMEAN	Unemployment (% of total labour force)	1	World Bank WDI 2015	2014	3% Unemployment	Sample Maximum (26%, Greece)	Natural Logarithm
Finances in Retirement Index	Institutional Strength Index	0.50	Average of World Bank Governance Indicators	1	World Bank Worldwide Governance Indicators 2015	2014	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 2015	2014	10%	50%	Natural Logarithm
			Bank Nonperforming loans to total gross loans (%)	GEOMEAN	World Bank WDI 2015	2015, 2014	Sample minimum (0.21%, Luxembourg)	Sample maximum (44.84%, Cyprus)	Natural Logarithm
			Inflation, consumer prices (% annual)	GEOMEAN	World Bank WDI 2015	2010-2014	2%	Sample Maximum (9.48%, India)	Natural Logarithm
			Real interest rate (%)	GEOMEAN	World Bank WDI 2015, OECD	2010, 2014	20%	0%	Natural Logarithm
			Public Debt (% of GDP)	GEOMEAN	CIA World Factbook	2015	Sample Minimum (9.67%, Estonia)	Sample Maximum (246.42%, Japan)	Natural Logarithm
			Tax Burden (% of GDP)	GEOMEAN	Country statistical agencies, central banks, and ministries of finance/economy	2015	Sample Minimum (13.8%, Singapore)	48.58%	Natural Logarithm
Quality of life / Environmental Index	Air Quality Index (EPI 2016)	0.125 GEOMEAN	Household Air Quality	0.3	Environmental Performance Index 2016	2013	0% of population using solid fuels as primary cooking fuel	100%	None
			Air Pollution - Average Exposure to PM2.5	0.3	Environmental Performance Index 2016	2014	10 ug/m3	31.12 ug/m3	None
			Air Pollution - PM2.5 Exceedance	0.3	Environmental Performance Index 2016	2014	0	0.73 ug/m3	None
			Air Pollution - Average Exposure to NO2	0.1	Environmental Performance Index 2016	2011	0	6.6 ppb	None
	Water and Sanitation Index	0.125 GEOMEAN	Improved water source (% of population with access)	0.5	World Bank WDI 2015, WHO Global Health Observatory Data Repository	2015	100% of population with access	36%	Natural Logarithm
			Improved sanitation facilities (% of population with access)	0.5	World Bank WDI 2015, WHO Global Health Observatory Data Repository	2015	100% of population with access	11.4%	Natural Logarithm
	Biodiversity and Habitat Index (EPI 2014)	0.125 GEOMEAN	Terrestrial Protected Areas (National Biome Weights)	0.2	Environmental Performance Index 2016	2015	17% weighted average of biomes protected	0%	None
			Terrestrial Protected Areas (Global Biome Weights)	0.2	Environmental Performance Index 2016	2015	17% of country's terrestrial weighted average of biomes protected	0%	None
			Species Protection (National)	0.2	Environmental Performance Index 2016	2014	17%	0%	None
			Species Protection (Global)	0.2	Environmental Performance Index 2016	2014	17%	0%	None
			Marine Protected Areas	0.2	Environmental Performance Index 2016	2015	16% of country's exclusive economic zone under protection by a nationally designated marine protected area	0%	Natural Logarithm, alpha 0.090265309 added
	Climate Change & Energy Index	0.125 GEOMEAN	CO2 per capita	0.33	US Energy Information Administration (EIA), World Bank WDI 2015	2012	1262 kg CO2 eq. (Estimated value associated with 50% reduction in global GHG emissions by 2050, against 1990 levels)	19588.33059	Natural Logarithm
			CO2 per GDP	0.33	US Energy Information Administration (EIA), World Bank WDI 2015	2012	0.07662 kg CO2 eq. (Estimated value associated with 50% reduction in global GHG emissions by 2050, against 1990 levels)	1.532823115	Natural Logarithm
			CO2 emissions per electricity generation	0.165	US Energy Information Administration (EIA), World Bank WDI 2015	2012	0 grams CO2 per kWh	8.453289722	Natural Logarithm
			Renewable electricity	0.165	US Energy Information Administration (EIA), World Bank WDI 2015	2012	100% electricity from renewable sources	0%	None
	Happiness Index	0.5 GEOMEAN	Happiness (0-10)	1	World Happiness Report 2016	2015	Sample Maximum (7.5, Denmark)	Sample Minimum (4.4, India)	Natural Logarithm

APPENDIX B

FULL RANKING: GLOBAL RETIREMENT INDEX 2016

COLOR SCALE	Rank	Country	Health Index	Finances in Retirement Index	Quality of Life Index	Material Wellbeing Index	Global Retirement Index
91%-100%	1	Norway	90%	72%	91%	95%	86%
81%-90%	2	Switzerland	88%	77%	92%	80%	84%
71%-80%	3	Iceland	86%	68%	88%	81%	80%
61%-70%	4	New Zealand	85%	78%	90%	68%	80%
51%-60%	5	Sweden	86%	68%	91%	74%	79%
41%-50%	6	Australia	86%	77%	81%	70%	78%
31%-40%	7	Germany	87%	67%	82%	80%	78%
21%-30%	8	Netherlands	91%	68%	80%	76%	78%
11%-20%	9	Austria	86%	63%	86%	77%	77%
0%-10%	10	Canada	87%	73%	82%	70%	77%
	11	Finland	82%	66%	91%	72%	77%
	12	Denmark	85%	59%	92%	75%	77%
	13	Luxembourg	92%	69%	75%	71%	76%
	14	United States	87%	71%	79%	59%	73%
	15	Belgium	82%	61%	78%	71%	73%
	16	Ireland	83%	68%	82%	58%	72%
	17	United Kingdom	84%	56%	80%	68%	71%
	18	Czech Republic	71%	67%	74%	73%	71%
	19	Israel	77%	69%	78%	62%	71%
	20	France	89%	60%	78%	60%	71%
	21	Japan	98%	55%	64%	76%	70%
	22	Korea, Rep.	72%	76%	52%	79%	69%
	23	Malta	74%	65%	66%	71%	69%
	24	Slovenia	79%	62%	63%	67%	67%
	25	Singapore	68%	79%	60%	56%	65%
	26	Slovak Republic	65%	68%	69%	56%	64%
	27	Estonia	63%	73%	60%	60%	63%
	28	Italy	83%	53%	68%	51%	62%
	29	Poland	63%	68%	61%	56%	62%
	30	Lithuania	54%	70%	62%	50%	59%
	31	Chile	70%	80%	76%	28%	59%
	32	Latvia	51%	68%	61%	50%	57%
	33	Hungary	60%	58%	47%	63%	57%
	34	Portugal	74%	61%	48%	45%	56%
	35	Mexico	52%	64%	75%	35%	54%
	36	Cyprus	65%	53%	55%	45%	54%
	37	Spain	81%	63%	74%	22%	54%
	38	China	47%	66%	38%	43%	47%
	39	Turkey	57%	55%	34%	44%	47%
	40	Russian Federation	40%	40%	54%	52%	46%
	41	Brazil	54%	60%	86%	13%	44%
	42	Greece	75%	50%	43%	14%	39%
	43	India	4%	49%	6%	18%	12%

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