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MELBOURNE MERCER GLOBAL PENSION INDEX

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Victoria
Australia

INCLUDING IMPACT OF AGEING POPULATIONS

OCTOBER 2016

CONTENTS

A MESSAGE FROM THE MINISTER FOR INDUSTRY

The Victorian Government is once again pleased to support the 2016 Melbourne Mercer Global Pension Index. Now in its eighth year, the Index continues to bring together government, industry and academia to provide valuable insights on pension systems around the world.

The Index is the foremost publication of its kind and internationally regarded amongst global policy makers. Since its inception in 2009, the Index has grown in scope and global reach, having expanded from an initial 11 countries to the current 27. The Index now spans a broad cross-section of countries across the Americas, Europe, Asia-Pacific and for the first time this year, has been extended to include Malaysia and Argentina.

As an internationally regarded report, the Index is testament to Victoria's financial services capabilities and research expertise. Financial services accounts for over 10 per cent of Victoria's total economic output, the largest contribution of any sector, and employs over 118,000 Victorians. Victoria is also home to a number of leading financial research organisations, such as the Australian Centre for Financial Studies, the Asia-Pacific Economic Cooperation (APEC) Finance Study Centre and the CSIRO-Monash University Superannuation Research Centre.

The Index affirms Australia's position as a leading market for pension funds management and highlights Victoria's established strengths in the industry. As Australia's premier funds management market, Victoria is home to six of Australia's top twelve pension funds and 60 per cent of Australian industry pension funds under management. Victoria is also home to Australia's sovereign wealth fund, the $120 billion Future Fund, as well as the Victorian Funds Management Corporation and Treasury Corporation Victoria, with $51 billion and $50 billion funds under management respectively. With Australia's managed funds market the third largest in the world, Victoria's capabilities are world leading.

The Victorian Government recognises the strength of Victoria's financial services sector and the vital role it will play in ensuring our State's future economic prosperity. Through the recently launched Future Industries Fund, the Victorian Government is working closely with the financial services sector to deliver continued expansion, investment and jobs growth.

The 2016 Melbourne Mercer Global Pension Index reflects the collaborative efforts of the Victorian government, industry and academia. I commend the Australian Centre for Financial Studies and Mercer on the 2016 Melbourne Mercer Global Pension Index, and the continued success of the Index in promoting international policy reform and best practice.

WADE NOONAN MP
Minister for Industry

MELBOURNE
Victoria
Australia

LETTER FROM ACFS

Monash Business School's Australian Centre for Financial Studies (ACFS) is pleased to present the 2016 Melbourne Mercer Global Pension Index (the Index) in partnership with Mercer.

Currently in its eighth year, the Index provides a valuable contribution to the global debate about how best to provide for an ageing population.

We trust that the Index supports and encourages a focus on longer-term outcomes and policy leadership to address the difficulties we face as populations age. It is encouraging to see governments responding to their Index ranking as they develop their national schemes.

The Index is the result of a collaboration between Mercer, a global leader in pension funds management and consulting, and ACFS, with funding provided by the Victorian Government as part of its ongoing support for leadership in the pension and superannuation industry.

ACFS specialises in leading-edge financial research and dialogue to support Australia as a centre for finance practice, research and education. Drawing on expertise from academia, industry and government, we facilitate industry-relevant and evidenced-based research and dialogue, thought leadership, and independent commentary.

An expert reference group oversees the development of the Index and ensures it represents an independent and unbiased view. Many thanks to the members of this group:

- Syd Bone, Chair, Executive Director of CP2
- Professor Keith Ambachtsheer, Director, Rotman International Centre for Pension Management, Rotman School of Management, University of Toronto
- Professor Hazel Bateman, Head, School of Risk and Actuarial, University of New South Wales
- Professor Joseph Cherian, Practice Professor of Finance, National University of Singapore
- Professor Gordon Clark, Oxford University, and Sir Louis Matheson Visiting Professor, Faculty of Business and Economics, Monash University
- Professor Kevin Davis, University of Melbourne and Research Director ACFS
- Dr Vince FitzGerald, Chairman, ACIL Allen Consulting
- Professor Deborah Ralston, Department of Banking and Finance, Monash University
- Ian Silk, Chief Executive, AustralianSuper
- Professor Susan Thorp, University of Sydney Business School, University of Sydney

Our thanks go to lead author Dr David Knox and his team at Mercer for their work on the Index. We are especially grateful to the in-country experts at Mercer offices around the world who assisted with the collection and interpretation of the data.

Special thanks also to the Victorian Government's Department of Economic Development, Jobs, Transport and Resources for its long-term support of this study, and to its staff for their assistance and guidance.

Professor Rodney Maddock
Interim Director
Australian Centre for Financial Studies

PREFACE

Pension systems around the world, whether they be social security systems or private sector arrangements, are now under more pressure than ever before. Rapid ageing of our population is a fact of life in many countries. Yet this is not the only pressure point on our pension systems. Others include:

- increased government debt in some countries which affects the ability to pay benefits in pay-as-you-go systems
- the low-growth/low-interest economic environment which reduces the long-term benefit of compound interest, particularly affecting defined contribution arrangements
- significant unemployment, particularly amongst the youth, in some countries which affects their ability to accrue future benefits
- the increasing prevalence of defined contribution schemes and the related increased responsibility on individuals to understand the new arrangements

Significant pension reform is being considered or implemented in many countries.

Within this global environment of change, it is important that we learn together to understand what best practice may look like, both now and into the future. This eighth edition of the Melbourne Mercer Global Pension Index presents such research and compares retirement income systems in 27 countries which encompass a diversity of pension policies and practices.

The primary objective of this research is to benchmark each country's retirement income system using more than 40 indicators. An important secondary purpose is to highlight some shortcomings in each country's system and to suggest possible areas of reform that would provide more adequate retirement benefits, increased sustainability over the longer term and/or a greater trust in the pension system.

Many of the challenges relating to ageing populations are similar, irrespective of each country's social, political, historical or economic influences. Further, the policy reforms needed to alleviate these challenges are also similar and relate to pension ages, encouraging people to work longer, the level of funding set aside for retirement, and some benefit design issues that reduce leakage of benefits before retirement.

This year we have considered the very significant impact of ageing populations, analysing the projected old age dependency ratio for each country and five mitigating factors. The results are both fascinating and concerning; as we consider the relative position of each country.

The preparation of this international report requires input, hard work and cooperation from many individuals and groups. I would like to thank them all.

First, we are delighted that the Victorian Government continues to be the major sponsor of this project.

Second, the Australian Centre for Financial Studies have played a pivotal role in this project, particularly in establishing an expert reference group of senior and experienced individuals who provided helpful suggestions and comments throughout the project.

Third, the Mercer consultants around the world have been invaluable in providing information in respect of their countries' retirement income systems, checking our interpretation of the data, and providing insightful comments. In this respect, we also appreciate the support of the Finnish Centre for Pensions.

My hope is that you enjoy reading the report and that it continues to encourage pension reform to improve the provision of financial security for retirees around the world.

Dr David Knox
Senior Partner
Mercer

CHAPTER 1
EXECUTIVE SUMMARY

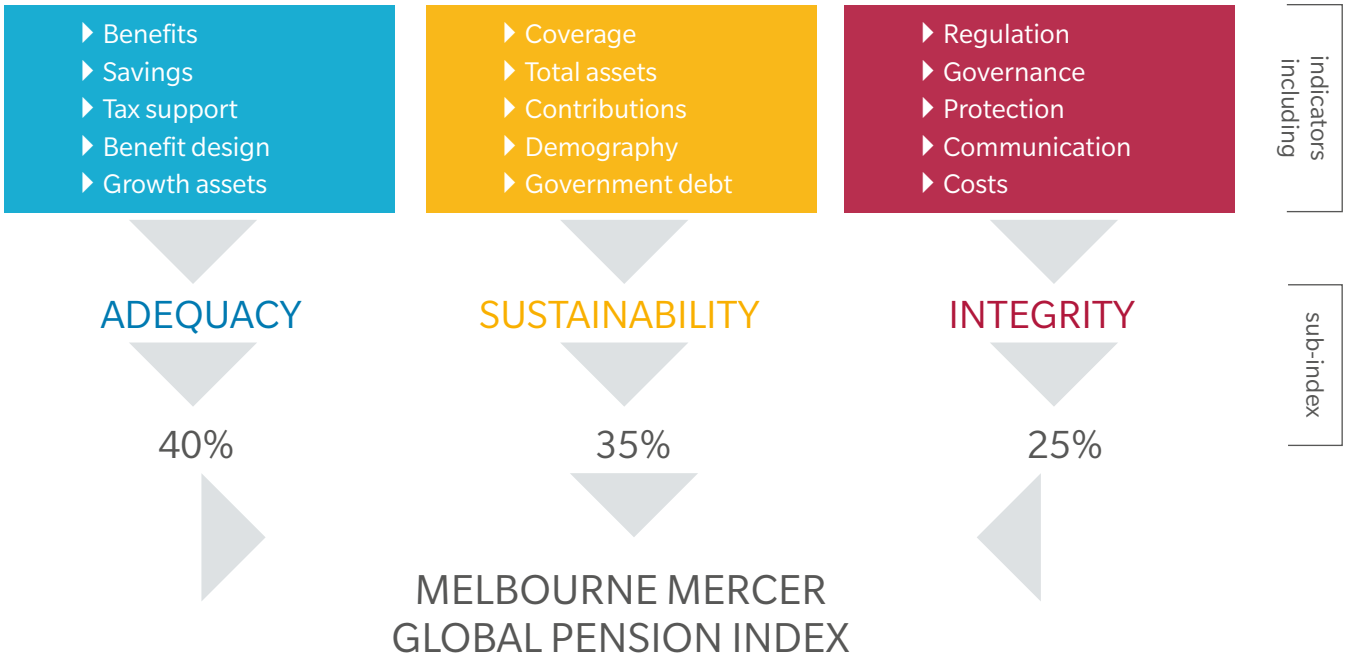
The provision of financial security in retirement is critical for both individuals and societies as most countries are now grappling with the social, economic and financial effects of ageing populations. The major causes of this demographic shift are declining birth rates and increasing longevity. The very significant impact of this change is further explored in Chapter 4. Inevitably these developments are placing financial pressure on current retirement income systems. Yet, a comparison of the diverse systems around the world is not straightforward. As the OECD (2015) comments: "Retirement-income systems are diverse and often involve a number of different programmes. Classifying pension systems and different retirement-income schemes is consequentially difficult."[1]

1 OECD (2015), p124.

Furthermore, any comparison of systems is likely to be controversial as each system has evolved from that country's particular economic, social, cultural, political and historical circumstances. That means there is no single system that can be transplanted from one country and applied, without change, to another country. However there are certain features and characteristics that, across the range of systems, are likely to lead to improved financial benefits for aged individuals and households, an increased likelihood of future sustainability of the system, and a greater level of community confidence and trust.

With these desirable outcomes in mind, the Melbourne Mercer Global Pension Index uses three sub-indices – adequacy, sustainability and integrity – to measure each country's retirement income system against more than 40 indicators. The following diagram highlights some of the topics covered in each sub-index.

Calculating the Melbourne Mercer Global Pension Index



The overall index value for each country's system represents the weighted average of the three sub-indices. The weightings used are 40 percent for the adequacy sub-index, 35 percent for the sustainability sub-index and 25 percent for the integrity sub-index. The different weightings are used to reflect the primary importance of the adequacy sub-index which represents the benefits that are currently being provided together with some important benefit design features. The sustainability sub-index has a focus on the future and measures various indicators which will influence the likelihood that the current system will be able to provide these benefits into the future. The integrity sub-index considers several items that influence the overall governance and operations of the system which affects the level of confidence that the citizens of each country have in their system.

This study of retirement income systems in 27 countries has confirmed that there is great diversity between the systems around the world with scores ranging from 37.7 for Argentina to 80.5 for Denmark.

The following table summarises the results.

Grade	Index Value	Countries	Description
A	>80	Denmark Netherlands	A first class and robust retirement income system that delivers good benefits, is sustainable and has a high level of integrity.
B+	75–80	Australia	A system that has a sound structure, with many good features, but has some areas for improvement that differentiates it from an A-grade system.
B	65–75	Finland Sweden Switzerland Singapore Canada Chile	
C+	60–65	Ireland UK	A system that has some good features, but also has major risks and/or shortcomings that should be addressed. Without these improvements, its efficacy and/or long-term sustainability can be questioned.
C	50–60	Germany USA France Malaysia Brazil Poland Austria	
D	35–50	Italy South Africa Indonesia Korea (South) China Mexico India Japan Argentina	A system that has some desirable features, but also has major weaknesses and/or omissions that need to be addressed. Without these improvements, its efficacy and sustainability are in doubt.
E	<35	Nil	A poor system that may be in the early stages of development or non-existent.

We believe that none of the countries in this study has an E-grade system, which would be represented by an index value below 35. A score between 35 and 50, representing a D-grade system, indicates a system that has some sound features but there exist major omissions or weaknesses. A D-grade classification may also occur in the relatively early stages of the development of a particular country's retirement income system.

The following table shows the overall index value for each country, together with the index value for each of the three sub-indices: adequacy, sustainability and integrity. Each index value represents a score between zero and 100.

Country	Overall Index Value	Sub-Index Values		
		Adequacy	Sustainability	Integrity
Argentina	37.7	42.3	30.1	40.9
Australia	77.9	76.0	74.1	86.1
Austria	51.7	67.4	16.0	76.7
Brazil	55.1	67.9	29.2	70.7
Canada	66.4	68.0	58.8	74.5
Chile	66.4	56.5	68.4	79.6
China	45.2	58.2	29.7	46.0
Denmark	80.5	75.8	85.3	81.4
Finland	72.9	70.6	62.2	91.5
France	56.4	75.2	35.2	55.8
Germany	59.0	70.4	35.8	73.1
India	43.4	39.5	40.9	53.4
Indonesia	48.3	41.0	43.0	67.3
Ireland	62.0	76.2	34.8	77.3
Italy	49.5	65.5	13.5	74.4
Japan	43.2	48.5	24.4	60.9
Korea	46.0	46.5	43.9	48.1
Malaysia	55.7	40.3	57.1	78.3
Mexico	44.3	38.5	53.6	40.7
Netherlands	80.1	78.2	77.0	87.7
Poland	54.4	57.9	41.2	67.3
Singapore	67.0	61.4	66.8	76.1
South Africa	48.6	34.0	44.7	77.3
Sweden	71.4	67.6	69.5	80.3
Switzerland	68.6	60.5	67.4	83.5
UK	60.1	55.5	48.8	83.2
USA	56.4	53.5	57.1	59.9
Average	**58.1**	**59.0**	**48.5**	**70.1**

As noted earlier, each country's index value takes into account more than 40 indicators, some of which are based on data measurements which can be difficult to compare between countries. For this reason, one should not be too definite that one country's system is better than another when the difference in the overall index value is less than two. On the other hand, when the difference is five or more it can be fairly concluded that the higher index value indicates a country with a better retirement income system.

The following table shows the grade for each country's sub-index values as well as the overall grade. This approach highlights the fact that some countries may have a weakness in one area (eg sustainability) whilst being much stronger in the other two areas. Such a weakness highlights areas for future reforms.

Country	Overall Index Grade	Sub-Index Grades		
		Adequacy	Sustainability	Integrity
Argentina	D	D	E	D
Australia	B+	B+	B	A
Austria	C	B	E	B+
Brazil	C	B	E	B
Canada	B	B	C	B
Chile	B	C	B	B+
China	D	C	E	D
Denmark	A	B+	A	A
Finland	B	B	C+	A
France	C	B+	D	C
Germany	C	B	D	B
India	D	D	D	C
Indonesia	D	D	D	B
Ireland	C+	B+	E	B+
Italy	D	B	E	B
Japan	D	D	E	C+
Korea	D	D	D	D
Malaysia	C	D	C	B+
Mexico	D	D	C	D
Netherlands	A	B+	B+	A
Poland	C	C	D	B
Singapore	B	C+	B	B+
South Africa	D	E	D	B+
Sweden	B	B	B	A
Switzerland	B	C+	B	A
UK	C+	C	D	A
USA	C	C	C	C

Of course, there is a natural tension between adequacy and sustainability. For example, a system providing very generous benefits is unlikely to be sustainable whereas a system that is sustainable over many years could be providing very modest benefits. The appropriate trade-off between these two objectives will depend on many factors including the country's social, economic and financial position both now and in the longer term.

Another tension is the balance between pay-as-you-go and funded pension arrangements. Again there is no correct answer to cover all circumstances. However, whatever mix is adopted, the assets of pension funds represent a key contribution towards sustainable retirement incomes in the future, particularly in the context of ageing populations.

Chapter 5 makes several suggestions to improve each country's retirement income system. Although each system reflects a unique history, there are some common themes as many countries face similar problems in the decades ahead. As the OECD (2014d) notes: "Despite all the reforms already implemented, a lot of work remains to be done to address the challenges that population ageing and the global economic environment pose for pension systems."[2]

The challenges common to many countries include the need to:

- increase the state pension age and/or retirement age to reflect increasing life expectancy, both now and into the future, and thereby reduce the level of costs of the publicly financed pension benefits[3]
- promote higher labour force participation at older ages, which will increase the savings available for retirement and limit the continuing increase in the length of retirement
- encourage or require higher levels of private saving, both within and beyond the pension system, to reduce the future dependence on the public pension and adjust the expectations of many workers
- increase the coverage of employees and/or the self-employed in the private pension system, recognising that many individuals will not save for the future without an element of compulsion or automatic enrolment
- reduce the leakage from the retirement savings system prior to retirement thereby ensuring that the funds saved, often with associated taxation support, are used for the provision of retirement income
- review the level of public pension indexation as the method and frequency of increases are critical to ensure that the real value of the pension is maintained, balanced by its long-term sustainability
- improve the governance of private pension plans and introduce greater transparency to improve the confidence of plan members

It is interesting to note that Jackson et al (2013) of the Center for Strategic and International Studies concluded from their work on the Global Aging Preparedness Index that whilst there are many strategies available to address the economic and social challenges of an ageing population, two strategies in particular are crucial. They are "extending work lives and increasing funded pension savings."[4] These two developments would improve a country's adequacy and sustainability sub-index values through higher retirement ages, increased labour force participation at older ages, greater pension coverage, higher contribution rates, increased savings and a higher level of pension assets.

Marianne Thyssen (2015) of the European Commission commented that "Reforms to lengthen working lives are the key to achieving adequacy and financial sustainability in both the public and private pension schemes."[5] She went on to say that: "While prolonging working lives addresses one part of the adequacy question, it is also essential to enhance the coverage and quality of supplementary (private) pensions." We agree that the significant consequences of our ageing populations need to be addressed in several ways.

Chapter 4 presents our findings of the balance between the projected ageing population in the 27 countries against five mitigants that assist the sustainablility of the retirement systems. The results highlight that significant reform must be introduced in several countries in the very near future.

2 OECD (2014d), p10.

3 It should be noted that several countries have moved in this direction in recent years but even in these cases, very few are linking the future pension age to the likely ongoing increases in life expectancy.

4 Jackson et al (2013), page V.

5 Thyssen M (2015).

CHAPTER 2
BACKGROUND TO THE APPROACH USED

The structure and characteristics of pension systems around the world exhibit great diversity with a wide range of features and norms. Comparisons are not straightforward. In addition, the lack of readily available and comparable data in respect of many countries provides additional challenges for such a comparison. For this reason, this report uses a wide variety of data sources drawing on publicly available data, wherever possible.

These challenges of data and benchmarking should not, however, prevent the comparison of retirement income systems. Within the context of our ageing populations and the current economic environment, it is too important to ignore. Furthermore, there is no doubt that policies and practices adopted in some countries provide valuable lessons, experience or ideas for the development or reform of pension systems in other countries.

This edition of the Index compares the retirement income systems of 27 countries, highlighting both the considerable diversity and the positive features present in many systems. Notwithstanding these highlights, the study also confirms that no pension system is perfect and that every system has some shortcomings. In Chapter 5, suggestions are made for improving the efficacy of each country's retirement income system. In that respect it is hoped this study will act as a stimulus for each country in the study (and indeed, other countries as well) to review their retirement income system and to consider making improvements so that future retirement incomes for their citizens can be improved.

In its influential report "Averting the Old Age Crisis", the World Bank (1994) recommended a multi-pillar system for the provision of old-age income security, comprising:

Pillar 1: A mandatory publicly managed tax-financed public pension

Pillar 2: Mandatory privately managed, fully funded benefits

Pillar 3: Voluntary privately managed fully funded personal savings

Subsequently, the World Bank (2008) extended this three-pillar system to the following five-pillar approach:

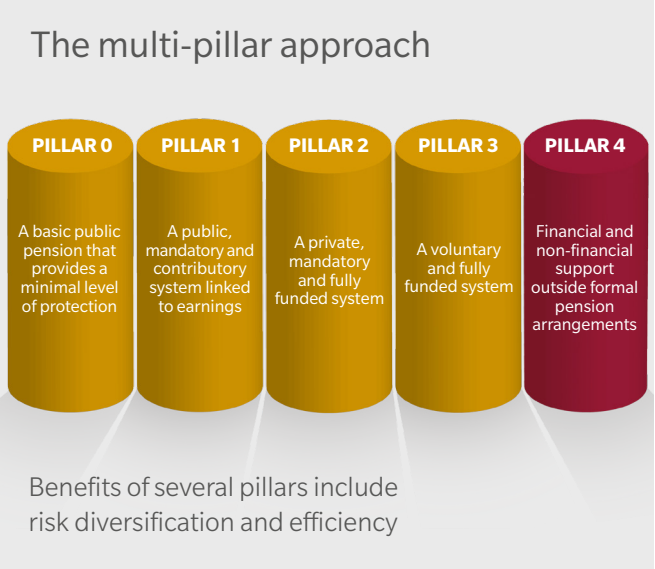
Pillar 0: A non-contributory basic pension from public finances that may be universal or means-tested

Pillar 1: A mandated public pension plan that is publicly managed with contributions linked to earnings

Pillar 2: Mandated and fully funded occupational or personal pension plans with financial assets

Pillar 3: Voluntary and fully funded occupational or personal pension plans with financial assets

Pillar 4: A voluntary system outside the pension system with access to a range of financial and non-financial assets and informal support



In effect, the original first pillar was split into a "zero pillar" and a mandatory "first pillar". A new "fourth pillar" was also added and includes access to informal support and formal social programs. The addition of the new Pillar 4 recognises the important role that these non-pension assets play in providing financial support to individuals or households during retirement.

This five-pillar approach provides a good basis for comparing retirement income systems around the world. Hence the range of indicators used in this report considers features or results associated with each pillar.

The 'best' system for a particular country at a particular time must also take into account that country's economic, social, cultural, political and historical context. In addition, regulatory philosophies vary over time and between countries. There is no pension system that is perfect for every country at the same time. It is not that simple! There are, however, some characteristics of all pension systems that can be tested or compared to give us a better understanding of how each country is tackling the provision of retirement income.

The Melbourne Mercer Global Pension Index has grouped these desirable characteristics into adequacy, sustainability and integrity.

Adequacy

The adequacy of benefits is perhaps the most obvious way to compare different systems. After all, the primary objective of any pension system is to provide adequate retirement income. Thus this sub-index considers the base level of income provided as well as the net replacement rate for a median-income earner. It is recognised that an analysis focusing exclusively on benefits provided to a median-income earner does not represent the full spectrum of different income levels and that a more complete picture could be provided by considering benefits for a range of income levels. However, a more comprehensive approach would add considerable complexity to the comparison and risk distraction from focusing on adequacy for the majority of workers.

Critical to the delivery of adequate benefits is the design features of the private pension system (i.e. Pillars 2 and 3). Whilst there are many features that could be assessed, we have considered the following six, each of which represents a feature that will improve the likelihood that adequate retirement benefits are provided:

- Are voluntary member contributions by a median-income earner to a funded pension plan treated by the tax system more favourably than similar savings in a bank account? Is the investment income earned by pension plans exempt from tax in the pre-retirement and/or post retirement periods? The first question assesses whether the government provides any incentives to encourage median-income earners to save for retirement. It is recognised that the taxation treatment of pensions varies greatly around the world so this question assesses whether an incentive exists or not, not the value of the concession. The second question recognises that the level of investment earnings is critical, especially for defined contribution members. A tax on investment income reduces the compounding effect and will therefore reduce the adequacy of future benefits.
- Is there a minimum access age to receive benefits from the private pension plans (except for death, invalidity and/or cases of significant financial hardship)? This question determines whether the private pension system permits leakage of the accumulated benefits before retirement or whether the regulations are focused on the provision of retirement benefits.
- On resignation from employment, are plan members normally entitled to the full vesting of their accrued benefit? After resignation, is the value of the member's accrued benefit normally maintained in real terms (either by inflation-linked indexation or through market investment returns)? Can a member's benefit entitlements normally be transferred to another private pension plan on the member's resignation from any employer? These questions focus on what happens to the individual's accrued benefit when they change employment. Traditionally, many pension designs penalised resigning members which, in turn, affected the level of benefits available at retirement.
- What proportion, if any, of the retirement benefit from the private pension arrangement is required to be taken as an income stream? Are there any tax or other incentives that exist to encourage the taking up of income streams? Many systems around the world provide lump sum retirement benefits which are not necessarily converted into an income stream. These questions review the rules affecting the form of benefits that may be required and the rules that can provide incentives for income streams.
- Upon a couple's divorce or separation, are the individuals' accrued pension assets normally taken into account in the overall division of assets? This question recognises that the financial treatment of accrued pension assets can have a major effect on the future financial security of one or both partners, following a divorce or separation.
- Are contributions to a funded pension scheme required to be paid if a worker receives income support (or income maintenance) when they are temporarily out of the workforce? This question recognises that the adequacy of an individual's retirement income can be affected if there is no requirement for benefits to continue to accrue when a worker is temporarily out of the workforce and receives income support, for example due to parental leave, ill health or disability.

In addition to these design issues, we consider savings from outside formal pension programs, highlighting the fact that, as the World Bank notes, Pillar 4 assets can play an important role in providing financial security in retirement. It is also recognised that Pillar 4 includes access to informal support (family) but the importance of this support is very difficult to measure in an objective manner.

Finally, we recognise that the net investment return over the long-term represents a critical factor in determining whether an adequate retirement benefit will be provided. This is particularly true for the increasing number of members of defined contribution plans. While investment and administrative costs are considered as part of the integrity sub-index, the long-term return is likely to be affected by the diversity of assets held by the pension fund. Hence the adequacy sub-index includes an indicator representing an assessment of the percentage of investments held in growth assets (including equities and property).

Sustainability

The long-term sustainability of the existing retirement income system is a concern in many countries, particularly in light of the ageing population, the increasing old age dependency ratio and, in some countries, substantial government debt. This sub-index therefore brings together several measures that affect the sustainability of current programs. Whilst some demographic measures, such as the old age dependency ratio (both now and in the future) are difficult to change, others such as the state pension age, the opportunity for phased retirement and the labour force participation rate amongst older workers can be influenced, either directly or indirectly, by government policy.

An important feature of sustainability is the level of funding in advance, which is particularly important where the ratio of workers to retirees is declining. Hence, this sub-index considers contribution rates, the level of pension assets and the coverage of the private sector pension system. Finally, given the key role that the provision of a public pension plays in most countries, the level of government debt represents an important factor affecting a system's long-term sustainability.

Integrity

The third sub-index considers the integrity of the overall pension system, but with a focus on the private sector system. As most countries are relying on the private system to play an increasingly important role in the provision of retirement income, it is critical that the community has confidence in the ability of private sector pension providers to deliver retirement benefits over many years into the future.

This sub-index therefore considers the role of regulation and governance, the protection provided to participants from a range of risks and the level of communication provided to members. In each case, we consider the requirements set out in the relevant legislation.

In addition, we use the Worldwide Governance Indicators published by the World Bank to provide a broader perspective of governance within each country.

An important contributor to the long-term confidence of members is that they receive good value from their pension plan and that costs are kept to a reasonable level. Although an international comparison of the total costs of operating each country's system is difficult, this sub-index includes some proxy measures relating to industry structure and scale which should provide a good indicator.

The construction of the Index

In the construction of the Index, we have endeavoured to be as objective as possible in calculating each country's index value. Where international data are available, we have used that data. In other cases, we have relied on information provided by Mercer consultants in each country. In these instances, we have not asked them to assess the quality of their country's system. Rather we have asked objective questions to which, in many cases, there is a "yes" or "no" answer. In some countries there is more than one system or different regulations in different parts of the country. Where this occurs, we have concentrated on the most common system or taken an average position.

The answers to some of these objective questions may be neither "yes" nor "no", but "to some extent". In these cases, we have compared responses from other countries and ranked each country accordingly, after receiving additional detail.

Each country's overall index value is calculated by taking 40 percent of the adequacy sub-index, 35 percent of the sustainability sub-index and 25 percent of the integrity sub-index. These weightings have remained constant since the first edition of the Index in 2009.

Although each sub-index is not weighted equally, the robustness of the overall results is worth noting. For example, re-weighting of each sub-index equally does not provide any significant changes to the results.[6]

It is acknowledged that living standards in retirement are also affected by a number of other factors including the provision and costs of health services (through both the public and private sectors) and the provision of aged care. However some of these factors can be difficult to measure within different systems and, in particular, difficult to compare between countries. It was therefore decided to concentrate on indicators that directly affect the provision of financial security in retirement, both now and in the future. Therefore the Index does not claim to be a comprehensive measure of living standards in retirement; rather it is focused on the provision of financial security in retirement.

6 The attachments provide the results for the indicators in each sub-index so that readers may calculate the effects of changing the weights used between the sub-indices or, indeed, within each sub-index.

CHAPTER 3
CHANGES FROM 2015 TO 2016

The index has been expanded in 2016 to include two new countries – Argentina and Malaysia. These additions continue our longstanding theme of considering a variety of retirement income systems from countries with different economic, historical and political backgrounds. This approach highlights an important characteristic of the index; to enable comparisons of different systems around the world with a wide range of design features operating within different contexts.

There have also been a number of changes this year which have influenced the index value for some countries.

Changes within the OECD's publication *Pensions at a Glance 2015*

One of the key questions in the adequacy sub-index is the net replacement rate (Question A2) which is sourced from the above OECD publication for most countries. It should be noted that this net replacement rate is based on universal or mandatory pension schemes, not voluntary arrangements.

The 2015 publication made a number of changes to this calculation which affected the net replacement rate for several countries. These changes include:

- The introduction of a 15% cost of converting a defined contribution benefit into an annuity. This represents an 85% conversion factor for annuities that have to be purchased compared to those that result from a no-fee defined benefit basis.
- Allowing for the actual index (such as prices) used to adjust the level of pensions rather than assuming it will always be linked to wages.
- Reductions in the assumed long-term inflation rate, real wage growth and nominal investment returns.
- No publication of the net replacement rate for median income earners in contrast to the continued publication of the net replacement rate for the average income earner. For consistency with previous reports, this required a slight adjustment to the published figures.

These changes to the underlying assumptions, particularly the first two changes, have adversely affected the results for Canada, Chile, Germany and Switzerland.

Australia and the United Kingdom also had reduced replacement rates due to changes in their legislation. In Australia, it was due to the deferral of the previously planned increase in the level of compulsory employer contributions whilst for the UK it was caused by the introduction of the new State pension and the exclusion of voluntary contributions linked to auto-enrolment from the calculation.

In contrast, India saw a significant increase in their net replacement rate due to an increase in their ceiling for contributions and an OECD revision to the average wage.

Some new questions

The Index aims to maintain its relevance and continue to broaden the application of its questions thereby encouraging ongoing improvement in the retirement systems around the world. This year, three new questions have been asked.

The first is to expand the question relating to labour force participation at older ages. Previously we have only been concerned with the participation rate for the 55-64 year olds. With populations ageing around the world, it is appropriate to extend this question to age 65 and beyond. Hence we have extended this indicator (Question S5), which forms part of the sustainability sub-index, to cover both ages 55-64 and 65 plus. However the overall weighting of this labour force indicator within the sustainability sub-index has not changed.

The second relates to the governance of pension funds which is becoming increasingly important in many countries. It is no longer appropriate for the governance structure of pension schemes to be restricted or controlled by a particular entity. We have therefore introduced new questions relating to the requirements (if any) for independent trustees or fiduciaries and the balance between employer and member representatives on the governing board. These questions now form part of Question R3 within the integrity sub-index such that the weightings for the investment and risk management policies have been slightly reduced. The overall effect was to slightly reduce the average score for this question.

The third new set of questions relates to extending the use of the Worldwide Governance Indicators published by the World Bank. Previously, four of these six indicators counted for ten percent towards the integrity sub-index. The remaining two Governance Indicators, covering freedom of expression and political instability, have now been added with the resulting increase in the weighting of this indicator (Question R5) to fifteen percent. To accommodate the increased importance of these items we have slightly reduced the weighting for the questions relating to the need for regulatory approval, the requirement to be a separate legal entity and the role and actions of the regulator (Questions R1 and R2) within the integrity sub-index. This increased use of the Governance Indicators, together with the associated re-weighting has reduced the average score by about one.

Other changes

In addition to the above changes, which affected the overall index value for several countries, the following changes or reviews were also made.

A major review was conducted of the pension or financial support available in each country to aged individuals who are poor. That is, what is the minimum income payable to an aged individual who has no assets or other income? This question is different from what is often expressed as "a minimum pension paid from a social security system, assuming an individual has worked for the required number of years". This review resulted in a significant reduction in the score for Question A1 for China and Mexico which adversely affected their adequacy sub-index score due to its 17.5% weighting.

The net household saving rate (Question A3) within the adequacy sub-index is an important indicator to assess the level of savings outside the formal pension system and has a 10% weighting within the adequacy sub-index. These rates can be volatile from year to year and for this reason it is averaged over two years. Several countries had a significant fall in their measured household saving rate since the 2015 Index. One reason for this outcome was that data sources or the estimation method used by the Economist Intelligence Unit was changed for some countries. In addition, where the data was unreliable and the rate showed no change for several years, we sought alternative sources of data. This change had a particularly adverse effect on the score for South Africa, which now represents a more realistic measure.

The scoring system for the pension coverage indicator (Question S1) in the sustainability sub-indicator was also slightly adjusted. Previously, a maximum score was achieved if more than 75% of the working age population are members of private pension plans. However, some countries have coverage rates above this figure. Recognising that 100% coverage is not feasible, we have increased the score required for a maximum score to 80%. This has resulted in a slight reduction is some countries' score for this indicator.

The final change in this year's Index is the data source used for the level of assets held for retirement in each country (Question S2) within the sustainability sub-index. In previous years, the OECD data used for most countries covered autonomous pension funds, book reserves and pension insurance contracts. However this approach excluded some retirement assets. This year, for most countries we have used the latest OECD data published in *Pension Funds in Figures* which includes all retirement vehicles. This broadening has improved the score for Canada, Chile and the USA.

A comparison from 2015 to 2016

The following table compares the results for the 25 countries from 2015 to 2016. Comments in respect of each country are made in Chapter 5.

Country	Total		Adequacy		Sustainability		Integrity	
	2015	2016	2015	2016	2015	2016	2015	2016
Australia	79.6	77.9	81.2	76.0	72.1	74.1	87.6	86.1
Austria	52.2	51.7	67.6	67.4	17.2	16.0	76.8	76.7
Brazil	53.2	55.1	64.6	67.9	24.5	29.2	75.1	70.7
Canada	70.0	66.4	79.4	68.0	56.2	58.8	74.3	74.5
Chile	69.1	66.4	62.8	56.5	65.0	68.4	84.8	79.6
China	48.0	45.2	62.7	58.2	29.8	29.7	50.0	46.0
Denmark	81.7	80.5	77.2	75.8	84.7	85.3	84.5	81.4
Finland	73.0	72.9	70.7	70.6	61.8	62.2	92.4	91.5
France	57.4	56.4	77.2	75.2	36.6	35.2	54.9	55.8
Germany	62.0	59.0	76.0	70.4	36.8	35.8	75.0	73.1
India	40.3	43.4	30.0	39.5	39.9	40.9	57.6	53.4
Indonesia	48.2	48.3	41.3	41.0	40.1	43.0	70.8	67.3
Ireland	63.1	62.0	77.0	76.2	36.2	34.8	78.5	77.3
Italy	50.9	49.5	68.4	65.5	12.1	13.5	77.4	74.4
Japan	44.1	43.2	48.8	48.5	26.5	24.4	61.2	60.9
Korea	43.8	46.0	43.9	46.5	41.6	43.9	46.8	48.1
Mexico	52.1	44.3	56.4	38.5	53.5	53.6	43.4	40.7
Netherlands	80.5	80.1	80.5	78.2	74.3	77.0	89.3	87.7
Poland	56.2	54.4	61.8	57.9	40.6	41.2	69.0	67.3
Singapore	64.7	67.0	55.7	61.4	65.9	66.8	77.2	76.1
South Africa	53.4	48.6	47.3	34.0	43.0	44.7	77.7	77.3
Sweden	74.2	71.4	71.1	67.6	72.6	69.5	81.5	80.3
Switzerland	74.2	68.6	73.9	60.5	68.4	67.4	82.9	83.5
UK	65.0	60.1	64.2	55.5	51.3	48.8	85.5	83.2
USA	56.3	56.4	55.1	53.5	54.4	57.1	61.1	59.9
Average	**60.5**	**59.0**	**63.8**	**60.4**	**48.2**	**48.9**	**72.6**	**70.9**

The results show that the average score for the overall index has fallen by 1.5 due to a decline in both the adequacy and integrity sub-indexes offset by a small improvement in the sustainability sub-index. The main reason for the decrease in the adequacy sub-index scores was related to the changes in the calculation of the net replacement rate by the OECD. The reduction in the integrity sub-index scores was caused by the new indicators relating to governance.

The average decline of 1.5 hides a number of countries where the score changed by more than two points for a variety of reasons as outlined below:

- The decline in Canada's score was primarily caused by the reduction in the net replacement rate.
- The decline in Chile's score was primarily caused by the reduction in the net replacement rate.
- The decline in China's score was primarily caused by the correction in the level of income available to the poor.
- The decline in Germany's score was primarily caused by the reduction in the net replacement rate.
- The improvement in India's score was primarily caused by the increase in the net replacement rate.
- The increase in Korea's score was caused by a number of small increases in all three sub-indexes.
- The decline in Mexico's score was primarily caused by the correction in the level of income available to the poor.
- The improvement in Singapore's score was primarily caused by the increased level of financial support provided to the poor.
- The decline in South Africa's score was primarily caused by the correction to the household savings rate.
- The decline in Sweden's score was primarily caused by the reduction in both the household savings rate and the assumed level of mandatory contributions set aside for the future.
- The decline in Switzerland's score was primarily caused by the reduction in the net replacement rate.
- The decline in the British (UK) score was primarily caused by the reduction in the net replacement rate.

CHAPTER 4

THE VERY SIGNIFICANT IMPACT OF AGEING POPULATIONS

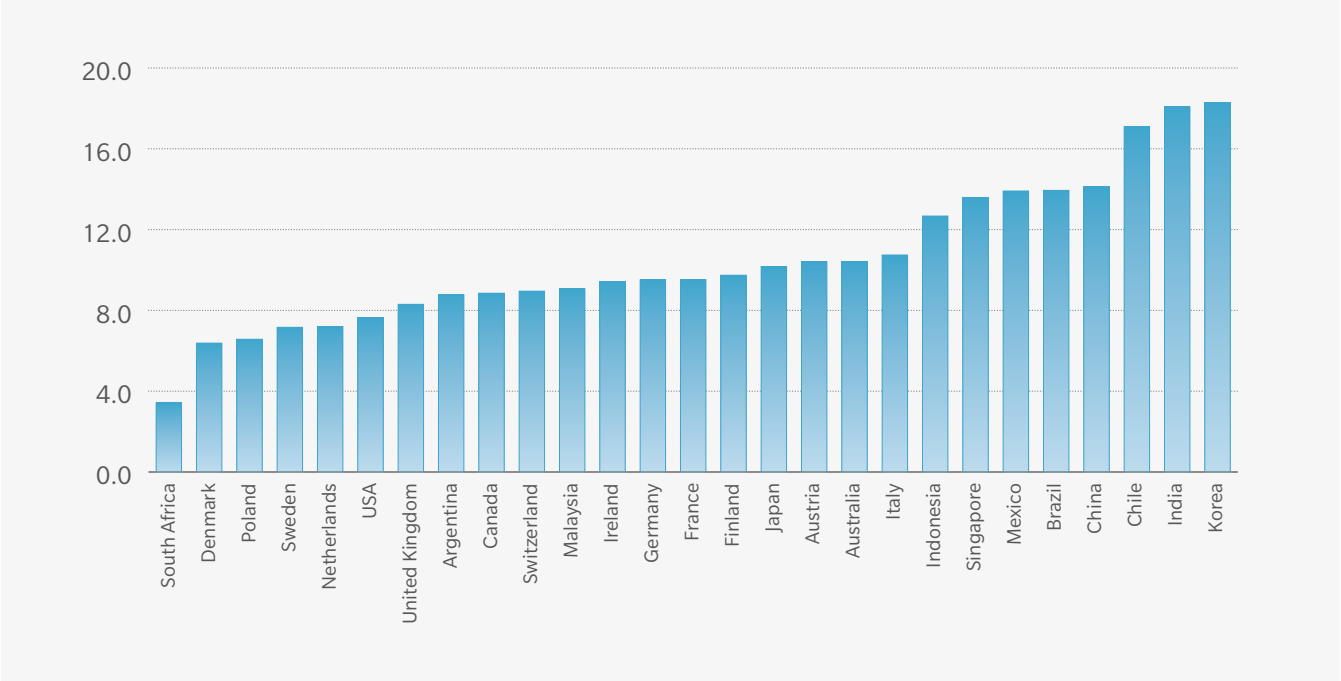
The world's population is ageing and this development is placing significant financial pressures on retirement systems around the world. However this rapid ageing, caused by lower fertility rates and longer life expectancies, is much more significant than has been recognised by many governments. Even more importantly, the many impacts of ageing have not been fully understood, appreciated or accepted by the population in many countries. Hence many governments have found it difficult to implement or foreshadow the necessary changes.

This chapter will present the impact of ageing in a series of simple graphs to highlight the evidence and to recommend changes that must be made to ensure that the current retirement systems are sustainable and able to provide adequate benefits for decades to come.

Life expectancies

In every country we are living longer due to improved medical treatment and technology, as well as a growing understanding of lifestyle behaviour that affects our mortality. Figure 1 shows the improvement in life expectancy at birth (males and females combined) for the 27 countries in the Index for the 40 years from 1970-75 to 2010-15, based on United Nations data[7].

Figure 1: Improvement in life expectancy at birth over the last 40 years



The improvements range from 3.4 years for South Africa to 18.3 years for South Korea. Although there is a wide range, most countries have experienced an increase in life expectancy at birth of between 7 and 14 years with the average being 10.5 years, or an increase in life expectancy of 16 percent from 67.7 years to 78.2 years. This average increase of 15.5% or slightly more than 10 years means that life expectancy at birth has been increasing by an average of one year every four years.

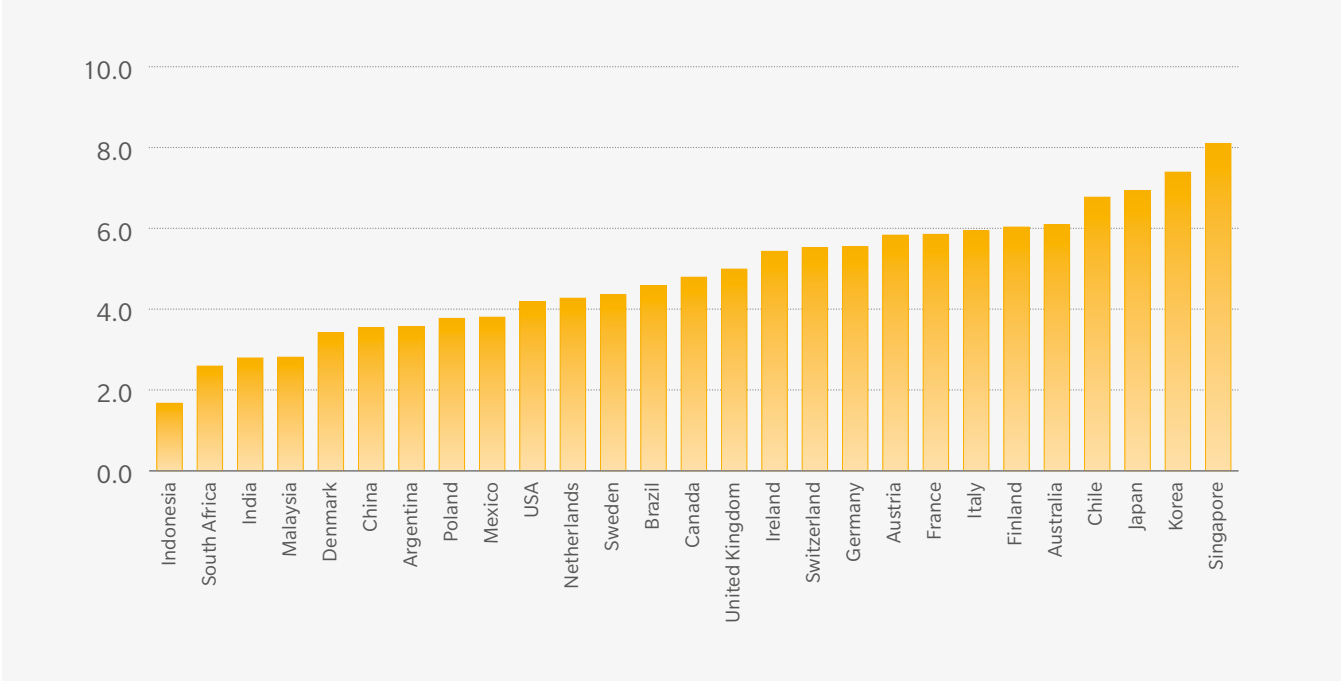
Weighted by each country's population, the average increase becomes 13.9 years; that is, an increase in life expectancy of one year every three years over a forty year period. These results are very significant and cannot be ignored in the ongoing reform of pension systems.

However, from the perspective of retirement, it is more important to consider the changes in life expectancy at older ages, say age 65. Figure 2 shows the improvement in life expectancy at age 65 for the 27 countries for the 40 years from 1970-75 to 2010-15.

7 All the population data in the chapter have been drawn from United Nations, Department of Economic and Social Affairs, Population Division (2015). World Population Prospects: The 2015 Revision, with the custom data acquired via their website.

"Without changes to retirement ages and/or eligibility ages for social security and private pensions, there will be increasing pressure on our retirement systems to the detriment of the financial security provided to the older members of our societies."

Figure 2: Improvement in life expectancy at age 65 over the last 40 years



As with the changes in life expectancy at birth, there are significant differences with the improvement in life expectancy for a 65 year old (males and females combined) ranging from 1.7 years for Indonesia to 8.1 years for Singapore. The average improvement is 4.8 years (unweighted) or 3.6 years (weighted by population). Although these increases in life expectancy are not as great as at birth when measured in years, they represent an increase from 13.93 years to 18.76 years. This average increase of 35% in life expectancy over the four decades is very significant when considering the feasibility of retirement systems providing adequate pensions in the future.

Looking ahead, the United Nations suggests that life expectancy at age 65, on average for the 27 countries, will increase by another four years from 2010-15 to 2050-55. The projected increases range from 2.1 years for Indonesia to 5.4 years for China.

Whatever the actual increases in life expectancy that emerge during the next 40 years, there is little doubt that life expectancies at older ages will continue to increase. Without changes to retirement ages and/or eligibility ages for social security and private pensions, there will be increasing pressure on our retirement systems to the detriment of the financial security provided to the older members of our societies.

Fertility rates

An important contributor to the ageing of the world's population has been declining fertility rates. The Total Fertility Rate (TFR) measures the number of children born per woman. A TFR of about 2.1 is required in developed economies for a population to replace itself. However a higher TFR is required in some developing countries due to higher mortality rates.

The average TFR for the 27 countries in the Index has fallen from 2.43 in 1980-85 to 1.80 in 2010-15 and, according to the United Nations, this average is expected to continue to fall to 1.77 in both 2020-25 and 2030-35. Clearly, for countries with a TFR below 2.1 their population will not be replacing itself and will be steadily ageing, unless there is immigration to offset this effect[8].

As always, these averages hide different fertility rates around the world. The following three graphs show the TFR for each country since 1980-1985 as well as the projected TFR for the next two decades.

Figure 3 shows the TFRs for seven countries with a current TFR of 2.0 or higher. In most cases there has been a steady reduction in the TFR since 1980 although Ireland and France have been hovering about 1.9 or 2.0 since the 1990s. The current average TFR for this group of countries is 2.29 although it is expected to reduce to an average of 2.0 by 2030-35.

Figure 3: Countries with a current Total Fertility Rate above 2

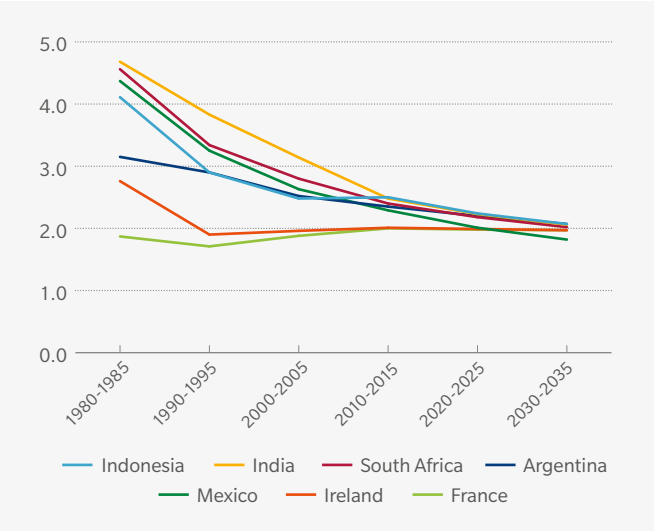
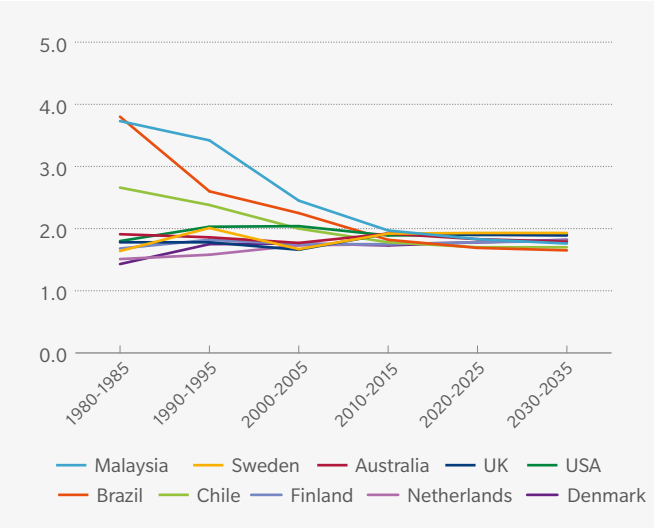


Figure 4 shows the TFRs for ten countries with a current TFR between 1.7 and 2.0. With the exception of Malaysia, Brazil and Chile which have had a reducing TFR since 1980-1985, the other seven countries have had relatively stable TFRs during the last 20 or 30 years, hovering between 1.7 and 2.0. The current average TFR for this group of countries is 1.85 and this is expected to reduce slightly to an average of 1.81 by 2030-35.

Figure 4: Countries with a current Total Fertility Rate between 1.7 and 2

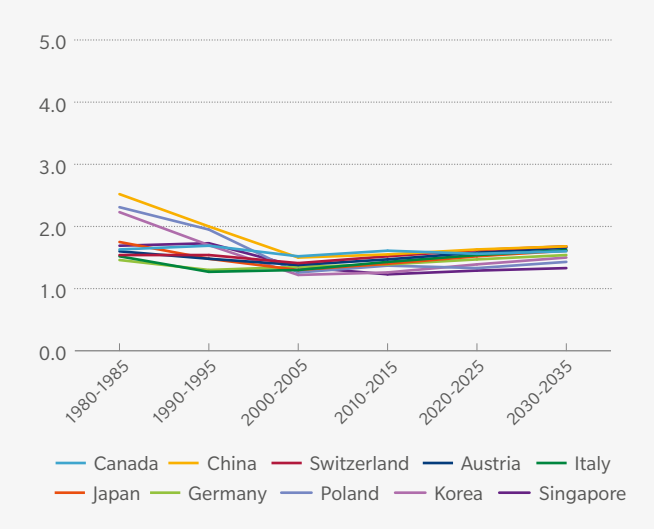


8 The importance of the total fertility rate for the future sustainability of pension systems is recognised in the Index and is one of the measures used within the sustainability sub-index.

"The outlook for financial security amongst the aged will only be possible if there is significant reform or if the next generation is willing to pay much higher taxation to support the previous generations."

Figure 5 shows the TFRs for ten countries with a current TFR below 1.7. There has been relatively little movement in these TFRs in recent years and they currently range from 1.23 in Singapore and 1.26 in Korea to 1.61 in Canada. The current average TFR for this group is 1.42 although the United Nations expects this average to increase to 1.57 by 2030-35 with increased fertility in all these countries except Canada, which is expected to be stable.

Figure 5: Countries with a current Total Fertility Rate below 1.7

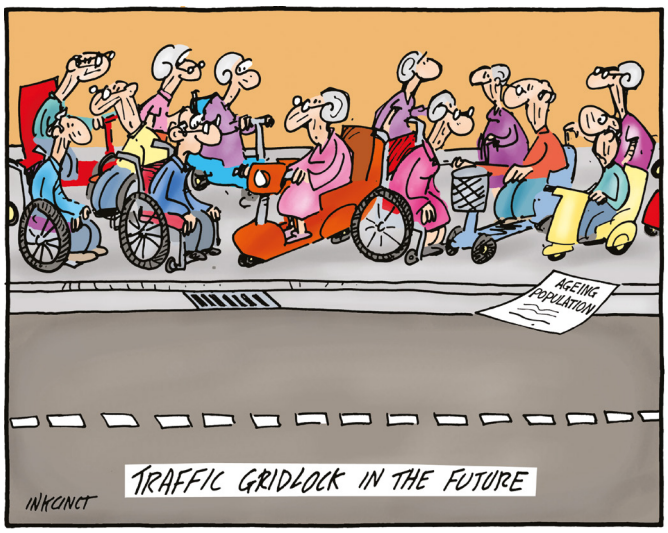


It is apparent that the fertility rate for all countries in the Index is already or will shortly be below the rate required to produce a stable population. That is, without immigration, populations will become older and subsequently reduce in size. This outcome has significant economic and financial consequences for each economy, particularly for those countries with fertility rates below 1.7 and limited or no immigration. The outlook for financial security amongst the aged will only be possible if there is significant reform or if the next generation is willing to pay much higher taxation to support the previous generations.

Old age dependency ratios

The previous two sections provided the data to highlight the importance of increasing life expectancies and declining fertility rates. In this section, we will consider the combined impact of these two outcomes, as well as migration, by considering the old age dependency ratios[9] from 1980 through to 2040. Based on United Nations data[10] we will define the old age dependency ratio as the population in each country aged 65 and over divided by the population aged 20 to 64, multiplied by 100.

Not surprisingly, the average old age dependency ratio for the 27 countries in the Index has increased steadily since 1980 when it was 16.9, or a ratio of one older person for every six people of working age (as defined). By 2010, the average ratio had risen to 21.2 or a ratio of one older person for every 4.7 people of working age. However, by 2040, it is expected that the average old age dependency ratio will be 42.7 or more than double the 2010 figure.



9 As with fertility, the importance of the old age dependency ratio is recognised in the Index and is one of the measures used within the sustainability sub-index.

10 The United Nations projections allow for fertility, mortality and international migration.

As always, the figures vary considerably between countries. The following three graphs show old age dependency ratios from the actual figures in 1980 through to the projected ratios for 2040 for each country.

Figure 6 shows recent and projected old age dependency ratios for the eight countries where the ratio in 2010 was below 15. Whilst most of these countries expect a modest increase in the ratio, it is apparent that for Singapore and China the old age dependency ratio is expected to more than treble from 2010 to 2040. Inevitably, the effects of such a significant demographic change within three decades requires planning and decisions today.

Figure 6: Old age dependency ratios for countries with a ratio in 2010 below 15

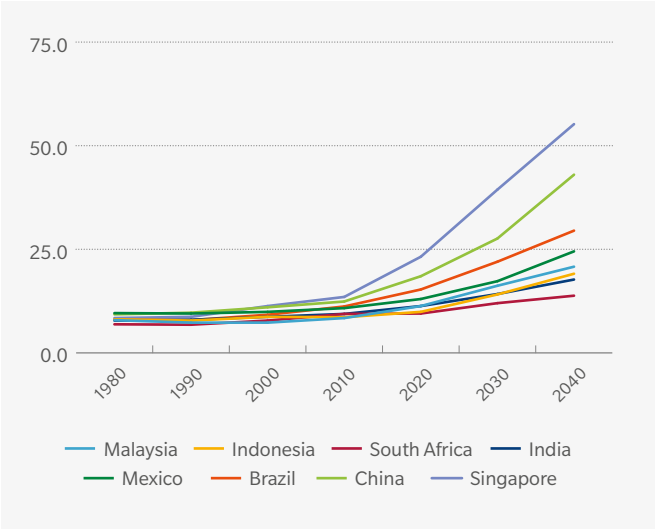


Figure 7 shows the recent and projected old age dependency ratios for the eight countries where the ratio in 2010 was between 15 and 25. Korea shows the most significant projected change with an increase from 15.9 in 2010 to 59.0 in 2040; an increase of more than 250% in 30 years. On the other hand, Argentina shows a modest but steady increase. The remaining six countries have similar experiences with a doubling of their old age dependency ratio from an average of 20.2 in 2010 (one retiree for every 5 workers) to an average of 41.7 in 2040 or one retiree for every 2.5 workers.

Figure 7: Old age dependency ratios for countries with a ratio in 2010 between 15 and 25

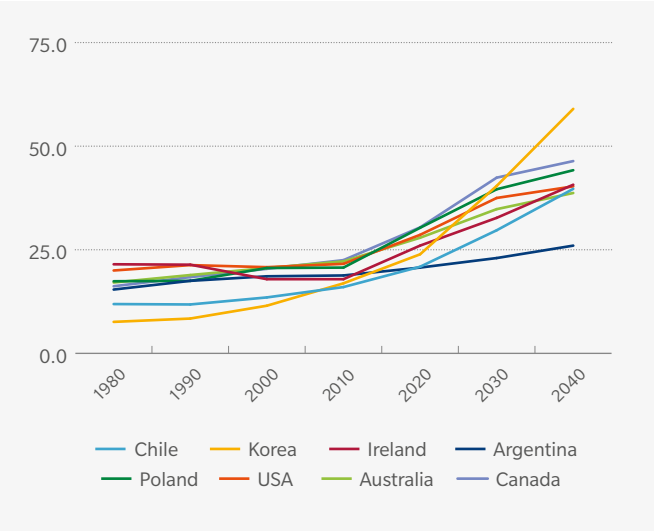
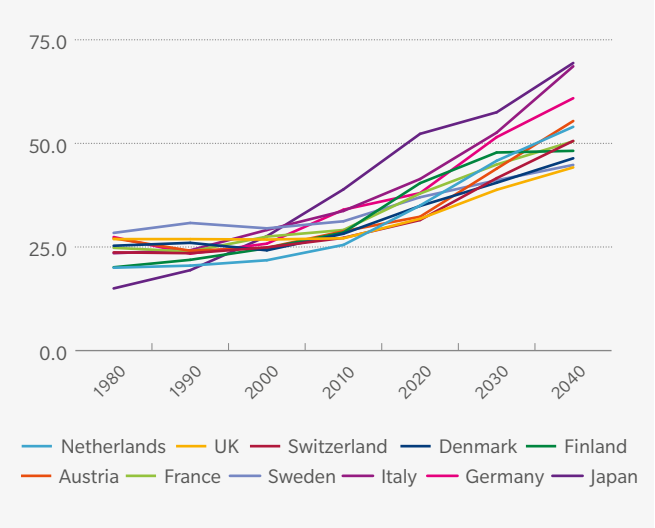


Figure 8 shows the recent and projected old age dependency ratios for 11 countries where the ratio in 2010 was above 25. It is apparent that Japan has, and will continue to have, the highest old age dependency ratio of all the countries in the Index. By 2040 Italy is expected to have caught up to Japan, and Germany is also expected to have a ratio above 60. Even excluding these three countries, the average old age dependency ratio for the other eight countries in Figure 8 will increase from 28.2 in 2010 to 49.3 by 2040.

Figure 8: Old age dependency ratios for countries with a ratio in 2010 above 25



The previous graphs highlight the fact that for every country in the Index there will be a significant ageing of the population during the next 25 years. For India, Indonesia, Malaysia and South Africa the increases are modest and should not cause significant financial strain to the Government's budgetary position. In each of these cases, it is expected there will be at least five individuals of working age for every retiree in 2040.

However, some other countries are not so well placed. It is worth noting this issue is not restricted to one geographical region. Nine countries (six in Europe and three in Asia) are heading for an old age dependency ratio above 50 by 2040; that is, less than two persons of working age for every retiree. Austria, France, Germany, Italy, Japan, Korea, the Netherlands, Singapore and Switzerland need to take action now to mitigate the financial pressures and to prepare the community for the many consequences of a much older population.

Labour Force participation rates – 55-64 year olds

One way of reducing these consequences is to increase the labour force participation rates[11] at older ages[12]. Using data from the International Labour Organization[13], Figures 9-11 show the participation rates for those aged 55-64 for each country in the Index from 2000 to 2015.

There are two criteria that can be considered:

i. The actual level of this participation rate; and
ii. The rate of increase in this participation rate during the last 15 years.

Figure 9 shows that there are nine countries where the rate of increase in the labour force participation rate for 55-64 year olds has been at least 15 percentage points, or more than 1% pa over this period. Indeed six of these nine countries show a very similar improvement rising from 40-50% in 2000 to 64-70% in 2015. The other three countries in Figure 9 (Austria, France and Italy) show a similar increase but from a lower base.

Figure 9: Increases in the participation rate for 55-64 year olds of more than 15%

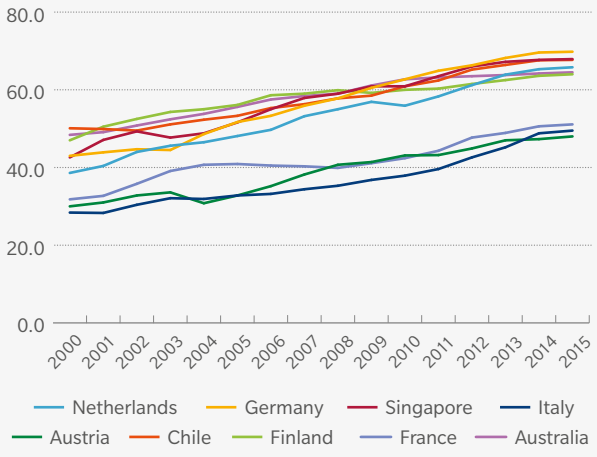
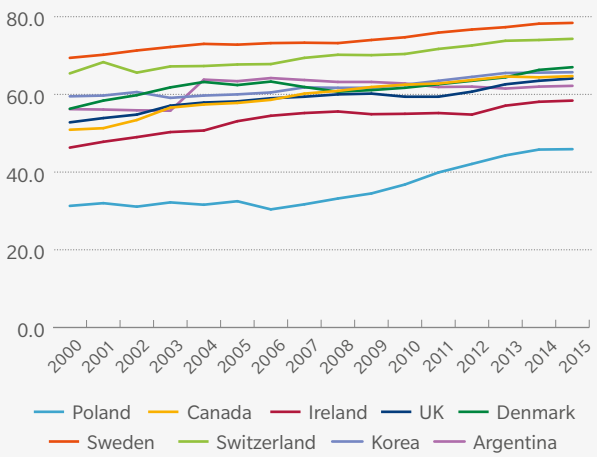


Figure 10 shows the nine countries which have experienced a lower rate of increase from 2000 to 2015; namely an increase between 5 and 15 percentage points.

Figure 10: Increases in the participation rate for 55-64 year olds of 5-15%



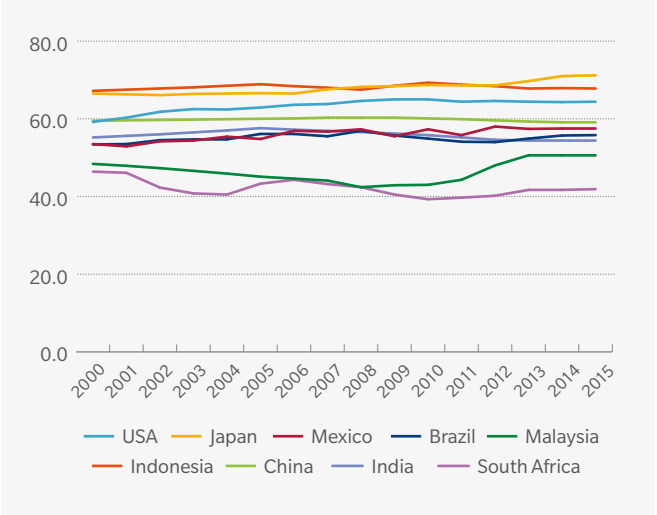
11 The labour force participation rate is a measure of the proportion of a country's working-age population that engages actively in the labour market; either by working or looking for work. That is, it includes the employed and the unemployed.

12 The sustainability sub-index also measures the labour force participation rate at older ages.

13 International Labour Organization (2015), *Key Indicators of the Labour Market*, 9th Edition, ILO.

By contrast with Figures 9 and 10, Figure 11 shows the nine countries in the Index where the increase in the participation rate has been less than 5 percentage points or has decreased from 2000 to 2015. However this figure does not tell the full story for two of these countries (Indonesia and Japan) where participation rates were above 60% in 2000 and were maintained at this relatively high level throughout the period.

Figure 11: Increases in the participation rate for 55-64 year olds of less than 5%



There are two important lessons from these graphs for the labour force participation rates for those aged 55-64.

First, it is feasible to have a participation rate for this age group above 70%; three countries are already there; namely – Japan, Sweden and Switzerland.

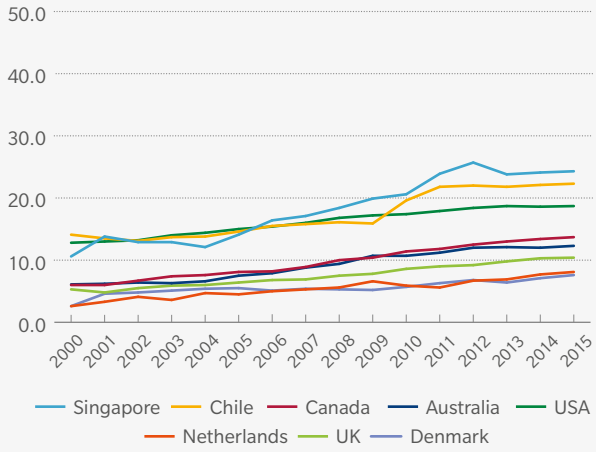
Second, it is possible to increase the labour force participation rate for 55-64 year olds in a relatively short period of time. Whilst there is no single cause for such an increase, encouragement by the Government and more flexible workplace practices are likely to retain older workers which will also help make the pension system more sustainable.

Labour Force participation rates – 65 year olds and over

The next step is to consider the labour force participation rate for those aged 65 and over. Whilst this open ended age group will have less precision, encouraging individuals to work later will have considerable benefits for the provision of adequate pensions. After all, a later retirement means more contributions, more investment earnings when the accrued benefit is near its maximum and a shorter period of retirement requiring a pension.

Figure 12-14 show the labour force participation rates from 2000 to 2015 for those aged 65 and over for the 27 countries in the Index. Eight countries have had an increase of more than five percentage points with Singapore the best performer with its participation rate increasing from 11% in 2000 to 24% in 2015. On the other hand, nine countries experienced a decrease in their participation rate.

Figure 12: Increases in the participation rate for those aged 65 and over of more than 5%



"The challenge for many developed economies is how to encourage some older workers to remain in the workforce. This will require a significant change in the attitude of many employers as well as the community, the removal of legislative and regulatory barriers and positive endorsement from the Government, including the removal of any stipulated retirement age."

Figure 13: Increases in the participation rate for those aged 65 and over of less than 5%

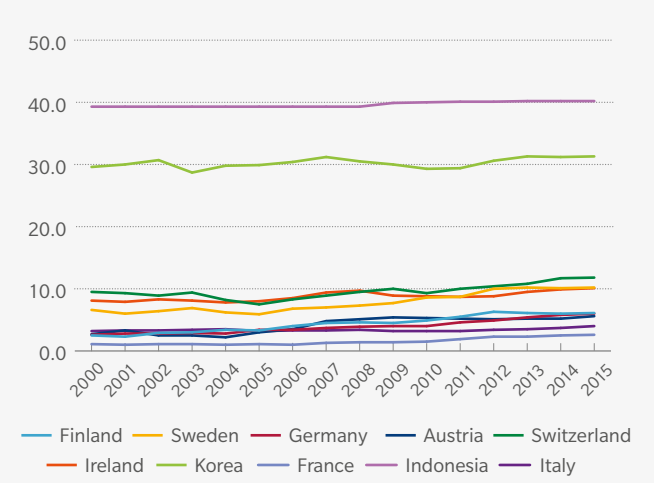
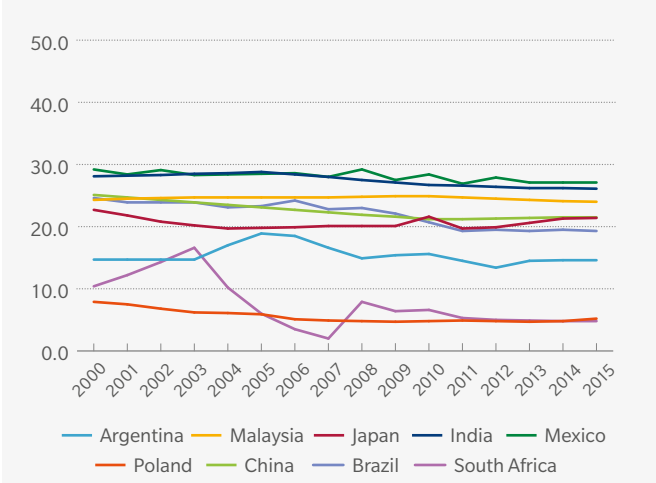


Figure 14: Decreases in the participation rate for those aged 65 and over



The actual labour force participation rate for those aged 65 and over varies considerably with Indonesia and Korea showing fairly steady participation rates of 40% and 30% respectively.

In addition, by reviewing the labour force participation rates for those aged 65 and over across all countries, it is clear that the rates at older ages can be particularly affected by the structure of the economy. That is, for countries with a stronger agricultural base, it is feasible that some older workers can continue to contribute to the economy.

The challenge for many developed economies is how to encourage some older workers to remain in the workforce. This will require a significant change in the attitude of many employers as well as the community, the removal of legislative and regulatory barriers and positive endorsement from the Government, including the removal of any stipulated retirement age.

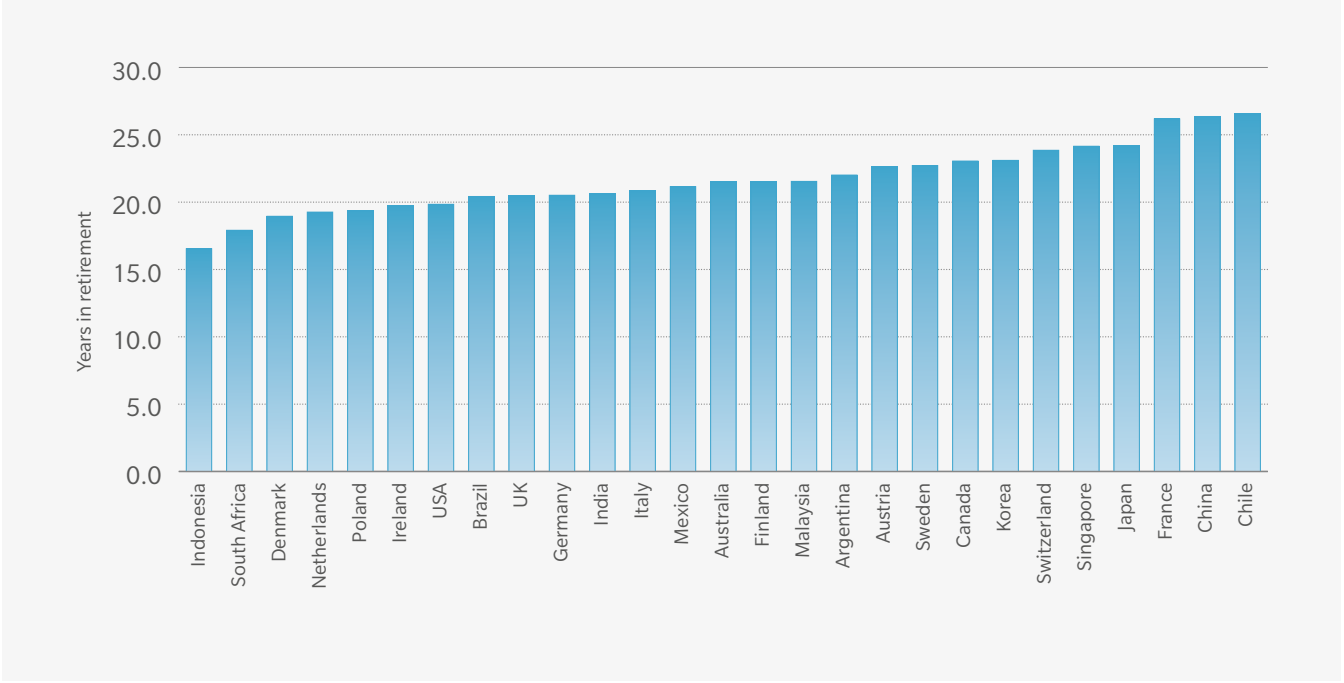
The retirement period

The expected number of years in retirement is a critical factor in the long-term sustainability of pension systems. As discussed earlier, life expectancies are increasing in all countries. Whilst increased labour force participation rates at older ages represent one positive approach to offset the effects of rising life expectancies, an increase in the State pension or retirement age is another more direct approach to improve long-term sustainability. Many countries have implemented legislation to achieve this outcome but other countries have been reluctant to do so, often due to opposition within the community.

Figure 15 shows the expected number of years in retirement at 2035 based on the currently proposed pension eligibility age in 2035 in each country and the life expectancy at that age, as projected by the United Nations for 2030-35[14].

The expected number of years in retirement in 2035 ranges from 16.5 years in Indonesia to 26.6 years in Chile, with an average of 21.9 years. It is noteworthy that the two countries with the shortest number of retirement years (Indonesia and South Africa) have the lowest life expectancies at age 65 of all 27 countries. In contrast, the countries with the highest expected number of years in retirement (namely China, Chile and France) have relatively low projected pension eligibility ages. In each case, they are no higher than 62.5 whereas many other countries will have a pension age of 67 or higher by 2035.

Figure 15: Projected retirement years in 2035



14 A similar measure is used as one of the indicators within the sustainability sub-index

Summary

We have considered several demographic factors that will influence the sustainability of retirement systems in future decades. But, are there some countries better positioned than others? To tackle this question, we will take the old age dependency ratios in 2040 as a starting point (which reflects projected life expectancies and fertility rates) and then consider five mitigating factors that may help a country maintain their current retirement system.

The first two factors reflect the labour force participation of older workers; namely those aged 55-64 and 65 and over. A higher participation rate at older ages will naturally help offset the economic consequences of a higher old age dependency ratio.

However, ongoing change and reform is also important. To measure this impact we will consider:

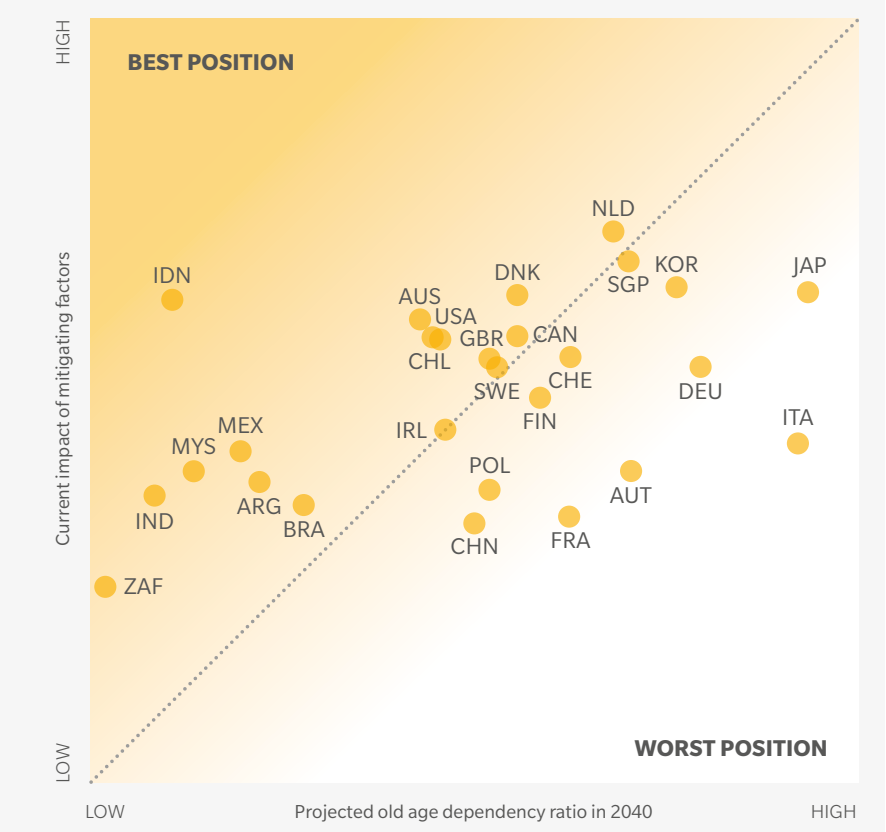
- The increase in the labour force participation rate of 55-64 year olds from 2000 to 2015. In other words, is the country actually experiencing more people working at older ages?
- The projected increase (measured in years) in the retirement period from 2015 to 2035 allowing for the expected increases in life expectancy and the projected increase in the normal eligibility age (where applicable) for social security or the publicly funded pension.

Finally we shall consider the level of pension fund assets, expressed as a percentage of GDP. After all, these assets can be used in the future to provide financial security to retirees and thereby limit the financial effects of an ageing population.

It should be stressed that whilst these factors are not foolproof, they are indicative of developments which can be important to the sustainability and hence community confidence, in the provision of future retirement benefits. Whilst these items concentrate on sustainability, it should be noted that the Melbourne Mercer Global Pension Index is broader and also considers adequacy and integrity.

Figure 16 shows the relative position of each country in respect of both the projected old age dependency ratio and the impact of the five mitigating factors. The projected old age dependency ratio ranges from 13.8 for South Africa (or one retiree for every 7 people of working age) to 69.4 for Japan (or one retiree for every 1.44 people of working age).

Figure 16: Relative positions of countries



"This analysis indicates that several European and Asian countries are not currently well placed to counter the significant effects of their ageing populations."

The methodology that has been adopted for the mitigating factors is to initially consider the mean and distribution (or standard deviation) of each factor for the 27 countries. A score between zero and two[15] is given to each country where a score of one represents the average across all countries for each factor.

When the five scores are added together, the mean score for the mitigating factors is 5.0 with scores ranging from 2.5 for South Africa to 7.2 for the Netherlands.

Figure 16 shows that although Indonesia (IDN) has a relatively low projected old age dependency; it has some important mitigating factors, namely a relatively high labour force at older ages and significant increases in the retirement age. In contrast, Italy has a high projected old age dependency ratio but has considerable work to do to offset the impact of this demographic outcome.

Table 1 shows the figures used for China and the USA and explains their contrasting position in Figure 16, even though they have a similar projected old age dependency ratio.

Table 1: Calculating the relative position for China and the USA

Item	Average results across 27 countries	China		USA	
		Results	Score for mitigants	Results	Score for mitigants
Old age dependency ratio	42.65	43.0		40.3	
Labour force participation 55-64 (%)	61.18	59.5	0.89	64.4	1.18
Labour force participation 65+ (%)	15.17	21.5	1.33	18.8	1.19
Change in labour force 55-64 (%)	10.90	–0.4	0.36	5.3	0.67
Change in retirement period (years)	0.87	3.0	0.28	0.8	1.03
Pension fund assets (% GDP)	67.5	8.0	0.51	149.6	1.68
Final score for mitigants			**3.37**		**5.75**

This analysis indicates that several European and Asian countries are not currently well placed to counter the significant effects of their ageing populations. On the other hand, several emerging economies do not have a major issue.

Each country's retirement system has its own historical, political and cultural background. Notwithstanding these differences, it is imperative for the many countries facing the consequences of an ageing population that the labour force participation rate at older ages must increase and that the pension eligibility age to receive pensions (from Government and/or the private sector) must also rise.

15 A score of zero represents the mean minus two standard deviations (i.e. a low score) and a score of two represents the mean plus two standard deviations (i.e. a high score).

CHAPTER 5
A BRIEF REVIEW OF EACH COUNTRY

This chapter provides a brief summary of the retirement income system of each country in this study, together with some suggestions that would — if adopted — raise the overall index value for that country. Of course, whether such developments are appropriate in the short term depend on the country's current social, political and economic situation. Where relevant, a brief comment is also made about the change in the country's index value from 2015 to 2016.

As detailed in Chapter 3, some of these changes were due to significant revisions to some data provided by international agencies, new and expanded questions and a small adjustment to the scoring system.

Global Grades

Grade	Index Value	Countries	Description
A	>80		A first class and robust retirement income system that delivers good benefits, is sustainable and has a high level of integrity.
B+	75–80		A system that has a sound structure, with many good features, but has some areas for improvement that differentiates it from an A-grade system.
B	65–75		
C+	60–65		A system that has some good features, but also has major risks and/or shortcomings that should be addressed. Without these improvements, its efficacy and/or long-term sustainability can be questioned.
C	50–60		
D	35–50		A system that has some desirable features, but also has major weaknesses and/or omissions that need to be addressed. Without these improvements, its efficacy and sustainability are in doubt.
E	<35	Nil	A poor system that may be in the early stages of development or a non-existent system.

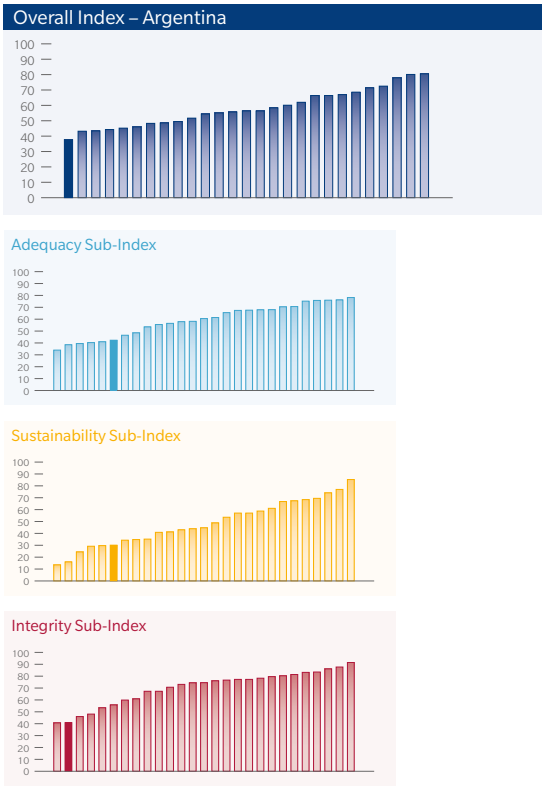
Argentina

Argentina's retirement income system comprises a pay-as-you-go social security system together with voluntary occupational corporate and individual pension plans which may be offered through employer book reserves, insurance companies or pension trusts.

The overall index value for the Argentinian system could be increased by:

- raising the minimum pension available to the poorest aged individuals
- raising the level of household savings
- introducing tax incentives to encourage voluntary member contributions to increase retirement savings
- increasing coverage of employees in occupational pension schemes through automatic membership or enrolment, thereby increasing the level of contributions and assets
- introducing a minimum level of mandatory contributions into a retirement savings fund
- improving the regulatory requirements for the private pension system

The Argentinian index value in 2016 was 37.7.



Australia

Australia's retirement income system comprises a means-tested age pension (paid from general government revenue); a mandatory employer contribution paid into private sector arrangements (mainly DC plans); and additional voluntary contributions from employers, employees or the self-employed paid into private sector plans.

The overall index value for the Australian system could be increased by:

- introducing a requirement that part of the retirement benefit must be taken as an income stream
- increasing the labour force participation rate at older ages as life expectancies rise
- introducing a mechanism to increase the pension age as life expectancy continues to increase
- increasing the minimum access age to receive benefits from private pension plans so that access to retirement benefits is restricted to no more than five years before the age pension eligibility age

The Australian index value fell from 79.6 in 2015 to 77.9 in 2016 primarily due to a reduction in the net replacement rate.

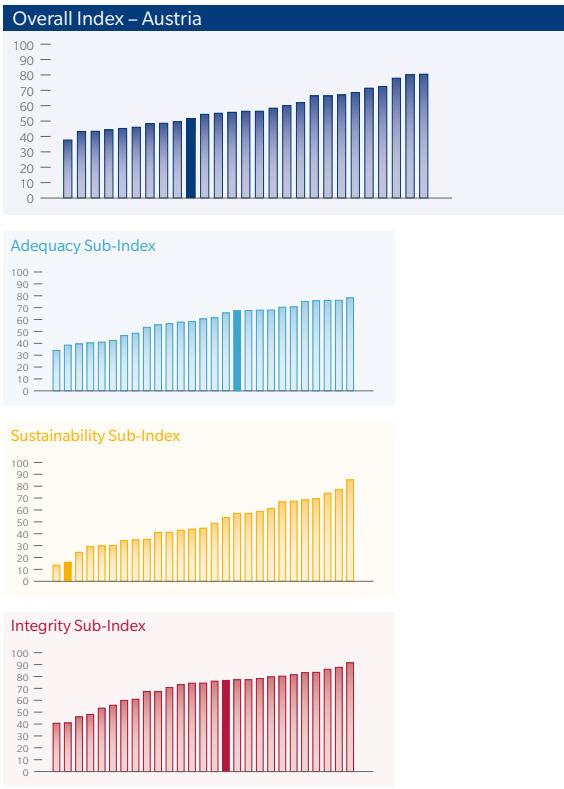
Austria

Austria's retirement income system consists of a hybrid defined benefit public scheme with an income-tested top-up for low-income pensioners and voluntary private pension plans.

The overall index value for the Austrian system could be increased by:

- introducing a minimum access age so that the benefits from private pension plans are preserved for retirement purposes
- increasing coverage of employees in occupational pension schemes thereby increasing the level of contributions and assets (can be done by collective bargaining agreements or tax effective regulation)
- enabling individuals to retire gradually whilst receiving a part pension
- increasing the labour force participation rate at older ages as life expectancies rise.

The Austrian index value fell slightly from 52.2 in 2015 to 51.7 in 2016 due to a number of small changes.



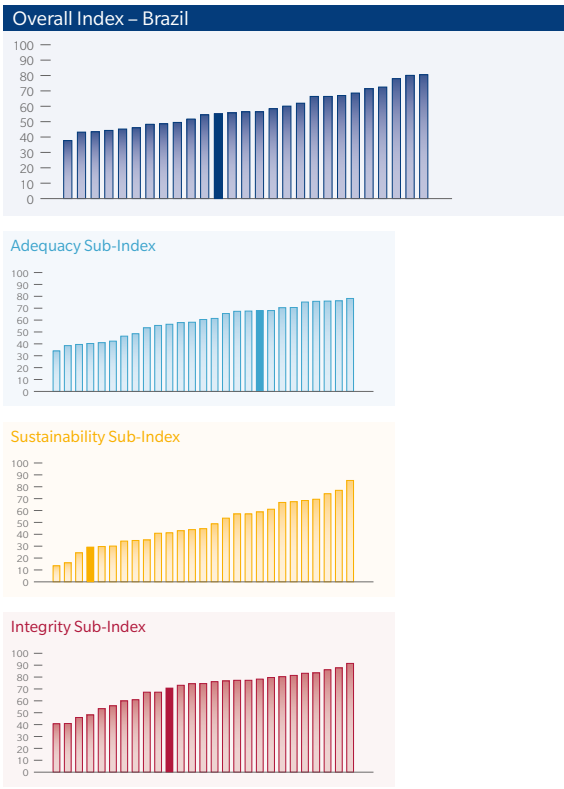
Brazil

Brazil's retirement income system comprises a pay-as-you-go social security system with higher replacement rates for lower income earners; and voluntary occupational corporate and individual pension plans which may be offered through insurance companies or pension trusts.

The overall index value for the Brazilian system could be increased by:

- introducing a minimum access age so that the benefits are preserved for retirement purposes
- increasing coverage of employees in occupational pension schemes through automatic membership or enrolment, thereby increasing the level of contributions and assets
- introducing a minimum level of mandatory contributions into a retirement savings fund
- increasing the state pension age over time
- introducing arrangements to protect the pension interests of both parties in a divorce
- enabling individuals to retire gradually whilst receiving a part pension

The Brazilian index value increased from 53.2 in 2015 to 55.1 in 2016 primarily due to an improvement in the net replacement rate and an increase in the assumed retirement age.



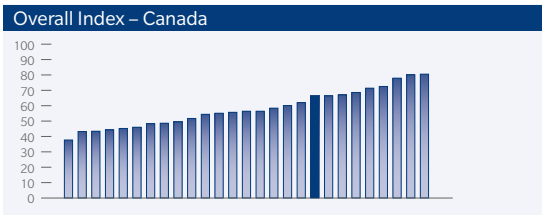
Canada

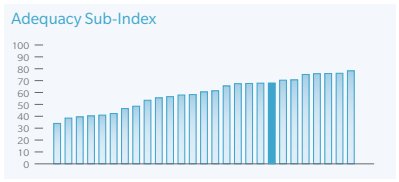
Canada's retirement income system comprises a universal flat-rate pension, supported by a means-tested income supplement; an earnings-related pension based on revalued lifetime earnings; voluntary occupational pension schemes (many of which are defined benefit schemes); and voluntary individual retirement savings plans.

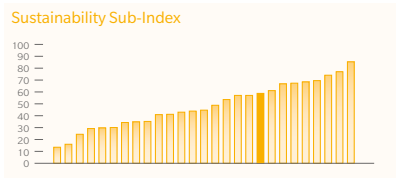
The overall index value for the Canadian system could be increased by:

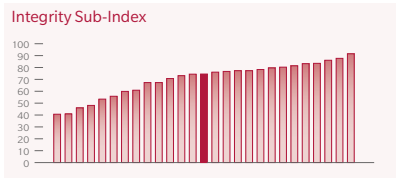
- increasing the coverage of employees in occupational pension schemes through the development of an attractive product for those without an employer-sponsored scheme
- increasing the level of household savings for middle income earners
- increasing the labour force participation rate at older ages as life expectancies rise

The Canadian index value fell from 70.0 in 2015 to 66.4 in 2016 primarily due to a reduction in the net replacement rate.









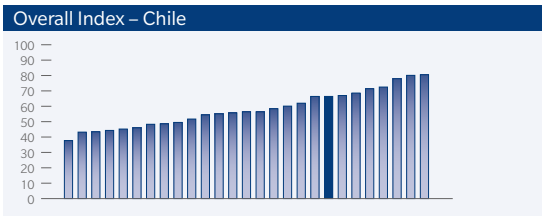
Chile

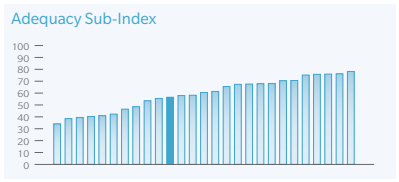
Chile's retirement income system comprises means-tested social assistance; a mandatory privately-managed defined contribution system based on employee contributions with individual accounts managed by a small number of Administradoras de Fondos de Pensiones (AFPs); and a framework for supplementary plans sponsored by employers (the APVC schemes) .

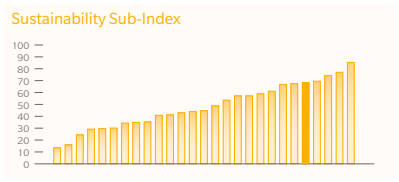
The overall index value for the Chilean system could be increased by:

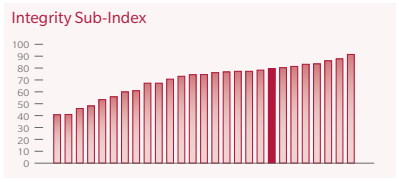
- raising the level of mandatory contributions to increase the net replacement rate
- raising the level of household savings
- increasing retirement ages for both men and women
- continuing to review the minimum pension for the poorest pensioners

The Chilean index value fell from 69.1 in 2015 to 66.4 in 2016 primarily due to a reduction in the net replacement rate.









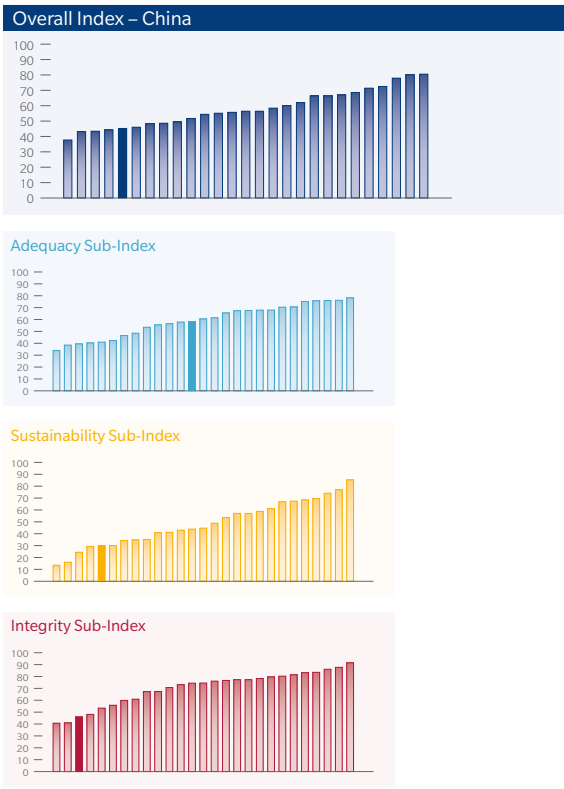
China

China's retirement income system comprises an urban system and a rural social system as well as systems for rural migrants and public sector workers. The urban and rural systems have a pay-as-you-go basic pension consisting of a pooled account (from employer contributions or fiscal expenditure) and funded individual accounts (from employee contributions). Supplementary plans are also provided by some employers, more so in urban areas.

The overall index value for the Chinese system could be increased by:

- continuing to increase the coverage of workers in pension systems
- introducing a requirement that part of the supplementary retirement benefit must be taken as an income stream
- increasing the state pension age over time
- offering more investment options to members and thereby permitting a greater exposure to growth assets
- improving the level of communication required from pension plans to members

The Chinese index value fell from 48.0 in 2015 to 45.2 in 2016 primarily due to a reduction in the assumed level of support provided to the poor.



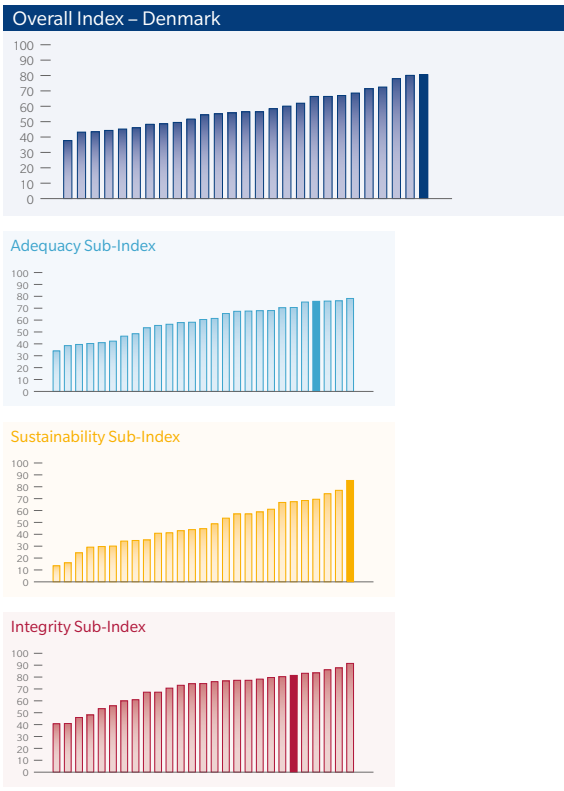
Denmark

Denmark's retirement income system comprises a public basic pension scheme, a means-tested supplementary pension benefit, a fully funded defined contribution scheme, and mandatory occupational schemes.

The overall index value for the Danish system could be increased by:

- raising the level of household saving
- introducing arrangements to protect the interests of both parties in a divorce
- increasing the labour force participation rate at older ages as life expectancies rise

The Danish index value fell slightly from 81.7 in 2015 to 80.5 in 2016 due to a number of small changes.



Finland

Finland's retirement income system consists of a basic state pension, which is income-tested, and a range of statutory earnings-related schemes.

The overall index value for the Finnish system could be increased by:

- continuing to increase the minimum pension for low-income pensioners
- continuing to raise the level of mandatory contributions that are set aside for the future
- increasing the labour force participation rate at older ages as life expectancies rise
- introducing arrangements to protect the pension interests of both parties in a divorce

The Finnish index value fell slightly from 73.0 in 2015 to 72.9 in 2016.

France

France's retirement income system comprises an earnings-related public pension with a minimum pension level; two mandatory occupational pension plans for blue and white collar workers respectively; and voluntary occupational plans.

The overall index value for the French system could be increased by:

- increasing the level of funded contributions thereby increasing the level of assets over time
- increasing the state pension age
- increasing the labour force participation rate at older ages as life expectancies rise
- improving the regulatory requirements for the private pension system

The French index value fell slightly from 57.4 in 2015 to 56.4 in 2016 due to a number of small changes.

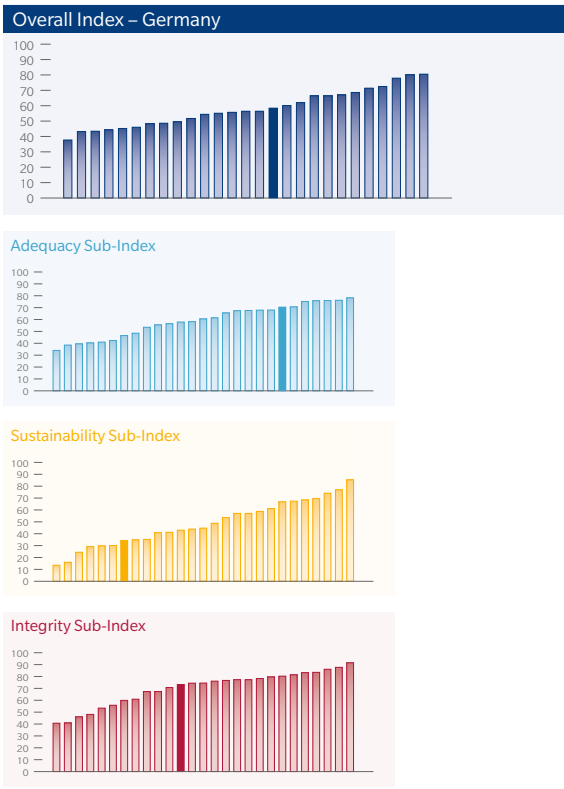
Germany

Germany's retirement income system comprises an earnings-related pay-as-you-go system based on the number of pension points earned during an individual's career; a means-tested safety net for low-income pensioners; and supplementary pension plans which are common amongst major employers. These plans typically adopt either a book reserving approach, with or without segregated assets, or an insured pensions approach.

The overall index value for the German system could be increased by:

- increasing the minimum pension for low-income pensioners
- increasing coverage of employees in occupational pension plans
- increasing the labour force participation rate at older ages as life expectancies rise
- improving the level of communication from pension arrangements to members

The German index value fell from 62.0 in 2015 to 59.0 in 2016 primarily due to a reduction in the net replacement rate.



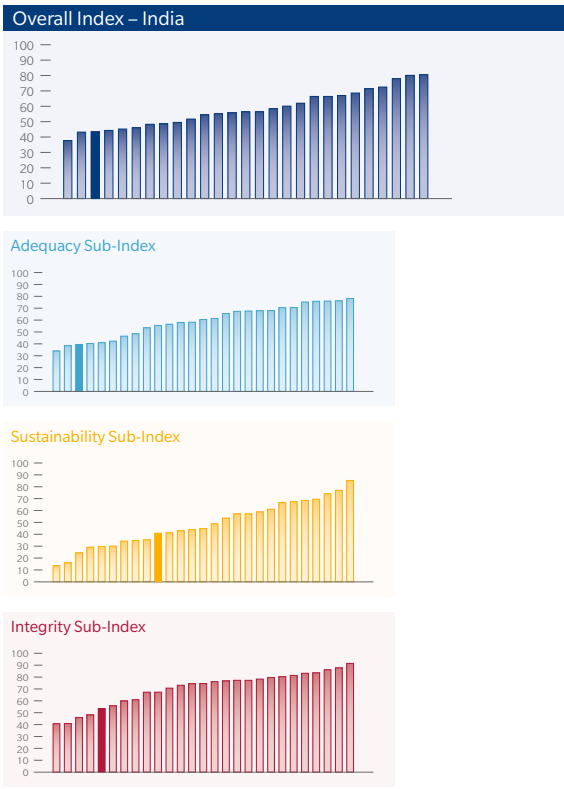
India

India's retirement income system comprises an earnings-related employee pension scheme, a defined contribution employee provident fund and voluntary employer managed funds. The National Pension System is gradually gaining popularity.

The overall index value for the Indian system could be increased by:

- introducing a minimum level of support for the poorest aged individuals
- increasing coverage of pension arrangements for the unorganised working class
- introducing a minimum access age so that it is clear that benefits are preserved for retirement purposes
- improving the regulatory requirements for the private pension system
- continuing to improve the required level of communication to members from pension arrangements
- increasing the pension age as life expectancy continues to increase
- increasing the level of contributions in statutory pension schemes

The Indian index value increased from 40.3 in 2015 to 43.4 in 2016 primarily due to an increase in the net replacement rate.



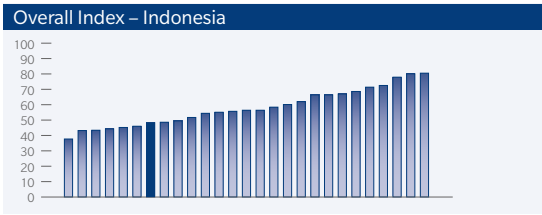
Indonesia

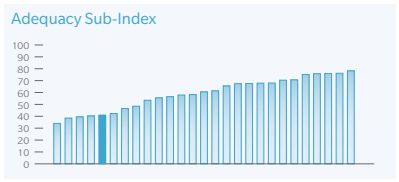
Indonesia's retirement income system comprises earnings-related civil service pensions, mandatory defined contribution plans for private sector workers and voluntary defined contribution plans for other workers. A new national pension scheme, launched in July 2015, will provide a defined benefit scheme funded through employer and employee contributions of a fixed percentage of the monthly salary.

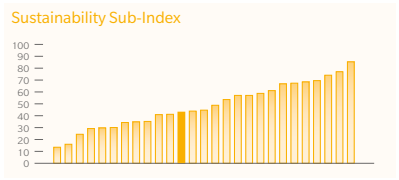
The overall index value for the Indonesian system could be increased by:

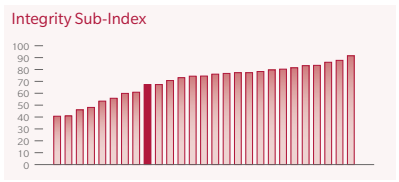
- introducing a minimum level of support for the poorest aged individuals
- increasing the level of pension provision within the workforce
- improving the regulatory requirements for the private pension system
- improving the required level of communication to members from pension arrangements
- increasing the pension age as life expectancy continues to increase

The Indonesian index value increased slightly from 48.2 in 2015 to 48.3 in 2016.









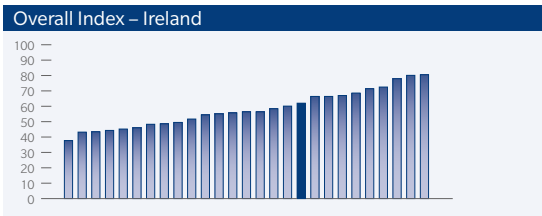
Ireland

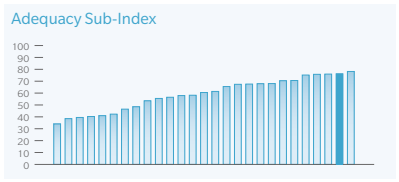
Ireland's retirement income system comprises a flat-rate basic scheme and a means-tested top-up. Voluntary occupational pension schemes have limited coverage.

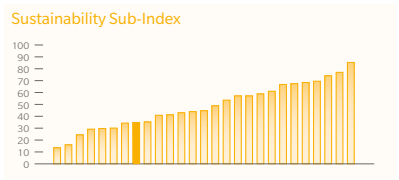
The overall index value for the Irish system could be increased by:

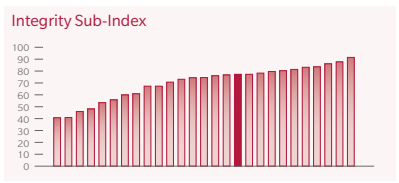
- increasing coverage of employees in occupational pension schemes thereby increasing the level of contributions and assets
- introducing a minimum level of mandatory contributions into a retirement savings fund
- providing greater protection of members' accrued benefits in the case of employer insolvency
- reducing government debt as a percentage of GDP

The Irish index value fell from 63.1 in 2015 to 62.0 in 2016 due to a number of small changes.









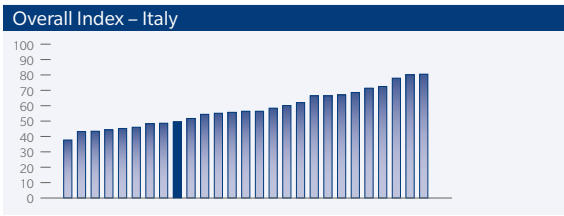
Italy

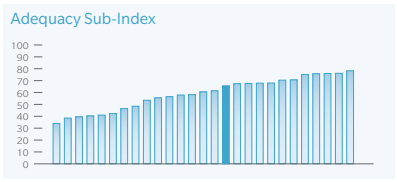
Italy's retirement income system comprises a notional defined contribution scheme for workers and a minimum means-tested social assistance benefit. Voluntary supplementary occupational schemes also exist however coverage is low but gradually increasing.

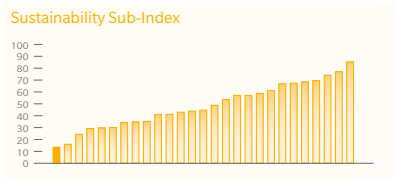
The overall index value for the Italian system could be increased by:

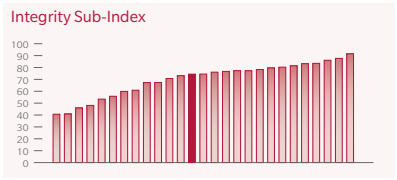
- increasing coverage of employees in occupational pension schemes thereby increasing the level of contributions and assets
- increasing the labour force participation rate at older ages as life expectancies rise
- restricting the availability of benefits before retirement
- reducing government debt as a percentage of GDP

The Italian index value fell from 50.9 in 2015 to 49.5 in 2016 due to a number of small changes.









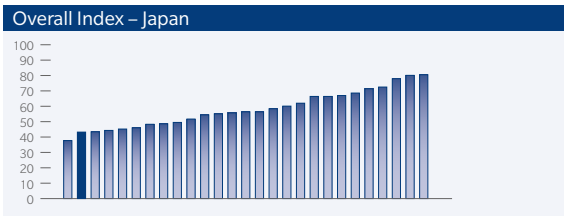
Japan

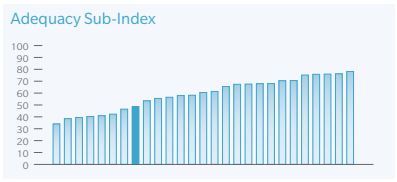
Japan's retirement income system comprises a flat-rate basic pension; an earnings-related pension; and voluntary supplementary pension plans.

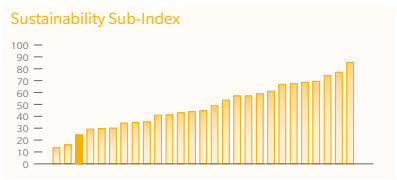
The overall index value for the Japanese system could be increased by:

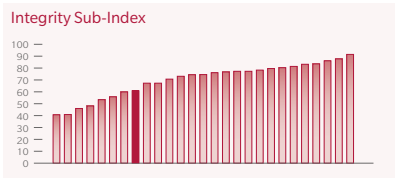
- raising the level of household saving
- increasing the level of pension coverage and hence the level of contributions and assets
- introducing a requirement that part of the retirement benefit must be taken as an income stream
- announcing a further increase in the state pension age as life expectancy continues to increase
- reducing government debt as a percentage of GDP

The Japanese index value fell slightly from 44.1 in 2015 to 43.2 in 2016 due to a number of small changes.









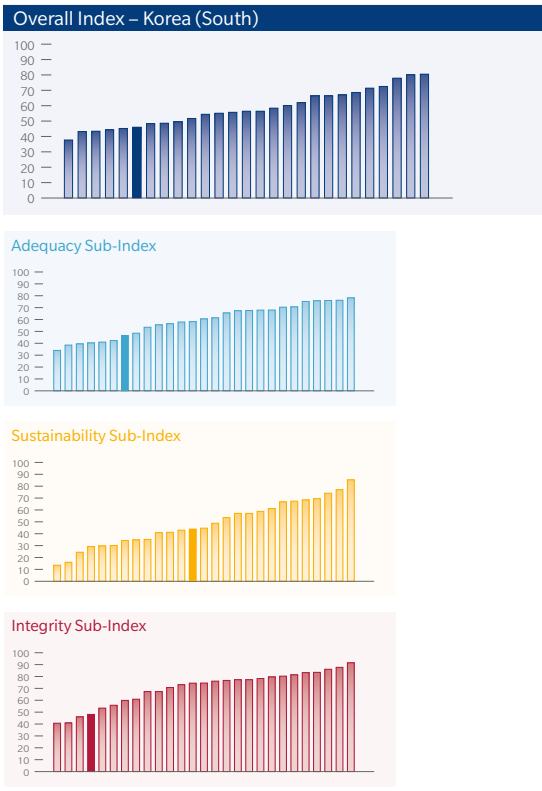
Korea (South)

Korea's retirement income system comprises a modest basic pension and a public earnings-related pension scheme with a progressive formula, based on both individual earnings and the average earnings of the insured as a whole.

The overall index value for the Korean system could be increased by:

- improving the adoption of ERSA scheme plans
- improving the level of support provided to the poorest pensioners
- introducing a requirement that part of the retirement benefit from private pension arrangements must be taken as an income stream
- increasing the level of funded contributions thereby increasing the level of assets over time
- improving the governance requirements for the private pension system, including the need for an audit
- improving the level of communication required to members from pension plans

The Korean index value increased from 43.8 in 2015 to 46.0 in 2016 due to a number of small increases in all three sub-indexes.



Malaysia

Malaysia's retirement income system is based on the Employee Provident Fund (EPF) which covers all private sector employees and non-pensionable public sector employees. Under the EPF, some benefits are available to be withdrawn at any time with other benefits preserved for retirement.

The overall index value for the Malaysian system could be increased by:

- increasing the minimum level of support for the poorest aged individuals
- raising the level of household saving
- introducing a requirement that part of the retirement benefit must be taken as an income stream
- increasing coverage of employees in occupational pension schemes thereby increasing the level of contributions and assets
- increasing the pension age as life expectancy continues to increase
- increasing the labour force participation rate at older ages as life expectancies rise

The Malaysian index value in 2016 was 55.7.

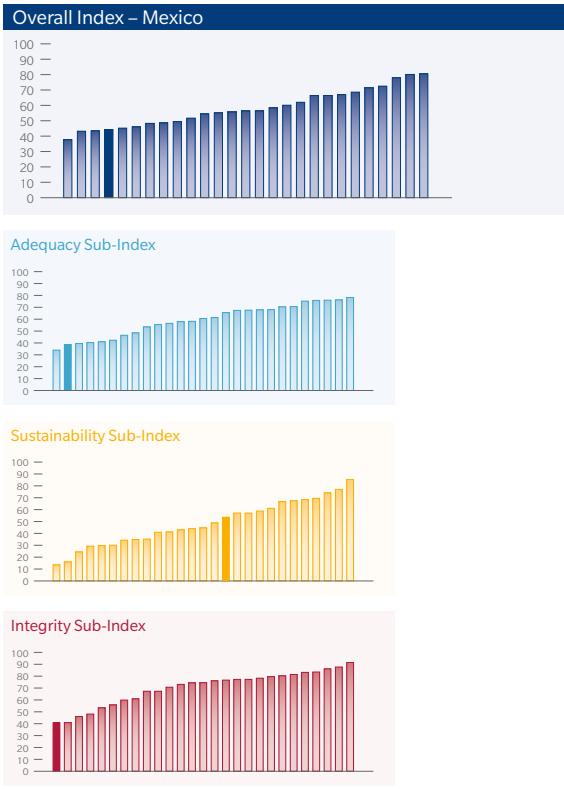
Mexico

Mexico's retirement income system comprises a mandatory and funded scheme which is in transition since 1997 from a defined benefit to a defined contribution scheme and includes a minimum public pension and supplemental private sector plans.

The overall index value for the Mexican system could be increased by:

- raising the minimum pension available to the poorest aged individuals
- raising the level of household saving
- introducing a requirement that part of the retirement benefit from private pension arrangements must be taken as an income stream
- increasing the level of funded contributions thereby increasing the level of assets over time
- improving the regulatory requirements for the private pension system
- improving the governance requirements for the private pension system, including the need for minimum levels of funding in defined benefit plans
- improving the level of communication required to members from pension plans

The Mexican index value fell from 52.1 in 2015 to 44.3 in 2016 primarily due to a reduction in the assumed level of support provided to the poor.



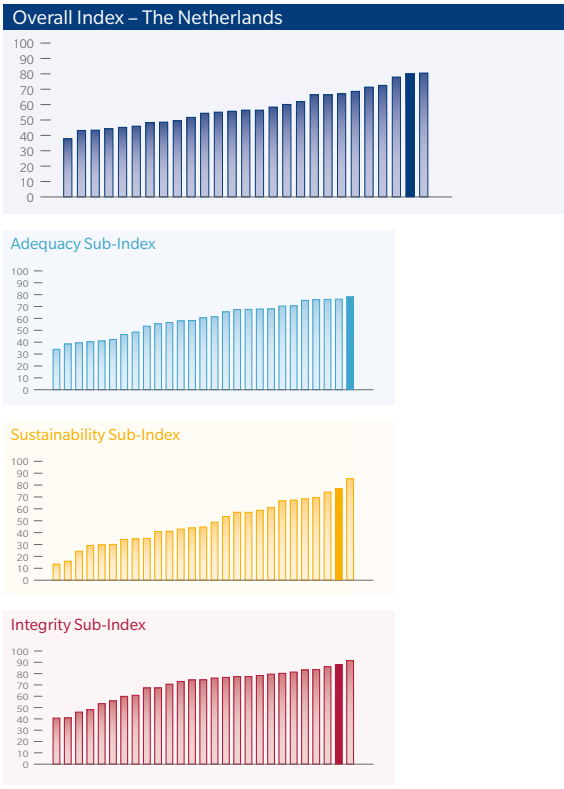
The Netherlands

The Netherlands' retirement income system comprises a flat-rate public pension and a quasi-mandatory earnings-related occupational pension linked to industrial agreements. Most employees belong to these occupational schemes which are industry-wide defined benefit plans with the earnings measure based on lifetime average earnings.

The overall index value for the Dutch system could be increased by:

- introducing a minimum access age so that it is clear that benefits are preserved for retirement purposes
- raising the level of household saving
- increasing the labour force participation rate at older ages as life expectancies rise
- providing greater protection of members' accrued benefits in the case of fraud, mismanagement or employer insolvency

The Dutch index value fell slightly from 80.5 in 2015 to 80.1 in 2016 due to a number of small changes.



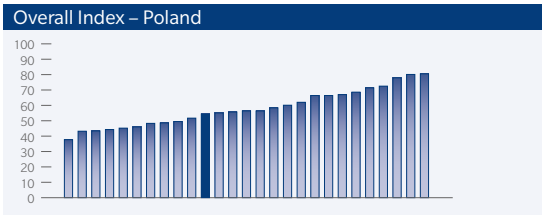
Poland

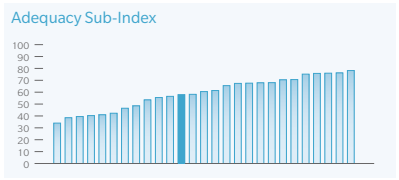
Poland's retirement income system was reformed in 1999. The new system, which applies to people born after 1968, comprises a minimum public pension and an earnings-related system with notional accounts. The overall system is in transition from a pay-as-you-go system to a funded approach. There are also voluntary employer sponsored pension plans and individual pension accounts but due to limited incentives they are unpopular, even though the new system provides low replacement rates. In 2014 the government introduced laws which aim to limit activity of Pillar 2 pension funds through transferring 51.5% of their assets invested in bonds to fund the Social Security Institution.

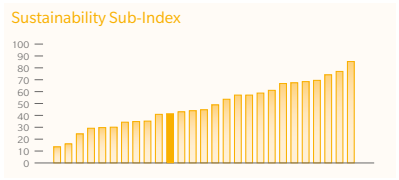
The overall index value for the Polish system could be increased by:

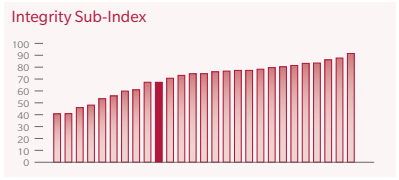
- maintaining a significant role for Pillar 2 pension funds in the system
- raising the minimum level of support available to the poorest pensioners
- introducing a requirement that part of the retirement benefit from private pension arrangements must be taken as an income stream
- raising the level of household saving
- increasing the level of funded contributions thereby increasing the level of assets over time
- increasing the labour force participation rate at older ages as life expectancies rise

The Polish index value fell from 56.2 in 2015 to 54.4 in 2016 primarily due to a reduction in the net replacement rate.









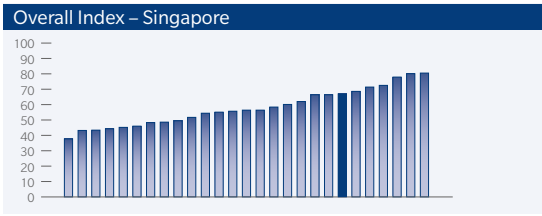
Singapore

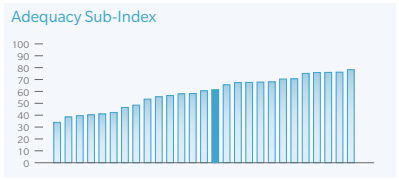
Singapore's retirement income system is based on the Central Provident Fund (CPF) which covers all employed Singaporean residents. Under the CPF, some benefits are available to be withdrawn at any time for specified housing and medical expenses with other benefits preserved for retirement. A prescribed minimum amount is required to be drawn down at retirement age in the form of a lifetime income stream (through CPF Life). The Singapore government has implemented changes to CPF in 2016 which include providing minimum pension top-up amounts for the poorest individuals, more flexibility in drawing down retirement pension amounts and increases to certain contribution rates and interest guarantees.

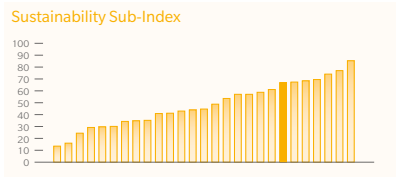
The overall index value for the Singaporean system could be increased by:

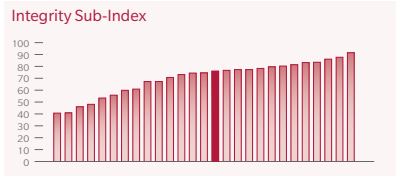
- reducing the barriers to establishing tax-approved group corporate retirement plans
- opening CPF to non-residents (who comprise more than one-third of the labour force)
- increasing the labour force participation rate at older ages as life expectancies rise

The Singaporean index value increased from 64.7 in 2015 to 67.0 in 2016 primarily due to an increase in the level of support provided to the poor.









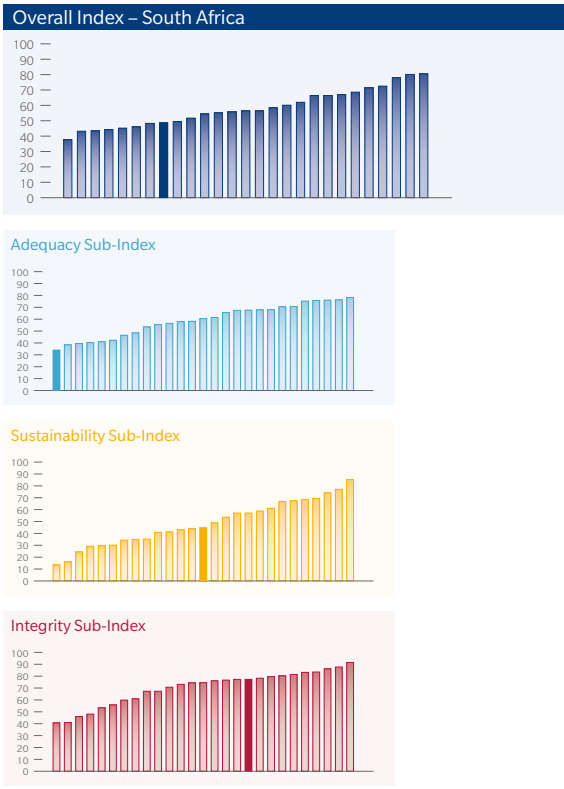
South Africa

South Africa's retirement income system comprises a means-tested public pension and tax-supported voluntary occupational schemes.

The overall index value for the South African system could be increased by:

- increasing the minimum level of support for the poorest aged individuals
- increasing the coverage of employees in occupational pension schemes thereby increasing the level of contributions and assets
- introducing a minimum level of mandatory contributions into a retirement savings fund
- increasing the level of preservation of benefits when members withdraw from occupational funds
- introducing a requirement that part of the retirement benefit from provident fund arrangements must be taken as an income stream (this requirement currently only applies to pension funds and retirement annuities)

The South African index value fell from 53.4 in 2015 to 48.6 in 2016 primarily due to a correction in the level of household savings.



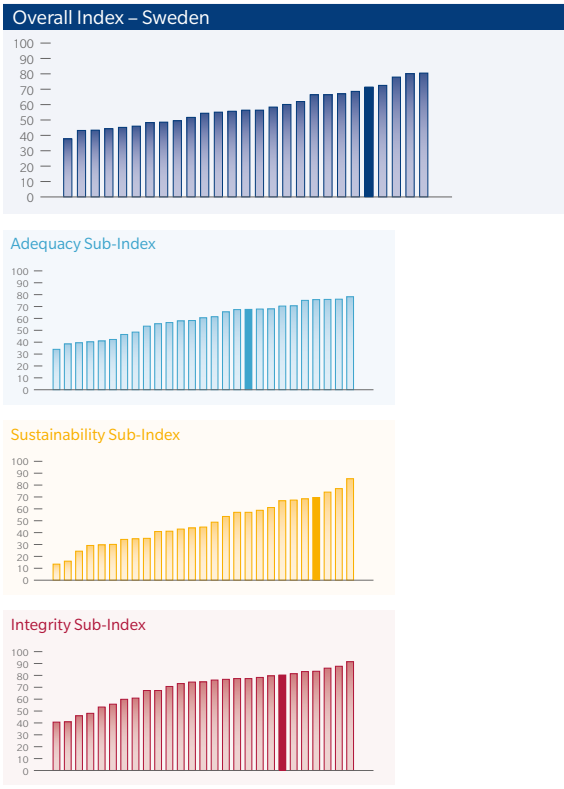
Sweden

Sweden's retirement income system was reformed in 1999. The new system is an earnings-related system with notional accounts. The overall system is in transition from a pay-as-you-go system to a funded approach. There is also an income-tested top-up benefit which provides a minimum guaranteed pension.

The overall index value for the Swedish system could be increased by:

- increasing the state pension age to reflect increasing life expectancy
- ensuring that all employees can make contributions into employer sponsored plans
- redesigning salary sacrifice arrangements so that it is attractive to all employees
- reintroducing tax incentives for individual contributions
- introducing arrangements to protect all the pension interests of both parties in a divorce

The Swedish index value decreased from 74.2 in 2015 to 71.4 in 2016 primarily due to a reduction in the level of household savings and the assumed level of funded mandatory contributions.



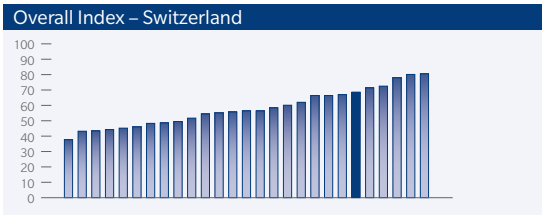
Switzerland

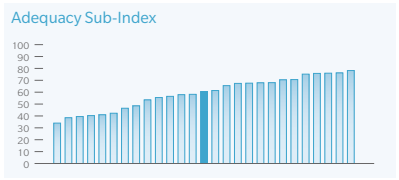
Switzerland's retirement income system comprises an earnings-related public pension with a minimum pension; a mandatory occupational pension system where the contribution rates increase with age; and voluntary pension plans which are offered by insurance companies and authorised banking foundations.

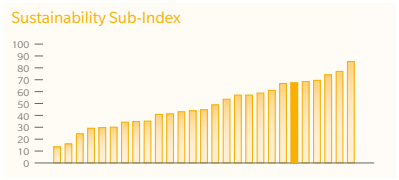
The overall index value for the Swiss system could be increased by:

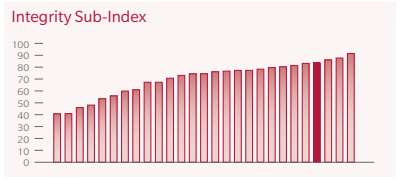
- introducing a requirement that part of the retirement benefit must be taken as an income stream
- reversing the preferential tax treatment of lump sum payments in comparison to pension payments
- increasing the state pension age over time
- increasing the rate of home ownership
- reducing pre-retirement leakage by further limiting access to funds before retirement

The Swiss index value decreased from 74.2 in 2015 to 68.6 in 2016 primarily due to a reduction in the net replacement rate.









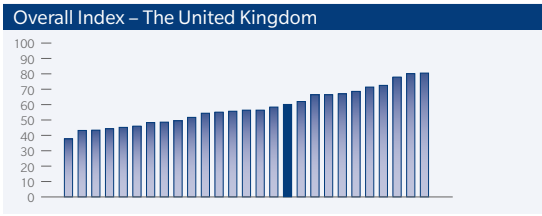
The United Kingdom

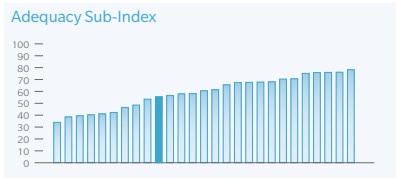
The United Kingdom's retirement income system comprises a single tier state pension supported by an income-tested pension credit, and supplemented by voluntary occupational and personal pensions. Auto enrolment will cover nearly all employers by 1 April 2017, requiring employers to enrol employees in pension schemes with minimum contributions (currently 2% but planned to increase to 8% by 2018) but employees can opt out.

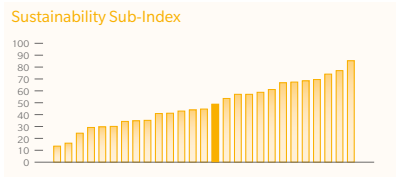
The overall index value for the British system could be increased by:

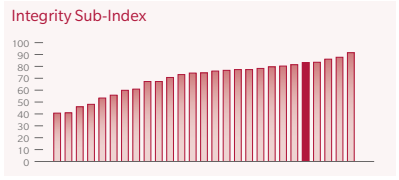
- restoring the requirement to take part of retirement savings as an income stream
- raising the minimum pension for low-income pensioners
- further increasing the coverage of employees in occupational pension schemes
- increasing the level of contributions to occupational pension schemes
- raising the level of household saving
- accelerating the intended increases in the state pension age

The British index value fell from 65.0 in 2015 to 60.1 in 2016 primarily due to a reduction in the net replacement rate. However the ongoing introduction of the auto-enrolment process should improve the index value in future years with broadening coverage and an increase in the level of funded retirement benefits.









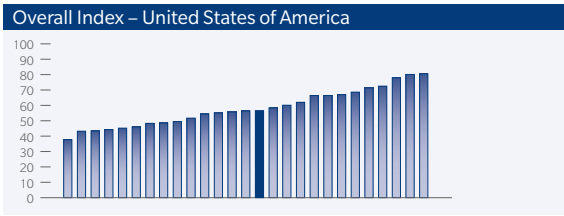
United States of America

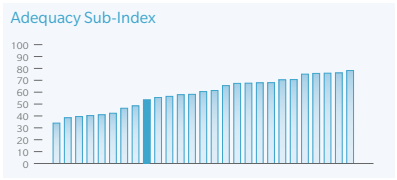
The United States' retirement income system comprises a social security system with a progressive benefit formula based on lifetime earnings, adjusted to a current dollar basis, together with a means-tested top-up benefit; and voluntary private pensions, which may be occupational or personal.

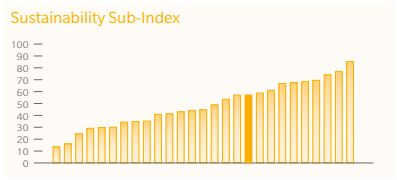
The overall index value for the American system could be increased by:

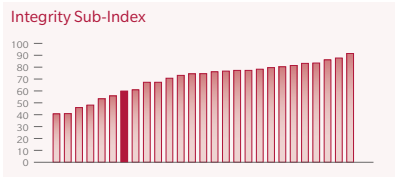
- raising the minimum pension for low-income pensioners
- adjusting the level of mandatory contributions to increase the net replacement for median-income earners
- improving the vesting of benefits for all plan members and maintaining the real value of retained benefits through to retirement
- reducing pre-retirement leakage by further limiting the access to funds before retirement
- introducing a requirement that part of the retirement benefit must be taken as an income stream
- increasing the funding level of the social security program
- raising the state pension age and the minimum access age to receive benefits from private pension plans
- providing incentives to delay retirement and increase labour force participation at older ages
- providing access to retirement plans on an institutional group basis for workers who don't have access to an employer sponsored plan

The American index value increased slightly from 56.3 in 2015 to 56.4 in 2016.



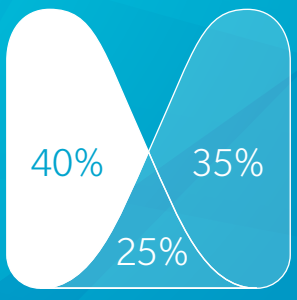






CHAPTER 6
THE ADEQUACY SUB-INDEX

The adequacy sub-index considers the benefits provided to both the poor and the median-income earner as well as several design features and characteristics which enhance the efficacy of the overall retirement income system. The net household saving rate and home ownership rate are also included as non-pension savings represent an important source of financial security during retirement.



The countries with the highest value for the adequacy sub-index are the Netherlands (78.2) and Ireland (76.2) with South Africa (34.0) and Mexico (38.5) having the lowest values. Whilst several indicators influence these scores, the level of the minimum pension (expressed as a percentage of the average wage) and the net replacement rate for a median-income earner are the most important.

Full details of the values in respect of each indicator in the adequacy sub-index are shown in Attachment 1.

Question A1

What is the minimum pension, as a percentage of the average wage, that a single aged person will receive?

How is the minimum pension increased or adjusted over time? Are these increases or adjustments made on a regular basis?

Objective

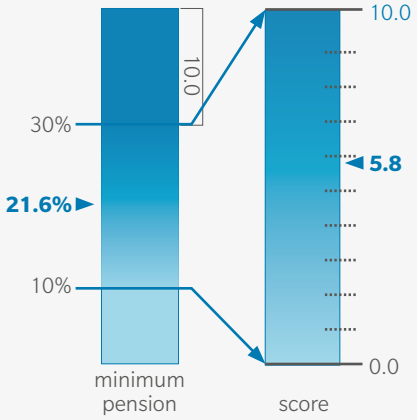
An important objective of any retirement income system is to provide a minimum pension to the aged poor. In terms of the World Bank's recommended multi-pillar system, it represents the non-contributory basic pension or Pillar 0, which provides a minimum level of income for all aged citizens. Eligibility for this minimum pension requires no period in the paid workforce, but will often require a minimum period of residency.

This question also considers how the minimum pension is increased or adjusted over time. The level and frequency of increases or adjustments are critical to ensure that the real value of the minimum pension is maintained.

Calculation

There is no correct answer as to what the minimum pension should be, as it depends on a range of socio-economic factors. However, it is suggested that a minimum pension of about 30 percent[16] of national average earnings adequately meets the poverty alleviation goal. Hence for the first part of this question a minimum pension below 30 percent will score less than the maximum value of 10, with a zero score if the pension is 10 percent or less of average earnings, as such a pension offers very limited income provision.

Calculating A1 Question 1 — Minimum Pension



The second question is assessed on a four-point scale with the maximum score of 2 for increases granted on a regular basis related to wage growth, 1.5 for increases granted on a regular basis related to price inflation, 1 for increases not granted on a regular basis related to wage growth or price inflation and 0 where the minimum pension is not increased.

A maximum score is achieved for this question if the minimum pension is 30 percent or higher of average earnings and if it is increased on a regular basis in line with wages growth.

Commentary

The minimum pension for most countries is between 6 percent in Korea and 45 percent in Brazil. India, Indonesia and Malaysia do not provide a minimum pension whilst Korea and Mexico provide very modest public assistance. The Chinese results have been modified as the minimum pension is not available throughout the country.

The minimum pension is increased to some extent in all countries except for South Africa where no increases are applied.

16 This level was chosen in 2009 when it was slightly higher than the OECD average of 27% for first tier benefits as shown in OECD (2009a). The average basic pension in 18 OECD countries (OECD (2015) p126) was 20.1% so a range of 10% to 30% remains reasonable.

Weighting

The major objective of any nation's retirement income system is to provide income support for its older citizens. The level of actual benefits therefore represents the major measurable outcome from the system. Hence this measure (which considers the retirement income provided for the poorest in the community), together with the next measure (which calculates the retirement income for a median-income earner), represent the two most important components within the adequacy sub-index. This indicator is therefore given a weighting of 17.5 percent in the adequacy sub-index with 15 percent for the first question and 2.5 percent for the second question.

Question A2

What is the net replacement rate for a median-income earner?

Objective

In "Averting the Old Age Crisis", The World Bank (1994) suggested that a target replacement rate for middle income earners from mandatory systems can be expressed in any of the following ways:

- 78 percent of the net average lifetime wage
- 60 percent of the gross average lifetime wage
- 53 percent of the net final year wage
- 42 percent of the gross final year wage

It also noted that "The government should not necessarily mandate the full pension that might be desirable for individual households."[17] That is, these targets could be met through a combination of mandatory and voluntary provisions.

The OECD normally calculates the net replacement rate for an individual earning the median income (revalued with earnings growth) throughout his/her working life. Median income is used as it is a better representation than average earnings, which are skewed upwards by the highest income earners. The OECD Pensions at a Glance 2015 only published net replacement rates for multiples of *average* income earnings. For the 2016 Index, the relationship between the median and average measures in Pensions at a Glance 2013 for each individual country was used to estimate the net replacement rate for median income earners based on average rates for 2015.

These calculations assume no promotion of the individual throughout their career; that is, the individual earns the median income throughout. Therefore replacement rates based on lifetime median income will be higher than when expressed in terms of final salary for most individuals.

17 World Bank (1994), p295.

The OECD expresses a target replacement rate of 70 percent of final earnings[18] which includes mandatory pension for private sector workers (publicly and privately funded) and typical voluntary occupational pension plans for those countries where such schemes cover at least 30 percent of the working population.

This indicator for the adequacy sub-index should only include mandatory components of a retirement income system for private sector workers, as voluntary plans that may include only 30 percent of the working population do not represent a good indicator of the total system.

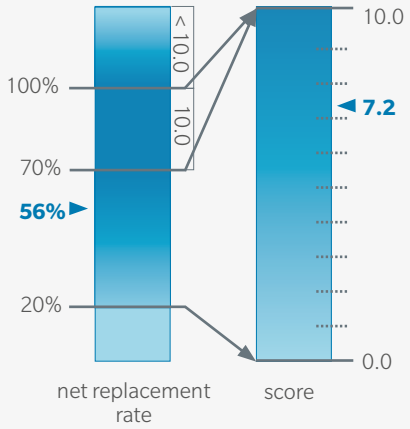
The target benefits from a mandatory system should be less than 70 percent of final earnings to allow for individual circumstances and some flexibility. An objective of between 45 percent and 65 percent of final earnings is considered reasonable. Using the ratios between lifetime earnings and final earnings, the target for a net replacement rate (i.e. after allowing for personal income taxes and social security contributions) for a median-income earner from a mandatory system should be within the range of 70–100 percent of median lifetime earnings (revalued with earnings growth).

A net replacement rate below 70 percent of lifetime earnings suggests a significant reliance on voluntary savings whereas a figure above 100 percent does not provide the flexibility for individual circumstances and may suggest overprovision. The OECD average for a median-income earner is 66 percent of lifetime earnings.[19]

Calculation

The maximum score for this indicator is obtained for any country with a result between 70 percent and 100 percent. Argentina, Austria, Denmark, Italy and the Netherlands are within this range. Any score outside this range scores less than the maximum with a zero score being obtained for a result less than 20 percent or more than 150 percent.

Calculating A2 — Net Replacement Rate for Median Income Earner



Commentary

With the exception of Indonesia, South Africa and the countries outlined above that have a result between 70 percent and 100 percent, all countries have a result between 32 percent (the United Kingdom) and 67 percent (Brazil). The Chinese figure has been adjusted to reflect the varying levels of replacement rates that exist in practice, as shown in Park (2012). The Indian figure has been adjusted to reflect the low coverage of mandatory pension schemes.

Weighting

These results represent a major outcome in the assessment of any retirement income system. As this indicator is likely to reflect the benefits provided to a broader group of retirees than the previous question, this indicator is given the highest weighting in the adequacy sub-index, namely 25 percent.

18 OECD (2012a), p161.

19 Estimate based on the change in average net replacement rates for 34 OECD countries reported in OECD (2013a) p141 and OECD (2015) p145.

Question A3

What is the net household saving rate in the country?

Objective

The living standards of the aged will depend on the benefits arising from the total pension system (which was covered in the previous two questions) as well as the level of household savings outside the pension system. In some countries, these savings may represent an important factor in determining the financial security for the aged.

Calculation

For countries where the EIU data was used, we calculated the saving rate in the following way:

$$\text{Household Saving Rate} = \frac{(\text{PDIN} - \text{PCRD})}{\text{PDIN}}$$

PDIN = Personal disposable income

PCRD = Private consumption

To remove some volatility that may occur in annual figures, we have averaged the 2014 and 2015 measurements.

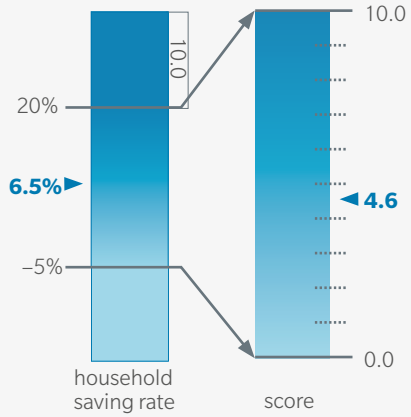
The EIU data for Singapore was adjusted to remove the impact of the estimation method change.

OECD measures were used for Ireland, Mexico and South Africa due to EIU data not being available or due to changes in data sources and estimation methods.

The calculated household saving rates ranged from minus 3.7 percent in Denmark to plus 14.4 percent in Singapore and 14.7 percent in France. We have provided a maximum score for any country with a saving rate of 20 percent or higher, and a zero score for any country with a saving rate of less than minus 5 percent.

It is noted that the EIU's calculation excludes contributions to pension plans. The OECD measure excludes contributions to social security and employer contributions. This is consistent with our approach as we allow for both pension plan assets and the level of pension contributions as part of the sustainability sub-index.

Calculating A3 — Household Saving Rate



Commentary

The net household saving rate provides some indication of the level of current income that is voluntarily being set aside from current consumption, either for retirement or other purposes.

Weighting

The weighting for this measure has been set at 10 percent of the adequacy sub-index. This indicates the importance of household savings, although it is noted that some of this saving will be used for other purposes. It is also recognised that most voluntary household savings will be carried out by higher income households so that this measure is unlikely to assist those at lower and middle income levels.

Question A4

Are voluntary member contributions made by a median-income earner to a funded pension plan treated by the tax system more favourably than similar savings in a bank account?

Is the investment income earned by pension plans exempt from tax in the pre-retirement and/or post-retirement periods?

Objective

The level of total retirement benefits received by an aged person will depend on both the mandatory level of savings and any voluntary savings, which are likely to be influenced by the presence (or otherwise) of taxation incentives designed to change individual behaviour. The investment earnings (and the related compounding effect over decades) are critical in respect of adequacy as most of an individual's ultimate benefit is due to investment earnings and not contributions.

Calculation

This indicator is concerned with any taxation incentives or tax exemptions of investment earnings that make savings through a pension plan more attractive than through a bank account. The benchmark of a bank account was chosen as this saving alternative is readily available in all countries.

Both questions were assessed with a score of 2 for "yes" and 0 for "no". There was one case where the response to the first question was neither a clear "yes" or "no", so a score of 1 was given.

Commentary

All countries except Argentina offer some taxation incentive for voluntary contributions. In Sweden, additional employee contributions are encouraged in certain circumstances. Seventeen countries offer a tax exemption on investment earnings of pension plans in both the pre and post-retirement periods while the other nine countries tax investment earnings in one or both of these periods.

Weighting

Taxation incentives or tax exemptions represent important measures that governments can introduce to encourage pension savings and long-term investments. Such incentives provide a desirable design feature of retirement income systems. We have therefore given this measure a total weighting of five percent in the adequacy sub-index, split into two percent for the first question and three percent for the second question.

Question A5

Is there a minimum access age to receive benefits from private pension plans[20] (except for death, invalidity and/or cases of significant financial hardship)? If so, what is the current age?

Objective

The primary objective of a private pension plan should be to provide retirement income; hence the availability of these funds at an earlier age reduces the efficacy of such plans as it leads to leakage from the system.

Calculation

The first question was assessed on a three-point scale with a score of 2 for "yes", 1 if it was applied in some cases and 0 for "no". The second question was scored on a scale for those who said "yes" to the first question; ranging from a score of 0 for age 55 to a score of 1 for age 60. Australia, China and Japan scored 0.5 as age 55 applies to some members. A maximum score is achieved if a minimum access age exists and this age is at least age 60.

Commentary

Many countries have introduced a minimum access age, while others have access provisions described in each plan's set of rules. In some cases, early access is not prohibited although the taxation treatment of the benefit discourages such behaviour.

Weighting

Ensuring that the accumulated benefits are preserved until the later years of a working life represents an important design feature of all pension arrangements. Hence, this desirable feature has been given a 10 percent weighting in the adequacy sub-index.

Question A6

What proportion, if any, of the retirement benefit from the private pension arrangements is required to be taken as an income stream?

Are there any tax incentives that exist to encourage the taking up of income streams?

Objective

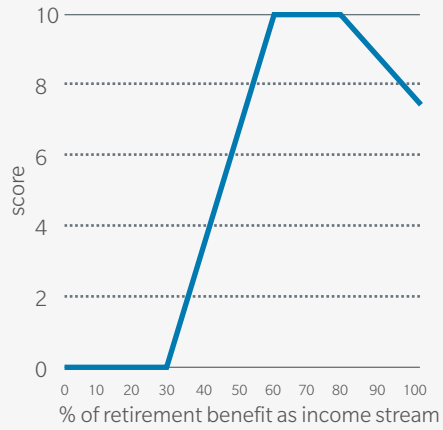
The primary objective of a private pension system should be to provide income during retirement. Of course, this does not imply that a lump-sum payment is not a valuable benefit. It often is. Indeed, both Rocha and Vittas (2010) and the OECD (2012b) suggest that policymakers should target an adequate level of annuitisation but should be wary of causing excessive annuitisation. Hence, this indicator focuses on whether there are any requirements in the system for at least part of the benefit to be taken as an income stream, or if there are any tax incentives to encourage the take up of income streams.

Calculation

There is no single answer that represents the correct proportion of a retirement benefit that should be annuitised. For the first question, a maximum score is achieved where between 60 percent and 80 percent of the benefit is required to be converted into an income stream. A percentage above 80 percent reduces the flexibility that many retirees need whilst an answer below 60 percent is not converting a sufficient proportion of the benefit into an income stream. A percentage below 30 percent results in a score of zero. For the second question, where there is no requirement for an income stream, half the maximum score could be achieved where significant tax incentives exist to encourage the take up of income streams.

20 Private pension plans include both defined benefit and defined contribution plans and may pay lump-sum or pension benefits. They also include plans for public sector and military employees.

Calculating A6 Question 1 — Conversion to Income Streams



Commentary

There is considerable variety between countries with some countries requiring all of the benefit to be converted into a lifetime annuity (e.g. Chile, Finland, the Netherlands, Singapore and Sweden) whereas many countries have no requirement at all (e.g. Argentina, Australia, China, Japan, Korea, Malaysia, Mexico, Poland, Switzerland, the United Kingdom and the United States). Of these countries, only Australia, Korea and the United Kingdom have tax incentives to encourage the take up of income streams.

Weighting

The requirement that part of a member's accumulated retirement benefit be turned into an income stream (which need not necessarily be a lifetime annuity) or the existence of tax incentives to encourage the take up of income streams represent desirable features of a retirement income system and therefore a weighting of 10 percent has been used in the adequacy sub-index.

Question A7

On resignation from employment, are plan members normally entitled to the full vesting of their accrued benefit?

After resignation, is the value of the member's accrued benefit normally maintained in real terms (either by inflation-linked indexation or through market investment returns)?

Can a member's benefit entitlements normally be transferred to another private pension plan on the member's resignation from an employer?

Objective

Most individuals do not stay with a single employer throughout their working life. It is therefore important that individuals receive the full value of any accrued benefit on leaving an employer's service and that the real value of this benefit is maintained until retirement, either in the original plan or in another plan.

Calculation

Each question was assessed with a score of 2 for "yes", 0 for "no" and between 0.5 and 1.5 if it was applied in some cases. The actual score depended on the actual circumstances.

Commentary

There is considerable diversity to the extent that the real value of members' benefit entitlements can be transferred or retain their real value after changing employment. That is, in only 14 of the 27 countries is full vesting present, the real value of the benefits maintained after resignation, and the accrued benefit can be transferred.

Weighting

Maintaining the real value of a member's accrued benefit entitlements during a member's working life represents an important feature of all retirement income systems. Hence, this desirable feature has been given a 7.5 percent weighting in the adequacy sub-index.

Question A8

Upon a couple's divorce or separation, are the individuals' accrued pension assets normally taken into account in the overall division of assets?

Objective

The adequacy of an individual's retirement income can be disrupted by a divorce or separation. In many cases, the female can be adversely affected as most of the accrued benefits may have accrued in the male's name during the marriage or partnership. It is considered desirable that upon a divorce or separation, the pension benefits that have accrued during the marriage be considered as part of the overall division of assets. This outcome can be considered to be both equitable and provide greater adequacy in retirement to both individuals, rather than just the main income earner.

Calculation

The question was assessed on a three-point scale with a score of 2 for "yes", 1 if it was applied in some cases and 0 for "no".

Commentary

In 15 of the 27 countries, it is normal practice for the accrued pension benefits to be taken into account in the overall division of assets upon a divorce or separation.

Weighting

With a relatively high level of divorce or separation occurring in many countries the adequacy of retirement income for the lower income partner is improved if pension assets are considered in the overall division of assets. This desirable feature has been given a four percent weighting in the adequacy sub-index.

Question A9

What is the level of home ownership in the country?

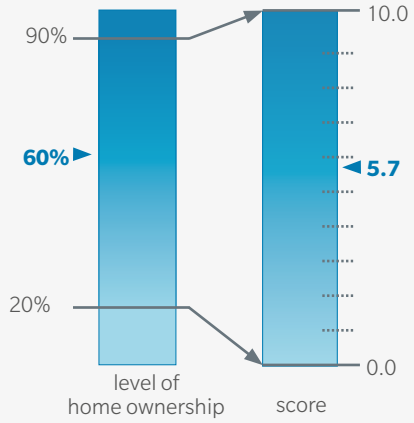
Objective

In addition to regular income, home ownership represents an important factor in affecting financial security during retirement. Indeed in some countries, such as Malaysia and Singapore, a portion of the member's savings can be used to help purchase a home. In other countries, taxation support encourages home ownership.

Calculation

A maximum feasible level is considered to be 90 percent. Hence a home ownership level of 90 percent or more scores maximum results whilst a level of 20 percent or less scores zero.

Calculating A9
— Home Ownership



Commentary

The level of home ownership ranged from 37.4 percent in Switzerland to around 90 percent in China, India and Singapore.

Weighting

Home ownership represents an important feature of financial security in retirement. Hence, this indicator has been given a five percent weighting in the adequacy sub-index.

Question A10

What is the proportion of total pension assets invested in growth assets?

Objective

The investment performance of funded pension funds over the long-term, after allowing for costs and any taxation, represents a key input into the provision of adequate retirement income. Yet, as Hinz et al (2010)[21] have noted correctly, international comparisons of investment returns might not be totally meaningful. They also note that any benchmarks need to consider a range of factors including the age of the plan member, the availability of other income (such as social security), the contribution rates, the target replacement rate, the risk tolerance of the member and the types of retirement income available. It is apparent that there is no ideal asset allocation that is appropriate for all members at all ages. The growing interest in life cycle funds suggests that the best approach is likely to be a changing asset allocation during an individual's lifetime.

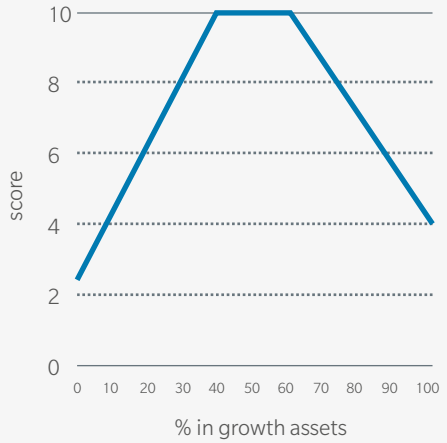
It is also important to recognise that the investment performance of a pension fund needs to focus on the longer term and not be focused on short term returns. With this in mind, we believe that it is appropriate for the investments of pension funds within any country to be diversified across a range of asset classes, thereby providing the opportunity for higher returns with reduced volatility.

Calculation

Many countries have pension fund assets invested in a range of assets ranging from cash and short term securities through bonds and equities to alternative assets such as property, venture capital and infrastructure. As a proxy to this diversified approach, we have used the percentage of growth assets (including equities and property) in the total pension assets in each country.

A zero percentage in growth assets highlights the benefit of security for members but without the benefits of diversification and the potential for higher returns. In some emerging markets, it is also recognised that the capital markets are underdeveloped. No exposure to growth assets scores 2.5 out of a maximum score of 10. This score increases to the maximum score of 10 as the proportion in growth assets increases to 40 percent of all assets. If the proportion is beyond 60 percent the score is reduced to reflect the higher level of risk and volatility.

Calculating A10
— Percentage of Growth Assets



Commentary

The level of growth assets ranges from virtually zero in Singapore to approximately 70 percent in South Africa. Twelve of the 27 countries have a percentage between 40 percent and 60 percent, which indicates a reasonable level of exposure to growth assets. In comparison, India, Korea and Singapore have very low exposures to growth assets.

Weighting

Asset allocation represents an important feature of all funded retirement systems. This indicator has therefore been given a five percent weighting in the adequacy sub-index.

21 Hinz R, Rudolph H P, Antolin P and Yermo J (2010), p2.

Question A11

Are contributions to a funded pension scheme required to be paid if a worker receives income support (or income maintenance) when they are temporarily out of the workforce?

Objective

The adequacy of an individual's retirement income can be affected if there is no requirement for contributions to be made to a pension scheme when a worker is temporarily out of the workforce and receives income support, for example due to parental leave, ill health or disability. Although the actual contributions to a pension scheme may be for a relatively short period, it is desirable that pension contributions (or ongoing benefit accrual) are a compulsory component of income support payments.

Calculation

The question was assessed on a three-point scale with a score of 2 for "yes", 1 if contributions are paid in some cases and 0 for "no".

Commentary

In nine of the 27 countries, it is a normal practice for contributions to be paid to a pension scheme if a worker receives income support when they are temporarily out of the workforce.

Weighting

The requirement for contributions to be paid while a worker is receiving income support when they are temporarily out of the workforce represents a desirable feature for retirement income systems. Therefore this feature has been given a one percent weighting in the adequacy sub-index.

Sources of data for the adequacy sub-index

Question A1

The answers for the first question were taken from the following sources:

OECD (2013b), p21 for China, India, Indonesia and Malaysia.

OECD (2014b), for Brazil

OECD (2015), p127 for OECD countries and p346 for South Africa.

Mercer calculations for Singapore using government websites.

The answers for the second question were sourced from Mercer consultants in each country.

Question A2

OECD (2013b) for Malaysia and Singapore.

OECD (2015) except Malaysia and Singapore.

Question A3

Data from the Economist Intelligence Unit was used for all countries except Ireland, Mexico and South Africa.

OECD (2014c) for Ireland, Mexico and South Africa.

Question A9

The answers were sourced from Mercer consultants in each country except China.

World Bank (2012) for China.

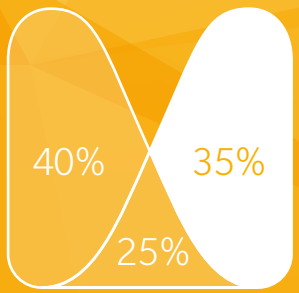
Questions A4, A5, A6, A7, A8, A10 and A11

The answers were sourced from Mercer consultants in each country.

CHAPTER 7

THE SUSTAINABILITY SUB-INDEX

The sustainability sub-index considers a number of indicators which influence the long-term sustainability of current systems. These include factors such as the economic importance of the private pension system, its level of funding, the length of expected retirement both now and in the future, the labour force participation rate of the older population and the current level of government debt.



The country with the highest value for the sustainability sub-index is Denmark (85.3) with the lowest values being for Italy (13.5) and Austria (16.0). Whilst several indicators influence these scores, the level of coverage of private pension plans, the level of pension assets as a proportion of GDP and the projected demographic factors are the most important.

Full details of the values in respect of each indicator in the sustainability sub-index are shown in Attachment 2.

Question S1

What proportion of the working age population are members of private pension plans?

Objective

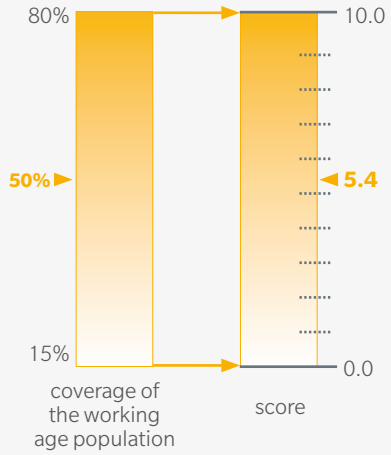
Private pension plans (including pension plans for public sector employees and the military) represent an important pillar within all retirement income systems. Hence, a higher proportion of coverage amongst the workforce increases the likelihood that the overall retirement income system will be sustainable in the future as it reduces pressure on government expenditure.

Calculation

Of the Index countries at commencement in 2009, none had private pension plan coverage of more than 75% of the working age population. Hence the maximum score was given at that level. Since that time coverage has exceeded 75% in several countries. From 2016 we have therefore increased the coverage rate to receive the maximum score from 75% to 80% of the working age population.

The rates of coverage ranged from nil in Argentina and about six percent in India to more than 80 percent of the working age population in Denmark, Finland, the Netherlands and Sweden. Each country's score was related to its coverage, with a maximum score for 80 percent or above and a zero score relating to coverage of 15 percent or less, as such coverage represents a minimal contribution to the future provision of retirement income.

Calculating S1
— Coverage



Commentary

Only ten of the 27 countries have coverage rates over 64 percent of the working age population (that is, a score of 7.5 or more), indicating a heavy reliance on the social security system in the future for a substantial proportion of the workforce in many countries.

Weighting

Private pension plans play a critical role in a multi-pillar retirement income system, particularly with the financial pressures associated with ageing populations. Hence, this indicator was given a weighting of 20 percent in the sustainability sub-index.

Question S2

What is the level of pension assets, expressed as a percentage of GDP, held in private pension arrangements, public pension reserve funds, protected book reserves and pension insurance contracts?

Objective

The level of current assets set aside for future pensions, when expressed as a percentage of a country's GDP, represents a good indicator of an economy's ability to meet these payments in the future.

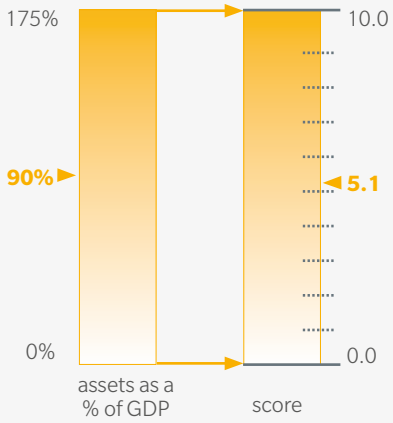
Calculation

We have included assets from private pension funds, public pension reserve funds, protected book reserves and pension insurance contracts to calculate the total level of assets held within each country to pay future pensions, irrespective of whether the pensions are paid through public pension provision or from private pension plans. After all, in most countries an individual's retirement income can include both a public pension and a private pension. The types of funds that have been included are:

- assets held in private pension plans
- assets held by insured or protected book reserves which are being accounted for to pay future pensions
- social security reserve funds
- sovereign reserve funds which have been set aside for future pension payments
- assets held to support pension insurance contracts

The level of assets ranged from less than 10 percent of GDP for Argentina, Austria, China, India, Indonesia, Italy and Poland to more than 175 percent for Denmark and the Netherlands. A maximum score was achieved for 175 percent of GDP and a minimum score for zero percent.

Calculating S2
— Level of Assets



Commentary

There is considerable variety in the size of assets set aside for future pensions around the world, reflecting the importance of both social security reserve funds as well as the second and third pillars in each country's system. In addition, many countries are part-way through a reform process which is expected to increase the level of assets over many decades. In these cases, we would expect the score for this indicator to gradually increase in future years.

The level of private pension assets goes beyond pension funds and includes book reserves, pension insurance contracts and funds managed by financial institutions such as Individual Retirement Accounts. These assets have been included as they represent assets set aside to provide future retirement benefits.

Weighting

This indicator shows the level of assets set aside to fund retirement benefits and represents a key indicator in the ability of each country's system to pay future benefits. Hence, this indicator was given a weighting of 20 percent in the sustainability sub-index.

Question S3

a. What is the current gap between life expectancy at birth and the state pension age?

b. What is the projected gap between life expectancy at birth and the state pension age in 2035? (This calculation allows for mortality improvement.)

c. What is the projected old-age dependency ratio in 2035?

d. What is the Total Fertility Rate (TFR) averaged over the last seven years?

Objective

A retirement income system is designed to provide benefits to an individual from when the person leaves the workforce to his/her death. The longer the period, the larger the total value of benefits will need to be and hence there will be an increased financial strain placed on the overall system. Although individuals retire for many reasons, the state pension age represents a useful proxy that guides many retirement decisions. As life expectancy increases, one way of reducing the strain is to encourage later retirement.

In the second question, we project two decades ahead to highlight the fact that many governments have already taken action and increased the state pension age, thereby reducing the forthcoming pension burden. The projected old age dependency ratio question highlights the impact of the ageing population between now and 2035 and therefore the likely effects on the funding requirements for pensions, health and aged care.

Consideration of the TFR provides an even longer term perspective as it provides an indication of the likely balance between workers and retirees in future decades.

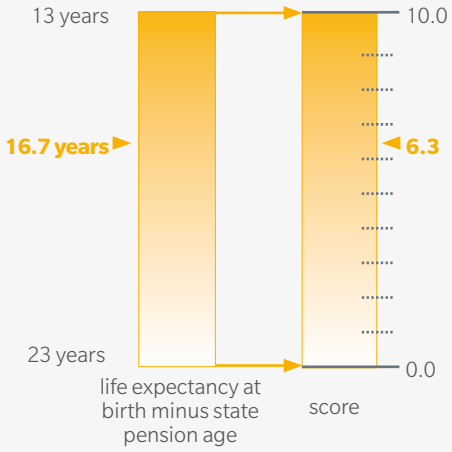
Calculations

a. We have calculated the difference between the life expectancy at birth and the existing state pension age, as used in Park (2009). The answers provide an indicator of the average period of pension payment and range from negative 2.3 in South Africa and 10.1 in India to 21.8 in Korea and 23.6 in Japan. A maximum score is achieved with a difference of 13 years or less and a zero score with a score of 23 years or more.

b. For 2035, the results range from 2.8 in South Africa and 9.9 in Indonesia to 23.3 years in China. The formula used remains unchanged with a maximum score for 13 years or less and a zero score for 23 years or more.

The calculations for these two questions are averaged for males and females.

Calculating S3 — Life Expectancy and State Pension Age



c. The old-age dependency ratio is the population aged 65 and over divided by the population aged between 15 and 64. The projected dependency ratios for 2035 range from 11 percent in South Africa and 14 percent in India to 57 percent in Japan and 56 percent in Italy. A maximum score is achieved with a dependency ratio of 20 percent or less and a zero score with a ratio of 60 percent or higher.

d. The TFR ranges from 1.2 in Singapore to 2.4 in South Africa and 2.5 in India and Indonesia. In view of these scores and the likely range in the future, a minimum score of zero is achieved for a TFR of 1.0 or less with a maximum score for a TFR of 2.5 or higher.

Commentary

All countries have a difference between life expectancy and state pension age of less than 23 years, with the exception of Japan.

The projected results for 2035 differ from the current results with Chile, China and France having a difference in excess of 23 years.

A TFR of less than 1.5 in Austria, Germany, Italy, Japan, Korea, Poland and Singapore raises serious issues for the future age structure of these countries. Whilst immigration can assist in the short term it is unlikely to provide sound long-term solutions.

Weighting

These demographic-related indicators have a weighting of 20 percent in the sustainability sub-index with a five percent weighting for each question.

Question S4

What is the level of mandatory contributions that are set aside for retirement benefits (i.e. funded), expressed as a percentage of wages? These include mandatory employer and/or employee contributions towards funded public benefits (i.e. social security) and/or private retirement benefits.[22]

Objective

Mandatory contributions from employers and/or employees represent a feature of every country's retirement income system. In some countries these contributions are used to fund social security benefits immediately whereas in other cases the contributions are invested, either through a central fund (such as Singapore's Central Provident Fund or a reserve fund) or through a range of providers in the private sector. In terms of longer-term sustainability, the important issue is whether the contributions are set aside to pay for the future benefits of the contributors, irrespective of the vehicle used for the saving.

Calculation

There is considerable variety in the extent to which the contributions paid are actually invested into a fully funded investment vehicle. This calculation multiplies the level of mandatory contributions by the percentage of these funds that are invested to provide for future retirement benefits. For example, in Australia, Chile and Denmark the mandatory contributions are fully invested for the individuals concerned. On the other hand, Argentina, Austria, Brazil, France, Germany, Ireland, Poland and South Africa adopt a pay-as-you-go basis.

In some cases, neither extreme is adopted. For instance, the Canada Pension Plan adopts a 'steady-state' funding basis so that contributions will remain constant for 75 years. In this case we have assumed that 75 percent of the contributions are invested.

In China, only the employee contributions are required to be funded but, currently, many of the individual accounts are notional. Hence 50 percent of employee contributions have been used. For Sweden, who are transitioning from a pay-as-you-go approach to a fully funded one, we used the contributions to the defined contribution funded system plus the contributions to the quasi-mandatory occupational schemes.

22 This question does not include contributions arising from statutory minimum levels of funding for defined benefit plans as these plans do not represent mandatory arrangements.

For India, we have used the level of contributions paid into the Employees Pension Scheme but excluded contributions paid to the Employees Provident Fund Scheme as these benefits can be used for a range of purposes.

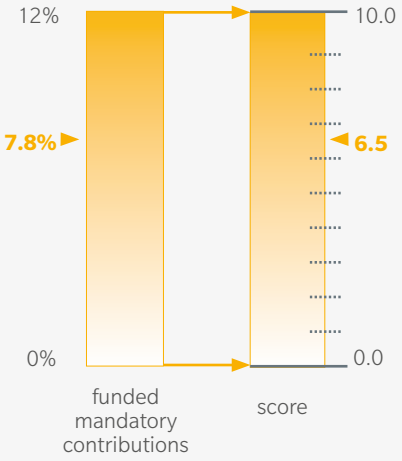
While Italy's mandatory scheme is funded on a pay-as-you-go basis we have assumed that 25 percent of the mandatory contributions required to fund termination indemnity benefits are invested. For Finland, we have assumed that 20 percent of the mandatory contributions paid by employers and employees are invested with the remainder used to fund pensions in payment.

In line with OECD data, we have assumed that 35 percent of all contributions to Singapore's Central Provident Fund are invested which gives them the maximum score. For Malaysia, we have assumed that 70 percent of all contributions to the Employee Provident Fund are invested for retirement which gives them the maximum score.

In other countries, social security reserve funds are funded by the difference between contributions and current benefit payments or through top-up contributions from the government. Japan, Korea and the USA are examples of this approach. In these cases, we have assumed that 15 percent, 50 percent and 20 percent of the contributions are funded respectively.

The results of the above calculations have meant that the net funded level of mandatory contributions (expressed as a percentage of earnings) range from zero percent in several countries to 12 percent or more in Denmark, Malaysia and Singapore. In view of this range and likely developments in some countries, a maximum score is achieved with a level of 12 percent with a zero score being obtained where there are no funded mandatory contributions, invested into a fund for future payments.

Calculating S4 — Funded Mandatory Contributions



Commentary

The level of mandatory contributions to a funded arrangement paid by employers and employees around the world varies considerably.

In some cases, they represent taxation for social security purposes and are not used to fund future benefits. On the other hand, funded retirement savings with the associated investment funds provide a better level of sustainability for the system and greater security for future retirees.

Weighting

This item represents one of several key indicators representing desirable features of a sustainable retirement income system. A weighting of 15 percent in the sustainability sub-index is used for this indicator.

Question S5

What is the labour force participation rate for those aged 55–64?

What is the labour force participation rate for those aged 65+?

Objective

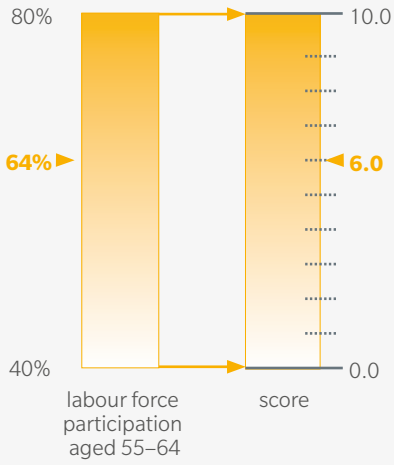
Higher labour force participation at older ages means that individuals are retiring later thereby reducing both the number of years in retirement and the level of retirement benefits needed, as well as accumulating greater savings for retirement during the working years.

Calculation

For those aged 55 to 64, the percentages range from 41.7 percent in South Africa and 45.8 percent in Poland to 74.0 percent in Switzerland and 78.2 percent in Sweden. A maximum feasible score is considered to be 80 percent for this age bracket. Hence a participation rate of 80 percent or more scores maximum results whilst a participation rate of 40 percent or less scores zero.

For those aged 65+, the percentages range from 2.5 percent in France and 3.7 percent in Italy to 40.2 percent in Indonesia and 30 percent in Indonesia and Korea. A maximum feasible score is considered to be 30 percent or more. Hence a participation rate of 30 percent or more scores maximum results whilst a participation rate of nil scores zero.

Calculating S5 — Labour Force Participation Rate aged 55–64



Commentary

With the increasing awareness of longer life expectancies and the pressures associated with an ageing population, it is important that governments continue to encourage higher labour force participation at older ages. It is pleasing to note that many countries are now experiencing increases in their labour force participation rates at these older ages. This trend should continue to be encouraged.

Weighting

This item has a weighting of 10 percent in the sustainability sub-index, split into eight percent for the first question and two percent for the second question.

Question S6

What is the level of adjusted government debt (being the gross public debt reduced by the size of any sovereign wealth funds that are not set aside for future pension liabilities[23]), expressed as a percentage of GDP?

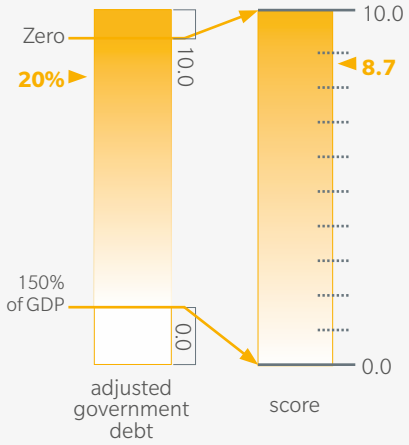
Objective

As social security payments represent an important source of income in most retirement income systems, the ability of future governments to pay these pensions and/or other benefits (such as health) represents a critical factor in the sustainability of current systems. Clearly, higher government debt increases the likelihood that there will need to be reductions in the level or coverage of future benefits.

Calculation

The level of the adjusted government debt ranges from less than zero for Singapore to 249 percent in Japan. A maximum score was achieved for countries with a negative level of adjusted government debt (i.e. a surplus), with a zero score for countries with an adjusted government debt of 150 percent of GDP or higher.

Calculating S6 — Adjusted Government Debt



Commentary

Government debt is likely to restrict the ability of future governments to support their older populations, either through pensions or through the provision of other services such as health or aged care. Hence, governments with lower levels of debt are in a stronger financial position to be able to sustain their current level of pension payments into the future. The level of debt increased in many countries following the global financial crisis. There are also other longer term economic effects of higher government debt which can adversely affect the investment returns received by pension plan members.

Weighting

This item has a weighting of 10 percent in the sustainability sub-index.

23 This reduction does not include sovereign wealth funds that have been set aside for future pension payments as these have been considered in Question S2.

Question S7

In respect of private pension arrangements, are older employees able to access part of their retirement savings or pension and continue working (e.g. part time)? If yes, can employees continue to contribute and accrue benefits at an appropriate rate?

Objective

A desirable feature of any retirement income system, particularly where there is an ageing population, is to permit individuals to phase into retirement by gradually reducing their reliance on earned income whilst at the same time enabling them to access their accrued retirement benefit through an income stream. It is also important that such individuals can continue to contribute or accrue benefits whilst working.

Calculation

The first question was assessed with a score of 2 for "yes" and 0 for "no". However, in many countries it may depend on the particular fund's rules. In these cases, a score between 0 and 2 was given depending on the circumstances and practice. A maximum score was achieved where the answer was yes for the majority of older employees.

If the answer to the first question was yes, an additional score between 0 and 2 was given to the second question depending on the ability of employees to continue to contribute and accrue benefits during the transition period.

Commentary

In most countries employees are able, at least to some extent, to continue working at older ages whilst also accessing an income stream from their accumulated benefits, continuing to contribute and accruing benefits.

Weighting

This item has a weighting of five percent in the sustainability sub-index as it is not considered as critical as the previous indicators. The total weighting was split into four percent for the first question and one percent for the second question.

Sources of data for the sustainability sub-index

Question S1

Mercer calculations for Brazil, France and Japan.

OECD (2011), p173 for South Africa

OECD (2013b), p37 for China, India, Indonesia, Malaysia and Singapore.

OECD (2014b), p69 for Argentina

OECD (2015), p187 for all other countries although adjustments were needed when data was not available or comprehensive.

Question S2

Mercer calculations for China, Malaysia and Singapore.

OECD (2011) for private pension reserve as % of GDP for Indonesia.

OECD (2011), p179 in relation to pension insurance contracts for Germany.

OECD StatExtracts Database, Pension Insurance Contracts 2014 in relation to pension insurance contracts for Finland.

OECD (2015) in relation to public pension reserve funds for all countries where relevant and for private pension funds for South Africa.

OECD (2016) in relation to all retirement vehicles as % of GDP for all countries except, China, Indonesia, Malaysia, Singapore and South Africa.

Question S3

Life expectancy, aged dependency (2015-2020 and 2030-2035), and total fertility rate (2005-2010 and 2010-2015) data were from United Nations (2015).

State pension ages were sourced from Mercer consultants in each country.

Question S5

International Labour Organization (2015).

Question S6

International Monetary Fund (2016).

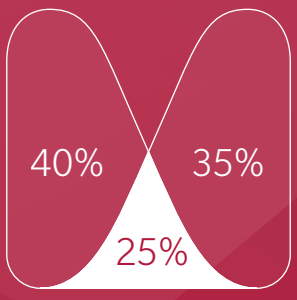
Sovereign Wealth Fund Institute: www.swfinstitute.org

Questions S4 and S7

Answers were sourced from Mercer consultants in each country.

CHAPTER 8
THE INTEGRITY SUB-INDEX

The integrity sub-index considers three broad areas of the pension system, namely regulation and governance; protection and communication for members; and costs. This sub-index asks a range of questions about the requirements that apply to the private sector pension plans in each country. Well operated and successful private sector plans are critical because without them the government becomes the only provider, which is not a desirable or sustainable long-term outcome. Hence they represent a critical component of a well-governed and trusted pension system, which has the long term confidence of the community.



The country with the highest value for the integrity sub-index is Finland (91.5), with the lowest value being for Mexico (40.7). The better scores were achieved by countries with well-developed private pension industries.

Full details of the values in respect of each indicator in the integrity sub-index are shown in Attachment 3.

Regulation and governance

Question R1

Do private sector pension plans need regulatory approval or supervision to operate?

Is a private pension plan required to be a separate legal entity from the employer?

Objective

These questions were designed to assess the extent to which a private sector pension plan is required to be a separate entity from the sponsoring employer (which usually entails holding assets that are separate from the employer) and is subject to some level of regulatory oversight.

Eighteen of the 27 countries obtained the maximum score indicating the presence of the basic groundwork needed for a sound governance framework.

Calculation

Each question in this section was assessed with a score of 2 for "yes" and 0 for "no". In some cases the response was neither a clear "yes" nor "no" so that the score may be between 0 and 2 depending on the actual circumstances.

Weighting

The first question was given a 2.5 percent weighting and the second question was given a 5 percent weighting, giving a total weighting of 7.5 percent in the integrity sub-index for these two questions.

Question R2

Are private sector pension plans required to submit a written report in a prescribed format to a regulator each year?

Does the regulator make industry data available from the submitted forms on a regular basis?

How actively does the regulator discharge its supervisory responsibilities? Please rank on a scale of 1 to 5.

The following table was provided to assist in answering the third question.

Scale	Description	Examples of Activity by the Regulator
1	Inactive	Receives reports from plans but does not follow up
2	Occasionally active	Receives annual reports, follows up with questions but has limited communication with plans on a regular basis
3	Moderately active	Receives annual reports, follows up with questions and has regular communication with plans, including on-site visits
4	Consistently active	Obtains information on a regular basis from plans and has a focus on risk-based regulation. That is, there is a focus on plans with higher risks
5	Very active	Obtains information on a regular basis from plans and has a focus on risk-based regulation. In addition, the regulator often leads the industry with ideas, discussion papers and reacts to immediate issues

Objective

These questions were designed to assess the level of supervision and the involvement of the regulator within the industry.

Calculation

The first two questions in this section were assessed with a score of 2 for "yes" and 0 for "no". In some cases the response was neither a clear "yes" nor "no" so that the score may be between 0 and 2 depending on the actual circumstances.

The last question was assessed on a five-point scale as shown in the above table. It is important to note that this question did not assess the quality of the supervision; rather it considered the activity of the regulator.

The results highlight that the role of the pension regulator varies greatly around the world. Generally speaking, the pension regulator plays a stronger role where the pension industry has developed over many decades. In Malaysia and Singapore the activity of the authority overseeing their central funds has been recognised.

Weighting

The first and third questions were each given a four percent weighting, with the second question being given a 2 percent weighting, resulting in a total weighting of 10 percent in the integrity sub-index for these three questions.

Question R3

Where assets exist, are the private pension plan's trustees/executives/fiduciaries required to prepare an investment policy?

Are the private pension plan's trustees/executives/fiduciaries required to prepare a risk management policy?

Are the private pension plan's trustees/executives/fiduciaries required to prepare a conflicts of interest policy?

Are the private pension plan's trustees/executives/fiduciaries required to have:

- one or more independent members included in the governing body?
- equal member and employer representation on the governing body?

Objective

These questions were designed to assess the regulatory requirements in respect of certain functions that may be required in respect of the fiduciaries who oversee private pension plans.

The third question takes into account that fiduciaries may have a number of roles in various entities, including the pension plan, the sponsoring employer, a provider (such as an investment house) or, indeed, another pension plan. Good governance practice would mean that pension plans should have a clear policy to handle such situations.

The two parts of the fourth question reflect that it is no longer appropriate for the governance structure of pension schemes to be restricted or controlled by a particular entity. Good governance practice includes independent trustees or fiduciaries and/or a balance between employer and member representatives on the governing board.

Malaysia received the maximum score of 10.0 for these questions and 13 of the 27 countries had a score of 8.0 or above, indicating that there is still scope to improve governance requirements in many countries.

Calculation

The first three questions in this section were assessed with a score of 2 for "yes" and 0 for "no". In some cases the response was neither a clear "yes" nor "no" so that the score may be between 0 and 2 depending on the actual circumstances.

The fourth question was scored out of 2, with an answer of "yes" to the first part immediately scoring 2 out of 2. If the answer to the first part was "no" but the answer to the second part was "yes" to equal member representation, then the score was 1 out of 2. All other answers score 0, even if there is a member representation requirement but it is less than equal representation.

Weighting

The first and second questions were each given a four percent weighting, with the third question given a 2.5 percent weighting and the fourth question given a 2 percent weighting, resulting in a total of 12.5 percent in the integrity sub-index for these four questions.

Question R4

Do the private pension plan's trustees/executives/ fiduciaries have to satisfy any personal requirements set by the regulator?

Are the financial accounts of private pension plans (or equivalent) required to be audited annually by a recognised professional?

Objective

These questions were designed to assess the regulatory requirements in respect of these two aspects of the governance of private sector pension plans. Only 12 of the 27 countries received the maximum score indicating that several countries could improve their requirements, particularly in respect of the first question.

Calculation

Each question in this section was assessed with a score of 2 for "yes" and 0 for "no". In some cases the response was neither a clear "yes" nor "no" so that the score may be between 0 and 2 depending on the actual circumstances.

Weighting

Each question was given a 2.5 percent weighting in the integrity sub-index, resulting in a total of five percent for these two questions.

Question R5

What is the government's capacity to formulate and implement quality policies and to promote private sector development?

What confidence do citizens have in the rules of society and the institutions that exercise power?

How free are the country's citizens to express their views? What is the likelihood of political instability or politically-motivated violence?

Objective

These questions were designed to assess the integrity of the government which plays a critical role in the ongoing governance, legal framework, regulation, policy development and stability of the country's retirement income system.

Calculation

The World Bank publishes results from the Worldwide Governance Indicators project for 215 economies for the following six dimensions of governance:

- Government Effectiveness
- Regulatory Quality
- Rule of Law
- Control of Corruption
- Voice and Accountability
- Political Stability and Absence of Violence

From this publicly available source, each indicator provided a score for each country in the standard normal units, ranging from approximately -2.5 to +2.5. These six scores were summed and then increased by 3 to avoid any negative scores. The scores ranged from 0.4 for China to 14.1 for Finland.

Weighting

Each question was given a five percent weighting in the integrity sub-index, resulting in a total of 15 percent for these three questions.

Commentary on the total regulation and governance results

The scores ranged from 13.0 for Mexico to 47.0 for Finland. The low score for Mexico is indicative of the fact that the regulator has minimal requirements when compared to the more developed pension industries in other countries.

Protection and communication for members

Calculation

With the exception of question P1 dealing with funding, each question in this section was assessed with a score of 2 for "yes" and 0 for "no". In some cases the response is neither a clear "yes" nor "no" so that the score may be between 0 and 2 depending on the actual circumstances.

Question P1

For defined benefit schemes,

- are there minimum funding requirements?
- what is the period over which any deficit or shortfall is normally funded?

For defined contribution schemes, are the assets required to fully meet the members' accounts?

Objective

These questions were designed to assess the level of funding required in respect of both defined benefit (DB) and defined contribution (DC) plans. Funding levels are critical in securing members' future retirement benefits.

Calculation

The calculation considered the requirements for both DB and DC plans (where relevant). For the DB funding assessment, we considered both the extent of the funding requirement and the period over which any deficit must be rectified. The maximum score for DB was given where funding requirements included regular actuarial involvement and funding of a deficit or shortfall over periods of up to four years.

Commentary

All countries require full funding of DC plans; in fact, many respondents noted that this feature is the essence of such a plan. However the requirements for funding DB plans vary considerably. There are, in effect, no requirements in some countries whereas in other countries any deficit requires rectification within a specified period. Australia, Chile, Denmark, Finland, Ireland, Korea, the Netherlands, Poland and South Africa received the maximum score.

Weighting

The funding of a member's retirement benefit in a private sector pension plan represents a basic protection of the member's accrued benefits and this indicator is therefore given a 10 percent weighting in the integrity sub-index.

Question P2

Are there any limits on the level of in-house assets held by a private sector pension plan? If yes, what are they?

Objective

An essential characteristic of a sound retirement income system is that a member's accrued retirement benefit is not subject to the financial state of the member's employer.

Commentary

Most countries have a restriction on the level of in-house assets held by a pension plan. These restrictions are often set at five to 10 percent of the plan's assets. A maximum score was given where in-house assets are restricted to five percent. There are no restrictions in Argentina, Indonesia, Italy and Japan.

Weighting

This requirement represents a key method of protecting the member's accrued benefits and is given a five percent weighting in the integrity sub-index.

Question P3

Are the members' accrued benefits provided with any protection or reimbursement from an act of fraud or mismanagement within the fund?

In the case of employer insolvency (or bankruptcy), do any unpaid employer contributions receive priority over payments to other creditors, and/or are members' accrued benefits protected against claims of creditors?

Objective

There are many risks faced by members of pension plans. These two questions consider what protection, if any, the members receive in the case of fraud, mismanagement or employer insolvency. In the latter case, the employer may not be able to pay any contributions that are owed.

Commentary

The answers to these questions vary considerably by country. In some cases, there are some restricted arrangements in place to support the member whereas in the UK a fraud compensation scheme exists.

Weighting

Whilst these issues are very important where such incidents occur, experience in most countries suggests that it is not a common event or that its financial effect is relatively minor. Hence each question is given the weighting of 2.5 percent in the integrity sub-index, resulting in a total of five percent for these two questions.

Question P4

When joining the pension plan, are new members required to receive information about the pension plan?

Objective

It is important that members receive information when joining a pension plan, including a description of the benefits and the risks they may face, particularly with the global growth of DC plans.

Commentary

All countries, except China and India (for some DB plans), require information to be provided when members join the plan.

Weighting

The weighting for this question is five percent in the integrity sub-index.

Question P5

Are plan members required to receive or have access to an annual report about the pension plan?

Is the annual report required to show:

- the allocation of the plan's assets to major asset classes?
- the major investments of the plan?

Objective

Annual reports present the opportunity for pension plans to communicate with their members, highlighting plan information and contemporary issues that may need to be considered by the members.

As defined contribution arrangements become more prevalent, it also becomes important for members to receive some information about the investments in which their accumulated benefits are invested.

Commentary

There is considerable variety in the responses, with eight of the 27 countries having no requirements in respect of annual reports.

The responses for disclosure of investment allocation and major investments ranged from no requirement through to disclosure of all investments. A maximum score was given where investments representing more than 1% of plan assets are required to be disclosed. Nearly half of the countries have no requirements relating to the plan's major investments.

Weighting

The first question relating to annual reports was given a 2.5 percent weighting in the integrity sub-index, with the same weighting given to the two questions relating to assets resulting in a total of five percent.

Questions P6

Are plan members required to receive an annual statement of their current personal benefits from the plan?

Is this annual statement to individual members required to show any projection of the individual member's possible retirement benefits?

Objective

Although an annual report about the plan is valuable, most members are more interested in their personal entitlement. The first question therefore ascertains whether the provision of such information is a requirement whilst the second question considers whether this requirement includes any projections about the member's future retirement benefit.

Commentary

The majority of countries have a requirement concerning annual personal statements with Austria, Chile, Finland, Ireland, Italy, the Netherlands, Sweden, Switzerland and the UK requiring some form of projection. As account balances increase and individuals take on greater responsibility for their retirement benefits, the provision of this type of information will become increasingly important to members.

Weighting

The first question was given a five percent weighting in the integrity sub-index whilst the second question was given a 2.5 percent weighting in the integrity sub-index, resulting in a total of 7.5 percent for these two questions.

Question P7

Do plan members have access to a complaints tribunal which is independent from the pension plan?

Objective

A common way to provide some protection to individuals who receive benefits from a contract with a financial services organisation (such as a bank or insurance company) is to provide them with access to an independent complaints tribunal or ombudsman.

As the provision of retirement benefits can represent an individual's most important financial asset, there is good reason for such a provision to exist in respect of private sector pension plans.

Commentary

Twelve countries (Argentina, Australia, Austria, Brazil, Denmark, Finland, Indonesia, Ireland, the Netherlands, South Africa, Switzerland and the UK) have a complaints system that is independent from both the provider and the regulator. Canada, Chile, Germany, India, Italy, Poland and the USA also have a range of processes that can be used for this purpose.

Weighting

Whilst this indicator is not as important as funding or communication to members, it represents a desirable feature of the better pension systems as it provides all members with access to an independent body, should any disputes arise. It is given a 2.5 percent weighting in the integrity sub-index.

Commentary on the total protection and communication results

The scores ranged from 16.3 in Argentina and 17.3 in France to 36.9 in Ireland and 37.0 in Finland. The low score in Argentina is caused by limited requirements regarding in-house assets and limited protection for accrued benefits and unpaid contributions. The low score for France is caused by very limited requirements to provide information to members.

Costs

What percentage of total pension assets is held in various types of pension funds?

What percentage of total pension assets is held by the largest ten pension funds/providers?

Objective

As noted by Luis Viceira in Hinz et al (2010), costs are one of the most important determinants of the long run efficiency of a pension system. He goes on to comment that:

> "Unfortunately, there is very little transparency about the overall costs of running most pension systems or the total direct and indirect fees that they charge to participants and sponsors."[24]

This is absolutely correct. The huge variety of pension systems around the world, with a great diversity of retail, wholesale and employer sponsor arrangements means that some administrative or investment costs are clearly identified whereas others are borne indirectly or directly by providers, sponsors or third parties. Comparisons are therefore very difficult.

Yet, in the final analysis many costs will be borne by members and thereby affect the provision of their retirement income. We have therefore used two proxies for this indicator.

The first question represents an attempt to ascertain the proportion of each country's pension industry that is employer-sponsored plans, not-for-profit plans and retail funds, which may be employer based or individual contracts. Each type of plan is likely to have a different cost structure which, in turn, influences the overall cost structure of the industry.

The second question highlights the fact that economies of scale matter. That is, it is likely that as funds increase in size, their costs as a proportion of assets will reduce and some (or all) of these benefits will be passed onto members.

Calculation

For the first question, each type of plan was given a weight ranging from 1 for individual retail or insurance contracts to 10 for a centralised fund. These scores were then weighted by the actual characteristics of the pension industry in each country.

For the second question, we considered the size of the assets held by the largest ten providers or funds. A score of 1 was given when these assets were less than 10 percent of all assets rising to a maximum score of 5 when these assets represented more than 75 percent of all assets.

Weighting

Each question was given a five percent weighting in the integrity sub-index, resulting in a total of 10 percent for these two questions.

Commentary on the costs results

The scores for these two indicators ranged from 3.7 for the USA and 4.1 in France to 9.8 for India and 10.0 for both Malaysia and Singapore. The high scores for these three countries are not surprising as each country has a central fund which should provide administrative savings. In addition, larger funds have the opportunity to add value through a broader range of investment opportunities.

It is recognised there is a tension between a system with a single fund (or relatively few funds) which should be able to keep costs down and a competitive system where individuals have greater choice and freedom. The ideal system should encourage competition and flexibility to suit members' needs whilst at the same time encouraging economies of scale (as illustrated by this question) to minimise costs and improve benefits.

Sources of data for integrity sub-index

As the integrity sub-index is primarily based on the operations of the private sector pension industry in each country, answers to all but one of the questions were sourced from Mercer consultants in the relevant countries. The exception was Question R5 which used Worldwide Governance Indicators from The World Bank (2015).

24 Hinz R, Rudolph H P, Antolin P and Yermo J (2010), p259.

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Attachment 1: Score for each country for each indicator in the adequacy sub-index

	Question	Question weight	Score for each country																											
			Argentina	Australia	Austria	Brazil	Canada	Chile	China	Denmark	Finland	France	Germany	India	Indonesia	Ireland	Italy	Japan	Korea	Malaysia	Mexico	Netherlands	Poland	Singapore	South Africa	Sweden	Switzerland	UK	USA
A1	What is the minimum pension, as a percentage of the average wage, that a single aged person will receive? How is the minimum pension increased or adjusted over time? Are these increases or adjustments made on a regular basis?	17.5%	3.0	8.8	8.5	9.6	9.6	3.1	4.1	10.0	5.3	7.4	5.3	0.0	0.0	9.3	5.0	5.4	1.4	0.0	1.1	8.8	3.2	3.9	0.7	6.7	5.9	6.4	4.2
A2	What is the net replacement rate for a median-income earner?	25%	10.0	8.5	10.0	9.4	6.5	3.2	5.1	10.0	8.6	7.6	6.1	5.2	0.0	5.8	10.0	4.4	5.8	3.8	4.0	10.0	6.6	3.9	0.0	7.2	5.7	2.5	5.5
A3	What is the net household saving rate in the country?	10%	4.7	5.6	4.6	5.0	2.7	5.5	7.0	0.5	1.9	7.9	4.7	5.0	7.3	4.1	3.0	1.5	4.8	1.4	4.1	2.5	1.2	7.8	1.0	5.2	6.8	2.0	5.3
A4	Are voluntary member contributions made by a median-income earner to a funded pension plan treated by the tax system more favourably than similar savings in a bank account? Is the investment income earned by pension plans exempt from tax in the pre-retirement and/or post-retirement periods?	5%	0.0	7.0	7.0	5.5	10.0	10.0	10.0	4.0	7.0	10.0	10.0	10.0	10.0	10.0	7.0	10.0	10.0	10.0	7.0	10.0	10.0	10.0	10.0	2.0	10.0	10.0	10.0
A5	Is there a minimum access age to receive benefits from private pension plans (except for death, invalidity and/or cases of significant financial hardship)? If so, what is the current age?	10%	0.0	8.3	0.0	0.0	3.3	5.0	8.3	10.0	10.0	10.0	10.0	0.0	6.7	6.7	0.0	5.0	6.7	6.7	6.7	3.3	10.0	6.7	0.0	6.7	5.3	6.7	6.3
A6	What proportion, if any, of the retirement benefit from the private pension arrangements is required to be taken as an income stream? Are there any tax incentives that exist to encourage taking up of income streams?	10%	0.0	2.0	6.7	5.5	4.5	7.5	0.0	6.7	7.5	5.0	7.5	2.5	6.7	10.0	6.7	0.0	2.0	0.0	0.0	7.5	0.0	7.5	7.5	7.5	0.0	3.5	0.0
A7	On resignation from employment, are plan members normally entitled to the full vesting of their accrued benefit? After resignation, is the value of the member's accrued benefit normally maintained in real terms (either by inflation-linked indexation or through market investment returns)? Can a member's benefit entitlements normally be transferred to another private pension plan on the member's resignation from an employer?	7.5%	2.0	10.0	6.0	9.0	8.0	10.0	8.0	10.0	10.0	9.0	9.0	10.0	9.0	8.0	10.0	6.0	8.0	10.0	4.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	5.0
A8	Upon a couple's divorce or separation, are the individuals' accrued pension assets normally taken into account in the overall division of assets?	4%	0.0	10.0	0.0	0.0	10.0	10.0	10.0	0.0	0.0	5.0	10.0	0.0	0.0	10.0	10.0	10.0	0.0	4.0	5.0	10.0	10.0	10.0	10.0	2.5	10.0	10.0	10.0
A9	What is the level of home ownership in the country?	5%	6.7	6.7	5.4	7.8	6.6	7.4	9.7	5.4	6.6	5.4	4.6	9.5	8.9	7.1	7.4	6.0	4.8	7.6	8.1	6.1	7.0	10.0	5.0	7.0	2.5	6.6	6.3
A10	What is the proportion of total pension assets invested in growth assets?	5%	4.9	9.3	9.1	7.3	10.0	10.0	6.3	7.9	10.0	6.3	10.0	3.4	6.3	10.0	6.8	10.0	3.4	10	6.8	10.0	9.1	2.5	8.5	10.0	10.0	10.0	10.0
A11	Are contributions to a funded pension scheme required to be paid if a worker receives income support (or income maintenance) when they are temporarily out of the workforce?	1%	0.0	5.0	10.0	0.0	10.0	0.0	0.0	0.0	10.0	7.5	5.0	0.0	10.0	10.0	0.0	0.0	10.0	0.0	0.0	0.0	0.0	0.0	10.0	5.0	10.0	10.0	0.0
	Adequacy sub-index	40%	42.3	76.0	67.4	67.9	68.0	56.5	58.2	75.8	70.6	75.2	70.4	39.5	41.0	76.2	65.5	48.5	46.5	40.3	38.5	78.2	57.9	61.4	34	67.6	60.5	55.5	53.5

Each question is scored for each country with a minimum score of 0 and a maximum score of 10.

Attachment 2: Score for each country for each indicator in the sustainability sub-index

	Question	Question weight	Score for each country																											
			Argentina	Australia	Austria	Brazil	Canada	Chile	China	Denmark	Finland	France	Germany	India	Indonesia	Ireland	Italy	Japan	Korea	Malaysia	Mexico	Netherlands	Poland	Singapore	South Africa	Sweden	Switzerland	UK	USA
S1	What proportion of the working age population are members of private pension plans?	20%	0.0	9	1.4	0.0	3.5	9.8	2.0	10.0	10	8.7	4.9	0.0	0.0	2.3	0.1	2.7	3.4	2.0	6.8	10.0	7.2	7.5	1.3	10.0	8.9	4.4	4.9
S2	What is the level of pension assets, expressed as a percentage of GDP, held in private pension arrangements, public pension reserve funds, protected book reserves and pension insurance contracts?	20%	0.6	7.3	0.3	1.1	9.9	5.3	0.5	10.0	5.0	0.7	1.1	0.4	0.1	3.1	0.5	3.4	3.4	3.7	1.0	10.0	0.5	4.8	5.4	5.5	7.1	5.6	8.5
S3	What is the current gap between life expectancy at birth and the state pension age? What is the projected gap between life expectancy at birth and the state pension age in 2035? (This calculation allows for mortality improvement.) What is the projected old-age dependency ratio in 2035? What is the Total Fertility Rate (TFR) averaged over the last seven years?	20%	8.3	5.7	3.2	8.4	4.3	3.8	3.3	6.3	5.1	3.2	4.2	9.8	9.9	7.0	3.4	1.3	2.2	7.4	9.1	5.5	6.3	2.5	9.9	4.8	3.3	6.0	7.5
S4	What is the level of mandatory contributions that are set aside for retirement benefits (ie funded), expressed as a percentage of wages? These include mandatory employer and/or employee contributions towards funded public benefits (ie social security) and/or private retirement benefits.	15%	0.0	7.9	0.0	0.0	6.2	9.6	3.3	10.0	3.9	0.0	0.0	6.9	4.8	0.0	1.5	0.0	3.8	10.0	5.2	6.7	0.0	10.0	0.0	5.7	7.5	1.7	2.1
S5	What is the labour force participation rate for those aged 55–64? What is the labour force participation rate for those aged 65+?	10%	5.4	5.6	1.8	4.5	5.8	7.0	5.2	5.7	5.1	2.3	6.3	4.6	7.6	4.3	2.0	7.6	7.1	3.7	5.3	5.6	1.5	7.2	0.7	8.3	7.6	5.4	6.1
S6	What is the level of adjusted government debt (being the gross public debt reduced by the size of any sovereign wealth funds that are not set aside for future pension liabilities), expressed as a percentage of GDP?	10%	7.0	7.7	4.4	5.8	4.3	9.2	8.0	7.0	6.0	3.7	5.0	5.6	8.4	2.8	1.2	0.0	8.1	7.1	6.7	5.5	6.6	10.0	6.9	7.0	7.0	4.1	3.0
S7	In respect of private pension arrangements, are older employees able to access part of their retirement savings or pension and continue working (eg part time)? If yes, can employees continue to contribute and accrue benefits at an appropriate rate?	5%	0.0	10.0	0.0	0.0	8.0	0.0	0.0	10.0	10.0	8.0	8.0	0.0	0.0	6.0	0.0	4.0	10.0	10.0	0.0	10.0	10.0	10.0	8.0	10.0	6.0	10.0	6.0
	Sustainability sub-index	35%	30.1	74.1	16.0	29.2	58.8	68.4	29.7	85.3	62.2	35.2	35.8	40.9	43.0	34.8	13.5	24.4	43.9	57.1	53.6	77.0	41.2	66.8	44.7	69.5	67.4	48.8	57.1

Each question is scored for each country with a minimum score of 0 and a maximum score of 10.

Attachment 3: Score for each country for each indicator in the integrity sub-index

	Question	Question weight	Score for each country																											
			Argentina	Australia	Austria	Brazil	Canada	Chile	China	Denmark	Finland	France	Germany	India	Indonesia	Ireland	Italy	Japan	Korea	Malaysia	Mexico	Netherlands	Poland	Singapore	South Africa	Sweden	Switzerland	UK	USA
Regulation and Governance (R1–R5)	Do private sector pension plans need regulatory approval or supervision to operate? Is a private pension plan required to be a separate legal entity from the employer?	7.5%	0.0	10.0	8.3	10.0	10.0	10.0	10.0	10.0	10.0	6.7	8.3	10.0	10.0	10.0	10.0	6.7	8.3	10.0	1.7	10.0	6.7	10.0	10.0	8.3	10.0	10.0	10.0
	Are private sector pension plans required to submit a written report in a prescribed format to a regulator each year? Does the regulator make industry data available from the submitted forms on a regular basis? How actively does the regulator discharge its supervisory responsibilities?	10%	0.8	9.2	3.4	9.2	8.7	9.2	4.4	10.0	9.2	8.2	7.4	7.4	9.2	8.2	9.2	7.6	3.6	7.2	7.6	9.2	7.6	7.2	9.2	9.2	8.4	10.0	7.6
	Where assets exist, are the private pension plan's trustees/executives/fiduciaries required to prepare an investment policy? Are the private pension plan's trustees/executives/fiduciaries required to prepare a risk management policy? Are the private pension plan's trustees/executives/fiduciaries required to prepare a conflicts of interest policy? Are the private pension plan's trustees/executives/fiduciaries required to have: ▪ one or more independent members included in the governing body? ▪ equal member and employer representation on the governing body?	12.5%	8.4	9.2	9.2	8.2	5.8	8.4	3.6	6.4	9.0	5.2	8.4	3.2	7.4	3.2	9.2	4.0	0.0	10.0	0.0	9.2	7.2	8.4	9.2	7.2	6.0	8.2	0.0
	Do the private pension plan's trustees/executives/fiduciaries have to satisfy any personal requirements set by the regulator? Are the financial accounts of private pension plans (or equivalent) required to be audited annually by a recognised professional?	5%	10.0	10.0	5.0	10.0	7.5	7.5	10.0	10.0	10.0	10.0	7.5	5.0	10.0	6.3	10.0	7.5	0.0	10.0	5.0	10.0	7.5	7.5	10.0	7.5	7.5	7.5	5.0
	What is the government's capacity to formulate and implement quality policies and to promote private sector development? What confidence do citizens have in the rules of society and the institutions that exercise power? How free are the country's citizens to express their views? What is the likelihood of political instability or politically-motivated violence?	15%	0.4	8.5	8.1	1.8	8.6	6.7	0.3	8.9	9.4	6.5	8.3	0.8	1.3	8.1	3.8	7.6	5.1	4.1	1.1	8.8	5.5	8.4	2.8	9.0	9.3	7.9	6.9

Each question is scored for each country with a minimum score of 0 and a maximum score of 10.

Continues next page

Attachment 3: *(continued)* Score for each country for each indicator in the integrity sub-index

	Question	Question weight	Score for each country																											
			Argentina	Australia	Austria	Brazil	Canada	Chile	China	Denmark	Finland	France	Germany	India	Indonesia	Ireland	Italy	Japan	Korea	Malaysia	Mexico	Netherlands	Poland	Singapore	South Africa	Sweden	Switzerland	UK	USA
Protection and communication for members (P1–P7)	For defined benefit schemes, are there minimum funding requirements? What is the period over which any deficit or shortfall is normally funded? For defined contribution schemes, are the assets required to fully meet the members' accounts?	10%	5.0	10.0	7.5	9.0	9.0	10.0	7.5	10.0	10.0	6.0	8.0	5.0	7.0	10.0	9.0	9.0	10.0	5.0	6.0	10.0	10.0	5.0	10.0	8.0	9.0	9.0	8.0
	Are there any limits on the level of in-house assets held by a private sector pension plan? If yes, what are they?	5%	0.0	10.0	10.0	7.5	8.8	10.0	7.5	10.0	7.5	5.0	8.8	8.8	0.0	10.0	0.0	0.0	10.0	10.0	7.5	10.0	7.5	6.3	10.0	10.0	10.0	10.0	5.0
	Are the members' accrued benefits provided with any protection or reimbursement from an act of fraud or mismanagement within the fund? In the case of employer insolvency (or bankruptcy), do any unpaid employer contributions receive priority over payments to other creditors, and/or are members' accrued benefits protected against claims of creditors?	5%	0.0	5.0	5.0	0.0	2.5	7.5	2.5	2.5	10.0	2.5	7.5	2.5	5.0	3.8	5.0	2.5	0.0	10.0	0.0	0.0	2.5	5.0	2.5	5.0	7.5	10.0	5.0
	When joining the pension plan, are new members required to receive information about the pension plan?	5%	10.0	10.0	10.0	10.0	10.0	10.0	0.0	10.0	10.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
	Are plan members required to receive or have access to an annual report about the pension plan? Is the annual report required to show: i. The allocation of the plan's assets to major asset classes? ii. The major investments of the plan?	5%	2.5	9.0	8.0	10.0	6.5	0.0	0.0	0.0	9.0	0.0	5.0	8.0	8.0	10.0	8.0	3.8	0.0	10.0	0.0	8.0	0.0	8.0	7.0	3.8	8.0	4.5	8.0
	Are plan members required to receive an annual statement of their current personal benefits from the plan? Is this annual statement to individual members required to show any projection of the member's possible retirement benefits?	7.5%	3.3	6.7	10.0	6.7	6.7	10.0	6.7	6.7	8.3	3.3	3.3	3.3	6.7	10.0	10.0	3.3	3.3	6.7	6.7	10.0	6.7	6.7	6.7	10.0	10.0	6.7	6.7
	Do plan members have access to a complaints tribunal which is independent from the pension plan?	2.5%	10.0	10.0	10.0	10.0	7.5	7.0	0.0	10.0	10.0	0.0	5.0	5.0	10.0	10.0	5.0	0.0	0.0	0.0	0.0	10.0	5.0	0.0	10.0	0.0	10.0	10.0	5.0
Costs	What percentage of total pension assets is held in various types of pension funds? What percentage of total pension assets is held by the largest ten pension funds/ providers?	10%	7.8	5.7	6.9	5.8	4.6	5.5	6.7	8.8	7.4	4.1	5.4	9.8	8.5	5.5	6.2	8.6	8.2	10.0	8.0	7.3	7.4	10.0	7.6	8.8	5.6	6.1	3.7
	Integrity sub-index	25%	40.9	86.1	76.7	70.7	74.5	79.6	46.0	81.4	91.5	55.8	73.1	53.4	67.3	77.3	74.4	60.9	48.1	78.3	40.7	87.7	67.3	76.1	77.3	80.3	83.5	83.2	59.9

Melbourne Mercer Global Pension Index

The Melbourne Mercer Global Pension Index is published by the Australian Centre for Financial Studies (ACFS), in collaboration with Mercer and the State Government of Victoria who provides most of the funding. Financial support has also been provided by The Finnish Centre for Pensions, Agenda Austria, Irish Association of Pension Funds, Irish Association of Investment Managers, Irish Brokers Association and Publicpolicy (Ireland).

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Availability:
The Melbourne Mercer Global Pension Index is available on the internet:
www.globalpensionindex.com
www.mercer.com/globalpensionindex

Citation:
Mercer (2016), *Melbourne Mercer Global Pension Index*, Australian Centre for Financial Studies, Melbourne

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