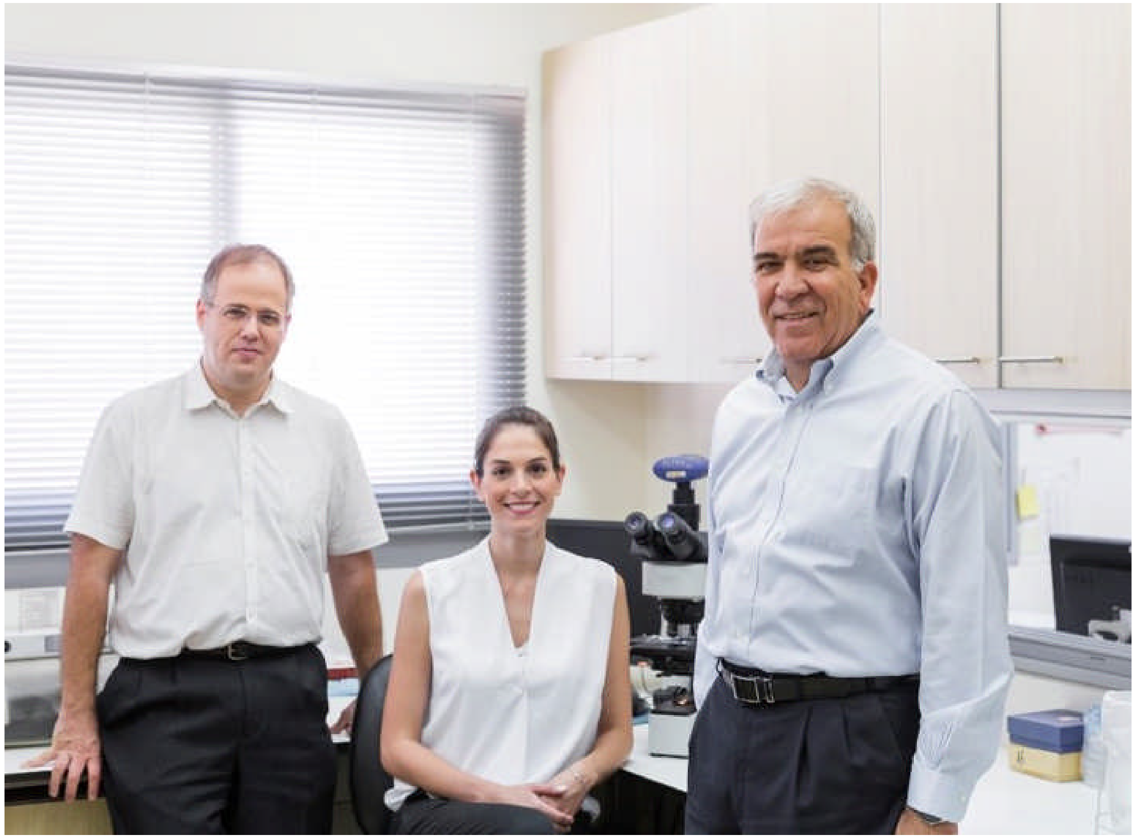
June 2016

PwC Golden Age Index

How well are OECD economies harnessing the power of an older workforce?



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Contents

PwC Golden Age Index

Harnessing the power of an older workforce – a potential $2.6 trillion prize

Between 2015 and 2030, the number of people aged 55 and above in high-income countries will grow by a quarter to around 500 million. It is good news that we are living longer, but rapid population ageing is also putting significant financial pressure on healthcare and pension systems.

To offset these higher costs, we think older workers should be encouraged and enabled to remain in the workforce for longer. This would increase GDP, consumer spending power and tax revenues.

We have developed our Golden Age index to quantify how far different economies are harnessing the power of their older workers. The index captures a broad range of indicators relating to the participation of older people in employment and training. We first published this index last year, and have now added estimates of how much each OECD economy could gain from raising employment rates for those aged over 55 to the levels of the top performers.

Specifically, across the OECD as a whole, we estimate that the potential long-term GDP gain from raising employment rates for the over 55s to Swedish levels could be around $2.6 trillion. In my home country of the UK, the potential gains could be over 5% of GDP, or around £105 billion a year.

We also consider in more detail in this year's report how governments and businesses can take action to achieve these gains. **We present a range of good practice examples at both country and company level.**

For governments, the priorities include reforming pension systems and providing other financial incentives to encourage later retirement. Measures to combat age discrimination and support lifetime learning are also important. Our analysis suggests that policies to support older workers should not crowd out younger workers.

For employers, flexible working and partial retirement options can pay dividends, as can redesign of factories and offices to meet the needs of older workers.

Reverse mentoring schemes on digital skills and extending apprenticeships to older workers also feature in the strategies of leading companies we have reviewed.

I hope you find our analysis useful as a contribution to this important area of debate. Please do come back to us if you would like a more in-depth discussion of how we can help you to harness the power of older workers in your own organisation.

John Hawksworth
Chief Economist, PwC

1 Executive summary

Executive summary

Our Golden Age Index measures how well countries are harnessing the power of their older workers. The index is a weighted average of seven indicators that reflect the labour market impact of workers aged over 55 in 34 OECD countries, including employment, earnings and training.

Country rankings and key trends

- **The Nordic countries perform strongly on our Golden Age Index**, with Iceland coming in top again this year and Sweden and Norway at 3rd and 6th place respectively. Denmark (12th) and Finland (14th) don't perform quite as well as their geographic peers, but still make it into the top half. These results are similar to those observed in our Women in Work Index.
- **Israel, Germany and New Zealand have shown the most significant improvement from 2003 to 2014**, primarily driven by an increased employment rate for older workers, especially those over 65. Greece and Turkey have fallen back most due to lower employment rates.

UK performance

- **The UK has fallen 1 place in the rankings since 2003**, from 17th place to 18th place in 2014. Relative to last year, the UK has moved up one slot in the rankings, from 19th in 2013.
- **When compared to other EU countries in our sample, however, the UK performs relatively well.** The UK ranks 6th out of 21 EU countries in 2014, which is up from 7th in 2013. This reflects stronger employment growth in the UK than most other EU countries in recent years, including older workers.

Policy implications

- To support older workers remaining in the workforce, **governments should introduce policy measures to encourage or facilitate later retirement or flexible retirement** (as is the case in Germany, for example).
- Desirable policies could include **pension reform and financial incentives to encourage working beyond official retirement ages**, which has been a feature of Swedish policy.
- Governments could also work with employers on schemes to **provide training throughout people's working lives**. They should also tighten regulation around labour market discrimination against older workers (e.g. in recruitment).

Business implications

- **Businesses should look to adopt flexible working policies** such as 'phased retirement' (as companies like Nationwide and M&S have done). They should also expand training programmes to encourage and support older workers (e.g. reverse mentoring for digital skills as in Cisco and PwC).
- They should also take steps to **increase age diversity**, for example through opening up apprenticeship schemes to older workers as companies like British Gas have done, or redesign factories for older workers like BMW.

Potential long-term GDP boost

- **The OECD could add around $2.6 trillion to it's total GDP** if economies could increase their full-time equivalent employment rates among people aged over 55 to levels in Sweden, which is the best performing EU country in the index*.
- **Greece could experience an approximate 19% long-term increase in GDP** by increasing employment rates to Swedish levels Other countries lagging behind in the index could also experience large gains, such as around 15% in Belgium and 13% in France.
- Potential GDP gains would be lower, but still significant, in countries such as Germany (6.8% of GDP) and the US (2.9% of GDP).
- If the UK's employment rates for workers aged over 55 were increased to Swedish levels, **UK GDP could be around 5.8% higher**, equivalent to around **£105 billion** at 2014 GDP values.
- Interestingly we find evidence that **increasing employment rates for older workers is also associated with stronger youth employment rates**. At the macroeconomic level, older workers do not crowd out younger workers.

*Iceland and New Zealand rank above Sweden in our index but are relatively small island economies that seem to be less relevant benchmarks for other OECD countries than Sweden. We focus on employment rates as the most important index variables and the ones most readily linked to GDP.

2 Key results

About the PwC Golden Age Index

Labour market indicators

The PwC Golden Age Index combines a broad range of labour market indicators as listed below with relative weights shown in brackets. Employment rates have the highest weights but other variables are included to present a more holistic picture:

- Employment rate 55-64 (40%)
- Employment rate 65-69 (20%)
- Gender gap in employment, 55-64: ratio women/men (10%)
- Incidence of part-time work 55-64 (10%)
- Full time earnings 55-64 relative to 25-54 (10%)
- Average effective exit age from the labour force (5%)
- Participation in training: ratio 55-64 to 25-54 (5%)

Process

These indicators are normalised, weighted and aggregated to generate index scores for each country.

The index scores are on a scale from 0 to 100, with the average OECD value in the base year of 2003 set to 50. However, the average index values for 2007, 2013 and 2014 can be higher or lower than this 2003 baseline.

We can therefore compare how each country's performance has evolved over time in absolute terms, as well as the relative performance of countries in a particular year.

See Annex for more details of the methodology.

Data

All data are taken from the OECD.

We focus mostly on the 55-64 age group for data reasons. We do, however, include total employment rates for 65-69 year olds in the index and look at all workers over 55 in calculating potential boosts to GDP from higher employment rates for older workers.

The latest data available across the broad range of countries covered are for 2014, so this is the final year covered by the index*.

*Data are available for 2015 for some countries and variables, but not yet enough to calculate index values across the OECD for that year in a reliable and comprehensive way.

PwC Golden Age Index: Iceland, New Zealand and Sweden lead the way

Iceland continues to occupy 1st place

UK has remained middling in the rankings since 2003 and was in 18th in 2014, despite some rise in its absolute index score over time

Greece continues to fall in the rankings, by another 2 places between 2013 and 2014

Sources: PwC analysis, OECD

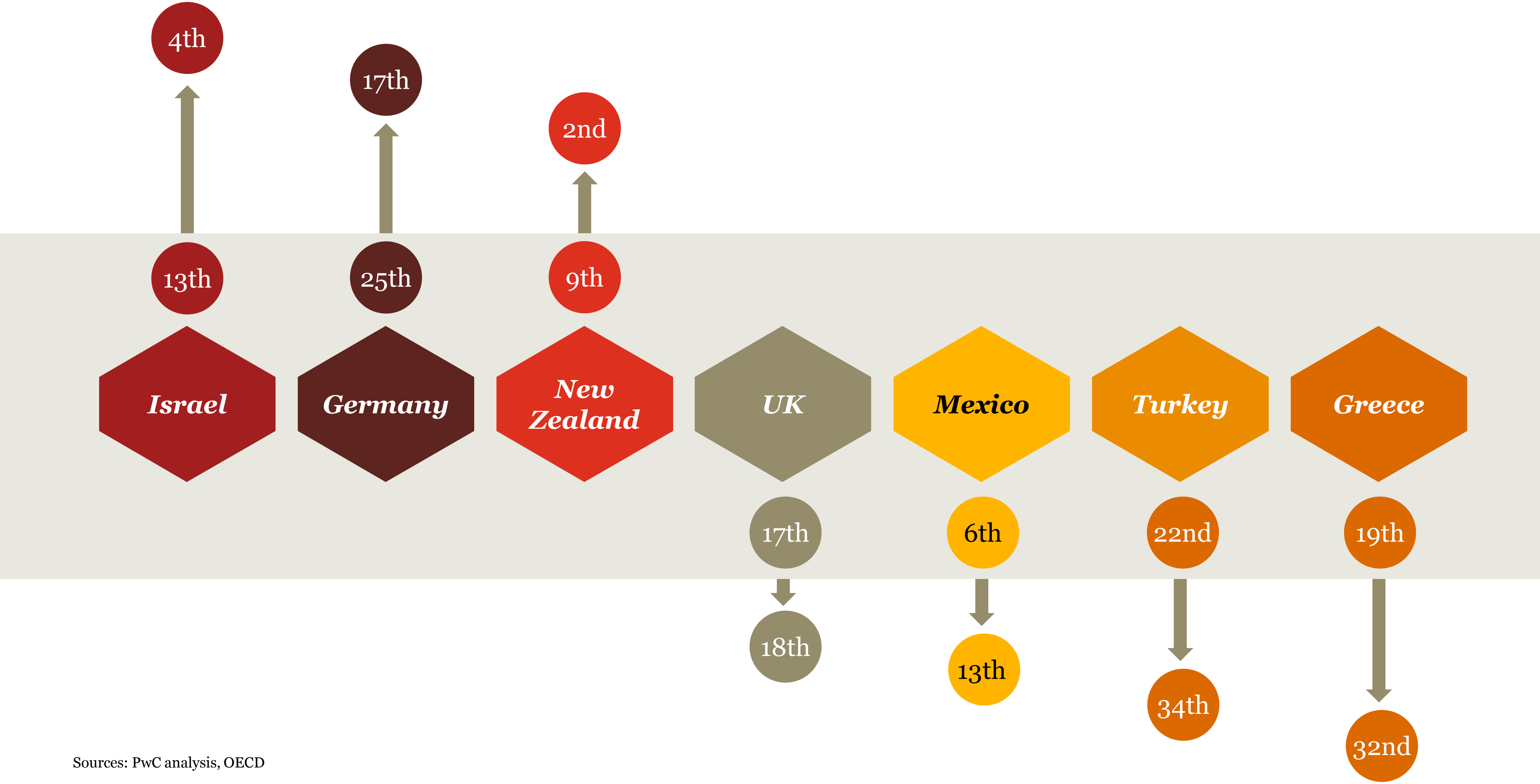
Rank				Country	Index			
2003	2007	2013	2014		2003	2007	2013	2014
1	1	1	1	Iceland	92.5	92.5	93.0	96.5
9	3	2	2	New Zealand	60.8	71.7	80.7	82.2
4	5	5	3	Sweden	68.3	70.9	76.6	78.2
13	11	3	4	Israel	58.1	65.9	77.4	78.1
8	2	4	5	Estonia	63.1	77.1	76.8	76.4
3	8	8	6	Norway	68.4	69.1	73.7	76.1
2	4	6	7	United States	68.6	71.4	74.5	74.7
14	12	7	8	Chile	57.2	65.8	73.8	74.1
7	7	9	9	Korea	64.0	69.7	72.2	72.3
5	6	10	10	Japan	66.7	70.4	71.4	70.6
10	13	11	11	Switzerland	60.6	62.7	67.3	67.8
11	14	14	12	Denmark	59.6	59.5	63.8	64.6
6	10	12	13	Mexico	64.4	66.0	65.2	64.4
16	15	16	14	Finland	51.2	58.5	63.0	64.1
15	16	13	15	Canada	53.4	58.3	64.7	63.7
20	17	15	16	Australia	45.6	54.8	63.3	62.8
25	20	18	17	Germany	37.0	47.8	60.3	62.4
17	**19**	**19**	**18**	**United Kingdom**	**48.0**	**51.4**	**57.5**	**58.2**
12	9	17	19	Portugal	59.2	67.8	60.9	55.3
21	22	21	20	Czech Republic	43.5	46.5	52.7	54.4
27	26	20	21	Netherlands	33.5	40.9	52.9	53.7
23	23	22	22	France	42.8	45.5	51.1	52.4
18	18	25	23	Ireland	47.5	54.6	49.1	51.9
30	25	23	24	Austria	32.5	41.6	49.8	51.2
24	21	24	25	Spain	42.6	46.8	49.2	49.9
29	27	27	26	Hungary	32.6	38.0	44.3	46.9
28	29	28	27	Italy	33.1	37.0	44.2	46.9
32	31	26	28	Slovak Republic	29.9	36.4	45.3	46.5
34	30	29	29	Belgium	29.0	36.9	44.2	45.3
26	34	31	30	Poland	36.8	33.3	42.6	44.6
31	32	32	31	Luxembourg	30.2	35.7	39.8	43.1
19	24	30	32	Greece	46.2	45.4	43.0	42.0
33	28	33	33	Slovenia	29.7	37.5	38.4	41.9
22	33	34	34	Turkey	43.5	34.4	37.1	37.8
				OECD Average	**50.0**	**54.8**	**59.4**	**60.3**

The Nordic countries perform strongly, with Iceland, Sweden and Norway all ranking in the top 10

The US still has the highest ranking of the G7, but has fallen from 2nd to 7th place since 2003 as others have improved faster

Italy and France have made little improvement in their rankings from 2003 to 2014, while Spain fell by 1 place

Israel, Germany and New Zealand have been the biggest risers in the rankings between 2003 and 2014, while Greece, Turkey and Mexico have seen the largest falls. The UK has seen little change



Sources: PwC analysis, OECD

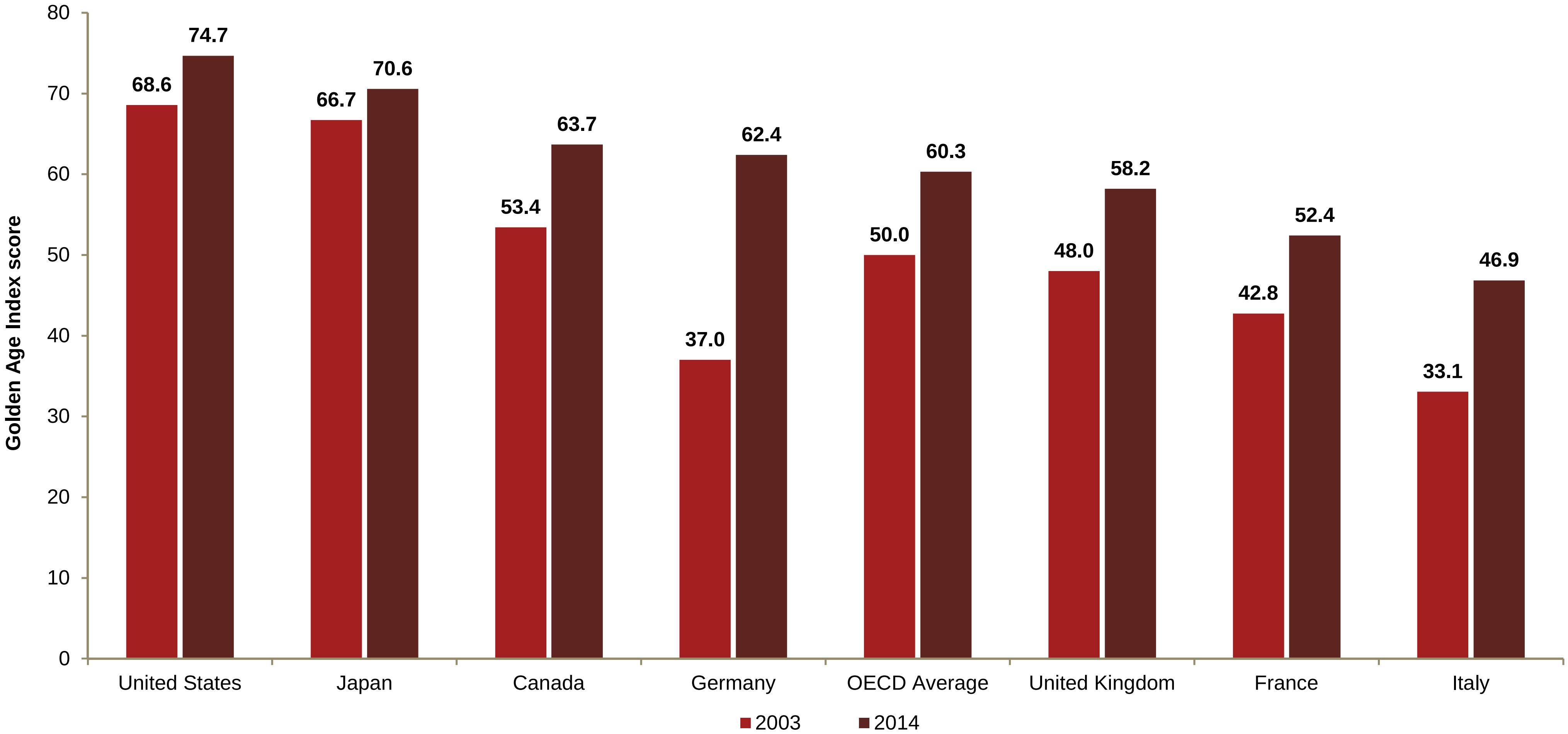
Looking at the top 10 performers in 2014, Israel and New Zealand have made the most progress in moving up the rankings between 2003 and 2014, while the US and Japan have drifted down the list

2014 Rank	Country	Change from 2003	Change from 2013
1	Iceland	=	=
2	New Zealand	↑ 7	=
3	Sweden	↑ 1	↑ 2
4	Israel	↑ 9	↓ 1
5	Estonia	↑ 3	↓ 1
6	Norway	↓ 3	↑ 2
7	United States	↓ 5	↓ 1
8	Chile	↑ 6	↓ 1
9	Korea	↓ 2	=
10	Japan	↓ 5	=

Note: The 2013 index rankings refer to those calculated in this edition of the report using updated data from the OECD, and may have changed relative to the 2013 rankings published in June 2015.
Sources: PwC analysis, OECD

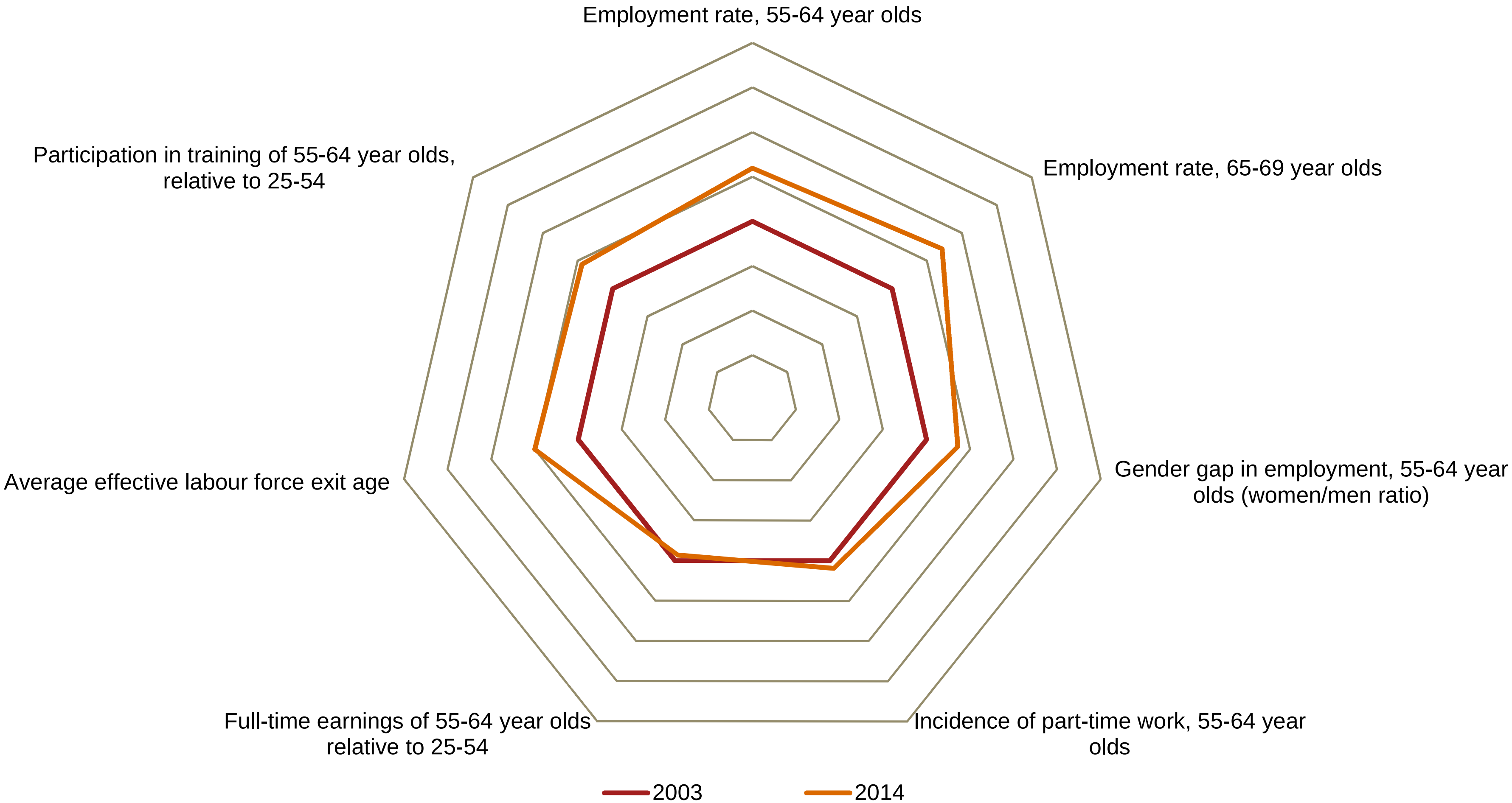
All G7 countries have seen a gradual rise in absolute index scores since 2003, as has the OECD average

Germany has seen the most improvement, rising from below the OECD average in 2003 to slightly above it by 2014.



Sources: PwC analysis, OECD

Between 2003 and 2014, there has been an improvement in the OECD average for most indicators (as indicated by outward movements in the diagram below)



Note: Outward movement from the centre conveys an increase in the score of the relevant variable.

Sources: PwC analysis, OECD

3

Potential long-term boost to GDP from increased employment rates for older workers

Potential long-run boost to GDP from increasing employment rates of those aged 55 and over to match Sweden

The OECD could add around $2.6 trillion to total GDP if countries with a lower full-time equivalent employment rate* among their older workers increased their rates to Swedish levels

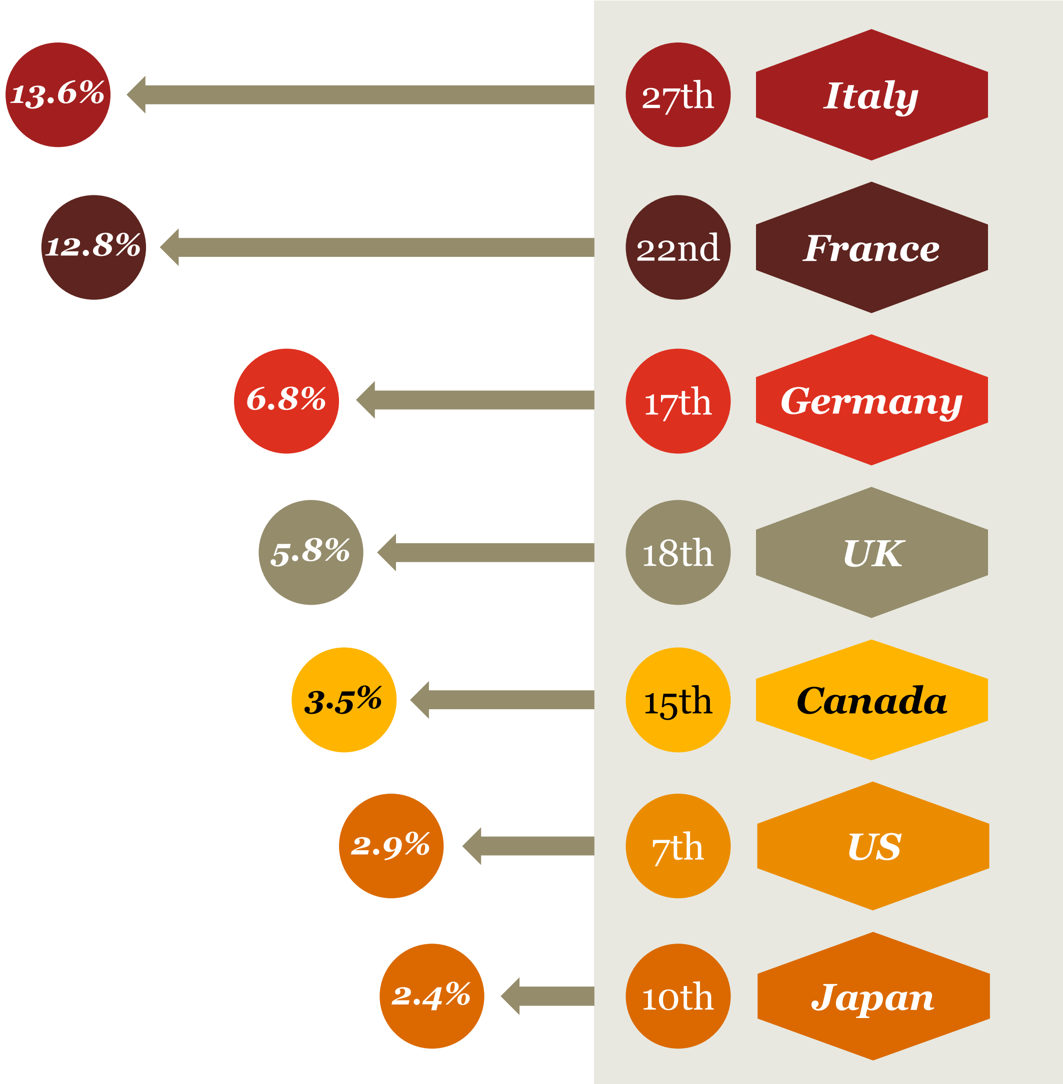
- Our analysis provides an estimate of the broad order of magnitude of potential gains from increasing employment rates to match those of Sweden – the top ranking EU economy in our index**.
- The potential GDP boost from increasing the employment rates of 55-64 year olds and people aged 65+ varies significantly across countries, from around 1% in Norway to around 19% in Greece.
- Within the G7, the overall gain could be c.$1.8 trillion, with Italy and France having the potential for long-run increases in GDP of over 10%.

Those who scored lower on the Golden Age Index have the most to gain in the long-run from increasing their employment rates for those aged 55+

- Greece, who came in at 32nd place, could experience the largest increase in GDP of around 19%.
- For top scorers the gains are lower as their employment rates are likely to be quite close to Swedish levels already.

The UK could achieve an increase in GDP of around 5.8%

- The UK has increased its employment rate among 55-64 year olds broadly in line with Sweden since 2003, but the gap between the two economies remains similar. For people aged 65+, the employment rates are closer together, though there is still room for improvement.
- By increasing its 55+ employment rates to Swedish levels, the UK could increase its GDP by around £105 billion (at 2014 values).

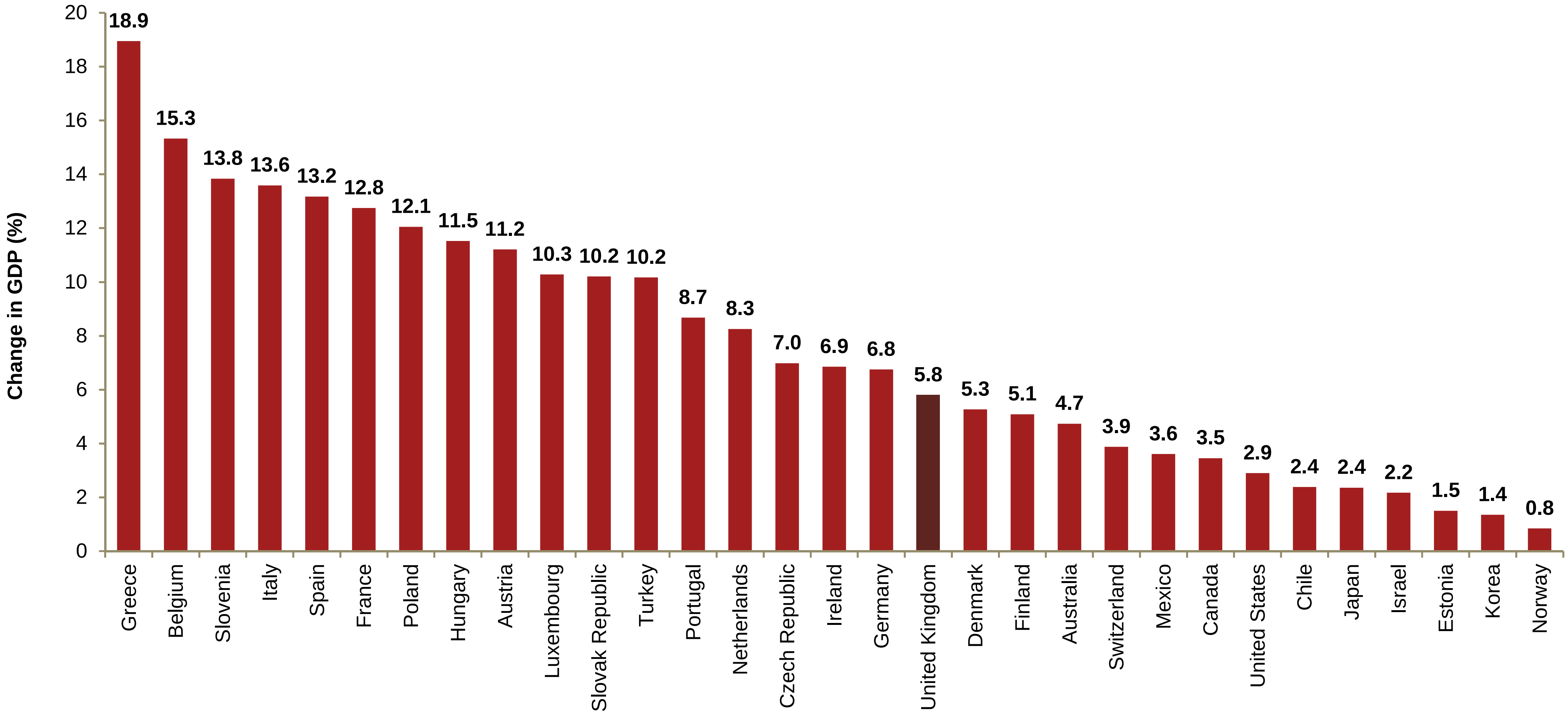


* We focus on employment rates as they are the most important indicators in our index (70% weight including part-time/full-time split) and the ones most readily related to GDP.

**Iceland and New Zealand rank higher than Sweden in our index, but are considered less relevant benchmarks as they are relatively small island economies.

Countries scoring lower on our Golden Age Index have the most to gain from increasing their employment rates to Swedish levels

The UK could potentially boost its GDP by around 5.8% by increasing the employment rates of people aged over 55 to Swedish levels, with other estimated long-run gains ranging from around 1-19% of GDP.

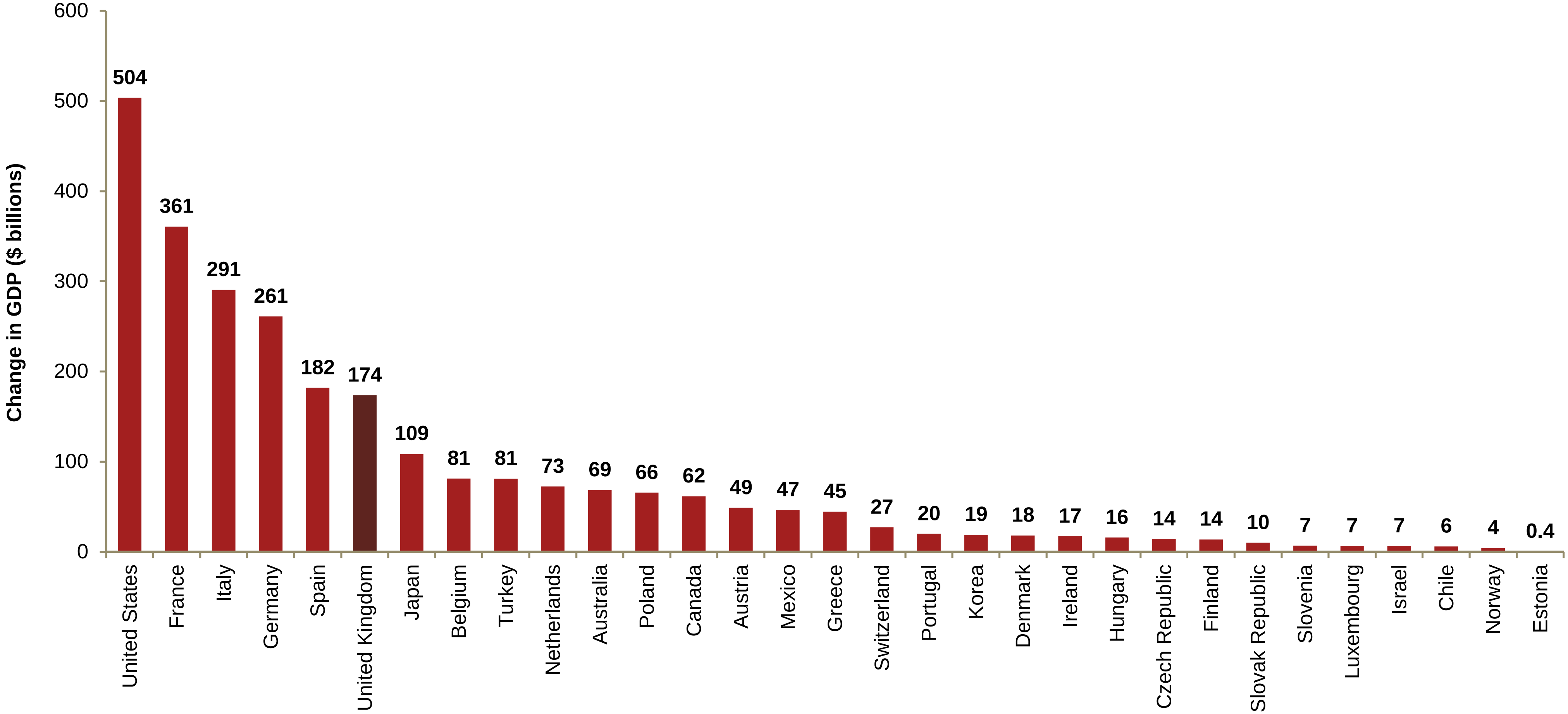


Note: If a country has a higher full-time equivalent employment rate than Sweden, for either age group (i.e. 55-64 or 65+), we did not assume any change to the employment rates currently experienced in that country.

Sources: PwC analysis, OECD

The total gain across the OECD could be around $2.6 trillion, but varies significantly across countries. Given its size, the US has the largest potential absolute gain of around $0.5 trillion

The UK could add around $174 billion (£105 billion) to GDP by increasing the employment rates of workers aged 55+ to Swedish levels in the long run.



Note: If a country has a higher full-time equivalent employment rate than Sweden, for either age group (i.e. 55-64 or 65+), we did not assume any change to the employment rates currently experienced in that country.

Sources: PwC analysis, OECD

In most cases, the biggest potential impact on GDP comes via the 55-64 year old age group

Country	Full-time equivalent employment rate		Change in GDP ($ billions)			Total % change in GDP
	55-64	65+	55-64	65+	Total	
Greece	33%	2%	31	14	45	18.9%
Belgium	36%	2%	56	25	81	15.3%
Slovenia	33%	5%	6	1	7	13.8%
Italy	43%	3%	184	106	291	13.6%
Spain	42%	1%	114	68	182	13.2%
France	42%	2%	236	124	361	12.8%
Poland	40%	4%	51	15	66	12.1%
Hungary	40%	2%	13	3	16	11.5%
Austria	39%	3%	35	14	49	11.2%
Luxembourg	37%	3%	5	2	7	10.3%
Slovak Republic	43%	2%	7	3	10	10.2%
Turkey	28%	9%	78	3	81	10.2%
Portugal	43%	8%	17	3	20	8.7%
Netherlands	49%	4%	48	25	73	8.3%
Czech Republic	52%	4%	9	6	14	7.0%
Ireland	46%	8%	14	3	17	6.9%
Germany	56%	4%	125	136	261	6.8%
United Kingdom	**51%**	**7%**	**122**	**52**	**174**	**5.8%**
Denmark	57%	5%	9	9	18	5.3%
Finland	54%	7%	11	3	14	5.1%
Australia	52%	9%	57	12	69	4.7%
Switzerland	57%	7%	17	11	27	3.9%
Mexico	48%	22%	47	0	47	3.6%
Canada	55%	10%	57	4	62	3.5%
United States	56%	14%	504	0	504	2.9%
Chile	58%	18%	6	0	6	2.4%
Japan	58%	15%	109	0	109	2.4%
Israel	57%	14%	7	0	7	2.2%
Estonia	61%	16%	0.4	0	0.4	1.5%
Korea	61%	25%	19	0	19	1.4%
Norway	63%	14%	4	0	4	0.8%

Note: If a country has a higher full-time equivalent employment rate than Sweden, for either age group (i.e. 55-64 or 65+), we did not assume any change to the employment rates currently experienced in that country.
Sources: PwC analysis, OECD

4

Implications for public policy and businesses

We have identified three key labour market themes that commonly feature in countries that perform strongly on our Golden Age Index

Encouraging later retirement

This could be achieved through pension reform or by creating other financial incentives that encourage workers to continue working past the official retirement age.

Improving employability

Policymakers could focus on promoting lifelong education and training, which could upskill older workers and thus potentially reduce unemployment of older workers.

Reducing employment barriers for older workers

Public policy could place an emphasis on tightening regulation around labour market discrimination against older workers.

In the next few slides, we set out some of the policy measures adopted in selected economies to support older workers.

The top 3 performing countries in the index have a common focus on facilitating later and flexible retirement

Iceland

Index rank: 1

- Early retirement is discouraged in Iceland by a three-pillar pension system consisting of: basic benefits, a fully funded compulsory occupational pension system and voluntary individual accounts with tax advantages. Furthermore, people tend to continue working part-time, even above the age of 70 and after taking their pensions.
- Iceland has historically placed a strong emphasis on lifelong learning. The 2003 pensions reform aimed to encourage access to training for workers aged over 50 who were entitled to their 'individual training entitlement'.
- Iceland also established several centres for in-service training, such as the 'Education and Training Service Centre' in 2003. This has helped Iceland to maintain its position at the top of the rankings.

Sources: European Agency for Safety and Health at Work (2016), Journal of Social Service Research (2016)

New Zealand

Index rank: 2

- New Zealand has significantly higher labour force participation rates among older workers relative to other countries such as the US or Australia.
- Some of the key drivers behind this include: the increase in the age of eligibility for New Zealand Superannuation (NZS, payments for people aged 65 and over) from 60 to 65 between 1992 and 2001, no compulsory retirement age, anti-age discrimination legislation, and the removal of the surcharge on additional income earned by those claiming NZS.
- New Zealand has also adopted a holistic and community-focused approach to labour market policy for older workers. For example, the government has invested in EANP (Elder Abuse and Neglect Prevention) services, which supports older workers from a mental, physical and financial perspective.

Sources: University of Auckland Retirement and Policy Research Centre (2015), New Zealand Parliament (2011)

Sweden

Index rank: 3

- The Swedish Government has showed its intention to encourage a later effective retirement age through pension reform measures as far back as 1991, which allowed flexible retirement. This was reinforced with an in-work tax credit in 2007 that was larger for those aged over 65.
- More recently, public policy has focused on influencing employer incentives. Payroll taxes for older workers were abolished in 2007/2008 to raise the demand for older workers. In addition, employers were made exempt from paying social security contributions for employees older than 65.
- The Government has also passed legislation to protect older workers against labour market discrimination. For example, the Employment Protection Act, was updated in 2007.

Sources: Aging Well in Work (2016), Eurofound (2013), OECD (2012)

Other countries have adopted a holistic approach to public policy and introduced anti-discrimination legislation

Norway

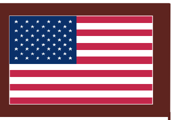
Index rank: 6

- A high priority for Norway in developing the potential of its older workers is to strengthen financial incentives to continue working.
- In particular, Norway has devised public policy to strengthen the link between contributions and pension entitlement. The Government has introduced a mandatory occupational pension in the private sector to supplement the state pension.
- Before the 2011 pension reforms, workers tended to leave the labour market via alternative pathways before the age of 67, which led to minor losses in old age pension benefits. The new reforms abolished the statutory retirement age of 67 and introduced flexibility by allowing workers to draw old age pensions between the age of 62 and 75. This pension benefit is also actuarially calculated and adjusts for life expectancy.

Sources: OECD (2012)

US

Index rank: 7

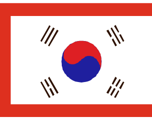


- There has been an increasing trend in the full retirement age for social security, which has encouraged later retirement. Workers can still receive retirement benefits earlier but their benefits will be reduced.
- This has been reinforced by changes in employer-provided pension schemes, which have seen a shift from defined-benefit to defined-contribution plans.
- Contrary to other countries, the disincentive to continue working in the U.S. is not particularly strong. This is demonstrated by a recent PEW survey, which states that 1 in 5 people are expected to continue working after retirement and over 50% anticipate working in a different job.
- Poor health has been identified as a key factor in the decision around when to retire. This has informed an increase in government expenditure on Medicare.

Sources: PEW Charitable Trusts (2015), OECD (2012), National Institute on Aging (2011)

Korea

Index rank: 9



- In Korea, the incentive to retire early is not as strong as in European countries. Therefore, public policy is generally framed around job security, which is a key factor in the decision to retire. For instance, there has been an emphasis on the extension and deregulation of the mandatory retirement age and deregulation of employment contracts.
- In 1991, the Korean Government introduced the Aged Employment Promotion Act. This led to a range of measures such as wage subsidies for older workers, voluntary quota system for larger firms and training programmes for older people.
- Age discrimination law on employment was updated in 2010, where policy was extended to other areas such as income, education, training and career progression to combat Korea's rigid seniority pay system.

Sources: Korea Development Institute (2010), Centre for Strategic and International Studies (2007)

Labour market policy for older workers in some countries aim to promote flexibility around the legal retirement age

Japan

Index rank: 10

- The existence of mandatory retirement policies in Japan has meant that the Japanese Government has placed more emphasis on incentivising employers to employ older workers through subsidy programmes, introducing the 'Subsidy to Promote Older Persons' Business and Self-Employment Opportunities' in 2004.
- The progressive increase in the minimum age for entitlement to public pension from 60 to 65 between 2001 and 2018, in particular, is expected to have a large positive impact on work incentives for those aged 60-64.
- There has been a reduction in the maximum duration of benefits under the unemployment benefit scheme for older people who don't work. This has reduced the risk of the benefit system becoming a pathway to early retirement.

Sources: OECD (2012), Centre for Retirement Research (2007)

Germany

Index rank: 17

- Germany has attempted to address 'pro-early-retirement-consciousness', evidenced by the upwards trend in the legal retirement age for all workers as well as the legal retirement age for specific types of old-age income. Those who retire early face a reduction in pension benefit for each given year of early retirement.
- Furthermore, a part-time retirement law was introduced in 1996 whereby older workers could work less without a significant reduction in income.
- Recent policy measures have included vocational training for unemployed older people and granting employers exemption from unemployment insurance contributions when hiring older workers. On the other hand, there is still scope to progress the role of formal and informal adult education for older workers.

Sources: OECD (2012), University of Dortmund (2007)

UK

Index rank: 18

- In 2010, the government set out their intention to equalise the State Pension Age (SPA) for men and women.
- Policymakers have also used legislation, such as the Pension Act 2014, to propose increases in the SPA to 66 by 2020 and 67 by 2028.
- The default retirement age has also been abolished so that employers can no longer force workers to stop working once they have reached the age of 65.
- Specifically, other pension reform policies include changes in the way people save through occupational pensions in order to encourage them to save for retirement.

Sources: Office for National Statistics (2015), UK Department for Work & Pensions (2014), Resolution Foundation (2012)

Businesses have recently adopted flexible working policies in order to better leverage the skills of older workers

Below are several examples of employers across a range of industries that have taken measures to benefit from the experience of their older workers. Common employer policies to support older workers include: phased retirement, encouraging flexible working and promoting apprenticeships where older and younger staff can take responsibility for reverse mentoring.

Company	Relevance	Policy to support older workers
ASDA *Supermarket*	***21%*** *of workers are aged over 50 while 24% are under 25*	• In 2008, ASDA launched a **new flexible working programme** called the 'Seasonal Colleagues' scheme, which allowed workers with permanent contracts to work at peak times of the year. Therefore, ASDA was more able to effectively utilise workers with high skills and experience. This suited older workers, who were able to work flexibly but with the job security attached with a permanent contract. Furthermore, ASDA have promoted **part-time working, job sharing and weekender contracts,** as part of their flexible working policy.
National Express *Transport*	*Almost* ***1 in 3*** *of its 1,700-strong workforce are aged over 50*	• In 2015, National Express, the UK's largest coach operator, launched the 'Open Apprentice' scheme. This is an initiative that **promotes apprenticeships for older workers** and was introduced to support workers who face employment barriers due to age. • This commitment indicates their desire to reflect the diversity of the customer base in their workforce. Apprentices will also be offered training, for example, obtaining relevant licenses and qualifications.
McDonald's *Restaurant*	*Levels of customer satisfaction were* ***20%*** *higher for McDonald's restaurants that employ staff aged 60 and over (Lancaster University research)*	• Many of McDonald's older workers work alongside their family members. The 'Family and Friends Contract' is the first of its kind in the UK, which allows family members in the same restaurant to cover each other's shifts (with no notice required). • This **flexible working policy** has received positive feedback from older workers as this accommodates their lifestyle. For example, this allows them to spend time with grandchildren. The age diversity within the workforce has also had a positive impact on customer satisfaction.
British Gas *Energy*	***30%*** *of employees at British Gas were aged between 45 and 65*	• In 2014, British Gas **opened up their apprenticeships to older workers**, which resulted in a decrease in apprenticeship grant funding due to age eligibility of participants. • However, the impact of improved age diversity has been significantly positive. British Gas has been able to capitalise on the experience of older workers and this has also led to **reverse mentoring** between younger and older staff. This shows a real opposition to age bias and a commitment from the business to the education and training of their older workers.

Sources: Department for Work & Pensions (2013), National Express Group (2015)

A common policy among employers is phased retirement, which encourages older workers to continue working

Company	Relevance	Policy to support older workers
Cisco Systems *Technology*	*Over **43** Cisco Senior leaders have participated in the 'Social Media Reverse Mentoring Programme'*	• Cisco have introduced a variety of reverse mentoring programmes, such as the 'Social Media Reverse Mentoring' initiative (as also used in PwC for digital skills). These combine the expertise of older and younger staff via a contractual agreement in order to show their commitment to the mentoring relationship. • This has benefited the company through the enhancement of older executives' digital skills. In addition, this provides managerial staff with insight into the career aspirations of younger workers, which enables them to adapt their working culture to continue attracting 'Millennials' into their workforce.
BMW *Manufacturing*	*BMW's ratio of workers aged over 50 is expected to rise to **45%** by 2020*	• BMW have placed emphasis on good working conditions on the production line to ensure that physical demands of the job do not hold back older workers. • Following ergonomic changes in their largest manufacturing plant (Lower Bavaria), which were designed to support older workers and to help raise production levels, there were clear gains to the business. • Productivity increased by 7%, assembly line defect rates dropped to almost zero and team absence fell to 2%.
Marks & Spencer *Retail*	*The oldest employee recruited at Marks & Spencer was **aged 80***	• Marks & Spencer abolished its mandatory default retirement age of 65. This has helped the company to retain staff with a large amount of experience. • In 2006, employees were able to flexibly retire. Any workers contributing to their pension scheme were able to draw their pension from the age of 55 during their employment. In 2009/10, over 85% of total retired employees chose this flexible retirement option. • The company also accommodate their older workers by enabling them to work part-time and decrease hours as they approach retirement.
Nationwide *Financial Services*	*In 2011, nearly **14%** of employees were above the age of 50*	• Nationwide have a history of supporting their older workforce. As far back as 2005, they adopted an approach to phased retirement, where older workers were able to gradually decrease their working hours prior to retirement. This helped older workers to continue working until the age of 75. • Another flexible working policy included the decision to increase the retirement age. In addition, the workplace pension scheme also enables workers to draw their pension alongside their wages whilst in employment.

Sources: Department for Work & Pensions (2013), National Express Group (2015), Computer World (2014)

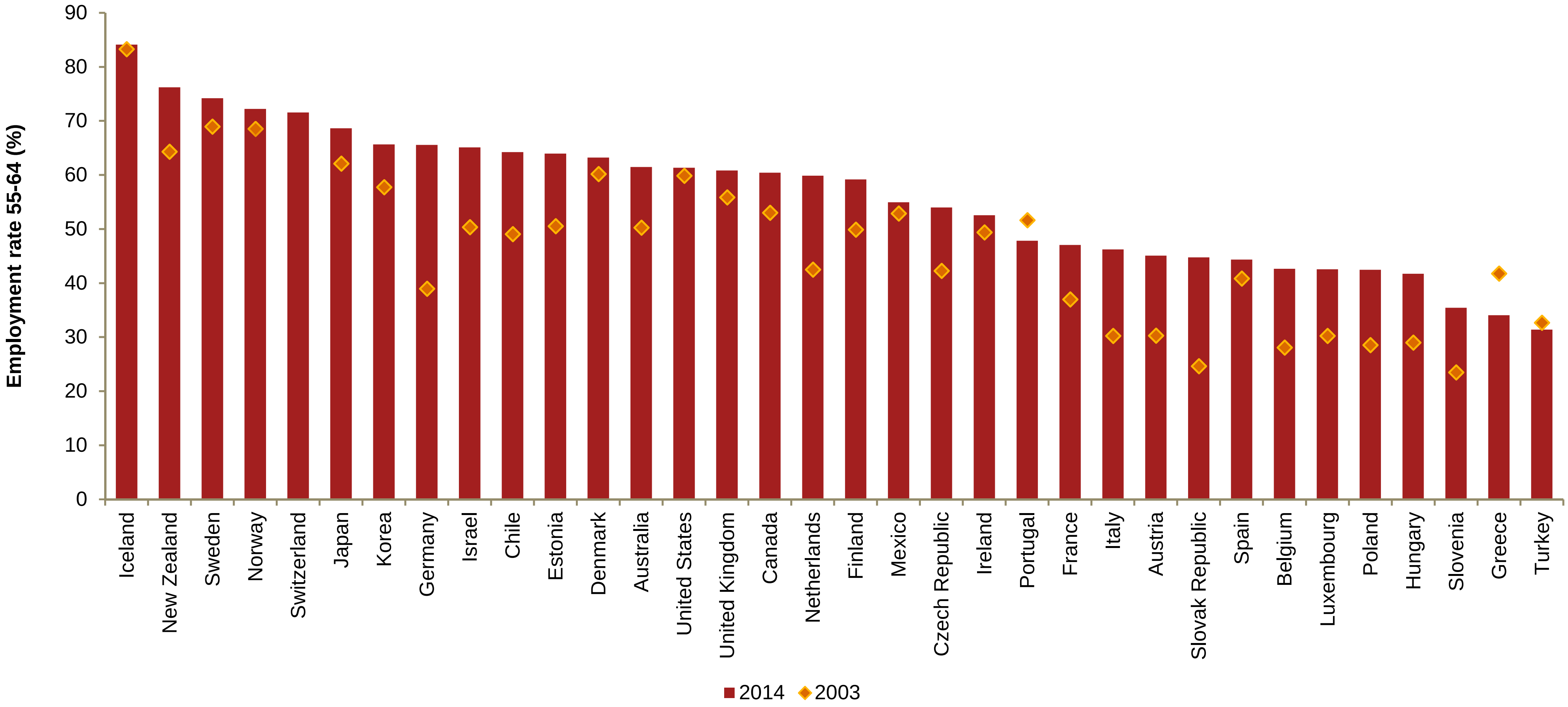
5 Comparison of individual labour market indicators

Our Golden Age Index is constructed using 7 key labour market measures

1. Employment of 55-64 year olds
2. Employment of 65-69 year olds
3. Gender gap in employment
4. Incidence of part-time work
5. Full-time earnings
6. Effective labour force exit rate
7. Participation in training

Employment rate of 55-64 year olds

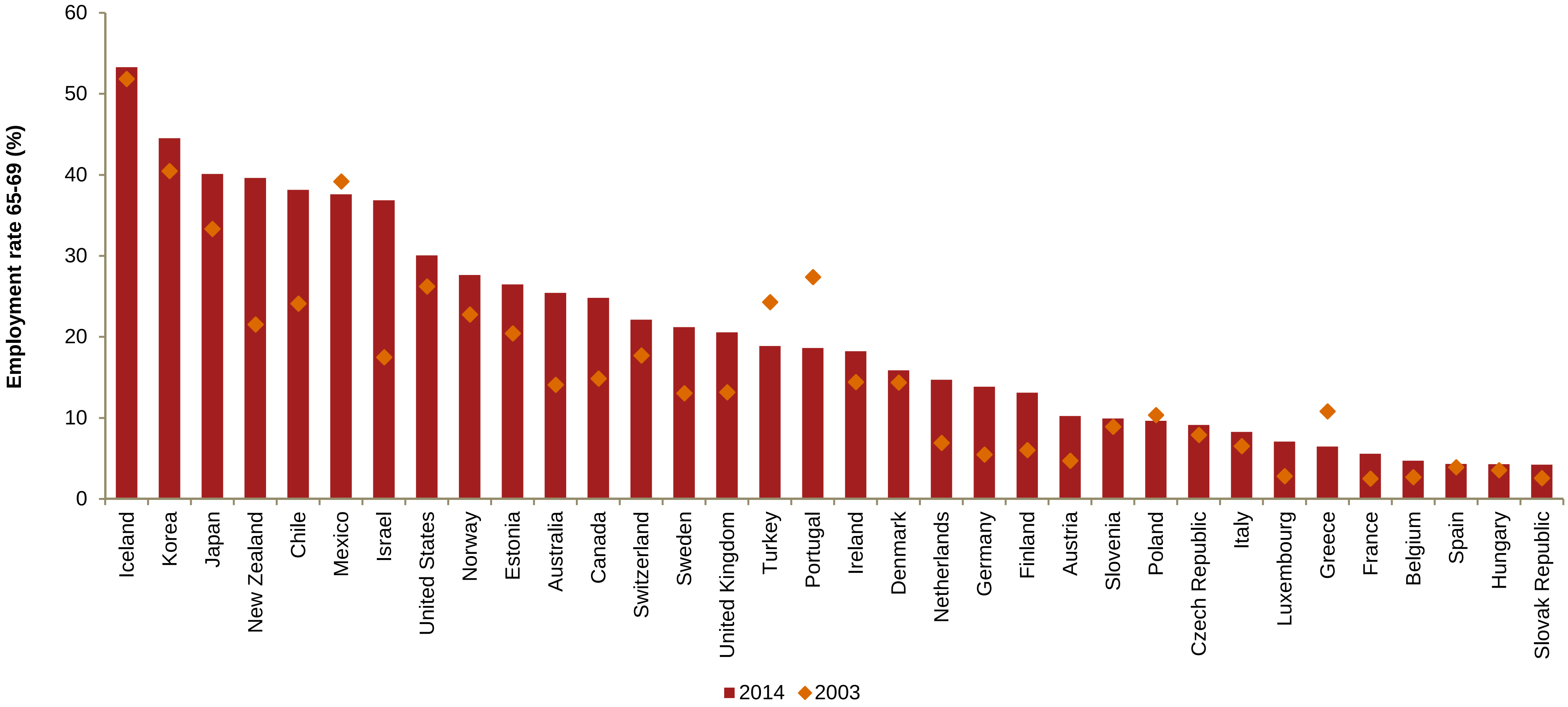
Iceland continues to lead the pack, with the other OECD countries gradually catching up. Germany has made a noticeable increase from 2003 to 2014 to become one of the strongest performers. The US and UK remain middling.



Source: OECD

Employment rate of 65-69 year olds

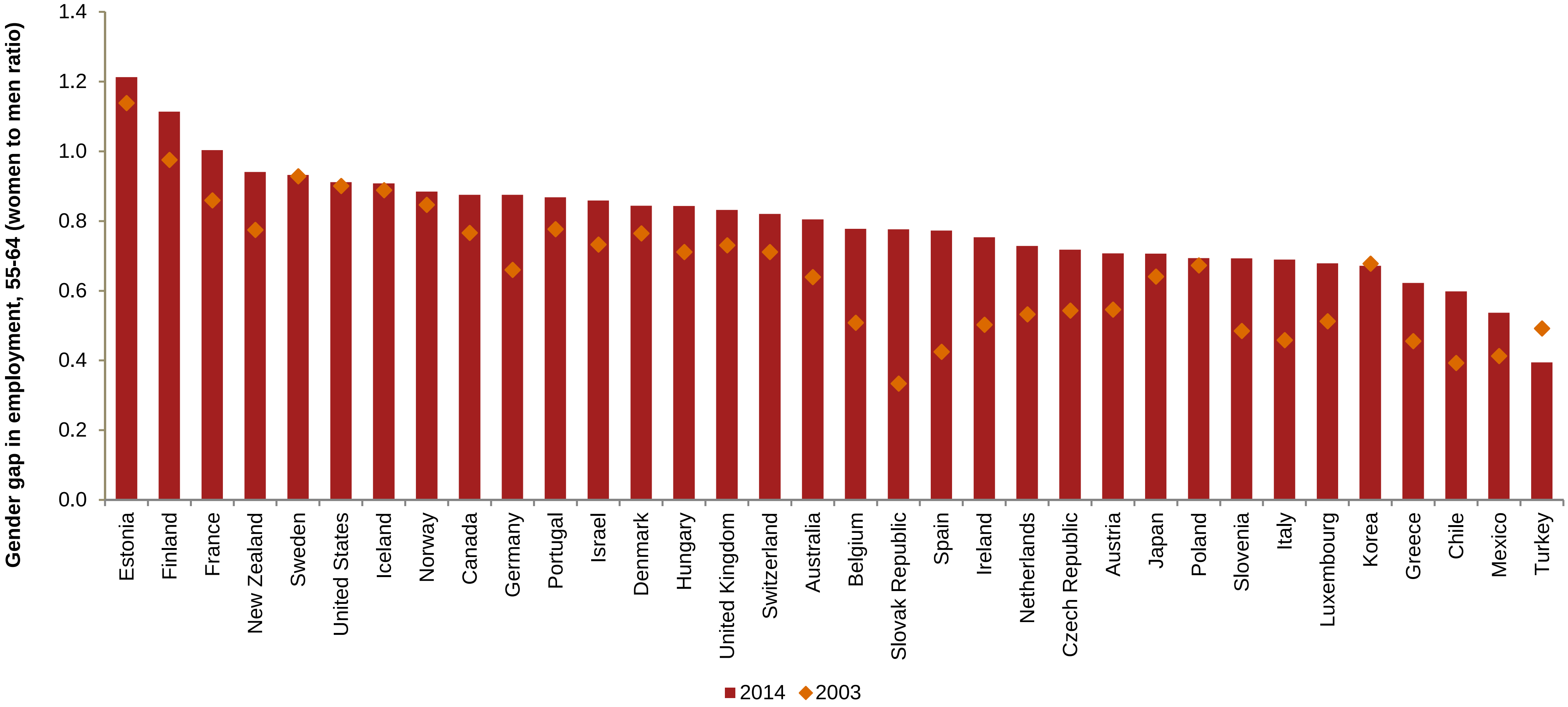
Iceland again has the highest rate, almost 10 percentage points higher than Korea. Thus employment rate has fallen in Mexico, Turkey, Portugal and Greece since 2003. The US ranks relatively highly, but the UK is only middling despite improvements over time.



Source: OECD

Gender gap in employment for 55-64 year olds

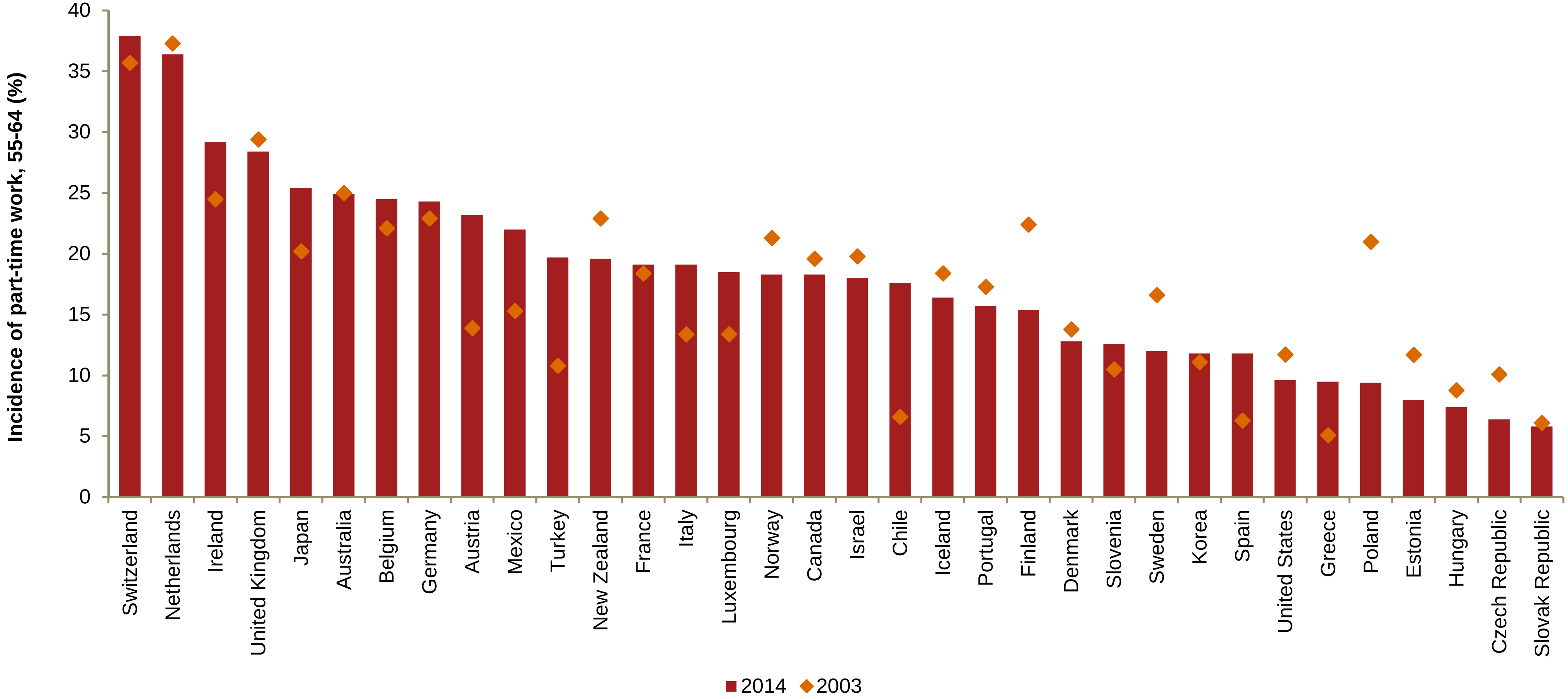
Ratios are relatively consistent across countries, but Estonia, Finland and France stand out due to their high ratio of women to men in employment. The US is an above average performer, but UK is only middling despite some rise since 2003.



Source: OECD

Incidence of part-time work for 55-64 year olds

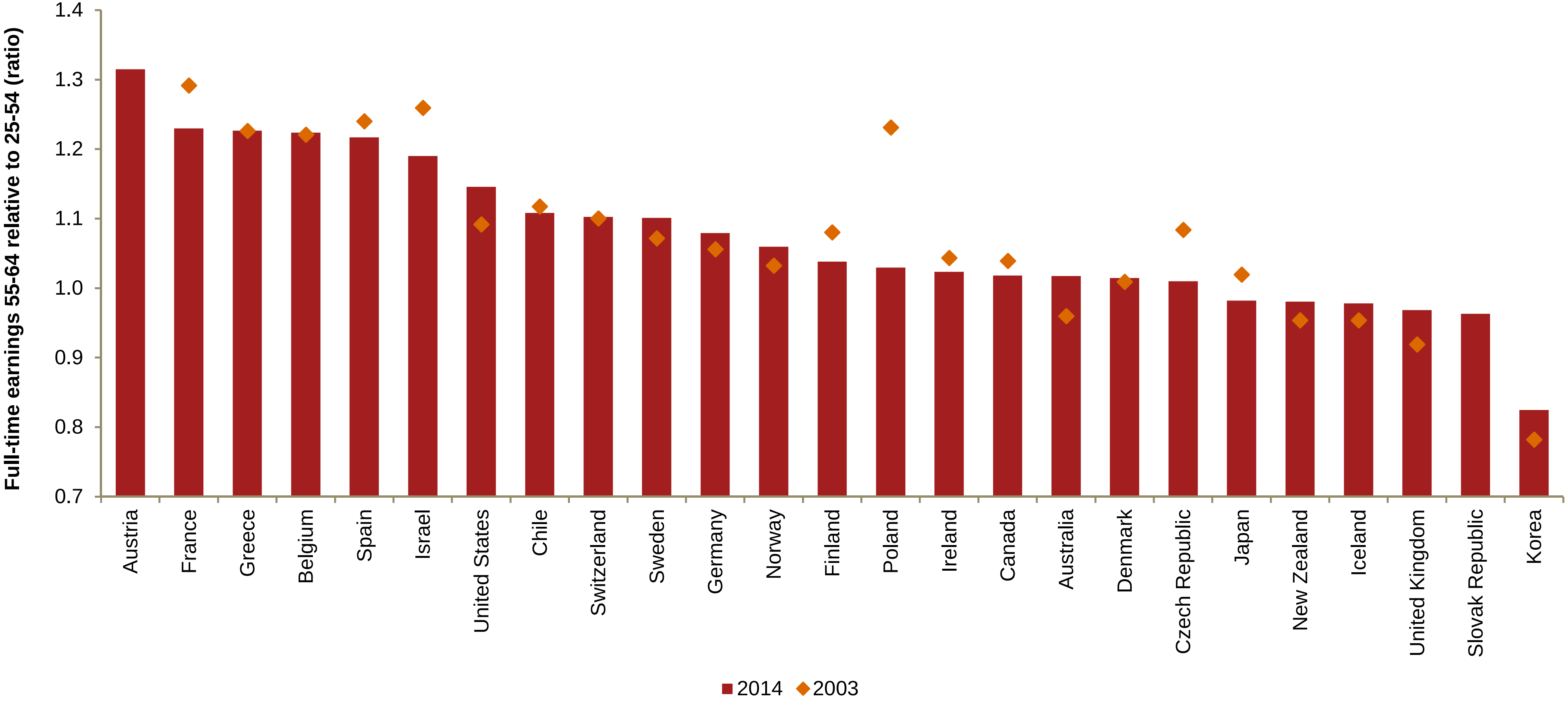
The incidence of part-time work does not appear to show either an upward or downward trend, but varies significantly between countries. The proportion of people in this age group working part-time is relatively high in the UK, but we recognise that this may suit some older workers.



Source: OECD

Full-time earnings of 55-64 year olds relative to 25-54 year olds

Many of the high performers, such as France, Spain and Israel, have seen earnings relative to 25-54 year olds fall since 2003. The UK performs relatively poorly on this measure, while Korea is significantly below the OECD average.

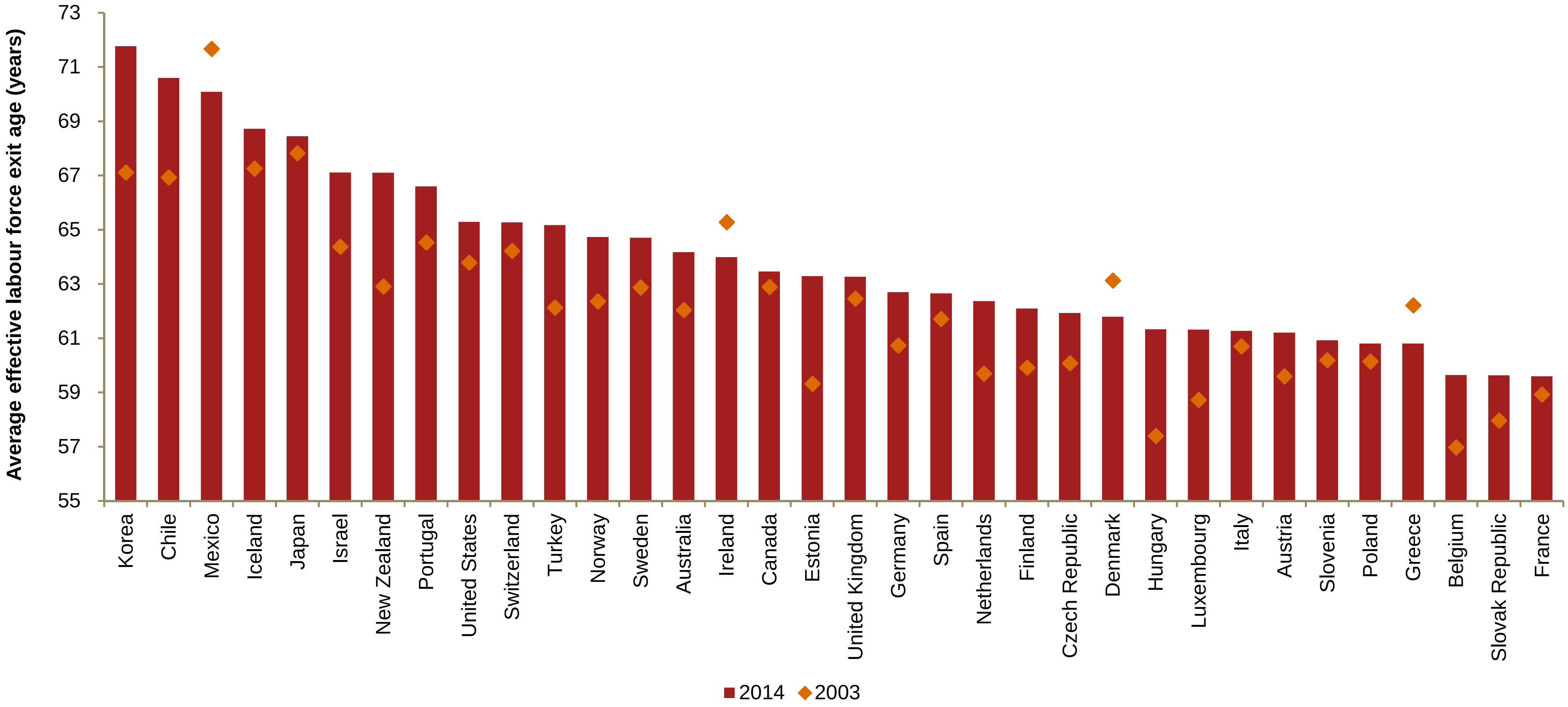


Note: 2003 data for Austria and the Slovak Republic are unavailable

Source: OECD

Average effective labour force exit age

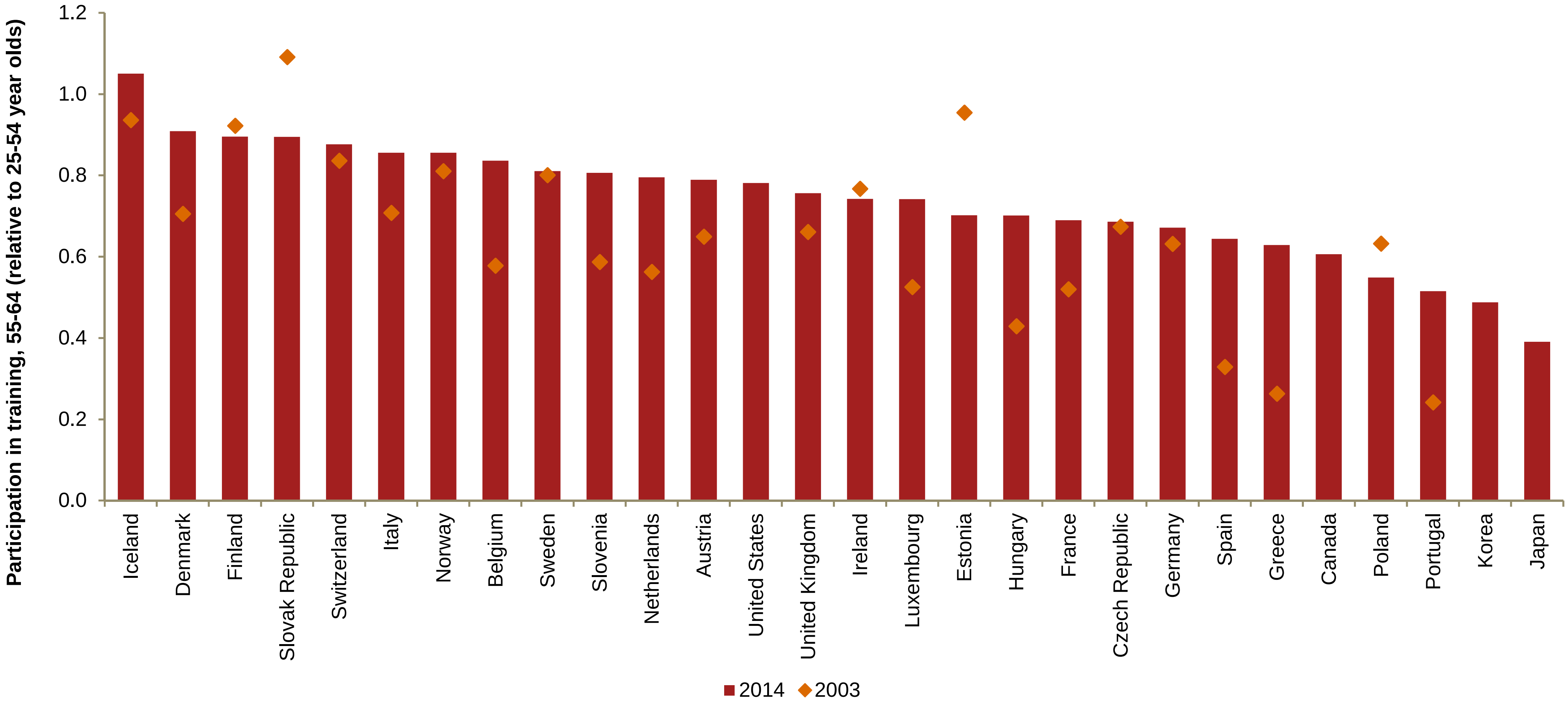
Labour force exit ages have increased in the vast majority of countries from 2003, but with notable falls in Mexico, Ireland, Denmark and Greece. Korea's exit age has increased by 4.7 years since 2003.



Source: OECD

Participation in training of 55-64 year olds relative to 25-54 year olds

Iceland performs exceptionally well, training more 55-64 year olds than 25-54 year olds. Ratios have generally increased from 2003, albeit by varying amounts. Finland and Slovakia, two high performers, have seen their ratios fall since 2003.



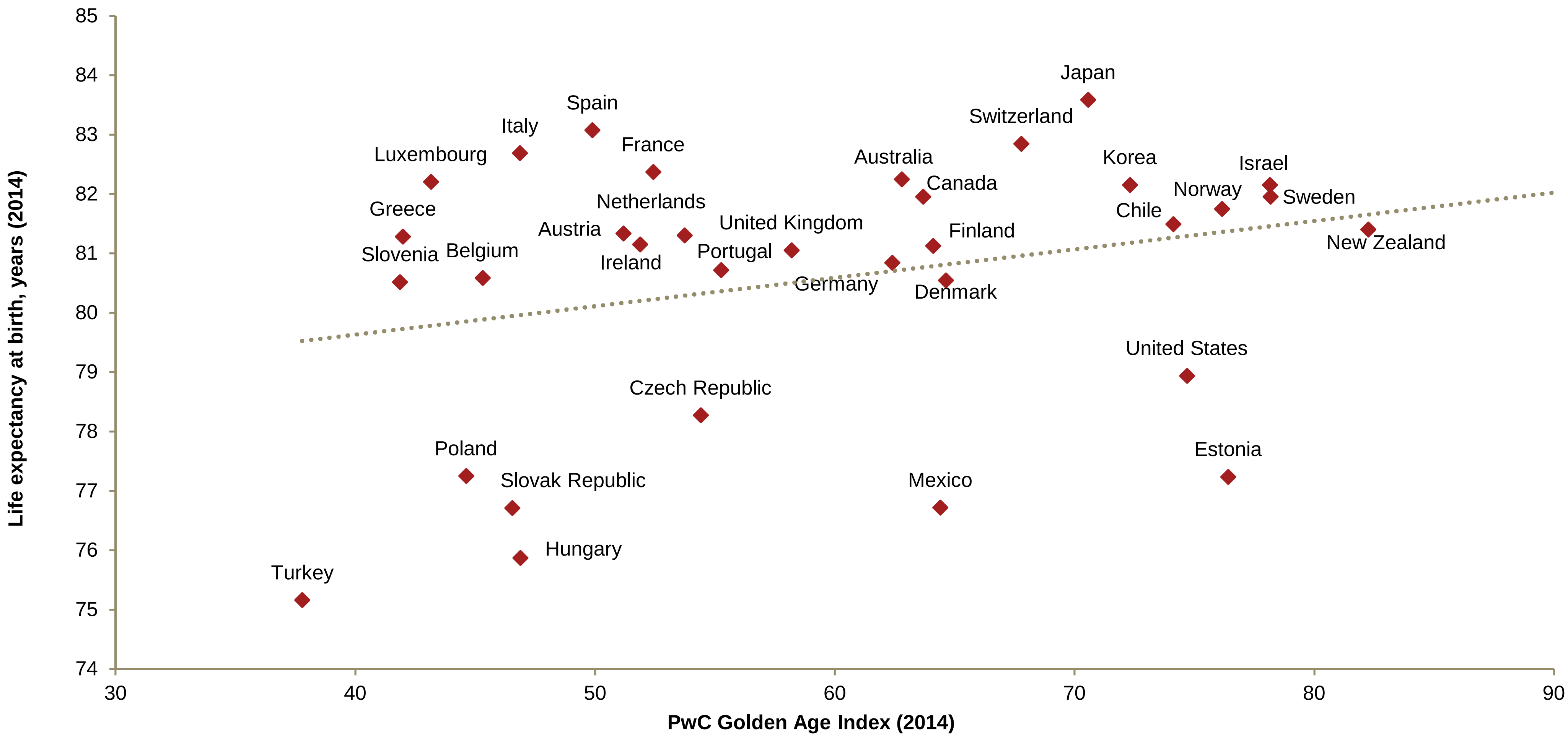
Note: 2003 data for United States, Canada, Korea and Japan are unavailable

Source: OECD

6

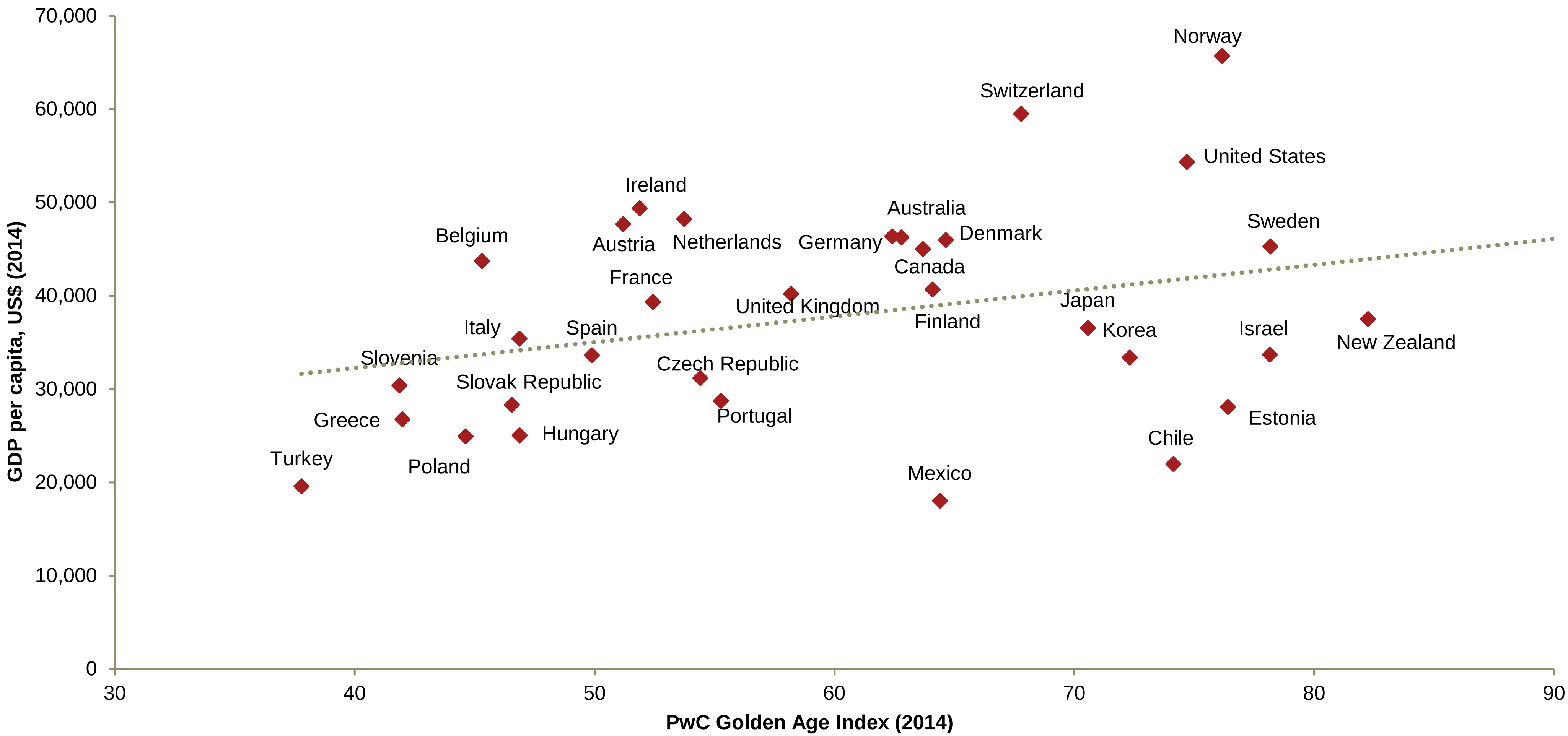
Comparison with other indicators

There is a positive correlation between the Golden Age Index and life expectancy, implying that in countries where people live longer, older workers play a larger role in the economy



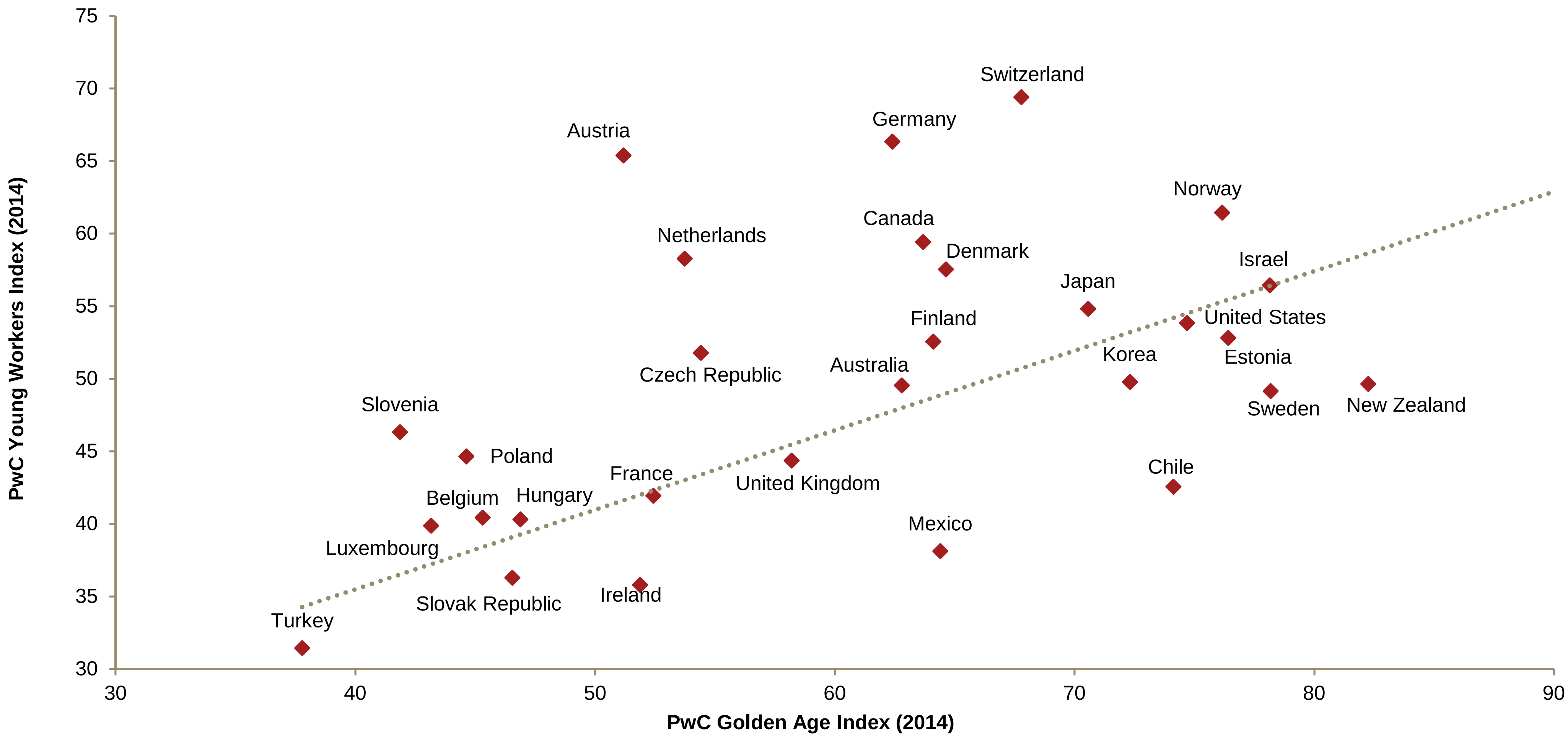
Sources: PwC analysis, OECD

There is a clear positive correlation between our Golden Age Index score and GDP per capita, but some countries outperform on our index relative to their income levels (e.g. Chile and Estonia)



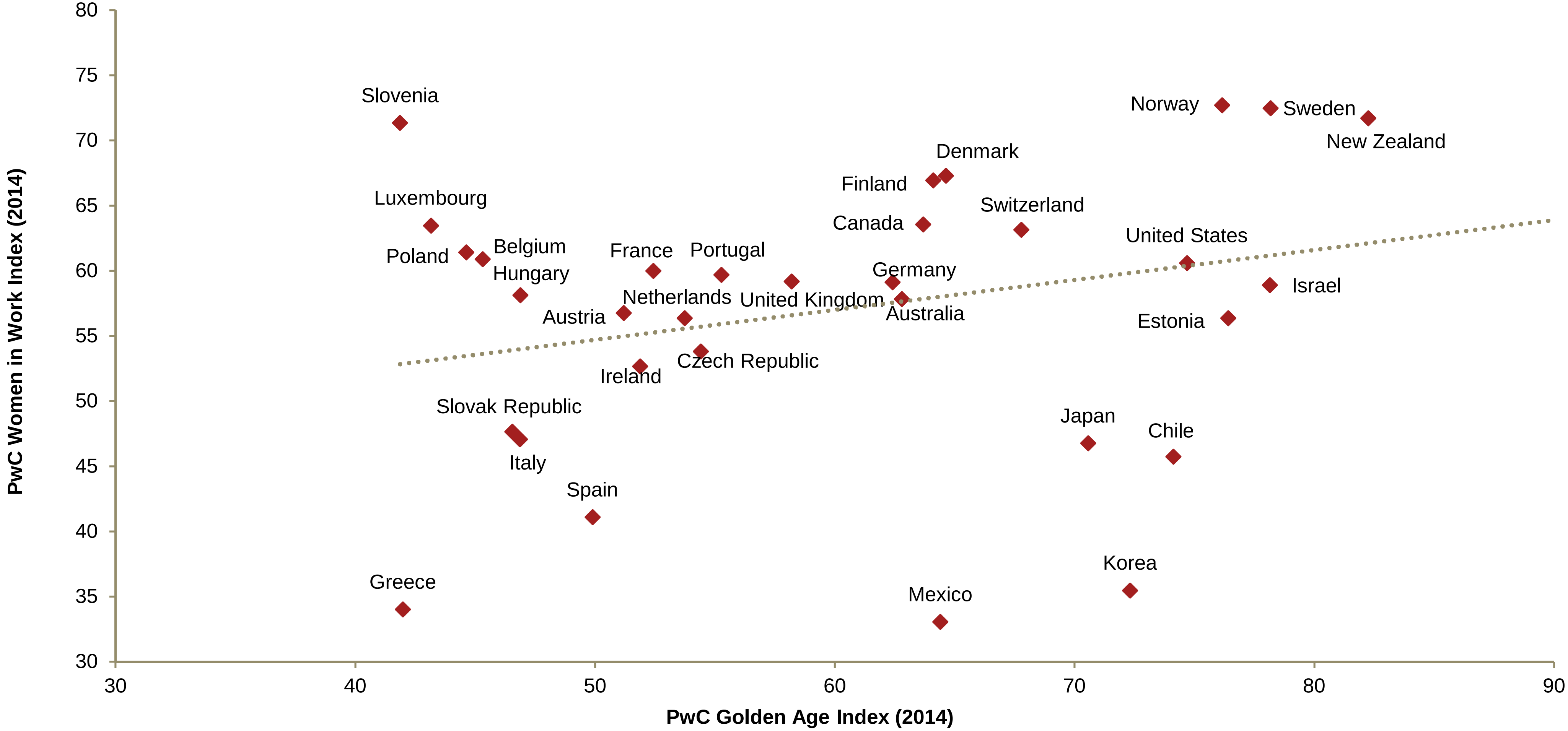
Sources: PwC analysis, OECD
Note: We have excluded Luxembourg on the basis that it is an outlier with a high GDP per capita of around $98,000.

There is a positive correlation with the PwC Young Workers Index, which suggests that the employment of older workers does not crowd out youth employment at the economy-wide level



Sources: PwC analysis, OECD

The positive correlation with the PwC Women in Work index implies that, for example, good childcare policies also support women remaining in the workforce for longer



Sources: PwC analysis, OECD

Our correlation analysis suggests that more older workers may boost average incomes and should not crowd out younger workers

1 The positive correlation between the Golden Age Index and life expectancy implies that if people are likely to live longer, they are also likely to spend more of their life working.

2 Golden Age Index scores are positively correlated with GDP per capita. This could indicate that working for longer boosts the average income of the population, although many other factors will influence GDP per capita in practice.

3 The strong positive relationship that exists between our Golden Age and Young Workers indices suggests that hiring more older workers does not mean that there will be less jobs for younger people at the macroeconomic level.

4 The positive correlation between our Golden Age and Women in Work indices could be indicative of general labour market flexibility. It could also reflect supportive polices like high quality childcare and eldercare systems that allow women to avoid career gaps and work for longer.

	Variable	Correlation coefficient with GA index
1	Life expectancy at birth, years (2014)	0.31
2	GDP per capita, US$ (2014)	0.34
3	**PwC Young Workers Index (2014)**	**0.57**
4	PwC Women in Work Index (2014)	0.29

Sources: PwC analysis, OECD

A clear positive correlation exists between the Golden Age (GA) Index scores and all four other indicators considered in this section of the report.

Correlation does not necessarily imply causation as other factors could also be driving the relationship. For example, a high score on the Golden Age Index is associated with higher life expectancy but further research that controls for factors such as the level of healthcare spending in a country would be needed to assess if a causal link exists between the two variables.

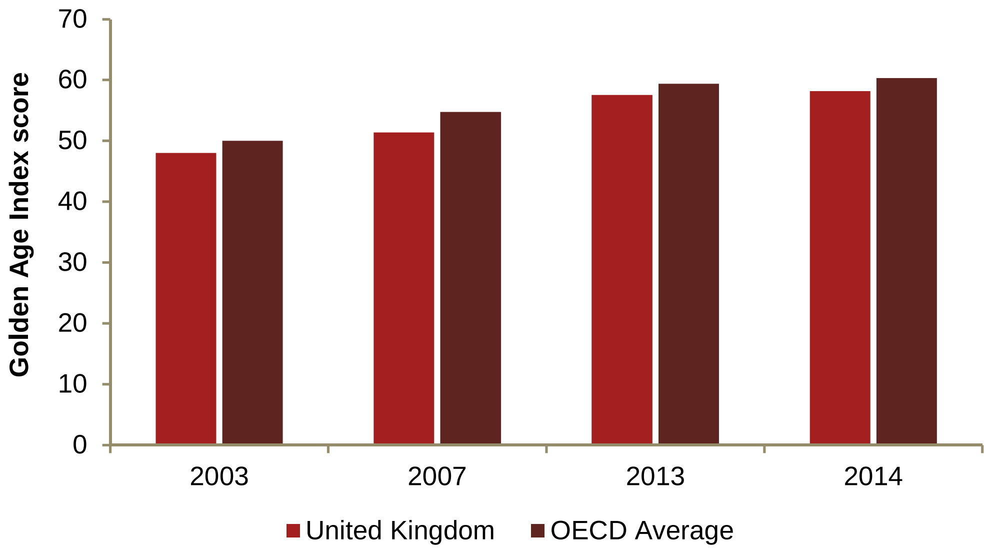
7

In-depth: United Kingdom

Overall, the UK's performance on the Golden Age Index remains below average

How has the UK performed?

- The UK scored below the OECD average on the Golden Age Index between 2003 and 2014 (see chart below).
- The UK's absolute performance on the index has improved over time. This largely reflects a significant improvement in the employment rate of 65-69 year olds, increasing by 7.4 percentage points between 2003 and 2014. The employment rate of 55-64 year olds has increased by 5 percentage points since 2003. However, the UK remains below the OECD average with regards to the employment rates of both age groups, since most other OECD countries have also seen improvements over time.



Sources: PwC analysis, OECD

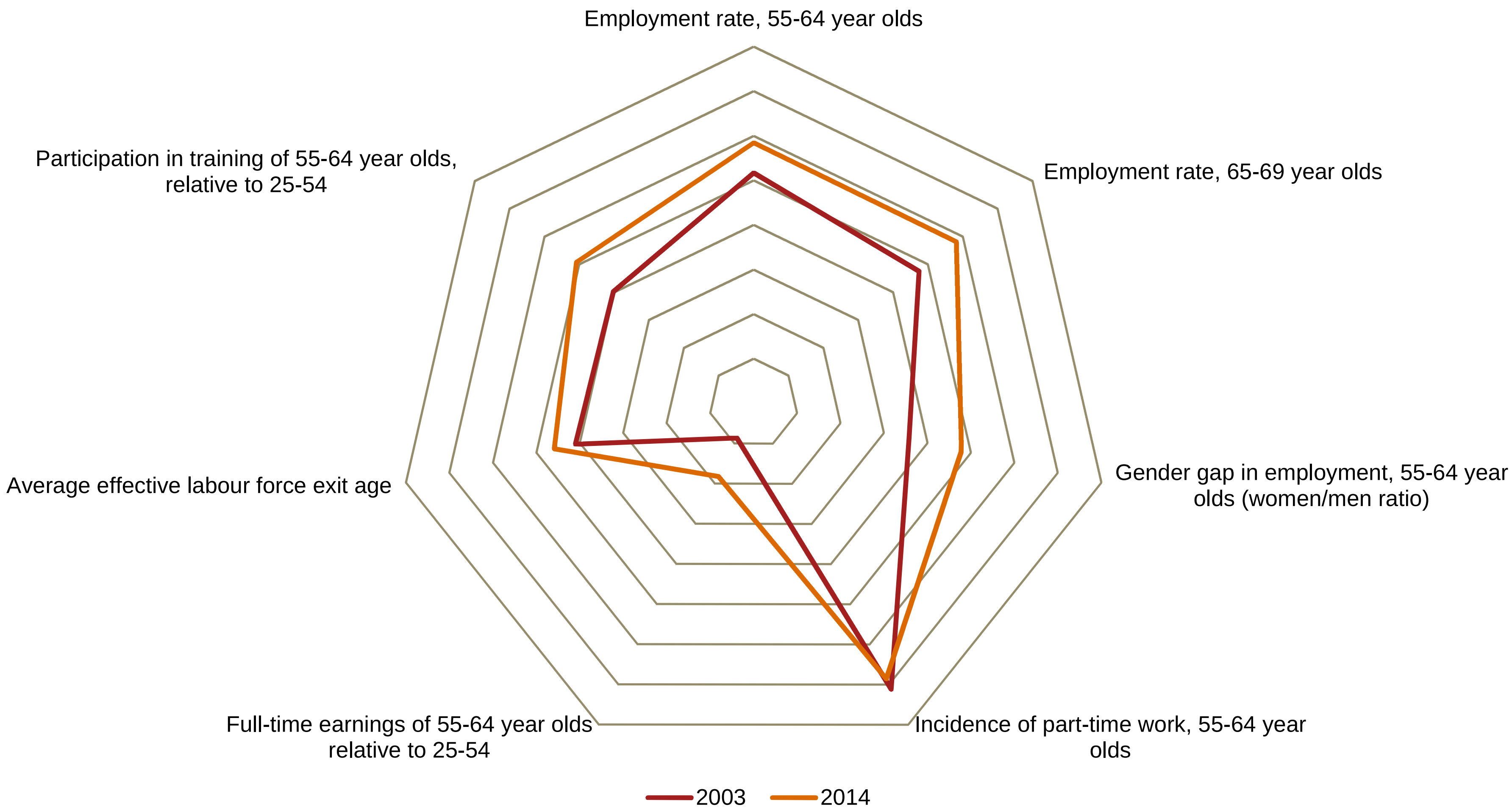
1 The UK performs close to the median positions for employment rates, the gender gap, labour force exit age and training.

2 The UK has a high incidence of part-time work for 55-64 year olds. While this may be preferable for some workers, it may adversely affect earnings, pensions and job security and so enters into the index negatively.

3 The UK performs significantly below the median on full-time earnings for 55-64 year olds relative to 25-54 year olds.

4 The UK has witnessed an increase in the employment rate of 65-69 year olds. Relatively good progress has also been made in closing the gender gap and in increasing the training of 55-64 year olds relative to younger workers.

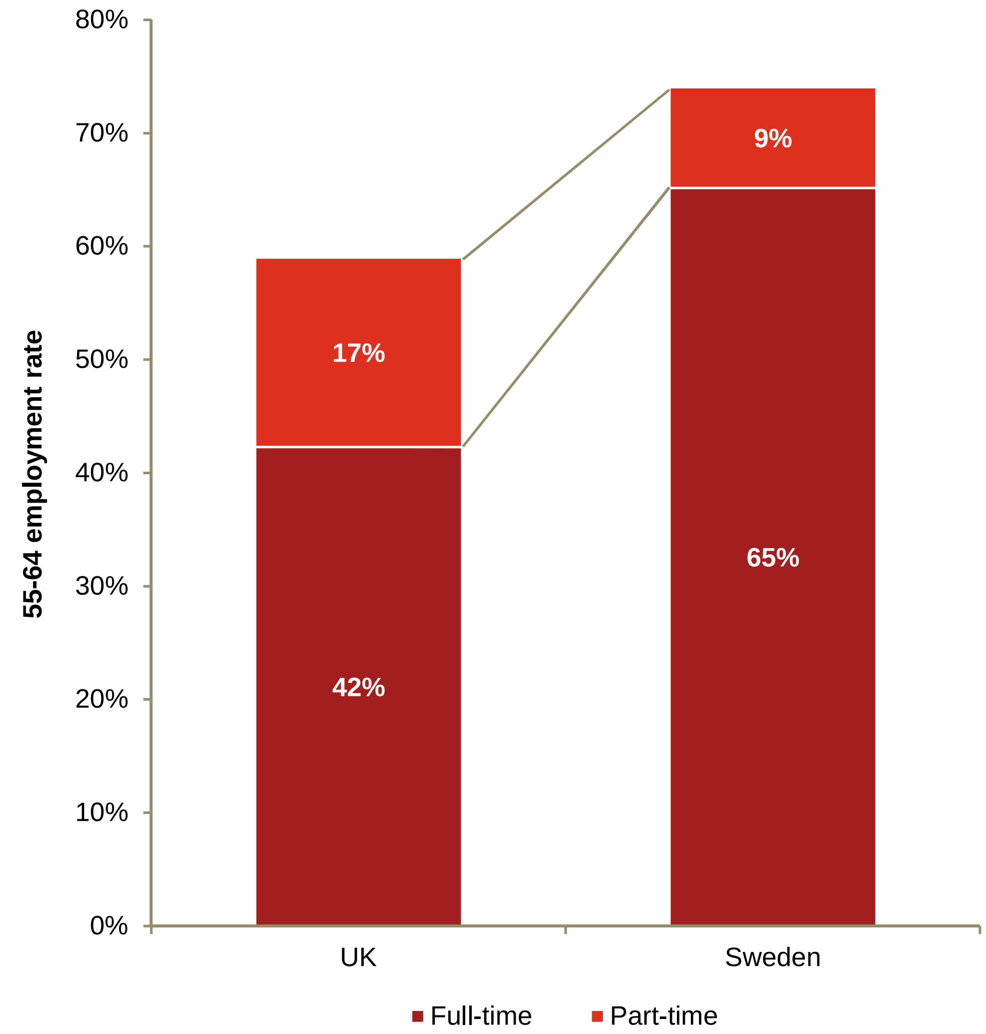
From 2003 to 2014 the UK's performance has improved across most of our indicators, with the exception of the incidence of part-time work (though this may be appropriate for some older workers)

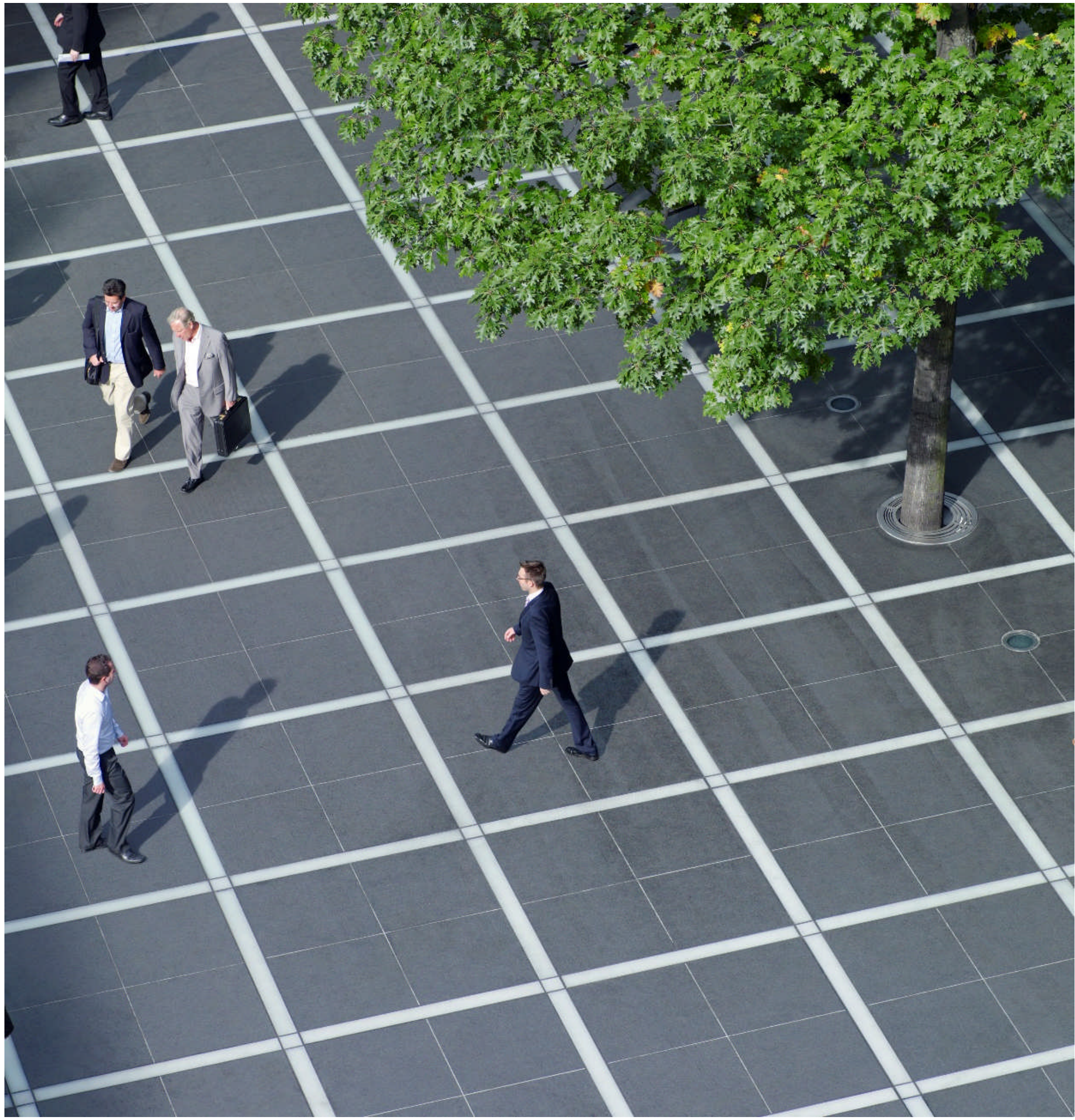


Note: Outward movement from the centre conveys an increase in the score of the relevant variable.

Sources: PwC analysis, OECD

There could be a potential £105bn boost to UK GDP in the long-run if older worker employment rates were increased to Swedish levels





Sources: PwC analysis, OECD

8

Annex: Methodology

PwC Golden Age Index Methodology

Variables included in the index

Indicator	Weight	Factor	Rationale
Employment rate, 55-64 (% of the age group)	40%	1	The proportion of 55-64 year old workers in employment is the most important measure in our index and so has the highest weight of 40%.
Employment rate, 65-69 (% of the age group)	20%	1	The proportion of 65-69 year old workers has half the weighting of that of 55-64 year old workers assuming the 65-69 age group is roughly half as large in terms of population.
Gender gap in employment, 55-64 (ratio women/men)	10%	1	Gender equality in employment is included here as lower employment rates among older women tend to be a particular feature of many OECD countries.
Incidence of part-time work, 55-64 (% of total employment)	10%	-1	Part-time employment may adversely affect earnings, pensions and job security, but this is given a lower weight in the index since some older workers may prefer part-time work.
Full-time earnings, 55-64 relative to 25-54 (ratio)	10%	1	Earnings equality would represent equal pay across age groups and could also be an indicator of the relative labour productivity of older workers.
Average effective labour force exit age (years)	5%	1	This measures the length of time a worker stays in the labour force before they become economically inactive. However, there is some overlap with other variables such as employment rates so we do not give it too high a weight in the index.
Participation in training of 55-64 age group (ratio, relative to employed persons aged 25-54)*	5%	1	This is an indication of how far older workers keep learning beyond age 55, which will be important in keeping them employable and renewing their skills. But data are lacking for several countries, so we do not give this too high a weight in the index.

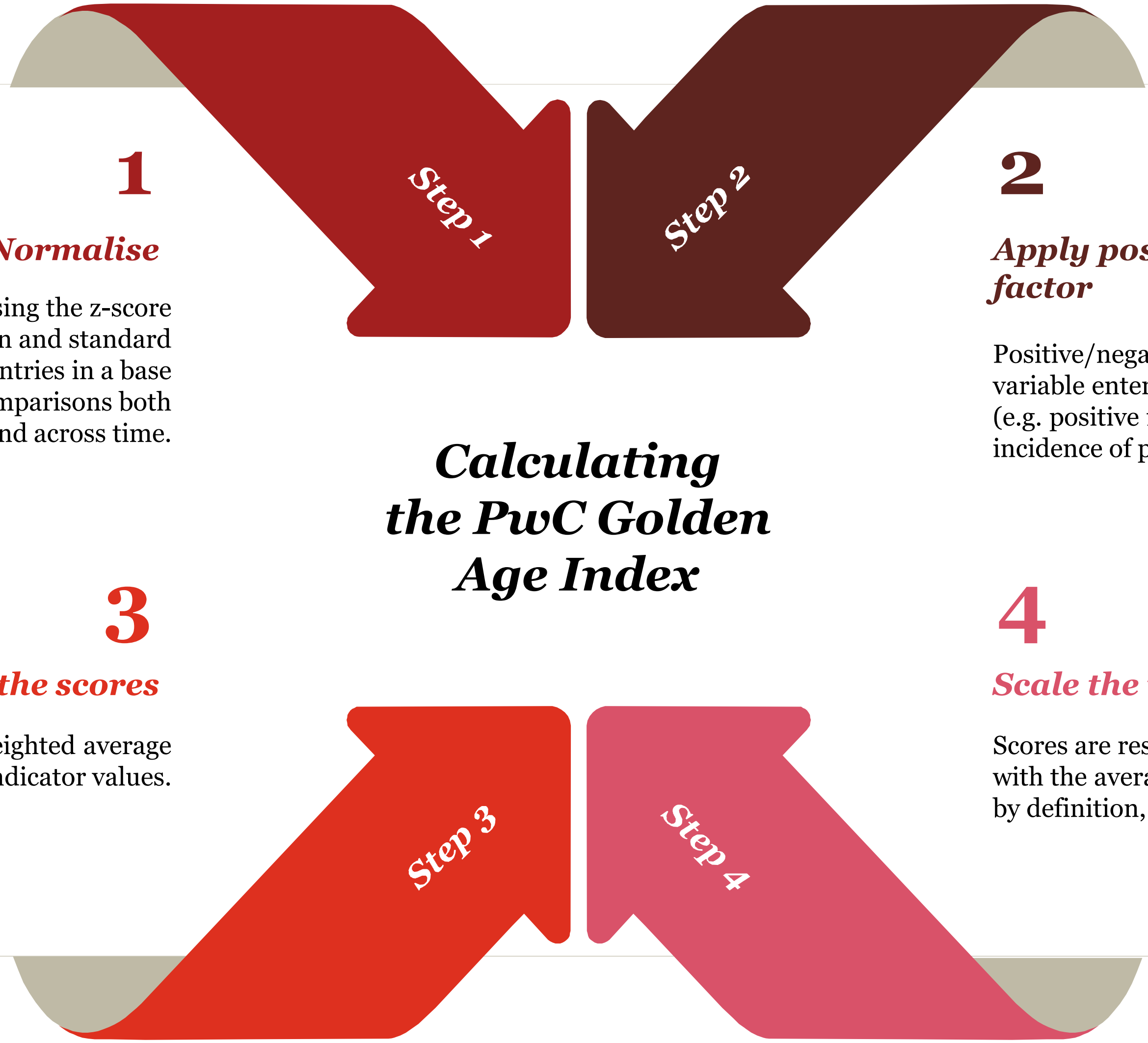
Note: The index scores reported in this 2016 release reflect the latest OECD data. Index scores for 2003, 2007 and 2013 may have changed relative to the results in our release last year (June 2015).

* This indicator was defined as the absolute number of 55-64 year olds in training in our previous June 2015 release, but we have had to change to this for data availability reasons. However, this does not have a major impact on the overall rankings relative to last year.

PwC Golden Age Index Methodology

How does it work?

We used a standard method to construct this index, similar to the one used in the PwC Women in Work, Young Workers and ESCAPE indices, and by many other researchers constructing such indices.



Calculating the PwC Golden Age Index

1

Normalise

Indicators are standardised using the z-score method, based on the mean and standard deviation of the sample of 34 countries in a base year of 2003, to allow for comparisons both across countries and across time.

2

Apply positive/negative factor

Positive/negative factors are applied so each variable enters the index with the correct sign (e.g. positive for employment rates, negative for incidence of part-time work).

3

Calculate the scores

The scores are constructed as a weighted average of normalised labour market indicator values.

4

Scale the index

Scores are rescaled to values between 0 and 100 with the average value across all 34 countries set, by definition, to 50 in 2003.

PwC Golden Age Index Methodology

How did we calculate the potential long-term GDP increase?

We break down GDP in the following way:

GDP = 15-54 FT * GDP per FT worker + 15-54 PT * GDP per PT worker + 55-64 FT * GDP per FT worker + 55-64 PT * GDP per PT worker + 65+ FT * GDP per FT worker + 65+ PT * GDP per PT worker

Key assumptions

- Total employment in the economy is equal to the employment of 15 year olds and above.
- A full-time (FT) worker is twice as productive on average as a part-time (PT) worker, due to working twice as many hours on average.

We took Sweden as a benchmark country as it is the best performing in the EU and calculated the impact on GDP if countries raised their 55-64 and 65+ employment rates to Swedish levels. Sweden is a high performer in the 55-64 year old employment rates category and performs relatively in the 65+ employment category as well. However, if a country has a higher full-time equivalent employment rate than Sweden in either age category, as is the case, for example, in the US and Norway for the 65+ category, we did not assume any change to the employment rate currently experienced in that country.

Data

- Employment data by age and FT/PT split is sourced from the OECD.
- Due to data constraints for some countries with the employment data based on a common definition, we used FT/PT data employment based on national definitions.
- FT/PT employment data based on a national definition is only available for the 65+ age range, as opposed to 65-69 which is used within our index.
- For Korea, the OECD did not provide data based on a national definition, so we used the employment data based on an OECD common definition instead (which was an option in the case of Korea). There was also no data on the FT/PT breakdown of the 65+ age group so we estimated this by applying the average change in the distribution of FT/PT workers across the OECD economies as you move from the 55-64 age group to the 65+ age group to the overall employment estimate for 65+ years olds in Korea.

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http://www.pwc.com/gx/en/issues/talent/future-of-work/millennials-survey.html