How well is the Canadian economy harnessing the power of an older workforce?
We believe in a better world of work

PwC’s Global People and Organization practice brings together an unmatched combination of 10,000 people with industry, business, talent, strategy, HR, analytics and technology expertise in one team across 138 countries.

Together, we build tailored people and organization solutions with a deep understanding of our clients’ uniqueness. These solutions are grounded in rigorous analyses and data-driven insights to create lasting, differentiated value for our clients.

We help clients transform their organizations, improve the effectiveness of their workforces, develop and move talent around their businesses and manage their human capital risks. We not only assist our clients with the development of their people strategies, but we also work with them to execute their talent, organization and people analytics related priorities.
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PwC’s Golden Age Index
About the study

In light of the aging global population and the impact that this will have on talent pool demographics, PwC has created the Golden Age Index to measure the engagement of Golden Age workers (ages 55-65) in OECD countries.

To determine the ranking, we combined the 7 key indicators below into a single, comparable Golden Age Index of 34 OECD countries.

1. Employment rate, 55 - 64
2. Employment rate, 65 - 69
3. Gender gap in employment, ratio of employment of women / men, 55 - 64
4. Incidence of part-time work as a % of total employment, 55 - 64
5. Full Time Earnings 55 – 64 relative to 25 - 54
6. Participation in Training, 55 – 64 relative to 25 - 54
7. Average effective workforce exit age

For more information on the methodology used for this report, please download our Global Golden Age Index found at:

www.pwc.co.uk/services/economics-policy/insights/golden-age-index.html

The following report includes Canadian insights of this study, demonstrating how Canada compares to other countries, and highlighting suggested actions for business leaders.

The study found a potential $2 trillion USD gain for all OECD countries, and a $51.3 billion USD gain for Canada’s GDP, if employment levels of older workers increase to Swedish levels.
Canada in context
PwC’s Golden Age Index 2017

Key findings

Canada’s population is aging rapidly due to factors including longer life expectancy, low birth rates and the aging of the “baby boomers”. For the first time, there are more people aged 65 and older than under 15 years of age in Canada. Canada ranks 16th in the Golden Age Index (GAI) this year, continuing its stable middling performance on the index.

The effects of Canada’s aging population can be mitigated by extending working life.

Increasing engagement of older workers benefits:

- **Employers**: enhanced ability to retain and recruit golden age workers, a large and experienced talent pool
- **Individuals**: monetary, social, mental and physical health benefits of continuing to work
- **Canada**: realise benefits for the economy and position itself as a top performer among OECD countries

You will find within this report a deeper dive on three key action items that Canadian organizations can undertake to harness the benefits of employing an older workforce.

Highlights in numbers:

- Canada can capture a $51.3 Billion USD increase in GDP by increasing employment of older workers to Swedish levels
- Of Canadian workers, nearly 42% are at high risk of being affected by automation over the next 10 to 20 years. Older workers are at highest risk of all demographic groups
- Labour force participation rates of older Canadian women has increased, with a record 32% of women aged 55 and older taking part in the labour force in 2016. In 2000, that figure was 19%.

1. Improving employability
2. Reducing employment barriers
3. Implement flexible work

Where Canada stands today
Comparison versus other OECD countries

Our Golden Age Index explores the large variation in the economic prospects of older workers across 34 OECD countries over time. Canada currently stands at 16th place in our Golden Age Index ranking.

Map 1: Golden Age Index scores
Canada in the numbers
Challenges Canada faces with an aging populations

The aging of the Canadian population exerts significant governmental pressure to provide for increasing numbers of seniors with a decreasing pool of taxpayers.

Between 1995 and 2006, life expectancy increased by almost double the number of years of the increase in the average retirement age.

Between 1995 and 2006, life expectancy increased by almost double the number of years of the increase in the average retirement age.

The following 16 countries have a higher employment rate for people between 55 and 64 years of age than Canada

<table>
<thead>
<tr>
<th>Country</th>
<th>Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iceland</td>
<td>84.6%</td>
</tr>
<tr>
<td>New Zealand</td>
<td>76.1%</td>
</tr>
<tr>
<td>Sweden</td>
<td>75.5%</td>
</tr>
<tr>
<td>Switzerland</td>
<td>73.9%</td>
</tr>
<tr>
<td>Norway</td>
<td>72.6%</td>
</tr>
<tr>
<td>Japan</td>
<td>71.6%</td>
</tr>
<tr>
<td>Iceland</td>
<td>84.6%</td>
</tr>
<tr>
<td>Germany</td>
<td>68.6%</td>
</tr>
<tr>
<td>Netherlands</td>
<td>63.5%</td>
</tr>
<tr>
<td>Denmark</td>
<td>67.8%</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>63.4%</td>
</tr>
<tr>
<td>Israel</td>
<td>66.5%</td>
</tr>
<tr>
<td>Korea</td>
<td>66.1%</td>
</tr>
<tr>
<td>Australia</td>
<td>66.1%</td>
</tr>
<tr>
<td>United States</td>
<td>61.8%</td>
</tr>
<tr>
<td>Estonia</td>
<td>65.3%</td>
</tr>
<tr>
<td>Japan</td>
<td>63.8%</td>
</tr>
</tbody>
</table>

Canada’s Labour Participation Rate

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>55-64</td>
<td>65.8%</td>
</tr>
<tr>
<td>65 and up</td>
<td>13.7%</td>
</tr>
</tbody>
</table>

The labour force participation rate for the age group 65+ has increased by 170% in the past decade. Further growth will be required in the labour participation rate in this age group to keep pace with shifting age demographics.

By 2031, almost 1 out of 4 Canadians will be 65+

Fifty years ago, the senior population was less than 8% of the total Canadian population. It is expected that by 2031, those over the age of 65 will constitute 23% of the Canadian population.

What does the data say?  
How Canada compares

Canada ranks 16th in the Golden Age Index (GAI) this year, continuing its stable middling performance on the index.

Canada has seen a gradual improvement in its older worker labour market participation over the years. However, the OECD average across 34 OECD countries is catching up to Canada’s performance.

The following are key indicators in comparison to Sweden (identified as a benchmark country within the top 3 of the OECD).

GDP impact of increasing 55+ employment rates to Swedish levels

Canada could gain $51.3 billion USD by increasing employment of older workers to Swedish levels (3.3% GDP increase)

Golden Age Index score relative to OECD average

Employment rate, age 55-64

13.8% Gap

Employment rate, age 65+

8.8% Gap

Sources: PwC analysis, OECD, APS (2016)
Diving into the data
7 key indicators measured in the Golden Age Index

Although Canada performs slightly above the OECD average in 4 out of 7 indicators, there is still room for improvement to be a top performer and to prepare for the upcoming shift in demographics.

Trending slightly above OECD average

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Canada average</th>
<th>OECD average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employment Rate 55 - 64</td>
<td>61.6%</td>
<td>59.2%</td>
</tr>
<tr>
<td>Gender Gap in Employment 55 - 64 (ratio of women vs men)</td>
<td>0.8</td>
<td>0.7</td>
</tr>
<tr>
<td>Participation in Training, 55-64 Relative to 25-54 (ratio)</td>
<td>0.8</td>
<td>0.7</td>
</tr>
<tr>
<td>Effective Labour Force Exit Age, 55-64 (average)</td>
<td>64.1</td>
<td>64.0</td>
</tr>
</tbody>
</table>

Trending slightly below or at OECD average

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Canada average</th>
<th>OECD average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employment Rate 65 - 69</td>
<td>24.6%</td>
<td>24.9%</td>
</tr>
<tr>
<td>Incidence of Part-Time Work (% of total employment)</td>
<td>16.9%</td>
<td>17.5%</td>
</tr>
<tr>
<td>Full Time Earnings 55-64 Relative to 25-54 (ratio)</td>
<td>0.99</td>
<td>1.12</td>
</tr>
</tbody>
</table>

Canada may be performing well in comparison to the average OECD score, but we are still trailing behind top performing countries.

Canada has a great deal to gain by improving its results on these indicators and increasing its score on the Golden Age Index. There are large potential economic gains for the country if employment rates for those over 55 are raised to those of top performing countries.

Sources: PwC analysis, OECD, APS (2016)
Lessons from top performing countries
**Lessons from top performing countries in the index**

**Highest employment rate**

**Top 3 countries with the highest older worker employment rates (55 - 64 year olds)**

<table>
<thead>
<tr>
<th>Country</th>
<th>Index rank</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iceland</td>
<td>1st</td>
<td>The 2010 Adult Education Act focused on providing education and training opportunities to adults with formal education and language lessons for immigrants, and providing funding for numerous Lifelong Learning Centres, grants and development projects.</td>
</tr>
<tr>
<td>New Zealand</td>
<td>2nd</td>
<td>New Zealand’s Human Rights Act (1999) prevented employers from discriminating on the basis of age and banned the compulsory retirement age. In 2015, changes were also made to the Employment Relations Act (2000) that granted all employees the right to request a change to their working arrangement, including to request flexible working arrangements from their first day of employment.</td>
</tr>
<tr>
<td>Sweden</td>
<td>4th</td>
<td>In 2007 Sweden introduced the ‘New start jobs’ initiative encouraging employers to hire someone who had been unemployed for a long time. From 2010 – 2012, the program gave employers financial compensation equal to twice the payroll tax if they hired a person aged 55 or over who had been unemployed for at least 6 months. Employers received financial support for twice as long if the employee was over the age of 55.</td>
</tr>
</tbody>
</table>

Lessons from top performing countries in the index

Largest risers in the index

Israel
Index rank: 3

- The retirement age has gradually increased since 2004 from 64 to 67 for men and 60 to 62 for women. This higher state retirement age has helped to raise the average incomes of older citizens, as well as their pensions, and also played a role in Israel’s economic growth over the past decade.

- Recently, the Israeli government has proposed further raising the state retirement age of women to 65 or higher.

- Since 2003, Israel has seen an increase of 16.1% in its employment rate for those aged 55–64.

Australia
Index rank: 12

- Comprehensive pension reform was introduced in 2009, to improve the pension system. The Work Bonus was introduced, allowing pensioners to earn up to AUD 250 every two weeks from employment without being determined income.

- The maximum age limit for ‘superannuation’ (pension plan) guarantee contributions was removed in July 2013, and individuals can only access their superannuation benefits after a certain age (55 increasing to 60 on a phased basis between July 2015 and July 2024). This increases the incentive for older workers to remain in the workforce.

- The retirement age has gradually increased since 2004 from 64 to 67 for men and 60 to 62 for women. This higher state retirement age has helped to raise the average incomes of older citizens, as well as their pensions, and also played a role in Israel’s economic growth over the past decade.

- Recently, the Israeli government has proposed further raising the state retirement age of women to 65 or higher.

- Since 2003, Israel has seen an increase of 16.1% in its employment rate for those aged 55–64.

Germany
Index rank: 15

- Implemented reforms aimed to increase work incentives for people with low earnings potential. These reduced the maximum entitlement periods for unemployment benefits to promote return to work.

- Regional employment pacts were launched to ensure better employment for older workers. These have used a wide range of different policies and activities to raise awareness of the benefits of working later in life.

- The employment rate of those aged 55–64 has increased from 39% to 69% and by 9 percentage points for those aged 65–69.

Sources: Journal for Labour Mark Research (2015), OECD, Eurofound (2015)
**Insights with other global measures**

Positive correlation between performance on the index and other variables

We analysed the relationship between our Golden Age Index and other global measures and found a positive correlation with all the variables considered. However, we note that a positive correlation might not necessarily be evidence of a causal link, as there may be other contributing factors. Further, some variables may be more relevant for Canada than others, despite the large global correlation.

1. **Life expectancy**
   - Global correlation (+0.34)
   - Countries that have longer life expectancies also tend to have a higher proportion of older people in work.

2. **GDP per capita**
   - Global correlation (+0.31)
   - Economies that invest more in older workers are more likely to have higher incomes, although many other factors will play a part here.

3. **Young workers**
   - Global correlation (+0.52)
   - Contrary to common perception, our global analysis suggests that the employment of older workers does not ‘crowd out’ younger workers.

4. **Women in work**
   - Global correlation (+0.25)
   - Greater flexibility in the labour market and better childcare helps women to remain in and/or return to work after having children and to work for longer.

**Note:** Correlation coefficient ranges between -1, perfect negative correlation, and +1, perfectly positive correlation. Zero correlation implies that there is no statistical relationship between the two variables.

Source: PwC analysis
People and Automation
People and automation
Potential challenges older workers will face

What is the long term challenge posed by automation?

• Nearly 42% of the employed Canadian labour force is at a high risk of being affected by automation over the next 10 to 20 years.
• The risk of job loss, at both an industry and individual level is dependent on a number of factors, primarily the composition of tasks that are conducted and the education and training levels of the individual worker.
• Automation poses a risk to employment rates, although new technologies have the potential to create new jobs in the digital area and, through productivity gains, generate additional wealth to support job creation.

Why are older workers particularly susceptible to job automation?

Education

• Workers with lower educational attainment are at higher risk of job automation.
• This suggests older workers could be at higher risk because, in Canada, the percentage of those aged 50-64 who hold no qualifications is significantly higher than among those aged 25-49.

Training

• Jobs that require less training are also at greater risk. Our studies reveal that older workers are less likely to receive training than younger workers.
• The gap in training performance can be reduced if training interventions are matched to meet the learning needs of older workers, resulting in a return on investment.

Digital jobs

• The jobs that automation is likely to create will be related to new digital technologies.
• While it is challenging to predict what these new types of jobs will be in advance, it is possible to argue that they are more likely to be taken by younger workers, given that employers typically assume younger workers are more adept in technology.

For more information on the challenges and opportunities that automation brings to the workplace, please look for our report “The Future of Work: People and Automation” found at: www.pwc.com/ca/en/services/consulting/people-and-organization.html

Sources: PwC analysis, DWP (2017), IZA World of Labour (2015), Brookfield Institute (2016)
Key business actions
3 key business actions
Policies and incentives to consider

 Improve employability

- Policymakers in Canada should focus on promoting lifelong education and training opportunities to upskill older workers.
- Employers should recognize the skills and capabilities of older workers to counteract ageist practices.

 Reduce employment barriers

- Employers in Canada should provide older workers incentives to join and remain in the labour market, including accessible workspaces, wellness support, and favourable retirement options.

 Implement flexible work

- Flexible working in terms of both hours and location will support older workers in carving out a role which suits their changing working preferences and lifestyle, encouraging them to work past the legal retirement age, which is currently set to 65.
**Action #1**

**Improve employability**

*74%* of older workers looking for work were willing to learn new skills to regain employment

*30%* of older workers are well-versed in technology skills

Age is not the main determinant of the level of literacy older workers in Canada have in information and communications technology. Older workers are also willing to learn new skills and receive training to compete in today’s job market.

**Benefits of action**

- Older workers with the **skills and abilities to compete** in a market requiring technical skills, helping to alleviate a potential skills gap in the labour market
- Employers who **recognize and value** the skills of older workers

**Next Steps**

- **Offer technology training** - employers should invest in technology training for older workers so they have the necessary skills to deal with disruptive influences
- **Improve resume writing and job search skills** - Employers should provide training on resume writing and current job search skills as many older workers have not applied for a job for many years
- **Provide tailored skills training** - Government and employer programs should provide skills training relevant to different geographic regions or industries

- **Recognize older workers are skilled in technology** - A substantial number of older Canadian workers are well-versed in technical skills, although they tend to be those employed in highly skilled occupations. Making unfounded assumptions about age and digital competency holds potential dangers for Canadian society. If individuals repeatedly hear that they are unable to be digitally literate they may internalize this and begin to behave in a manner congruent with the assumption
- **Offer self assessment opportunities** - Employers should not make sweeping assumptions regarding applicants’ skills, and provide self assessment opportunities for job-related skills
- **Develop awareness of policy impacts on different ages** - Seemingly age-neutral policies have different effects on different age groups. For example, downsizing seems to have a larger effect on older employees, who are more prone to leave the workforce, while training is not always adapted to them
- **Collaborate with government to counteract ageism** - Collaboration with government will help to address issues such as Intergenerational sensitivity initiatives to counteract ageism and ageist practices in workplaces, and better enforcement of human rights laws to counteract ageism and ageist practices in workplaces

**Action #2**
Reduce employment barriers for older workers

59% of Canadians would take a part-time job in retirement to supplement their income

26% of Canadians have experienced age-based discrimination

Ageist practices can result in poor retention of older workers and create barriers to retrain or hire those wishing to re-enter the workforce.

**Benefits of action**

- Increased *job satisfaction* and *overall health* through accessible, accommodating and friendlier programs
- Improved options and *increased autonomy* for older workers when planning retirement with *expanded retirement options*

**Next steps**

- **Modifying the physical workplace** - Accommodate your workspaces to provide a more accessible and friendlier working environment for older workers. For example, setup easier-to-read computer screens, allow workers to sit instead of stand, provide accessible washrooms and adequate workspace lighting, etc.
- **Provide wellness support** - Implement formal wellness programs such as offering ergonomic assessments for workers’ chairs and workstations, subsidizing gym memberships, organizing on-site fitness facilities, providing employees with access to wellness experts, or offering on-site health screening
- **Mentorship** - Establish mentorship programs which are a cost-effective ways to ensure that your corporate history is transferred to your next generation of leaders. Mentors can also support younger workers develop practical skills that can only be learned on the job
- **Reduce unconscious bias and age discrimination** - Intentional or unintentional age discrimination through HR practices or colleague’s negative behaviour may lead to dissatisfaction and disengagement from one’s job, which in turn might lead to an intention to retire early. Assess your organization’s policies and practices to support a workplace that includes a diverse workforce
- **Recalling retirees** - Establish programs that enable the recall of retired workers to provide assistance during peak seasons
- **Phased retirement** - Phased retirement allows employees who are approaching retirement to continue working for you, but with a reduced workload that supports their transition from full-time employment to full-time retirement
- **Comprehensive benefit packages** - Extend employee benefits beyond health insurance and employer-sponsored RRSPs to include comprehensive family support, wellness programs, investment and personal counselling or Pooled Registered Pension Plans (PRPP)

As older workers’ lifestyles and preferences change, flexible workplaces offer them the support they need to work later into their lives while enabling employers to tap into a large and experienced talent pool.

**Benefits of action**

- Improved **work-life balance**, reduced work-related stress and health symptoms, **reduced absenteeism**, **increased job satisfaction** and commitment to the organization
- Employers with enhanced recruitment and retention, **reduced costs**, **increased productivity**, **improved morale** and inclusivity

**Next steps**

- **Part-time work** - Consider offering part-time work arrangements to continue to leverage golden age workers’ experience and retain these workers for a longer period of time
- **Teleworking** - Many jobs can be completed off-site. Teleworking can be especially helpful to individuals who are not able to come into a central location due to health problems
- **Unpaid short and long-term leave** - In the future, rather than retiring at a certain age, employees will take leave periods throughout their career and then return to employment. Consider developing policies and offering programs that enable older workers to take advantage of short and long-term leave
- **Expanded alumni programs** - People Leaders can harness retired older workers by expanding the organisations’ alumni program and continue to engage former employees past retirement in the roles of champions and mentors
- **Support workers with disabilities** - Develop policies that will allow older workers to make arrangements (e.g. part-time work, job share, occasional work from home) that will support those with physical or mental illness or disabilities or workers with caregiving responsibilities
- **Employee Networks** - Create a platform where older employees can develop support networks focused on providing assistance and advice within the network. Employee networks can provide mentoring groups and other offerings to help to attract and retain talent

**Action #3**

**Implement flexible work**

*47%* of workers aged 50-75 years would continue to work if they could do so part-time

*35%* of workers aged 50-75 years would continue to work if they could do from home

Increasing age diversity in your organization
To create impact and achieve results

Business leaders have a key role to play in incorporating workers of all ages in to the workplace as they work toward positioning Canada as a top performer on the index.

PwC offers a data-driven approach, informed with the facts of today

- We will work with you to determine where you are on your diversity journey today. Working with you, we will develop a baseline for your diversity profile, giving us an appreciation and understanding of some of your key challenges.
- We will share with you our experience of shaping global KPIs and an Inclusion Index around age diversity and valuing differences and the governance around these.
- We use leading analytics to enable your progress; from data that informs smarter decisions to new ways to engage your people and help them take part in developing the solution.
- In addition to our core team, we tap into the broad network of specialists across PwC to support our work with you and who bring deep insights on the culture and language.

Timeline and approach

Start where you are  Envision your future  Build age diversity  Deliver impact  Review and iterate

D&I Project Management and Communications (Status reports, KPI tracking)

- Assess current state of age diversity and organizational readiness for change
- Review policies, conduct survey, run focus group sessions
- Assess and enhance the current D&I Strategy to encompass age diversity
- Conduct workshops to engage leaders in harnessing the rapidly growing older workforce
- Build targeted policies to increase age diversity & inclusion, including tactics to improve employability, reduce employment and implement flexible work for older workers
- Create personas and cultural symbols
- Engage various change management tools to launch new programs, communicate new policies and practices, train employees
- Integrate age diversity throughout employee lifecycle (from hiring to termination)
- Develop monthly reports
- Create a robust performance measurement capability based on solid KPIs (or an Inclusion Index) to measure workforce engagement for age demographics & modify approach as needed
PwC’s global diversity journey began 12 years ago, when the PwC network of firms first began to focus on a globally consistent approach to diversity as a business imperative and enabler for delivering our international business strategy.

A lot has changed in the intervening years, particularly with regard to the decision-making that drives the operationalisation of our approach and strategy. Here is a timeline of key events along the journey:

### Diversity Deep Dives

In 2010, we decided to take a step back, take stock and ask ourselves the question: “If we are doing all the right things and investing time, budget and energy, why are we not making more progress?”

To help us answer this question we engaged an objective third party to conduct extensive deep dive diversity reviews in four PwC firms (from different continents, and diverse in size). This was a two-year process and included extensive interviews with PwC partners and people, data analysis, and reviews of PwC people processes.

We were able to use the findings of these deep dives to enhance our thinking and develop a fresh and accelerated approach to D&I.

At PwC, diversity is a priority across our network of firms because we need the best available talent to create value for our clients, people and communities. We hire and nurture professionals who take a variety of approaches to problem-solving, who are willing to challenge the status quo, who think differently from one another, and who come from many different backgrounds and cultures. We do this because to solve important problems we need diverse talent.
Find out more about our Golden Age Index and how you can action it in the Canadian market by contacting us:

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PwC’s People and Organization
We help you design and implement organizational transformation, improve the effectiveness of your workforce, develop and move talent around your business and manage your human capital risks. We work from people strategy through to organizational execution.

For more information about how PwC’s People and Organization can help you with this and other initiatives, please visit:

www.pwc.com/ca/en/services/consulting/people-and-organization.html
Methodology to calculate Golden Age Index
# PwC Golden age index methodology

Variables included in the index

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Weight</th>
<th>Factor</th>
<th>Rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employment rate, 55-64 (% of the age group)</td>
<td>40%</td>
<td>1</td>
<td>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%.</td>
</tr>
<tr>
<td>Employment rate, 65-69 (% of the age group)</td>
<td>20%</td>
<td>1</td>
<td>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.</td>
</tr>
<tr>
<td>Gender gap in employment, 55-64 (ratio women/men)</td>
<td>10%</td>
<td>1</td>
<td>Gender equality in employment is included here as lower employment rates among older women tend to be a particular feature of many OECD countries.</td>
</tr>
<tr>
<td>Incidence of part-time work, 55-64 (% of total employment)</td>
<td>10%</td>
<td>-1</td>
<td>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.</td>
</tr>
<tr>
<td>Full-time earnings, 55-64 relative to 25-54 (ratio)</td>
<td>10%</td>
<td>1</td>
<td>Earnings equality would represent equal pay across age groups and could also be an indicator of the relative labour productivity of older workers. But it has a lower weight in the index as higher relative earnings could also price some older workers out of jobs in certain cases.</td>
</tr>
<tr>
<td>Average effective labour force exit age (years)</td>
<td>5%</td>
<td>1</td>
<td>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.</td>
</tr>
<tr>
<td>Participation in training of 55-64 age group (ratio, relative to employed persons aged 25-54)</td>
<td>5%</td>
<td>1</td>
<td>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.</td>
</tr>
</tbody>
</table>

Note: The index scores reported in this 2017 release reflect the latest OECD data. Index scores for 2003, 2007 and 2014 may have changed relative to the results in our release last year (June 2016).

1 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 two years ago.
**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.*

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).

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:

\[
\text{GDP} = 15\text{-}54 \text{ FT} \times \text{GDP per FT worker} + 15\text{-}54 \text{ PT} \times \text{GDP per PT worker} + 55\text{-}64 \text{ FT} \times \text{GDP per FT worker} + 55\text{-}64 \text{ PT} \times \text{GDP per PT worker} + 65+ \text{ FT} \times \text{GDP per FT worker} + 65+ \text{ PT} \times \text{GDP per PT worker}
\]

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 one of the best in the OECD) 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 also performs relatively well in the 65+ employment category. 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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