

## Chapter 1

### Preventing ageing unequally

*This introductory chapter gives an overview of the entire publication drawing on analyses carried out in the other chapters. A special attention in this report is paid to life course trajectories comparing outcomes across generations. This chapter summarises how old age inequality is often the result of developments which interact across different dimensions and accumulate with age. It highlights that demographic changes combined with recent inequality trends and tight public finance constraints are changing the balance of societies. Risks of increasing inequality among future retirees have been building up in many countries. This chapter also suggests a policy agenda to prevent, mitigate and cope with such inequalities, drawing on good practices in OECD countries and emerging economies. The Executive Summary of the publication includes the key findings and recommendations.*

## 1. Preventing ageing unequally – Why policy makers should care

In a context of sluggish growth and widening inequalities in income and other social outcomes, policy makers are seeking to identify comprehensive, coherent and effective policy packages to foster inclusive growth. Growing unequally undermines future economic development, particularly where inequality of opportunity locks in privilege and exclusion, reducing intergenerational social mobility and social cohesion. Ageing unequally means inequality that develops through the ageing process and materialises in old age. While old-age inequality could be a short cut for “ageing unequally” the report highlights that it is often the result of developments occurring in different dimensions, which interact and cumulate over the life course.

Inequalities are now at the centre of the international policy agenda. The OECD has contributed to this outcome through a series of publications since the late 2000s, such as *Divided We Stand: Why Inequality Keeps Rising* (2011) and *In It together: Why Less Inequality Benefits All* (2015). The OECD *Better Life Initiative* (2011) has led to a better understanding of what drives well-being of people and nations. With the *All on Board for Inclusive Growth* initiative launched in 2012, the OECD has developed a comprehensive framework to help countries design and implement comprehensive, multisectoral policies that can deliver stronger growth and greater inclusiveness. Recent OECD work (OECD, 2016a, 2015a, 2011a) documented the increase in earnings inequality, the rising share of non-standard work, labour market difficulties encountered by youth, and high unemployment in some countries over past decades.<sup>1</sup>

Younger generations are living in a very different world from the one previous generations experienced. Baby boomers, i.e. those born after World War II and until the early 1960s, benefited from a period of sustained economic growth, major health and social improvements and growing employment rates. By contrast, members of “Generation X”, the people now aged 35-50, can no longer assume to be richer in old age than their parents. The “Millennial Generation”, which reached adulthood after 2000, has been particularly hard hit by the Great Recession and its aftermath, reducing their prospects for stable careers (OECD, 2016b). Furthermore, digitalisation and automation are progressing rapidly. They are leading to substantial improvements in living standards, e.g. through technological progress in the health sector and improved communication for those living alone or losing physical autonomy. But they are also profoundly transforming the world of work, challenging the job prospects of many workers and requiring them to adapt their skills to a rapidly changing environment. For many a “job for life” or even a “career for life” are no longer realistic scenarios. Income gains seen over past generations have slowed down or even stalled in many countries. While life expectancy continues to rise, new health risks have also emerged such as the threat posed by rising obesity, modifying the way populations age.

As a result of these trends, the future elderly population will experience old age in much more varied ways. Most people will live longer but some will have accumulated periods of inactivity and low pay while others will have experienced stable and rewarding careers. Some will be in relatively good health until old age while others will still experience health problems at an early age, with risks for their employment and earnings, and depend on others for their care. Growing disparities in labour market conditions will likely result in higher pensioner poverty in the future. Moreover, many countries have already lowered pension promises as a response to population ageing. Financing of pensions and long-term caring is likely to become more difficult. Therefore, the sustained

and broadly shared improvement in the living standards of elderly people seen over past decades may not continue in the future.

This report examines how the two global mega-trends of population ageing and rising inequalities have been developing and interacting, both within and across generations. It first discusses global ageing trends and documents how health status and life expectancy differ between socio-economic groups. It then analyses how younger generations today fare compared to the inequalities their parents and grandparents experienced. Taking a life course perspective the report shows how inequalities in education, health, employment and earnings compound resulting in large differences in lifetime earnings across different groups. It suggests a policy agenda to prevent, mitigate and cope with inequalities along the life course drawing on good practices in OECD countries and emerging economies.

### ***Rapid ageing with large differences in life expectancy within and across countries***

Worldwide, populations are ageing rapidly due to life expectancy gains and declines in fertility rates. Health improvements have been tremendous since the second half of the 19<sup>th</sup> century and life expectancy has increased for each successive cohort, apart from temporary mortality spikes due to the world wars. In 1980, there were 20 persons aged 65 and over for every 100 people of working age (20-64 years) on average across the OECD; by 2015 this number had risen to 28 (Figure 1.1) and with sharp acceleration is projected to almost double between 2015 and 2050.

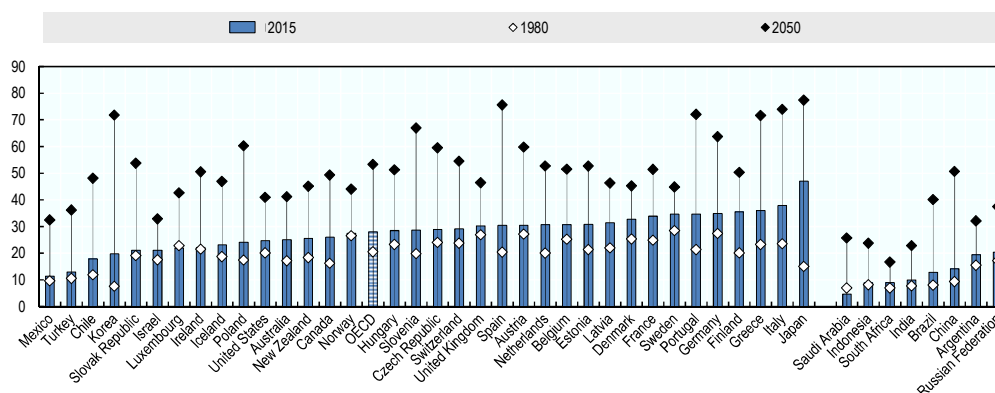
Japan is by far the oldest OECD country: its old-age dependency ratio increased by 32 points between 1980 and 2015. During that period, ageing was also rapid in Finland, Greece, Italy and Portugal while that ratio remained broadly stable in Ireland, Luxembourg, Mexico, Norway and the Slovak Republic. On this measure, Japan will remain the oldest country in 2050. Korea, however, is ageing the fastest, followed by Greece, Italy, Portugal and Spain which will also be ageing very rapidly. Across OECD countries, life expectancy at age 65 ranges from 19 to 22 years in 2010-15.

Population ageing differs across regions (within countries): urban centres draw younger and more mobile workers while rural areas are often already much older, larger shares of retirees and fewer younger workers to support them. On a national level, the share of the older population ranged from 6% in Mexico to 26% in Japan in 2014, but taking a closer look at the regional (TL3) level shows much more variation.<sup>2</sup> The share of the population aged 65+ ranged from 2% in the Chilean region of Antártica Chilena to 33% in Greece's Evrytania region; both are classified as rural remote regions. Spain, Mexico and Australia have the largest regional differences, with about 20-percentage point differences between the youngest and oldest regions. At around 5 percentage points, regional differences are lowest in Central and Eastern European countries and Ireland.

The pace of ageing of the population structure is much faster in many emerging economies. In OECD countries, life expectancy at birth rose by an average of 7.2 years between 1980 and 2015; by contrast, it increased by 20.5 years in India and by 11.3 years in Brazil over the same period. In Russia, however, the increase was only 2.4 years and South Africa lost 1.3 years of life expectancy. In 2015, old-age dependency ratios in Brazil and China were half the OECD average; by 2050 both countries will be rapidly closing in on the average OECD country and by 2075 they will be older than the average OECD country.

**Figure 1.1. The old-age dependency ratio will almost double in the next 35 years on average**

Number of people older than 65 years per 100 people of working age (20-64), 1980-2050



Source: United Nations World Population Prospects: The 2015 Revision.

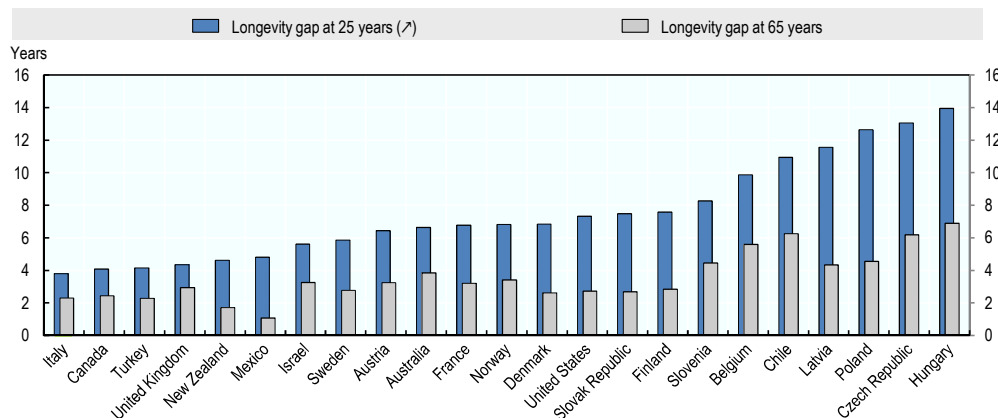
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Living a long life will be the norm in most countries. On average across countries, 80% of males born 70 years ago have reached age 70 and 93% of males born today are expected to do so; for women, the respective shares are 89% and 96%. The probability of surviving to age 85 will increase from 50% today to 75% by 2100 for males born today, and from 64% to 83%, respectively, for females.

Ageing is not a uniform process, however. A 25-year old university-educated man can expect to live 7.5 years longer than his low-educated peer, on average across countries; for women the difference is much lower at 4.6 years.<sup>3</sup> At age 65, these life expectancy gaps are 3.5 and 2.4 years, respectively. They are especially large for men in Belgium, Chile, the Czech Republic and Hungary, but comparatively low in Mexico and New Zealand (Figure 1.2). Expressed as a percentage of remaining life expectancy of the highly educated, differences between high- and low-educated groups, are 18.5% for men and 11.9% for women at age 65, on average across countries, and larger than at age 25.

**Figure 1.2. Life expectancy gaps between high- and low-educated groups at ages 25 and 65 are large**

Males, around 2011, in years



Note: New collected data – although from 2011 – improve on currently available data by better accounting for mortality differences across educational groups at older ages (see endnote 3).

Source: OECD data and calculations.

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In emerging economies too, highly educated individuals have greater chances of living longer (e.g. Mondal and Shitan, 2013). Evidence from Brazil shows that regions with higher illiteracy rates have lower average life expectancy (Messias, 2003). Moreover, inequalities in education tend to be larger than in OECD countries. In most of the large emerging economies primary school enrolment is close to universal, but fewer students finish secondary or tertiary education compared to OECD countries. These inequalities are likely to affect all phases of life as well as future generations; high parental education in China, for example, especially mother's education, is found to improve children's health (Chen and Li, 2008).

In China and Indonesia, being well educated, wealthier, employed or living in an urban area is associated with better health (Chapter 2). New OECD analysis finds that a higher socio-economic status is more strongly associated with better health in China and Indonesia than in OECD countries. For women, health gaps between the high- and low-educated are the largest in Indonesia, where high-educated women are, all else equal on average, about 14 percentiles higher in the health distribution than low-educated women. This gap is about 12 percentiles in China and 9 percentiles in OECD countries. Larger wealth is more strongly associated with better health in China than in both Indonesia and Europe, especially for men. Moreover, disadvantages in the health status of rural versus urban residents are much larger in China and Indonesia than in the OECD, even after accounting for differences in population characteristics.

In most emerging economies, health care is still limited in scope and effectiveness. There are fewer than two doctors per 1 000 inhabitants in all large non-OECD emerging economies, except the Russian Federation, compared to 3.3 doctors on average in OECD countries (OECD, 2015a). Lack of insurance and financial constraints limit the use of prevention, detection and health care options and result in worse health, especially among older people. A large share of informal employment means that many people are excluded from formal social protection. In China, until 2003, 80% of people living in rural areas had no health insurance. More recently, however, China has been expanding its welfare system and universal health insurance coverage was virtually achieved in 2011 (Yu, 2015). Similarly, Indonesia started the extension of health care provision in 2014, with the aim of covering the entire population by 2019, but progress has been uneven (Pisani et al., 2017). While health care expansions in China and Indonesia are important to address entrenched health inequalities it is too early to assess their actual scope and effectiveness.

### ***Are the additional years lived in good or bad health?***

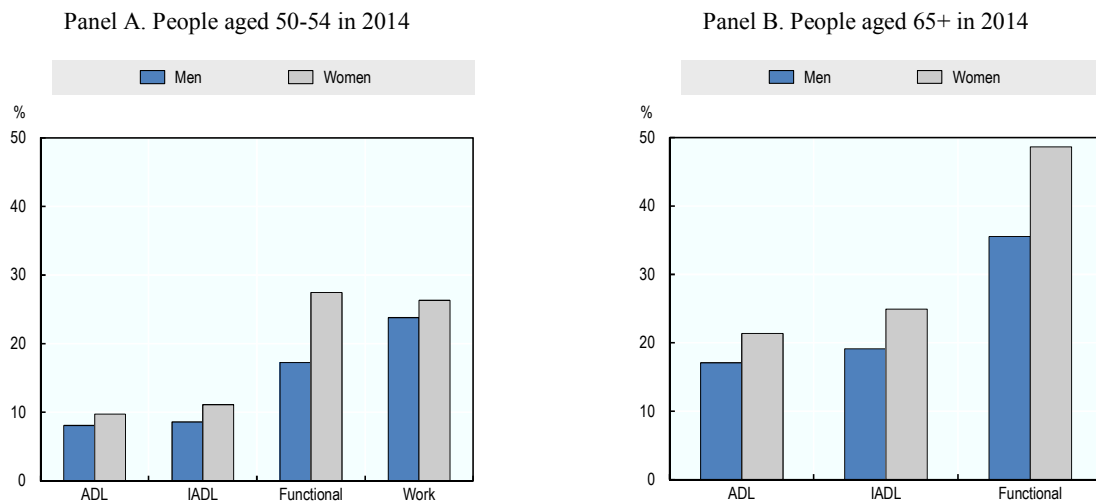
A key question is whether and which people live the additional life years gained over past decades in good or bad health. Between 2000 and 2015, life expectancy at birth in OECD countries increased by 3.4 years, on average, and 92% of these additional years have been spent in good health, i.e. free of disability. This means that the share of healthy years in total life years has been stable. At age 50, however, the picture is a bit different: 40% of the gains in male life expectancy at age 50 have been in good health. For women, the share is even lower at 30%. Overall, this implies that the number of healthy life years at age 50 has increased over time, but that the ratio of healthy life years over remaining life expectancy has fallen slightly for both men and women over the past decade.

New OECD analysis examines the links between education levels and disabilities for men and women above 50.<sup>4</sup> It covers 12 European countries, China, Israel, Japan and the United States. Disability inequalities by gender and level of education are similar in most

countries (Chapter 2). Women more often report disabilities in both the 50-64 and 65+ age groups (Figure 1.3), because they more often have non-fatal but disabling diseases, such as arthritis or depression. Men, in turn, more frequently suffer from fatal diseases, such as lung cancer or heart attacks (Espelt et al., 2010; Sarkeala et al., 2011). Unsurprisingly, disability increases with age: for example, about 8% of men aged between 50 and 64 years report at least one ADL (activity of daily living) restriction compared to 17% for those older than 65.

**Figure 1.3. Disability increases with age**

Disability rates for individuals aged 50-64 and 65+, average across 16 countries, 2013/14 or nearest year



*Note:* The chart shows age-standardised rates. Age standardisation using the 2005 OECD population. Sampling weights are used. The survey of health and ageing in Japan does not include a question about work participation related to disability. Disability is measured using four self-reported indices: i) at least one limitation in activity of daily living (ADL), ii) at least one limitation restriction in instrumental activity of daily living (IADL), iii) at least one functional limitation related to mobility, and iv) being limited in paid work because of a health problem.

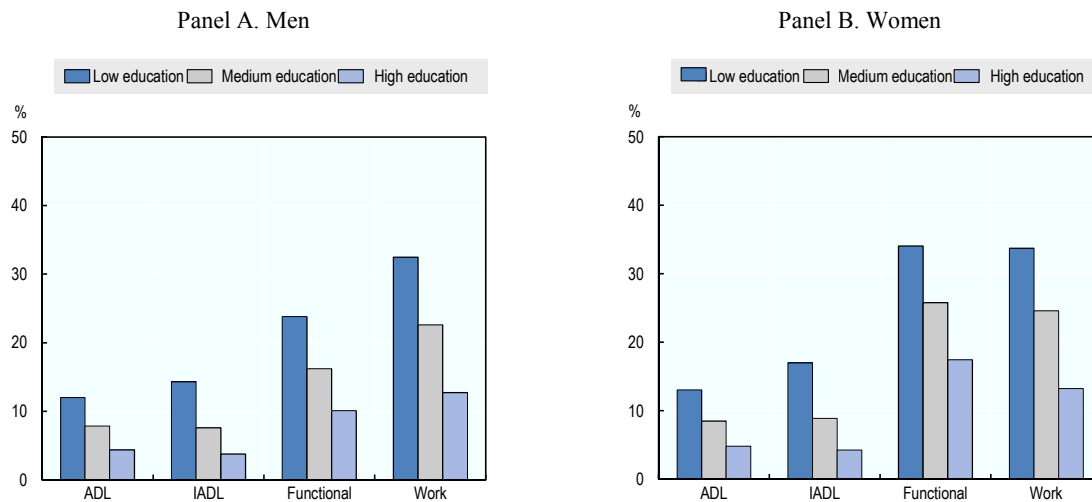
*Source:* OECD estimates based on SHARE, ELSA, HRS, JSTAR, and CHARLS data.

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Lower educated individuals, both male and female, are more likely to have a disability (Figure 1.4). About 30% of males between 50 and 64 years with low education declare being limited in paid work because of a health problem against only 10% of those with high education.<sup>5</sup> Disabling chronic diseases are also more frequent among people with lower education levels, due to lower incomes, worse working and living conditions, behavioural risk factors (such as smoking, harmful alcohol consumption and less healthy nutrition habits), and less access to appropriate health care (OECD, 2016c; James et al., 2016). The education-health gap, while persisting at older ages narrows in the 65+ age group compared to middle-aged adults (see Chapter 2). Moreover, in Indonesia having some education has been found to increase life expectancy, but also to increase the expected years with major functional problems (Hidajat et al., 2007).

**Figure 1.4. Low-educated people are more exposed to disability risks**

Predicted prevalence of disability among people aged 50-64 by gender, average across 16 countries, 2013/14 or nearest year



*Note:* Predicted probabilities are derived from four separate logistic regression models (for each gender and age group). Control variables include: five-year age group, time, time squared, education level and country dummies. Age standardisation is to the 2005 OECD population. The survey of health and ageing in Japan does not include a question about work participation related to disability.

*Source:* OECD estimates based on SHARE, ELSA, HRS, JSTAR, and CHARLS data.

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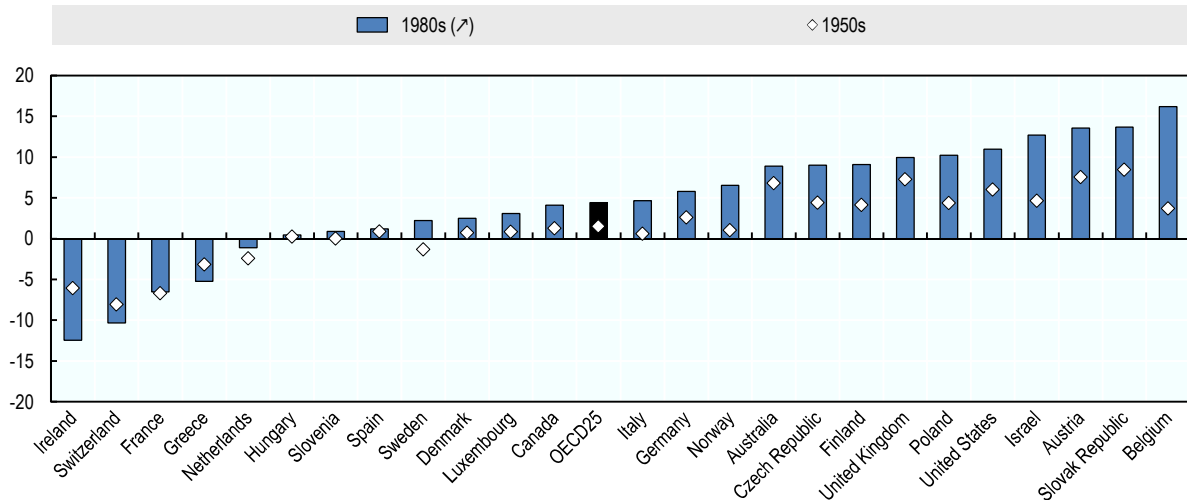
### ***How has income inequality evolved across generations?***

Income inequality in OECD countries is at its highest level for the past half century. The average income of the richest 10% of the population is about nine times that of the poorest 10% across the OECD, up from seven times 25 years ago.<sup>6</sup> Only in Turkey, Chile, and Mexico has inequality fallen, but in the latter two countries the incomes of the richest are still more than 25 times those of the poorest. Over the past few years, despite economic recovery in many countries, income inequality levels have remained at historically high levels. Income inequality is commonly measured by the Gini coefficient which scores 0 when everybody has the same income and 1 when all of the income goes to only one person. Across OECD countries, the average Gini coefficient of disposable household income was fairly stable between 2010 and 2014 just below 0.32.

In most OECD countries, income inequality has been rising from one generation to the next. Comparing people born in the 1920s and in the 1980s at the same ages shows a Gini increase of 4.4 percentage points, on average across the OECD. The increase is very large (i.e. greater than 9 points) in Belgium, the Czech Republic, Austria, Israel, the United States, Poland, the United Kingdom, Finland, the Slovak Republic and Australia (Figure 1.5). There are some exceptions, however: income inequality at the same age declined across generations in Ireland, Switzerland, France and Greece, mostly among people born between the 1920s and the 1950s.

**Figure 1.5. Income inequality at the same age has increased from one generation to the next in most countries**

Changes in income Gini coefficients at the same age across birth cohorts in percentage points, average across age groups, cohort reference = 1920s



*Note:* The change in the income Gini coefficient at the same age across cohorts is estimated per country through cohort fixed effects controlling for age-group effects. Older cohorts tend to be observed at old ages only and younger cohorts at young ages.

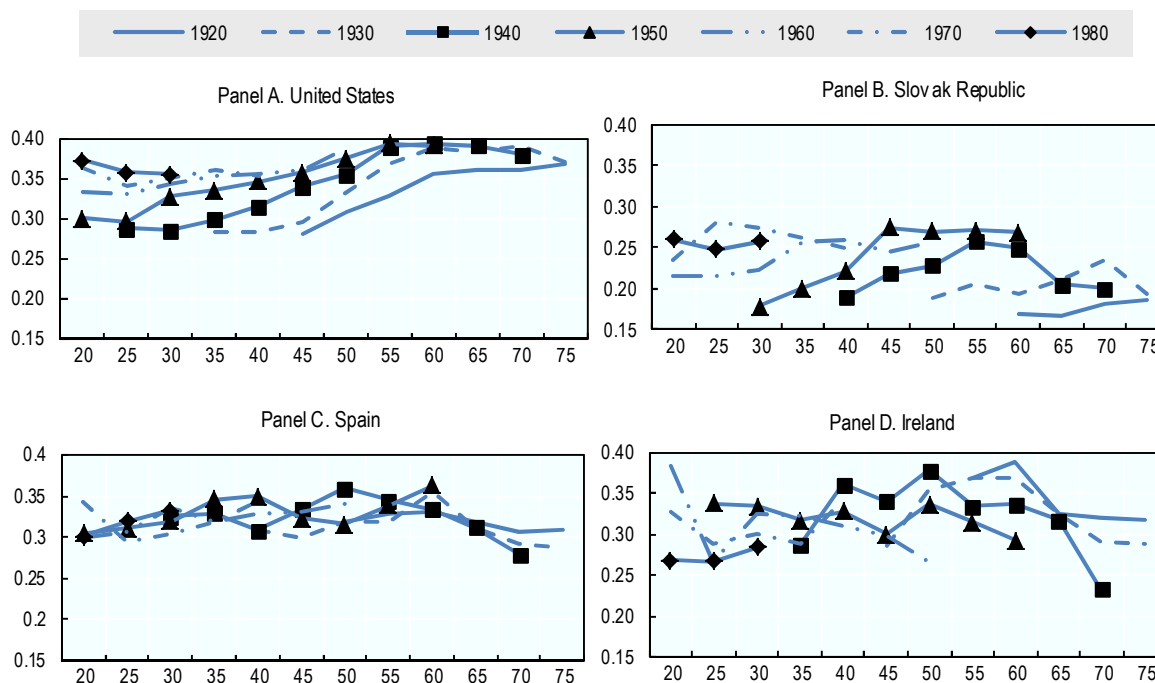
*Source:* OECD calculations from the Luxembourg Income Study data.

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Overall, income inequality at the same ages has thus increased across cohorts in about two-thirds of countries, has been about flat in one-sixth of countries and has declined in about one-sixth. For example, in the United States (Figure 1.6, Panel A), inequality has been rising for each age group from one cohort to the next, from already high levels for the oldest cohort. A similar pattern is seen in the Slovak Republic (Panel B), albeit at lower levels of inequality. In Spain (Panel C), however, inequality across cohorts at the same ages has been relatively stable. Ireland, in Panel D, provides a counter-example with declining income inequality across cohorts.



Figure 1.6. Income Gini coefficient by cohort and age groups in four selected countries

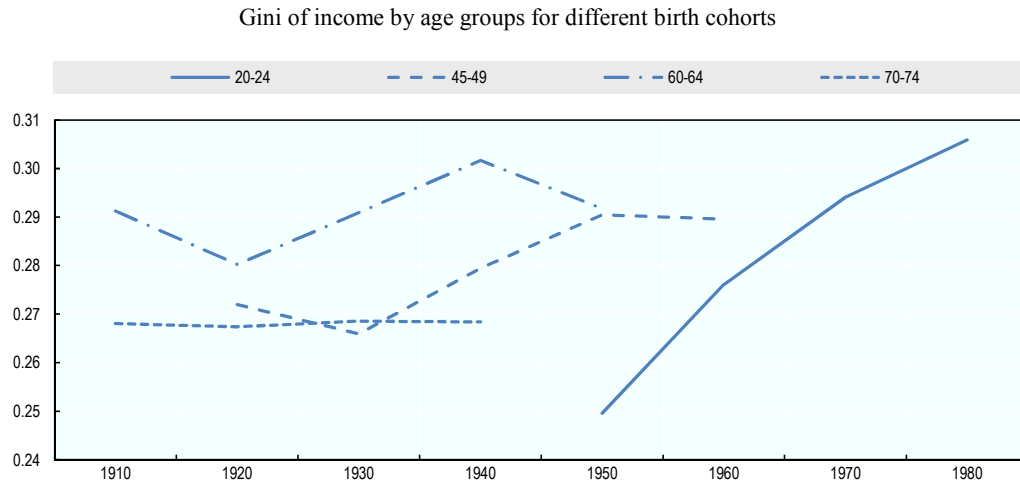


Source: Calculations from the Luxembourg Income Study covering 25 OECD countries.

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Moving from the average across ages, as illustrated above, to specific age groups shows that the younger age groups are now the most unequal.<sup>7</sup> Figure 1.7 shows that, on average across countries, income inequality among those aged 20-24 is about 6 percentage points – or about 24% – higher for the generations born in the 1980s than it was for those born in the 1950s. Some major trends, such as the development of education and changes in household structures across generations, are likely to have influenced these developments. Inequality in middle age (45-49 years), also increased especially between the generations born from the 1930s to the 1960s; for older age groups, by contrast, it remained broadly stable. This means that inequality among people starting their working life is now already much higher than among today's elderly, which is in stark contrast to patterns observed in the past.

**Figure 1.7. High income inequality for youngest cohorts at the start of their working life**



*Note:* The pattern for each cohort is estimated using age and country fixed effects to control for the unbalanced nature of the data. The above chart shows the age effects. For example, on average across countries, the Gini coefficient among those aged between 20 and 24 years increased from 0.250 for those born in the 1950s to 0.306 for those born in the 1980s.

*Source:* OECD calculations from the Luxembourg Income Study data.

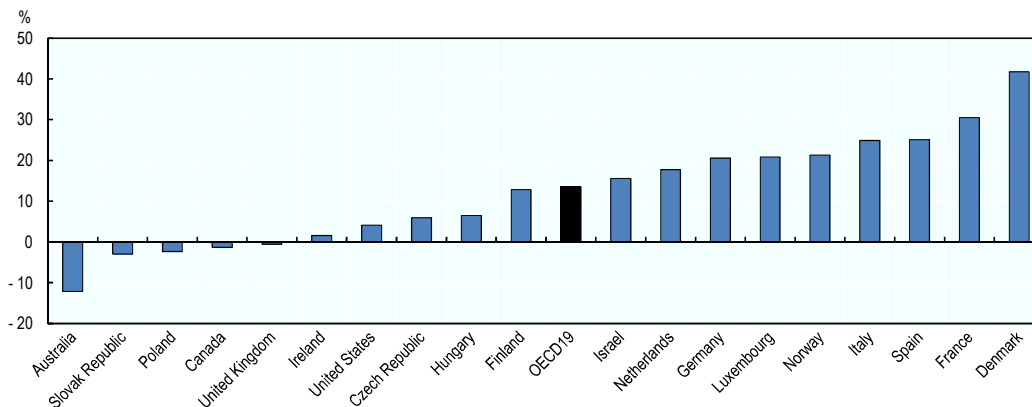
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**Poverty risks are shifting from the old to the young**

Compared to younger age groups, the economic situation of older people has improved over past decades. Figure 1.8 shows that since the mid-1980s the income of the group aged 60-64 grew by a cumulative 13% more than that of the 30-34 age group, on average across countries. The income shift benefited older people in most countries for which data are available, except in Anglo-Saxon countries, the Slovak Republic and Poland. The relative position of older people has improved especially in Italy, Spain, France and Denmark.

**Figure 1.8. Real income growth was faster for the older age groups**

Change in relative income of 60-64 vs 30-34 between the mid-1980s and the mid-2010s



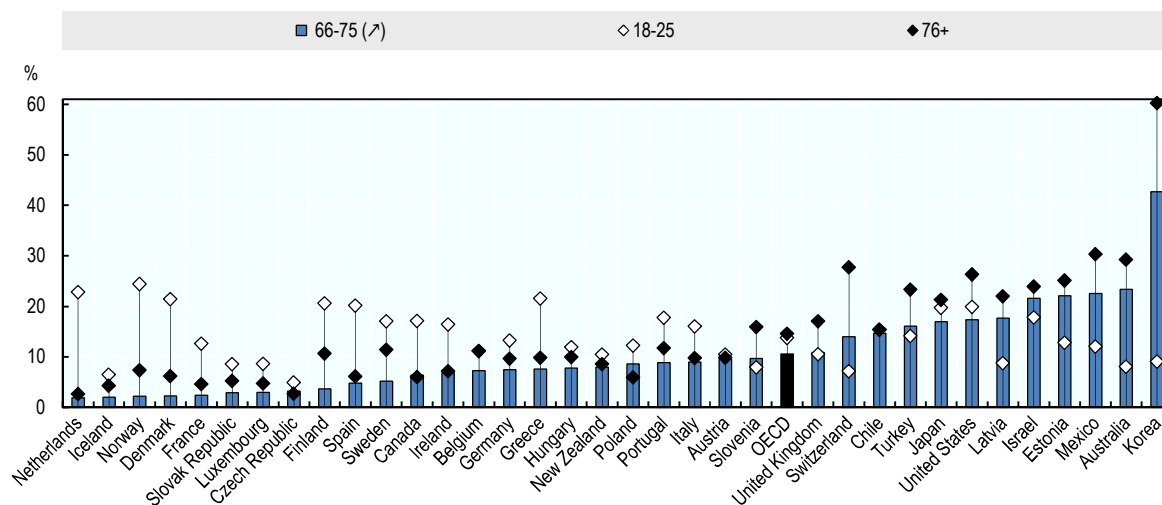
*Source:* OECD computations from the Luxembourg Income Study data.

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Poverty risks have shifted from older to younger groups in most OECD countries since the mid-1980s (Chapter 3). Relative poverty rates have steadily increased for youth aged 18-25 years, reaching 13.9% on average across the OECD. Pensioners, by contrast, have been relatively protected from negative income shocks since 2007-08, except in countries where the crisis hit hardest. The poverty rate for those aged 66-75 years today is 10.6% on average across OECD countries, against 11.4% for the whole population (Figure 1.9).

It should be noted, however, that those older than 75 are still the most vulnerable with an average poverty rate of 14.4 %. More than one in five people above 75 are poor in Japan, Latvia, Turkey, Israel, Estonia, the United States, Switzerland, Australia, Mexico and Korea.<sup>8</sup> Among OECD countries, old-age poverty rates are closely related to the poverty rate for the whole population, except in Australia, Korea and Switzerland where the old-age poverty rate is much higher.

**Figure 1.9. Relative poverty rates by age group, 2014 or latest year available**



*Note:* Poverty rates are defined at half the median-equivalised income. Data refer to 2014 for the Netherlands, Finland, Hungary, the United States, Israel, Mexico, Australia and Korea; to 2012 for New Zealand and Japan; and to 2013 for all other countries. For the OECD average, the poverty rate is 13.9% for the 18-25 and 14.4% for the 76+.

*Source:* OECD Income Distribution Database.

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## 2. How disadvantage becomes entrenched: Compounding inequalities over the life course

Ageing unequally starts early and builds up from childhood to old age. This section shows how inequalities in different dimensions, such as education, health, employment and earnings, reinforce each other and evolve over the life course. Children who are healthy and living in a safe and nurturing environment perform better in school, reach higher degrees and have better chances of succeeding later on in the labour market. People with stable jobs and higher incomes, good access to health and other services are more likely to retire with adequate income. People with low quality jobs, low incomes and unstable careers, by contrast, tend to be in worse health and face higher risks of unemployment and poverty, and these disadvantages are passed on to the next generation.

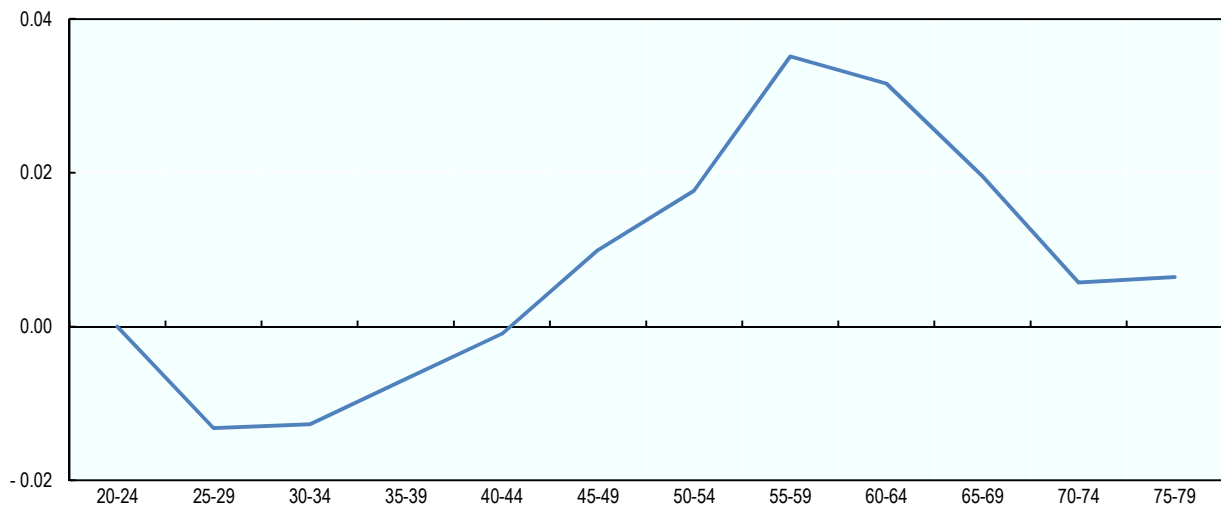
### *A look at income inequality over the life course*

Income inequality, as measured by the Gini index, has typically been rising with age within the same cohort, peaking at about age 55-60, on average across cohorts and countries (Figure 1.10). Inequality generally then declines, dropping by about 3 percentage points at ages 75-79, which corresponds to a 10% reduction of inequality. This is consistent with the age-as-leveller (AAL) hypothesis, which states that inequality falls as older adults disengage from systems which perpetuate social strata, such as the labour market, and as pension systems tend to redistribute income to poorer retirees (Corna, 2013; OECD, 2015b).

**Figure 1.10. Income inequality reaches a peak at age 55-59 over the life course for the same generation**

Estimated age pattern within cohorts of the Gini index of income, average across cohorts and countries

Reference age group = 20-24



*Note:* The age pattern is estimated using cohort and country fixed effects. On average across countries and cohorts, the Gini index falls between the 20-24 and the 25-29 age groups and then reaches a peak at age 55-59 at a level which is 3.5 points above that at age 20-24.

*Source:* OECD calculations from the Luxembourg Income Study data.

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### *Early childhood is the starting point for lasting disadvantage*

Early-life health and socio-economic conditions lay the foundations for people's future and are important predictors of future well-being (Dannefer, 2003; George and Ferraro, 2016). Material, physical, and educational factors as well as living arrangements and the composition of families are important factors for child well-being. Disadvantages in these dimensions reinforce each other.

Children aged between 11 and 15 years from poorer families are more likely to report poor health (18%) than those from affluent families (11%),<sup>9</sup> and show a rate of overweight that, at 22%, is 1.5 times the level among children from richer families (Inchley et al., 2016). Child poverty can damage brain development and reduce learning outcomes later on in life. The brain develops rapidly in the earliest years of life, and its capacity to adapt and develop slows with age. A five-year-old's level of self-regulation, oral language and communication, numeracy, fine motor skills, locus of control and

social skills are predictive of their later outcomes in terms of employment, income, educational attainment and health (Schoon et al., forthcoming). Social and non-cognitive skills (e.g. personality traits, self-confidence and self-control, pro-social behaviour) also develop early; these skills are particularly important to adapt in the new world of work (Kautz et al., 2014).

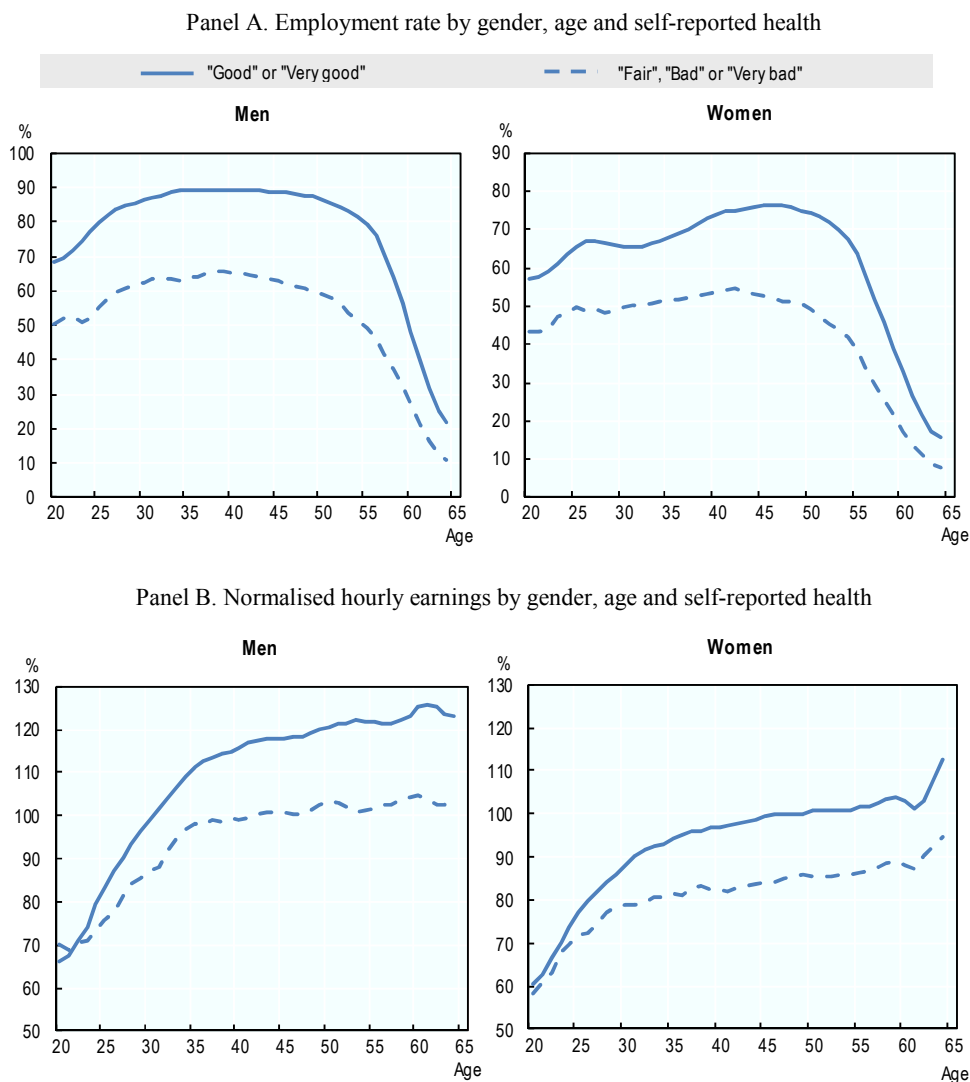
Evidence for the United States suggests that the gap in child outcomes between poorer and richer households has widened over time, mainly as a result of growing investment of time and resources by richer parents in the education and *extra-curricular* activities of their children (Putnam, 2015). A striking example of the divide between poor and affluent children is the development of a large “vocabulary gap” already at a very young age: children growing up in poor neighbourhoods and/or from lower-income families in the United States may hear up to 30 million fewer words than their affluent counterparts by age three (Fernald et al., 2013). Children from more affluent families tend to develop better skills in reading and problem solving, are less likely to drop out of school without a diploma, and are more likely to complete tertiary education.

### ***The mechanics of working-age disadvantage: links between health and labour market outcomes***

Inequalities in adulthood are driven by an interaction of factors related to education, health, employment and incomes. About one third of all surveyed persons in European countries, Australia, Korea and the United States and one fifth of those employed report having less than good health. Not surprisingly, people become sicker as they age. While only 11% of 20-year olds say their health is less than good, this share rises to 58% at age 64; for those who are employed, the respective shares are 8% and 39%.

Figure 1.11 shows the differences in employment rates and hourly wages along health status for both men and women. At all ages, men and women in bad health work less (Panel A), and earn less when they work (Panel B). The health-wage gap widens with age, compounding disadvantage. Indeed, healthy workers, in particular males, see their wages increase more steeply with age (Panel B). Health-employment gaps – in percent – are three times larger than health-wage gaps, on average. They are broadly stable until the age of 45, at around 25-35% for both men and women. After age 55, employment falls sharply for men and women both in good and bad health, but the gap widens to more than 50% from age 60.

This association between health and labour market outcomes cuts both ways: health problems can cause problems at work and trigger earnings losses, but work can also damage people’s health. Health affects earnings and employment through its impact on educational attainment, and has on top a direct effect on labour market outcomes, which differs across educational groups. To disentangle the impact of health on employment and wages, the path of earnings between the age of 20 and 67 has been estimated, taking into account the wage and employment effects of bad health, for selected typical cases with different health status (bad versus good), education levels (low, medium and high) and gender.<sup>10</sup> Bad health is found to lower the probability of working for both men and women, and to reduce wages for men but not for women.

**Figure 1.11. People in bad health work less and earn less at all ages**

*Note:* Individual hourly earnings are divided by the corresponding country-year mean and multiplied by 100.

*Source:* OECD calculations based on micro data covering 24 OECD countries including Australia, European countries, Korea and the United States (see text).

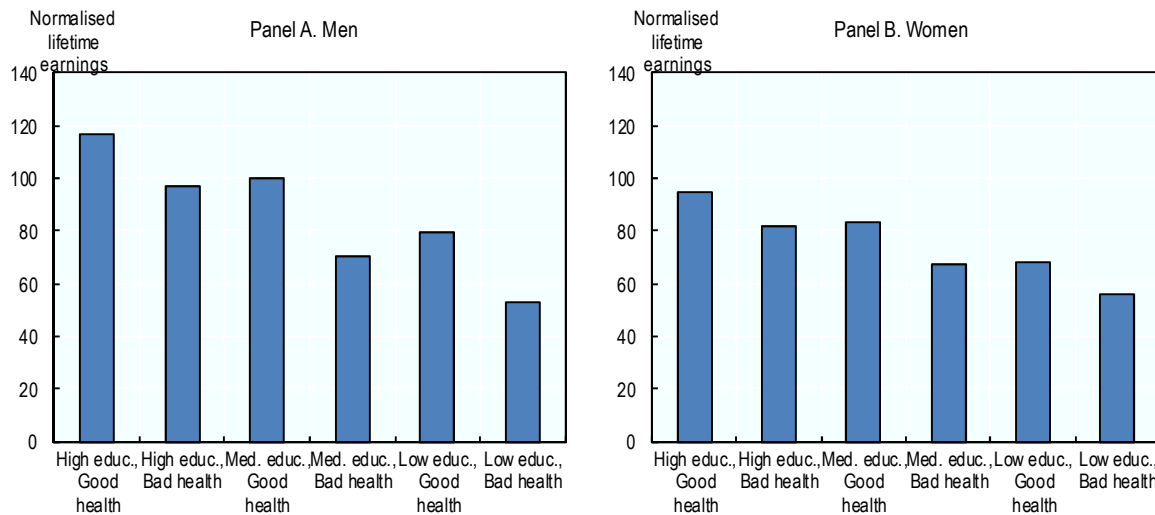
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Figure 1.12 shows lifetime labour earnings for different typical cases, taking as a baseline the lifetime earnings of medium-educated men in good health. Employment risks due to bad health are factored in but otherwise those typical cases assume that individuals work a full career. Low-educated people's earnings are affected the strongest by bad health, mostly due to employment losses. Over the whole career, bad health reduces lifetime earnings by 33 and 17% for men with low and high levels of education, respectively. The health effects are much smaller for women, at 18 and 13%, respectively, as employment risks due to bad health are more limited for female workers. Women's employment patterns depend more than men's on other factors, such as caring responsibilities, and less on their own health status, for example because their partner's income plays a greater role and due to less physically demanding working conditions.

Nevertheless, bad health lowers female's earnings, thereby compounding gender gaps (Figure 1.12). Women in good health with medium education start with a 16% lifetime earnings gap compared to their male peers. Being in bad health further reduces these women's lifetime earnings by 19%. Overall, a high-education (medium-education) woman with bad health has comparable lifetime earnings to that of a medium-education (low-education) woman with good health.

**Figure 1.12. Impact of health on lifetime labour earnings by education level**

Average across countries, 100 = Lifetime earnings for a man in good health with a medium education level



*Note:* Details about the estimated impact of bad health on labour market outcomes by gender and education level and about the computation of lifetime earnings are found in Chapter 2. Lifetime earnings are normalised such that a full-career medium-education man in good health has a real lifetime earnings of 100.

*Source:* OECD estimates.

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Health disparities along socio-economic lines increase with age until around the mid-60s and then decline at older ages (Herd, 2006). However, less advantaged groups of people tend to die earlier on average (and participate less in surveys due to health limitations), potentially leading *ceteris paribus* to a reduction of inequality among those who survive to older ages. Most studies find that correcting for this selective mortality weakens but does not eliminate completely the decline of health disparities beyond a certain age.

### ***Making the work-to-retirement transition***

The transition from work to retirement is a decisive moment which can reinforce and cement inequalities. Identifying and quantifying the obstacles that prevent people in different socio-economic groups from working longer is thus essential. Not all retirement is voluntary and many workers leave the labour market before having full pension rights, running the risk of low retirement income and old-age poverty.

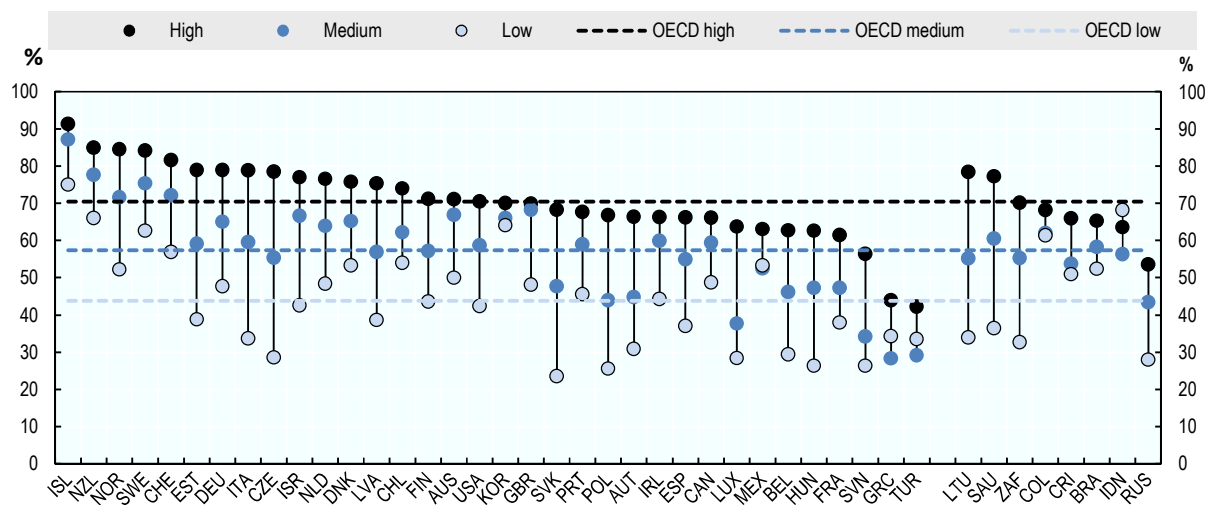
While life expectancy at age 65 was increasing rapidly between the mid-1970s and the late 1990s, the average effective labour market exit age fell by more than four years,

on average in OECD countries. Since 2000 the trend has been reversing in most countries, but workers still leave the labour market earlier than they did 40 years ago.<sup>11</sup>

Labour market participation differs strongly across age groups, educational levels, gender and countries, even when remaining life expectancies are similar. Health *at a given age* is significant for the retirement decision: about 26% of men and women who are in work four years before the normal pension age are likely to retire at least two years early when they are in bad health, compared with 14% of those in good health.<sup>12</sup> But health limitations only explain part of the sharp decline of employment rates from age 55; other factors are also at play reducing participation of older workers, especially those with lower socio-economic status. A workers' education level influences the retirement decision as well. Low-educated people are found to be more likely to retire when they reach the retirement age whereas higher-educated people tend to work longer. The strong effect of educational background over the lifetime is illustrated by the employment rates of older workers, as shown in Figure 1.13, which average 44% for low-educated older workers and 70% for those with high education.

**Figure 1.13. Employment rates of population aged 55-64 by educational group**

Percentage of the population, 2015 or latest



Source: Calculations from the OECD Education Database.

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### 3. When I was your age: How employment and income patterns are changing across generations

#### *Employment pattern across generations*

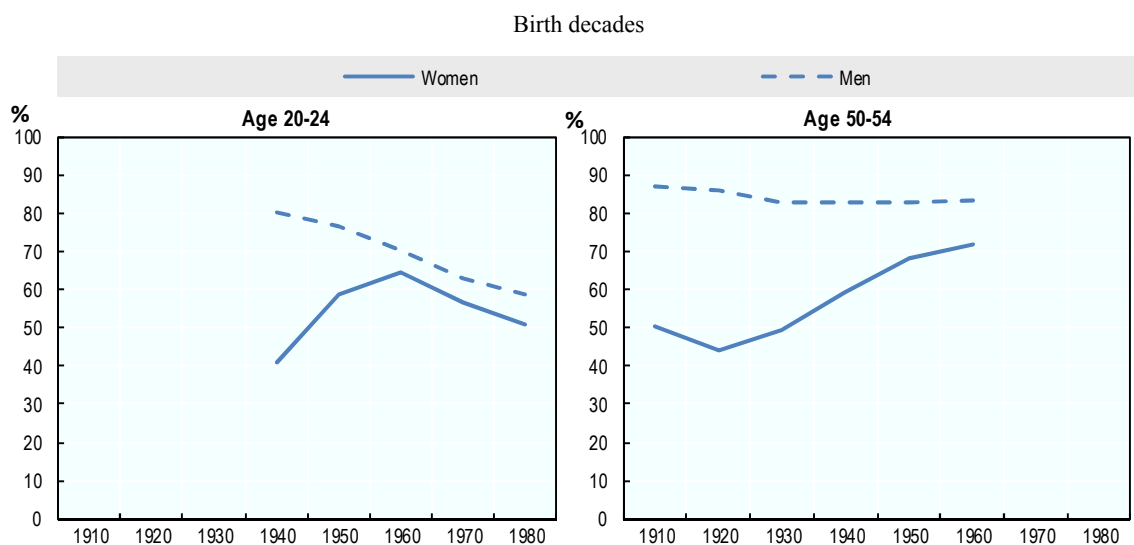
Work patterns vary significantly between generations. Overall, employment rates at the same age across cohorts increased substantially for those born until the 1960s, mostly thanks to more women in work. Male employment rates at younger ages (20-24 years old), by contrast, have steadily declined across cohorts on average in the OECD (Figure 1.14, Panel A). Young female employment rates increased sharply for those born before 1970, and then fell at a similar pace, consistent with greater



participation in higher education and high rates of youth not in education, employment or training (NEET) in recent decades.

For men born since 1930, the average employment rate of age group 50 to 54 has been stable while it has sharply increased for women in the same age group, resulting in an average gender gap of about 10 percentage points for those born in the 1960s (Panel B). Having more women in work has reduced overall income inequality, even though there are large employment gaps between high- and low-educated women (Harkness, 2013; OECD, 2015a).

**Figure 1.14. Employment rates by gender across cohorts, at ages 20-24 and 50-54**



*Note:* The cohort pattern of employment rates is estimated for each age group using country fixed effects to control for unbalanced panel data.

*Source:* OECD calculations from the Luxembourg Income Study data.

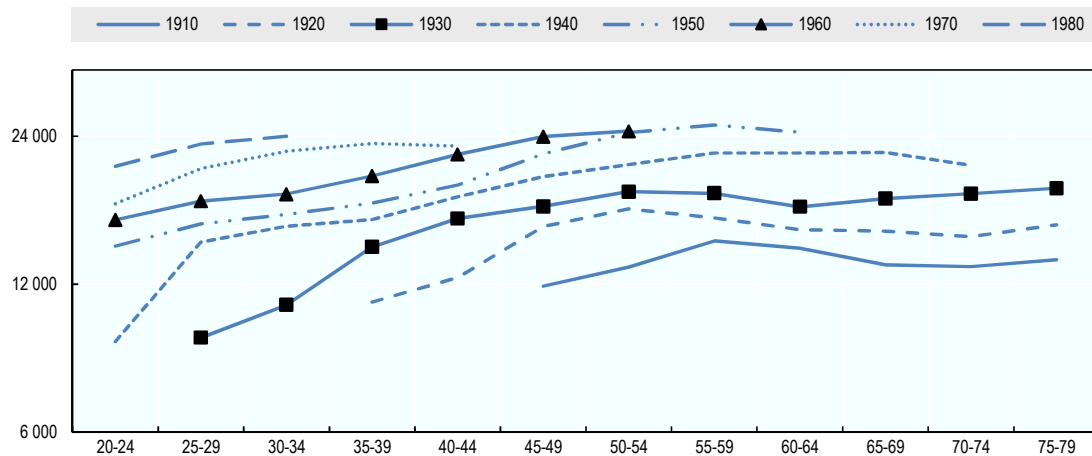
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### ***Income improvements across generations are losing steam***

Income at the same age used to increase from one generation to the next. Figure 1.15 shows real average income by age groups for cohorts born from the 1910s to the 1980s.<sup>13</sup> Each successive cohort has been enjoying higher incomes than previous ones at the same age: for example, each birth decade between the 1910s and the 1950s had an income at age 60-64 that was on average 15% higher than that of the previous cohort. But the situation has changed: people born in the 1960s, who are now in their early fifties, have incomes which are not higher at the same age than those of the cohort born ten years earlier. The same applies to those born in the 1970s at age 40-44. This new pattern may well reflect the impact of the Great Recession, and the verdict is still out on whether this will result in persistently lower incomes of the affected cohorts.<sup>14</sup>

**Figure 1.15. Substantial income gains at the same age across birth cohorts until recently**

Age-cohort pattern of real disposable income, OECD average, 2010 USD PPP



Note: Data cover 21 OECD countries. However, due to quality issues, data from Mexico have not been used. To limit the biases from the unbalanced nature of the panel data then obtained, the series shown in the chart are derived for each cohort from specification with country and age fixed effects.

Source: OECD calculations from the Luxembourg Income Study data.

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Looking beyond the averages, however, reveals large country variation. People aged 50-54 today, for example, have an average real income at least 5% greater than those born in the 1950s in the Slovak Republic, Slovenia, the Czech Republic, Poland and Australia. By contrast, the average income of this age group is more than 5% lower in Greece, the United States, Luxembourg, Spain and Hungary, compared to the previous cohort (Chapter 3).

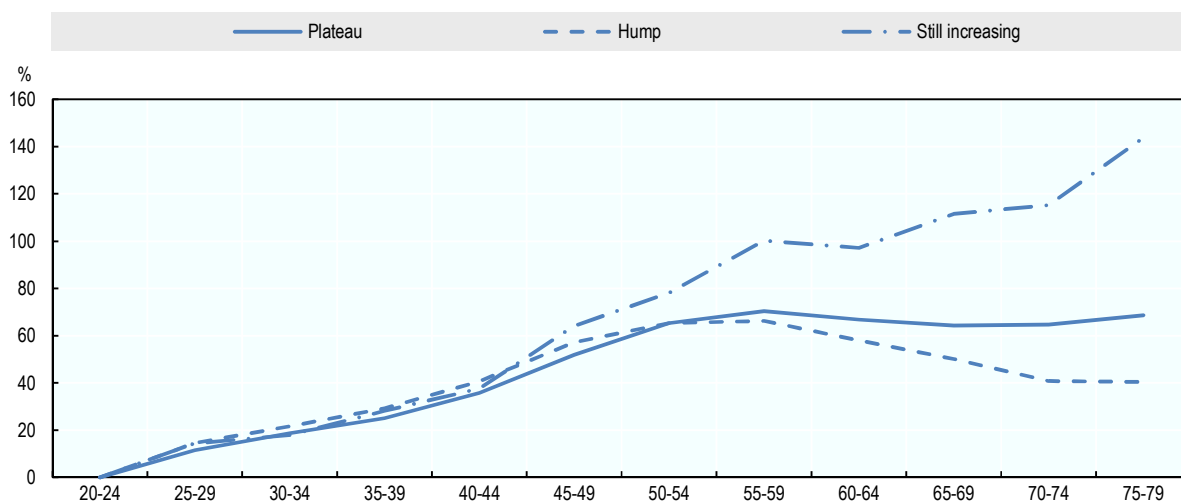
### ***“When I’m 64”: age and income within cohorts***

Do people become richer *on average* as they age? For each cohort, real average income increased between age 20 and 55. From 1967 to 2013, across cohorts and countries real income grew by about 75% between the ages of 20-24 and 55-59 on average; thereafter income tended to plateau. However, income age profiles differ across countries (Figure 1.16).

Countries are here sorted into three groups, which all have a similar average increase until age 45-49. The first group (“plateau”) includes Canada, Finland, Hungary, Israel, Italy, the Netherlands, Norway, Poland, the Slovak Republic and the United Kingdom; in this group, the income pattern at older ages is similar to the OECD average, with income plateauing after age 60. In the second group (“hump”), Australia, Austria, Belgium, Denmark, Slovenia, Sweden, Switzerland and the United States, average real income falls (for the same birth cohort) by about 0.9% per ageing year on average between ages 55-59 and 75-79.<sup>15</sup> In the third group (“still increasing”), the Czech Republic, France, Greece, Ireland, Luxembourg and Spain, individuals have gotten richer on average as they have aged with real income continuing to increase through older ages, at a fast pace of about 2% per year. Of course, incomes at older ages (between ages 55-79) are estimated on the basis of previous cohorts’ progression so these profiles at older ages might not hold for the younger cohorts.

**Figure 1.16. Real average income within cohorts diverge after age 50 across countries**

Average changes for the same cohort per country group from age 20-24



*Note:* The “Plateau” group is made of Canada, Finland, Hungary, Israel, Italy, the Netherlands, Norway, Poland, the Slovak Republic and the United Kingdom. “Hump” is Australia, Austria, Belgium, Denmark, Slovenia, Sweden, Switzerland and the United States, while the Czech Republic, France, Greece, Ireland, Luxembourg and Spain are part of the “Still increasing” group. The analysis is based on country, age and cohort fixed effects.

*Source:* OECD calculations from the Luxembourg Income Study data.

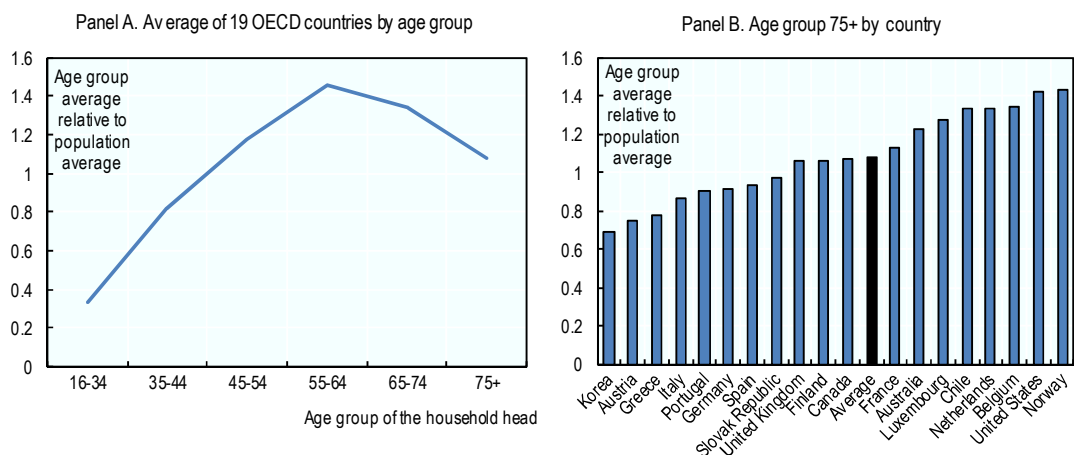
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Wealth, as a complement to income, is also important to capture households’ capacity to deal with negative shocks. It is also a critical factor for the accumulation of inequality over the life course, given that wealth inequality is typically much larger than income inequality (Murtin and Mira d’Ercole, 2015). Unfortunately, data limitations are substantial, not allowing for a thorough analysis of wealth disparities across cohorts. Available data, however, do allow comparing average wealth across age groups for a recent period – thus corresponding to different cohorts – for 19 OECD countries.

Based on these data, wealth in 2010 grew by a factor of 4.4 on average from the age group of 16-34 years to a peak reached at ages 55-64 (Figure 1.17, Panel A). This increase suggests that, in addition to receiving bequests and inter-vivo transfers, households use a substantial part of their income to build up wealth during their working life, replicating patterns of income inequality in wealth distribution.

**Figure 1.17. Mean household net wealth in different age groups**

Age group average relative to population average, 2010 or latest available year



Note: Panel A shows an unweighted average of the 19 OECD countries for which data is shown in Panel B. Data of Euro countries and the United States refer to year 2010, Chile to 2011, Australia, Canada and the United Kingdom to 2012 and Korea to 2013. The age group refers to the age of the household head.

Source: OECD Wealth Distribution Database (accessed 11 May 2017).

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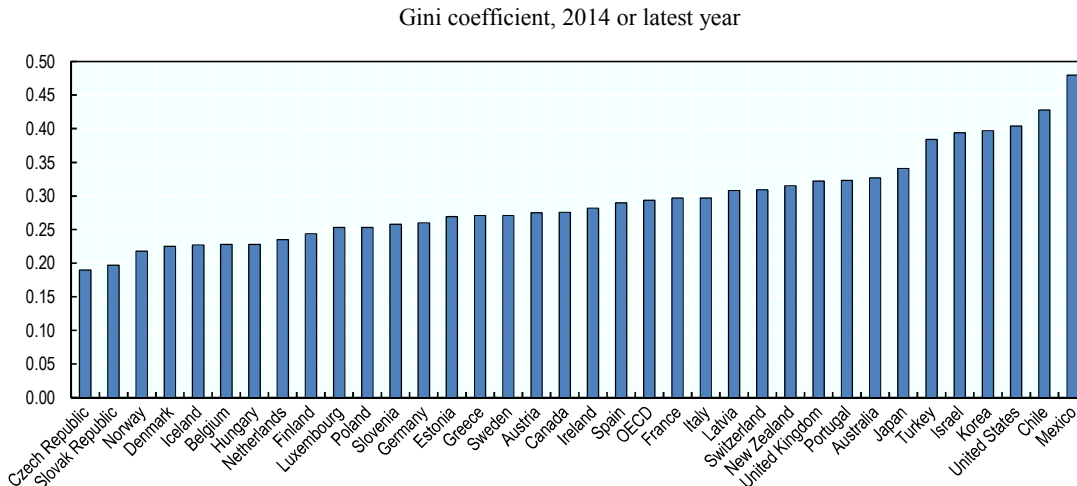
During retirement the average wealth declines due to the loss of labour earnings in old age and due to transfers made to their offspring. In 2010, those older than 75 years owned 26% less wealth than households at the peak age of 55-64, on average, across 19 OECD countries, but their wealth was still 8% greater than for the total population (Panel B). In Korea, Austria and Greece, however, the elderly had a much lower wealth than the total population (at least 20% less) and a much higher one in the United States and Norway (more than 40% above).

#### 4. Equal in old age? Income, living standards and well-being in retirement

The future elderly population will become more diverse; people will live longer but more will have experienced some period of unemployment during their working lives and more will have earned low wages, while others will have enjoyed higher, stable earning paths. Old-age and care support systems will therefore likely have to cope with significantly higher inequalities, boosting the demand for more redistribution through pension policies, at least in some countries.

##### *Focusing on income inequality and poverty at older ages*

Assessing future risks of unequal ageing must start with a look at the situation today. Income inequality among the 65+ group, as measured by the Gini index, varies from about 0.20 in the Slovak Republic, the Czech Republic, Denmark and Norway to more than 0.40 in Israel, the United States, Korea, Chile and Mexico (Figure 1.18). In general, old-age income inequality in OECD countries is closely related to overall income inequality.<sup>16</sup> As shown in Section 1 above, old-age income inequality has been fairly stable across cohorts, suggesting that the improvements of older people's living standards in past decades have been well shared among retirees.

**Figure 1.18. Income inequality among those older than 65 years varies widely across countries**

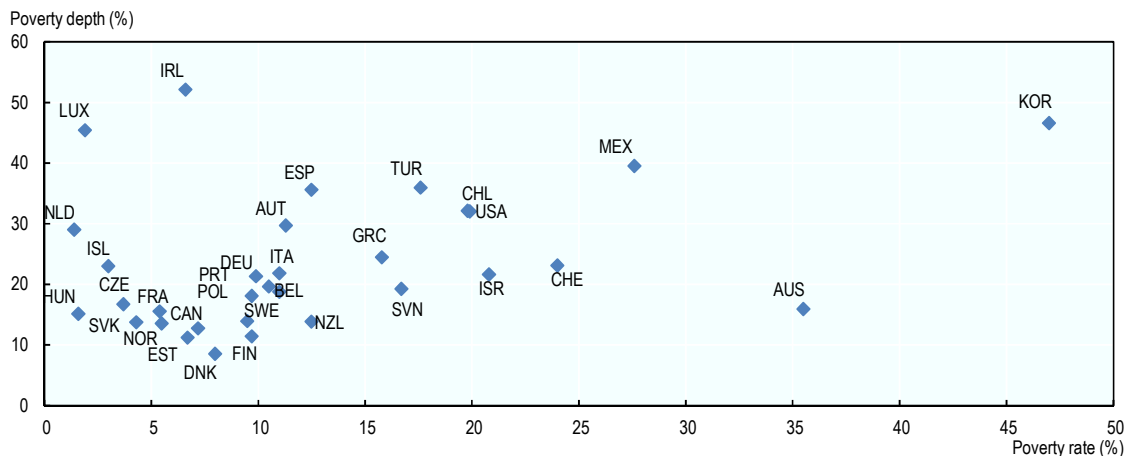
Source: OECD Income Distribution Database.

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To gauge how poor older people are it is important to look at both the number of people concerned and at the depth of poverty, measured as the percentage by which the average income of the poor falls below the poverty line. Figure 1.19 presents both indicators: the old-age poverty rate and the depth of poverty for those older than 65 years. Poor older people's average income is 23% below the poverty line, on average in OECD countries. Korea stands out as having both a high old-age poverty rate and deep poverty. In Chile, Mexico, Turkey and the United States the old-age poverty rate exceeds 15% and poverty depth is greater than 30%. In Australia, poverty among older people is not deep despite a high poverty rate. By contrast, Ireland, Luxembourg and the Netherlands have low poverty rates, but the poor in these countries suffer from a large income gap on average.

Elderly women, especially those living alone, are among the most vulnerable groups. About 10% of women aged between 66 and 75 years had incomes below the poverty level, on average across countries against 7% for men. This gender poverty gap is below 0.5 percentage points in a few countries only: Belgium, Canada, France, Greece, Iceland, Ireland and Luxembourg. Women above 75 are even more at risk, with more than one in four being below the poverty line in Latvia, Estonia, Switzerland, the United States and Israel.<sup>17</sup>

Figure 1.19. Old-age relative poverty rate and poverty depth, 65+



Source: OECD Income Distribution Database.

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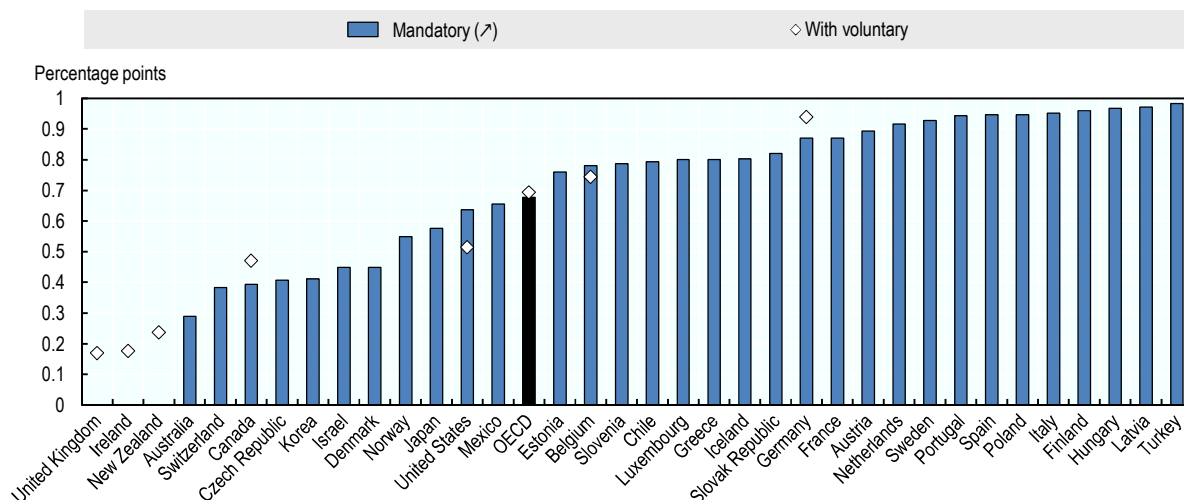
### ***Pension systems: Equalising or widening income inequalities?***

Old-age income arrangements obviously play an important role in fighting pensioner poverty and inequality. In many OECD countries, workers with low earnings (half the average wage) face poor old-age income prospects, even when they have worked and earned entitlements over a full career. They can expect net pension replacement rates (i.e. the level of the net pension received when entering retirement as a ratio of previous net earnings) from mandatory pension schemes below 60% in ten OECD countries (Mexico, Chile, the United Kingdom, Japan, Germany, Poland, the United States, Sweden, Slovenia and Canada), against an OECD average of 74% (OECD, 2015b). In G20 emerging economies, low-income workers also have poor pension prospects in Indonesia (14%) and South Africa (22%). In all of these countries, individuals who were disadvantaged in working age are likely to become very vulnerable in old age. In some countries, the situation is particularly critical for women. For example, in Chile, pension annuities are computed with gender-specific mortality tables, resulting in even lower pensions for women due to their higher life expectancy;<sup>18</sup> in Australia and Indonesia, lump sum payments are predominant, which implies that people who can expect to live longer – women in that case on average – have to rely on that lump sum for a longer period.

Achieving full careers is becoming increasingly uncertain in today's labour markets. Box 1.1 shows the impact of incomplete careers on pension benefits. Even for full-career workers, in most pension systems, higher wage inequality will translate into higher pension inequality, especially where there are tight links between contributions and benefits. On average, across countries, on top of any income from private savings accumulated during the working life, about two-thirds of lifetime earnings inequality is transmitted to old-age pensions. Where pensions are paid at a flat rate, i.e. regardless of past earnings, such as in New Zealand, the United Kingdom, and Ireland, higher wage inequality will not affect the pension distribution. However, when voluntary pensions in these countries are considered, 20-25% of wage inequality could be transmitted to pensions. By contrast, more than 85% of wage inequality is passed on to pension inequality in Turkey, Latvia, Hungary, Finland, Italy, Poland, Spain, Portugal, Sweden, the Netherlands, Austria, France and Germany (Figure 1.20).

**Figure 1.20. Impact of an increase in wage inequality on pension inequality**

Percentage point change in the Gini index of pension for a 1 percentage point increase in the Gini index of wages, full-career case



*Note:* Simulations are based on common earning distribution across countries and a shift from a Gini coefficient of 0.35 to 0.38. See Chapter 5 for details and for the computation of the pension progressivity index. The graph refers to gross (i.e. pre-tax) earnings and pension benefits.

*Source:* Computations based on the OECD pension model.

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But socio-economic inequalities in life expectancy also need to be taken into account. Shorter lives of low-educated, poorer pensioners reduce their cumulated benefits proportionally more, regardless of the pension system. When the average three-year gap in life expectancy between low- and high-educated people at age 65 is considered, the pension wealth (the discounted stream of pension payments over retirement) of low-income individuals, relative to that of high-income retirees, falls further by about 12%, on average across countries (Chapter 5).

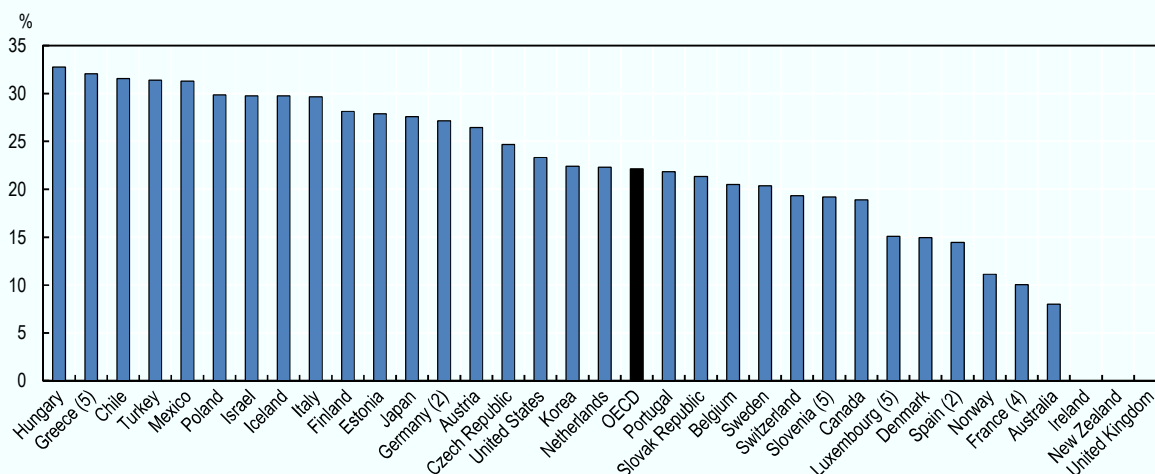
As a consequence, raising the retirement age will affect low-income workers proportionally more than higher-income workers. These losses are, however, relatively small: if retirement ages were effectively increased by three years between 2015 and 2060, the relative pension wealth of the low-income versus high-income groups would be reduced by 2.2% on average across countries, when only taking into account differences in life expectancy.<sup>19</sup>

### Box 1.1. Impact of incomplete careers on pension benefits

Workers with incomplete careers due to late entry or career breaks will usually receive lower pensions, especially in systems where there is a tight link between pension benefits and lifetime wages. Workers with non-standard jobs and weak attachment to the labour market have thus become more vulnerable. Figure 1.21 illustrates how much workers on average earnings would lose in pension benefits from mandatory schemes due to a delayed entry into employment by five years and ten years of unemployment, compared to the standard worker with a full career. The biggest drops, of about 30% or more, would occur in Japan, Hungary, Greece, Chile, Turkey, Mexico, Poland, Israel, Iceland and Italy. Without any mechanism to offset those shocks, i.e. on a pure actuarial basis, this would imply a drop of about 35% in pension benefits. The projected drop using legislated pension rules is 22%, on average, across countries. This means that about 37%  $[(35-22)/35]$  of the labour market difficulties in this extreme case are offset by various redistributive/stabilisation devices.

**Figure 1.21. Loss in pension benefits due to incomplete careers, average-wage workers**

Entry at age 25 with 10-year unemployment versus full career from age 20



*Note:* The numbers in parenthesis in the country labels indicate the extra years individuals with incomplete careers need to work to access a full pension, i.e. without actuarial penalty although the pension might be lower than for a full-career worker. The incomplete-career case is based on entry at age 25 versus 20 in the baseline with a ten-year unemployment period between age 35 and 45.

*Source:* For the full-career case, the source is OECD (2015b) and OECD computations for the career-break case, both based on mandatory schemes.

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### *Access to health services is not the same for everyone*

Access to health care may be prevented for a number of reasons related either to the functioning of the health care system itself (like the cost of a doctor visit or medical treatment, the distance to the closest health care facility, or waiting lists) or to personal reasons (like fear of not being understood by the doctor or not having the time to seek care). OECD (2015c, Figure 7.6) shows that unmet care needs for financial reasons are consistently higher within OECD countries among low-income people compared with high-income people. Any inequalities in unmet care needs are likely to result in larger health inequalities.

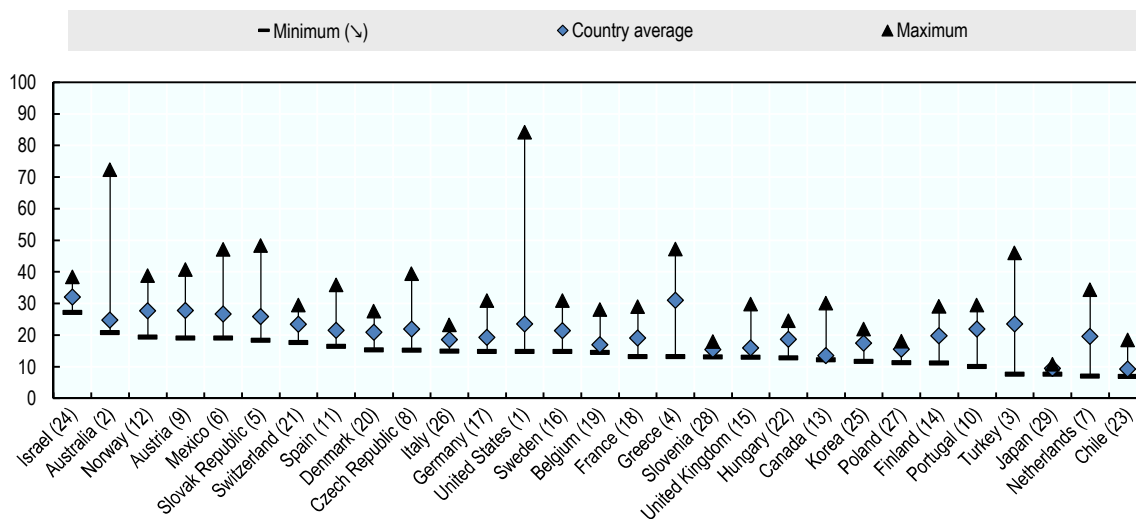


Access to services, in particular health services, also varies strongly by regions, as shown for example by the number of active physicians and hospital beds available to older people (Figure 1.22). The United States, Australia and Turkey have the largest regional (TL2) differences in the number of active physicians per 1 000 older people. Moreover, very low levels of physicians per 1 000 older people are found in O'Higgins (Chile), Iwate (Japan), Zeeland (Netherlands) and Western Black Sea – Middle and East (Turkey), where the number of physicians were below 10 per every 1 000 older people in 2014.

In 2014, Canada, Poland, Turkey, Portugal and the United States had the largest regional disparities in the density of hospital beds per 1 000 older people. While regions such as West Pomerania (Poland) and Kyushu, Okinawa (Japan) had more than 50 hospital beds per every 1 000 older people, hospital bed density was below 10 per 1 000 older people in Coahuila (Mexico) and Central Greece. Such large disparities undermine the timely and adequate delivery of services and create unequal health care outcomes within countries.

In emerging economies urban and rural areas differ strongly in access to health services (OECD, 2017a). Rural residents typically face challenges in getting medical care and support services due to long and sometimes difficult travel and few health care facilities. Furthermore, rural patients may be on average older, poorer, less educated and less likely to have insurance.

**Figure 1.22. Regional disparity (TL2) in the number of active physicians per 1 000 older people, 2013**



*Note:* Latest available years: Chile and United States 2009; Belgium, Canada, Japan and Luxembourg 2010; Greece and Mexico 2011; Australia, Israel, Italy and Sweden 2012. Number in brackets indicates ranking according to range. For example the United States is the country with the largest regional difference, measured by the gap between the regions with the maximum and the minimum ratio of active physicians.

*Source:* Calculations based on *OECD Regional Database*.

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***How the oldest old are faring: living conditions and well-being of the 80+***

The elderly are a group of particular concern. Their poverty risk is higher and they are more fragile and in need of support services than other groups of the population. The share of people aged 80 and over is projected to more than double by 2050 to 9.5% of the total population, on average in the OECD, but up to 16% in Japan and Spain. In 2015, the 80+ group accounted for less than 1% in Colombia, Indonesia, India and South Africa, but 8% in Japan.

Health status deteriorates with age. The elderly are more likely than any other age group to be affected by chronic diseases or disabilities. A large share of people aged 80+ report risk factors that threaten their health, such as smoking and overweight, but this varies strongly by gender and country. Already today, a large proportion of the elderly are overweight in many countries. One in five men aged 80+ are obese in England and Slovenia, and the proportion is even higher for women in the Czech Republic, England, Estonia and Spain.

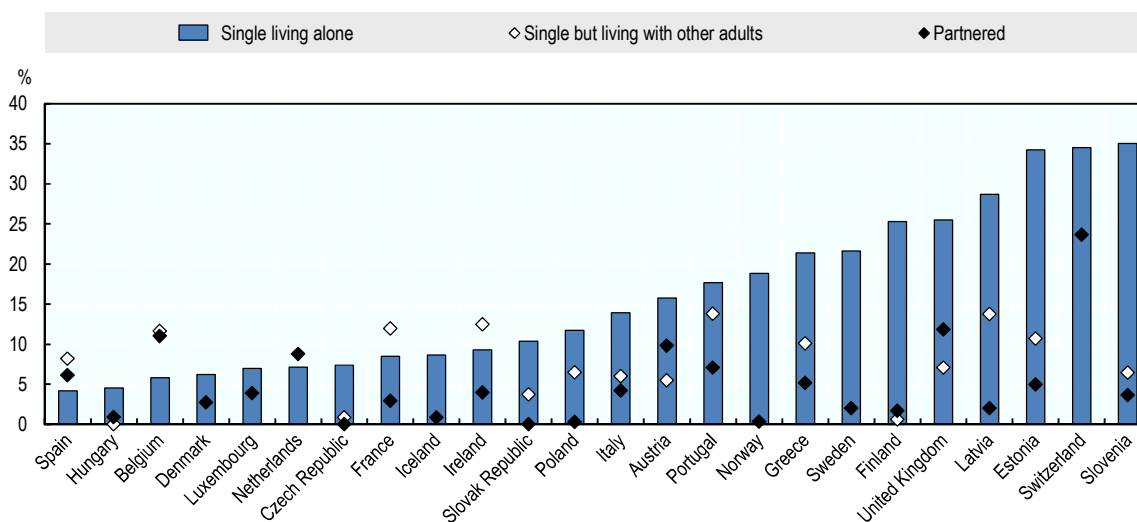
While most elderly age without severe disabilities, physical and mental dependency becomes more likely with age. More than 40% of the 80+ face some mobility limitations. Depression is frequent among them in England (57% for men and 70% for women), Italy (47 and 65%), for men in the United States (48%) and for women in Spain (60%). By contrast, it is relatively low among Danish, Dutch and Swedish older men, and among older women in Switzerland, the Netherlands and the United States. How the health status of the elderly will develop in the future, however, cannot be easily predicted. Rising overweight and obesity and more women smoking may result in worse health.

Material and subjective well-being of the elderly is also affected by family living arrangements and the availability of family carers. The number of the 80+ living in a separate household has increased in most OECD countries over past decades, due to better health and less co-residence of generations. Many countries have also taken measures to help the oldest people stay in their own homes and to support family carers (OECD, 2011b). About two-thirds of women older than 80 years live alone on average across countries, compared with about one-third for men.

In the vast majority of countries, the 80+ who live alone are much more likely to be poor than those who pool their income with other adults (Figure 1.23). But poverty rates of this group vary: more than one in three live in poverty in Estonia, Slovenia and Switzerland, but less than one in twenty in Hungary and Spain.

**Figure 1.23. Poverty rates of the 80+ by family living arrangements**

Percentage of the 80+ with an equivalised income below 50% of the median



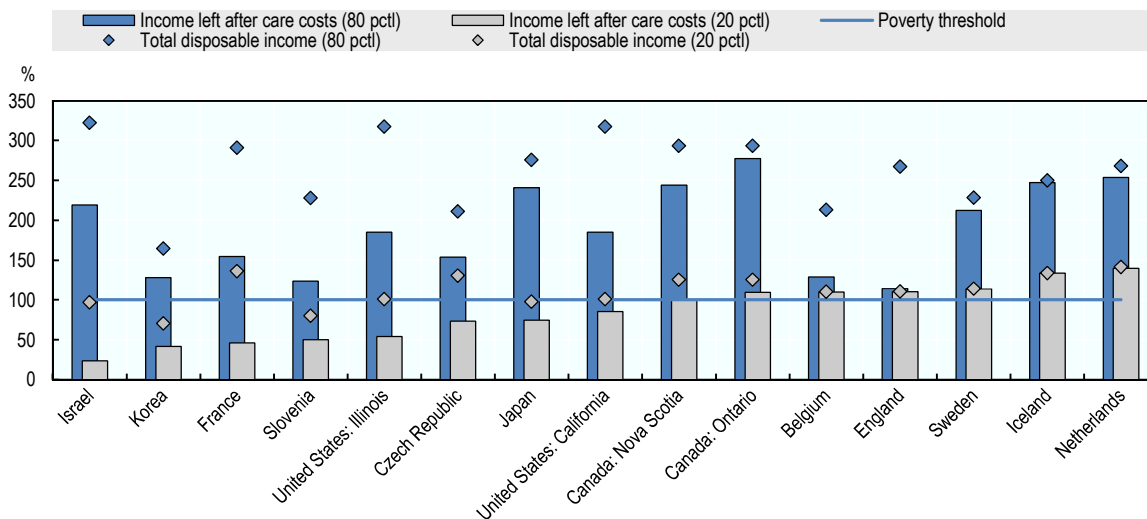
Source: EU-SILC, 2014.

StatLink  <http://dx.doi.org/10.1787/888933566476>***Support for the final years: Inequalities in long-term care***

The impact of dependency is felt more acutely by people with lower socio-economic status. Not only are they more likely to develop disabilities and need long-term care (LTC), they also are less able to afford its costs. All OECD countries for which data are available provide some social protection to help pay for LTC, but the support varies. Someone with median income receiving home care for moderate needs in some US states may have as little as 6% of the cost of their care paid by the social protection system. This compares to about 45% in the Czech Republic and Israel and almost 100% in Sweden, Iceland and the Netherlands.

Figure 1.24 shows how the disposable incomes of older people in OECD countries relate to the poverty threshold, before and after they have paid out-of-pocket costs for moderate LTC needs through home care. In some countries, such as Slovenia and Korea, low-income older people (20<sup>th</sup> percentile of the income distribution) are already below the poverty threshold. These people are likely already struggling with the cost of living, yet they would need to spend around a third of their disposable income on LTC. Low-income older people in other countries, such as France<sup>20</sup> and the Czech Republic, are relatively better off, but would still have to pay out-of-pocket costs that would leave them well below the poverty threshold. In all of these countries, people with high incomes face larger absolute costs, but are able to afford them without falling into poverty.

**Figure 1.24. Disposable income before and after care costs for people receiving home care for moderate needs in OECD countries, as a percentage of the relative poverty threshold**



*Note:* Disposable income of home care recipients with moderate needs before and after their out-of-pocket contribution to care costs. “Moderate needs” denotes 22 ½ hours of care per week. The relative poverty threshold is half the median disposable income for the whole population. 20 pctl refers to 20<sup>th</sup> income percentile; 80 pctl refers to 80<sup>th</sup> income percentile. Percentiles refer to the distribution of disposable income among the over-65s in each country. Analysis assumes that people do not have savings which they can use to pay for care.

*Source:* Muir, T. (2017), “Measuring Social Protection for Long-term Care”, *OECD Health Working Papers*, No. 93, OECD Publishing, Paris, <http://dx.doi.org/10.1787/a411500a-en>.

StatLink  <http://dx.doi.org/10.1787/888933566495>

Meeting LTC needs through professional home care is therefore an unattractive option for low-income people in some OECD countries. However, in no OECD country for which data are available is anyone denied access to institutional care because their income is too low. Many OECD countries aim to help people with LTC needs to stay in their own homes for as long as possible, but inadequate social protection means this option is not always accessible to poorer people.

Informal care is not costless either as carers give up time for paid work or leisure. Caring can also affect health and employment prospects: informal carers have 20% more mental health problems than other people and are more likely to stop working or reduce their hours (OECD, 2011c). These costs are borne disproportionately by women, who make up between 55% and 70% of informal carers in OECD countries (OECD, 2015c). In low social protection countries (those spending less than 1% of GDP on publicly-funded LTC), women were 41% more likely than men to report providing daily informal care, against 23% in high social protection countries (i.e. spending more than 2% of GDP on publicly-funded LTC).

Changes in female labour force participation mean that younger generations of women are more likely to have full careers. In theory, this may reduce the number of women providing informal care and increase demand for LTC (see for example de la Maisonnette and Oliveira Martins, 2013). However, patterns of care provision among current over-50s suggest that in practice women who have had full careers are no less likely to provide informal care than those who have spent ten or more years out of work (e.g. to raise a family). This suggests that, even as more women work full careers, they

will continue to provide large amounts of informal care, which might contribute to the long-term impoverishment of women. Adequate social protection and support for carers will be important in limiting gender disparities.

In emerging economies, families traditionally used to take care of their older relatives. While the elderly typically remain an integral part of the family unit, the family support system is not as robust as it used to be. As a consequence of decreasing birth rates and increasing mobility of the younger generations it is predicted to further erode (ILC Global Alliance, 2009). In addition, the larger cohorts that are advancing to older ages have been more exposed to risks related to non-communicable diseases, making them more vulnerable to disabilities that require LTC (World Bank, 2016). Combined with still nascent formal LTC systems, these developments are demanding a more rapid LTC policy response across emerging economies, including through public support for civilian-run care homes or strengthened community health care services.

China is one of the few examples among emerging economies where some LTC schemes already exist. In order to support residential care, for example, caregiver support services include short-term training on care skills and financial subsidies to caregivers (Peng, 2015). Communities have started to provide direct care services and subsidies in a range of specialised care centres as well as meal services for older people. Meanwhile, public institutions are extending their offer for example in terms of homes for the elderly in rural areas, hostels or hospices for older persons.

## 5. Policy implications: Preventing, mitigating, coping

This report shows that preventing ageing unequally requires a comprehensive policy approach to help individuals overcome disadvantages over their life course that could cumulate and result in low income and poverty at old age. This approach should take full account of the specific educational, labour market and health experiences of different individuals and cohorts. In the past, policies targeted to households best represented by the male breadwinner model with stable careers may have worked for a majority of people. But this is no longer the case. Policies to prevent inequalities from rising over the life cycle will need to take account of the new realities people are facing today in their families, in their workplace, in their careers and in their health and disability risks. As the analysis in this report shows, education, health and employment experiences interact and compound inequality. This also means that inequality-reducing policies in one area will spill over into other areas and thus generate greater total returns in terms of welfare than when the impacts are only considered in the area of the policy intervention.

Given that events over people's life courses shape their ageing experiences, policy efforts to limit old-age inequalities thus cannot rely only on policies targeted to the elderly. It is more efficient to pick up inequalities when they arise rather than try to remedy their consequences. This report therefore identifies crucial periods when risks of lasting disadvantage occur and proposes a range of policy interventions to prevent, mitigate and cope with inequalities over the life course. The OECD is also developing new tools to help policy makers address old-age inequality risks (Box 1.2).

### **Box 1.2. Policy foresight to support reforms addressing ageing unequally**

The assessment of how current inequalities during the working age will pass into inequalities at older ages is enhanced by the availability of a dynamic microsimulation model that includes pension rules. Such a model projects the evolution of a representative cohort sample in terms of mortality, health, education and labour market status (see Chapter 4 for more details).

The OECD has partnered with the Schaeffer Center and the Centre for Economic and International Studies (CEIS), University of Rome Tor Vergata to develop a pilot Global Future Elderly Model (Global FEM). The starting point is the US Future Elderly Model or FEM. FEM is microsimulation model that is developed and maintained by the Schaeffer Center for Health Policy & Economics at the University of Southern California. FEM is a well-established model that has been used for many policy purposes ranging from the economic consequences of delaying disability and disease, to the long-term health outcomes of medical innovation, to the fiscal consequences of worsening population health, to financial risks in Medicare spending from new medical technologies. Similar to FEM, Global FEM tracks representative cohorts of Americans, Belgians and Italians over age 50 to project their health status and economic outcomes. Global FEM allows for complex interactions between multidimensional measures of health and economic outcomes. It begins with cohorts aged 50 where each member of the cohort enters the simulation with a lifetime income, work history and an initial health status. Then, members of the cohort age, changing their health status, labour market situation, claiming pension and finally dying.

The pilot Global FEM model has been developed for the United States, Italy and Belgium; it could be extended in the future to a broader set of countries with health and retirement surveys. The pilot Global FEM model has been used to compare the projected future impact of three different policy approaches that are each targeted to improving the health and longevity or the economic circumstances of elderly people. These include a policy initiative to address the development and progression of chronic disease; a training programme to improve the employability of older workers who have recently lost their jobs; and a pension reform to rise the official retirement ages.

An example of usefulness of the FEM is presented in the report released by the US National Academy of Science.\* The FEM-based analysis shows the impact of growing gap in life expectancy by education and income deciles on lifetime entitlements to benefits from social security, disability insurance, Medicare and Medicaid benefits in the United States. The gap in estimated life expectancy between high-earning and low-earning women has grown from four years to more than 13 years for cohorts born between 1930 and 1960. For men this gap has grown from five to more than twelve years. The increases in the gap in life expectancy by socio-economic groups are due to gains for the high income quintiles, whereas the low income groups have not enjoyed the same improvements.

FEM enabled also the assessment of the impact of inequality in life-expectancy trends on social benefits. The gap in the present value of social-security lifetime entitlements between the top quintile of earners and the bottom quintile is projected to widen between women born in the 1930s and in the 1960s, with the increase representing roughly one-third of lifetime benefits of the lowest quintile.

\*: National Academies of Sciences, Engineering and Medicine (2015), “The Growing Gap in Life Expectancy by Income: Implications for Federal Programs and Policy Responses”, National Academies Press, Washington, DC.

### ***Preventing inequality before it becomes entrenched***

#### ***Early-life interventions should be at the top of the policy agenda***

Childhood circumstances affect education and later life health, as well as future labour market experiences and career progression. For example, effects from adverse health events early in life on health at older ages can be indirect, e.g. channelled through lower educational achievement and restricted life opportunities, and/or remain latent for a long period. As shown above, education heavily influences labour market outcomes, and fighting against academic failure requires a concentration of resources at an early age,

especially for disadvantaged children. In contrast, corrective measures at later stages have to overcome what may be more deeply entrenched problems (Heckman and Carneiro, 2003) and can produce benefits only over a shorter remaining period of life. Likewise, pension arrangements can correct some but not all of the inequality among the retirees that results from employment and earnings inequalities. Thus, substantial savings of public expenditure could be made if income, wealth, education and health inequalities were picked up earlier and addressed at younger ages. This section sets out a range of good practice policies which can help fight disadvantage in early childhood and school age; the list is not exhaustive, but focuses on key measures aimed at solving problems that are known to have a long-term impact.

Policies to support children's educational, health and material well-being must start in early childhood and be sustained throughout childhood (OECD, 2009 and 2011a). The pay-offs from investing early in children are enormous: US research suggests that each dollar invested in high quality programs before the age of five years yields a cumulative annual return of 13% at age 65 (Garcia et al., 2016), and that these benefits are especially large for children from a disadvantaged background. OECD Programme for International Student Assessment (PISA) data show that 15-year old students who attended pre-primary education for at least one year are likely to have higher maths scores than those who did not, the gap being equivalent to almost one year of formal schooling after accounting for students' socio-economic status (OECD, 2013a).

Preventing child income poverty and material deprivation is a priority. Beyond their obvious negative impact on children's material well-being, they generate malnutrition and bad health, which in turn affect later life outcomes. Health effects can be large but may remain latent for a long period, and deprivation during childhood has long-term consequences for health during adulthood. Constraints on poor people and their children should be alleviated through safety nets, in particular by using child benefits targeted at low-income households.

Quality childcare services and early childhood education are crucial for all children, but particularly important for children from disadvantaged socio-economic backgrounds (OECD, 2013b). In school age, a range of policies can help reduce school failure and prevent social circumstances from standing in the way of achieving educational potential (OECD, 2012a): eliminate grade repetition (by addressing learning gaps during the school year and through automatic promotion but with targeted support); avoid early tracking and defer student selection to upper secondary; manage school choice to avoid segregation; make funding strategies responsive to students' and schools' needs; and design equivalent upper-secondary education pathways to ensure completion.

Disadvantage is also related to children's learning environment. Policy priorities to improve low performing disadvantaged schools include (OECD, 2012a): strengthen and support school leadership; stimulate a supportive school climate and environment for learning; attract, support and retain high quality teachers; ensure effective classroom learning strategies; and prioritise linking schools with parents and communities. In emerging economies, conditional cash transfers have also been successful in promoting school attendance of children from disadvantaged groups (OECD, 2015a).

Fighting early school leaving is key to limit long-term difficulties in the labour market. Policy measures to address this challenge include: systematic monitoring of school attendance; comprehensive support for at-risk students and their families; after-school programmes; and flexible schooling environments (OECD, 2016b). For not

academically-minded – or school-tired – youth practical training pathways may be more suitable, because back-to-the-classroom strategies often prove ineffective for this group.

Mental health and substance abuse are often root causes of school dropout. A significant proportion of young people in OECD countries report feeling stressed on a regular basis (OECD, 2013b), and conditions like eating disorders, anxieties or depression are on the rise, especially among young women (OECD, 2012b). These youth need expert help and OECD countries show some promising models of support: Headspace centres in Australia, for example, provide 12-to-15 years old youth with access to GPs, psychologists, social workers and career counsellors at no or low cost, often on a drop-in basis. They offer advice and treatment for mental health and substance abuse issues, for problems at school or work as well as sex education. In Sweden, Youth Clinics provide free drop-in health care services for youth under 20, including access to psychologists for advice regarding mental health.

Significant gender disparities and biases remain in educational and occupational choices in OECD countries, feeding into gender gaps in employment, in particular in science, technology, engineering and mathematics (OECD, 2017b). Outside the OECD, educational opportunities for girls and young women frequently remain constrained by attitudes, social institutions, and the absence of infrastructure supporting girls. OECD (2017b) emphasises the urgency to change gender stereotypical patterns in education which will otherwise continue to affect life choices of future generations for years to come.

### *Ensuring a smooth school-to-work transition*

Moving from education to the labour market is a decisive turning point in people's lives. Without sufficient orientation youth, especially students who cannot draw on their parents and social support networks for advice, can get lost in the system. Measures to help students in choosing their field of study and later with their school-to-work transition are therefore key to increase the likelihood of stable employment and earnings progression (e.g. OECD, 2010a; 2016b). In Denmark, for example, the Ministry of Education operates regional guidance centres that work with social partners and municipalities to offer workshops, seminars, career fairs and one-to-one counselling and ensures that guidance is relevant to stakeholders in the education system and the labour market (Field et al., 2012); all students have access to these guidance services, participation is high overall, and municipalities are legally required to refer students at risk of dropping out to these services.

Young people often start their working lives in non-standard work arrangements. The education system should equip young people with the skills the labour market needs. More broadly, policies should aim to ensure that short-term entry jobs serve as stepping stones to more stable jobs. Apprenticeships combining on-the-job training and classroom learning can help (OECD, 2010a): the involvement of social partners contributes to ensuring that training meets employers' needs, while apprentices gain initial work experience and form relationships with employers. Apprenticeship and other high-quality vocational education and training programmes are proven to facilitate successful school-to-work transitions in countries such as Austria, Germany and Switzerland (OECD, 2010a).

Early intervention to youth unemployed and those not in employment, education or training (NEET) more broadly is crucial. Non-employed young people are often not in contact with public employment services (PES) because without a sufficient contribution



period they are not entitled to out-of-work benefits. As a result, they are often excluded from training or job-search support programmes, which puts them at risk of becoming long-term inactive. For instance, European member states have committed themselves under the Youth Guarantee scheme to ensure that all young people under the age of 25 years receive an offer of employment, some further education, an apprenticeship or a traineeship within a period of four months of becoming unemployed or leaving formal education. One limitation is that the guarantee is often implemented by public employment services where many of the most disengaged youth would not spontaneously go for help. Faced with a similar difficulty, Norway created Follow-up Services to work in tight co-operation with schools for contacting all under-21 year-olds who leave (with or without a qualification) and assess their activity status. The NEET are either offered counselling or training, or they are put in touch with social support services or the local employment office. Another example of good collaboration is the Japanese PES (“Hello Work”) initiative that reaches out to students at high schools and universities to offer counselling, job-search assistance and job placement.

NEET rates are often particularly high among young women because of care-giving responsibilities for children. Being able to access affordable childcare and child-friendly employment arrangements are therefore crucial for greater labour market participation among young mothers (OECD, 2016b).

### *Breaking the links between socio-economic disadvantage and health status*

Health policies play a particularly important role in preventing ageing unequally. Gaps in health and life expectancy between different socio-economic groups is perhaps the most shocking and, for many, the most unacceptable manifestation of disadvantage. As this report shows health problems influence employment experiences and therefore can exacerbate inequalities. Improving the health of the most disadvantaged over the life course should thus be a priority.

Many factors affect health inequalities, including a broad range of social determinants of health (such as living and working conditions) and some related to access to good-quality health care. Early childhood development, education, employment conditions, income, stress related to socio-economic status and lifestyle (e.g. smoking, drug use, alcohol abuse, physical inactivity, poor diet, obesity), all contribute to disparities in health status. In addition, health literacy is often lower among poorer and less educated groups: people may not understand that they have a health problem, may not use prevention offers, such as screening campaigns, and may not fully benefit from therapy due to lower adherence to medications or poorer self-management in early stages of chronic diseases. Reducing health inequalities therefore requires a multipronged strategy that addresses the wide range of social determinants, including those falling outside the responsibilities of health ministries and those ensuring equitable access to care for poor people and other disadvantaged groups.

As in other policy areas it is important to start early to prevent lasting and growing health disadvantage. Direct early-childhood health interventions to improve physical and cognitive developments can help sever the transmission from the low socio-economic status (SES) of parents to poor health as a child to low SES as an adult (Canning and Bowser, 2010). Deaton (2013) also focuses on early-childhood health nutrition and disease prevention, and emphasises the importance of early life health inequalities, and of moderating the effects of parental deprivation on child outcomes.

Recent OECD work has shown that well-designed prevention policies are generally effective to improve health even though some measures may take time to produce their effects and become cost-effective (OECD, 2015c). The share of health spending allocated to prevention is only around 3% on average in OECD countries and should be expanded by targeting key risk factors and population groups (Devaux and Sassi, 2015). The best prevention policies are multi-intervention strategies that include a mix of public awareness campaigns, regulations (e.g. regulations of advertisements and sales of unhealthy products), taxation and counselling by general practitioners.

Prevention can reduce health inequalities. People in lower socio-economic groups are more likely to smoke, to be heavy alcohol drinkers (particularly men) and to be obese, all important risk factors for many diseases and causes of death. Cardio-vascular disease, which is strongly related to risky behaviour, smoking in particular, is the first cause of mortality inequality across educational groups (Chapter 4). People with low SES could therefore benefit more from prevention policy aiming to tackle harmful alcohol consumption (OECD, 2015c) and obesity (Sassi et al., 2009). These prevention policies might not only improve the health of vulnerable population groups, but also reduce sick leave and disability benefit claims, and help people remain in the labour market (Devaux et Sassi, 2015).

Broad health promotion campaigns, however, often fail to reach the most disadvantaged socio-economic groups. Inequalities exist even when screening services are provided free of charge: people with low level of education or income are less likely to take part in screening programmes for cancers and other health problems. This means that there are other non-financial barriers such as lack of awareness of potential benefits, waiting time and distance to travel that also need to be addressed to promote a more equal use of preventive and early diagnosis services (Devaux and de Looper, 2012).

By contrast, fiscal measures, such as taxes on certain products or substances which are identified as being unhealthy, have been found to be the only intervention producing consistently larger health gains among poorer groups than other groups due to a greater response to price changes (OECD, 2010b). Fiscal policies to curb behaviours related to smoking or alcohol consumption could be thought as stand-alone as the objective is simply to induce people to quit unhealthy behaviours. However, measures promoting a healthier diet aim at replacing unhealthy by healthier, often more expensive, products; they could therefore be regressive, and should be accompanied by targeted transfers to compensate this negative effect.

### ***Mitigating entrenched inequalities***

As illustrated in this report, disadvantage starts and is best addressed early. Prevention policies can go a long way to reduce inequalities and halt their progression. But not all inequalities can be picked up in time and not all prevention measures will be successful. Moreover, some inequalities develop at working ages and, in particular, towards the end of people's careers. Despite the evidence that by age 50 lifetime income inequality is deeply entrenched, a lot can still be done for this group by mitigating disadvantage. A range of policies is needed, such as continued promotion of healthy lifestyles, ensuring equal access to good-quality health care, adopting inclusive labour market policies for older workers and facilitating a smooth transition to retirement.

### *Promoting healthy ageing through equal access to health care*

All OECD countries, despite the common endorsed principle of adequate access to health care for all people, have disparities in access to health services, and many people report not being able to meet health care needs, largely among low income groups. The main reason provided by survey respondents was that care is too expensive (OECD/EU, 2016; Commonwealth Fund, 2016). In addition, innovations in health care that have led to overall health improvements and longer life expectancy are likely to have benefited groups with higher levels of education and income more (Glied and Lleras-Muney, 2008), at least temporarily, due to better access to cutting edge care and service providers or to the ability to spend more money on expensive treatments.

Cost effective prevention, primary care and screening services should thus be provided for low or no cost to prevent diseases (e.g. vaccination against influenza among elderly people) and encourage early detection of cancer and other diseases. Many OECD countries have introduced mechanisms to facilitate health care access for low-income patients through co-payment reductions or exemptions (Paris et al., 2016). In emerging economies a major issue in access to health is that, even when people have the right to obtain essential medicines and treatments free of charge, these goods and services, provided in principle by the public sector, may not be available due to budget constraints.

Access to health services in rural areas, where many older and poorer people live, can be more constrained than in urban areas in both OECD countries and emerging economies. Mobile facilities and telehealth services, such as mobile diabetes counselling in Germany (CHRODIS, 2016) and the Humber Digital Health Community in the United Kingdom, can help. However, telehealth should not be seen as a replacement for more traditional face-to-face consultations, particularly among older populations who may be less able to use new mobile health (mHealth) applications.

Health systems also need to be adapted to better manage the growing number of people living with one or more chronic conditions who often are over 65 and come from lower socio-economic groups. In particular, health care should be better integrated across various disciplines towards a patient-centred approach; physician and nurse specialisation in geriatric care should also be further developed. There is a growing recognition that managing the care of ageing population will require interdisciplinary teams who can provide a seamless care between health and social care. This in turn will require changes in education and training to promote inter-disciplinary education and ensure that health care professionals can work effectively as a team across different disciplines (social care, mental health, long-term care, medical care).

Finally, policy measures can improve health literacy and self-management with emphasis on education, improving patient skills, and empowerment (Brainard et al., 2016). Increasing health literacy, particularly among lower educated and disadvantaged groups, should be a high priority to improve or at least prevent a worsening of health conditions. Most interventions on self-management provide patient education through group sessions delivered by health professionals (Berzins et al., 2009).

### *Tackling health inequalities among older age groups*

Health prevention measures can substantially improve the health of the elderly (Goldman et al., 2009). Comprehensive programmes such as the Australia Commonwealth and Victorian Governments' packages of aged care reforms include better access to information, integration and support of home and community care

(Batchelor et al., 2016). The “Living Longer Living Stronger” physical activity intervention improved health outcomes for adults ages 50 and over in Australia (Batchelor et al., 2016).

Moreover, prevention policies targeted at middle and older ages can reduce health inequalities across socio-economic groups. In the United States, the US Senior Farmers’ Market Nutrition Program, which targets coupons at low-income, older adults encourages healthy eating, is cost-effective, and improves health outcomes (Batchelor et al., 2016). The PUMP (*Por Un Millon de Pasos*) programme in Spain encourages physical activity by providing pedometers and a support network targeting the elderly and people with disabilities, including those in remote areas. This low cost programme has been replicated in other countries as a way to improve health through more physical activity (CHRODIS, 2016).

### *Limiting the impact of job losses and combating long-term unemployment*

Many workers in OECD countries are displaced every year due to economic change (OECD, 2013c). Older and long-tenure displaced workers are at greatest risk of long-term unemployment or finding only jobs that are ill-matched to their skills and less well paid than their previous jobs. Retirement income security can be compromised as long-term job seekers will have lower contributions, thus earning lower pension entitlements, and be less likely to save. Job displacement also has significant adverse effects on health, including higher mortality (Gallo et al., 2000; Sullivan and von Wachter, 2009). Policies that assist displaced workers to reintegrate into suitable jobs can thus help to mitigate inequalities, in particular at older ages.

The OECD has identified a range of policies to assist displaced workers (OECD, 2016d). Such measures need to address the particular difficulties faced by older and long-tenure workers who have not searched for a job in many years and thus need well-targeted assistance. Counselling, skills audits and job search assistance are needed early on, preferably during the notice period before workers become unemployed. When appropriate, counselling should include an offer of training to fill specific skills gaps. In addition, to avoid becoming demoralised after a long period of unemployment, the public employment service (PES) may need to supplement job search assistance with retraining or hiring subsidies. Since these measures are expensive, it is important that the effectiveness of these measures is constantly evaluated.

### *Providing equal opportunities for workers to upgrade their skills*

Promoting the employability of workers *throughout their working lives* is a particularly important requirement for preventing societies from ageing unequally. In the past, workers could expect to have only a few job changes during their career. Now, all workers are likely to switch jobs more frequently or at least adapt to frequently changing tasks. Upgrading and adapting skills will therefore be crucial for employment and earnings prospects. Yet, workforce groups at greater risk of labour market disadvantage – including older workers – receive less training, thereby compounding their disadvantage. This needs to change urgently as the failure to respond to these new challenges will risk creating an army of unemployable older workers.

Digitalisation can generate large welfare gains (including for example by expanding employment opportunities of workers suffering from some disability through telework), but raises anxieties about potential job losses and technological unemployment which are particularly threatening for older generations (OECD, 2016e). Many older people are less

familiar with the use of digital technologies than their children and grandchildren, both at home and in the workplace. Data from the OECD Survey of Adult Skills (PIAAC) show that the use of these digital technologies at work differs significantly among age groups. For example, on average, only 27% of older workers (aged 55-64) use email or the Internet at work daily against 49% of prime age workers (aged 35-44). Moreover, the age gap in the use of digital technologies increases with their complexity; digitalisation is thus likely to accelerate the obsolescence of older workers' skills.

Data for 2008-12 show that workers in more technology-intensive occupations had a lower risk of unemployment; however, older workers were less likely to be employed in these occupations. Older workers were almost three times more likely to have lost their job than younger workers in highly technology-intense occupations. But this ratio is 1.7 “only” in low technology intense occupations. Overall, these results strengthen the case for high-quality professional training, in particular for older workers.

Some countries have targeted measures at workers in their mid to late careers to improve access to lifelong learning and vocational education training, including programmes for upskilling specific groups, providing financial support, defining employees' rights to training and introducing training leave schemes. To promote higher participation of older workers in non-routine jobs, lifelong learning programmes should be designed to strengthen skills for the completion of non-routine and non-manual tasks.

For example, in Germany, the programme WeGebAU, launched in 2006, financed by the Ministry of Labour and managed by the PES, promotes the upskilling of low-skilled workers and of workers from 45 years onwards (Singer and Toomet, 2013). Wages or training costs can be subsidised under the programme, and training take-up has increased. In Ireland, the Higher Education Authority in the Department of Education and Skills introduced the Springboard initiative in 2011.<sup>21</sup> This initiative provides free higher education opportunities for upskilling and reskilling in growth areas to unemployed citizens.

Skills acquired throughout working lives should also be better recognised and made visible. Reliable procedures are needed to assess and validate people's skills and competencies, to make skills transparent to employers, and to establish a baseline for further learning. In case of job loss, this can help workers find a matching job. This is especially important for mid-career and older workers, whose initial qualifications may be outdated. Many of them have acquired new skills and competencies in various work experiences, but most often lack certificates to prove it. Several countries can offer good examples: the Netherlands has an instrument to validate skills acquired on the job, the *Ervaringscertificaat* (Experience Certificate). Its use has increased through campaigns (television, radio and billboards), steady diffusion of a quality code for Accreditation of Prior Learning (APL), and the development of regional partnerships for lifelong learning. The Certificate is also included as part of collective labour agreements in several sectors, and is paid for by a number of training and development funds. Finland launched a new adult VET programme in 2014 for low-qualified adults aged 30-50. Portugal, a country with a large share of low-skilled workers, launched the New Opportunities Initiative (INO) in 2005 which offers skills audit to all adults and assists in education and training or in recognition and validation of competencies.

### *Enhancing job quality for workers at all ages*

Working environments have a profound impact on workers' physical and mental health, and low SES workers typically suffer from worse work conditions. Job quality

influences people's sense of engagement and well-being at work and beyond. Therefore, a broad-based strategy to enhance job quality could pay a triple dividend: better, healthier and longer working lives for individuals; more productive workers for firms; and a lower financial burden on social protection systems.

While many aspects of working conditions and organisation primarily concern business, policies and institutions have a clear role to play to improve them. These include regulations on working-time and safety at work, well-designed sickness schemes, and implementation bodies (e.g. labour inspection bodies and occupational health care services) that give employers guidelines, run information campaigns and preventive actions (OECD, 2016a).

In some countries, the social partners include age management in collective bargaining. In Finland, a working group of social partners developed the “Job Life Cycle Model”, a workplace age plan including seven central areas: age management; career planning and extending careers; managing competence and professional skills; flexible working hours; re-defining a job; health assessment in the workplace and; promoting healthy habits and life management.<sup>22</sup> In Switzerland, the collective agreement for the construction industry finances arrangements for early retirement, however, at a higher age than the usual exit age in the sector. This motivates workers to stay for longer and employer to improve working conditions (OECD, 2014a). The collective agreement “Lifelong Working Time and Demography” signed in the German chemical industry in 2008 includes further training, the development of competences, work organisation and lifelong working time models.

In emerging economies job quality is significantly impaired by inequalities in the levels of earnings, which are generally more than twice as high as in OECD countries (OECD, 2015d). Furthermore, while the risk of unemployment is close to the OECD average, one important difference is the high risk in most of emerging economies of falling into extreme low pay, especially for women. This is because workers simply cannot afford to be unemployed given absent (or weak) social protection. Small effective insurance for the unemployed translates into higher levels of labour market insecurity than in most OECD countries. In countries where the risk of low-pay is significant, the ability of social protection to cushion earnings shocks is crucial and needs to be extended (OECD 2015d).

In emerging economies the gap in job quality between formal and informal workers is substantial, which comes on top of large shares of informal employment. Informal workers have lower earnings, they face a higher risk of extremely low-paying jobs and a higher probability of working very long hours. In-depth analysis of the quality-gap between formal and informal jobs would enable policy makers to better address the determinants of informality and to reduce the welfare costs of segmented labour markets (OECD, 2015d).

Gradual withdrawal from the labour market through phased or partial retirement – possibly with changing responsibilities within the same company – can extend working life. Changes in responsibilities might include greater focus on training younger workers, for example. Phased retirement also makes it easier to take on caring responsibilities for older family members and grandchildren. By contrast, inflexible arrangements of pension systems sometimes result in coming back to a less attractive part-time job after having claimed the full pension. While the impact on income inequality is not straightforward, phased retirement should support older individuals, including those with low retirement income, by enhancing pension entitlements.

Policies could promote phased retirement in two ways. First, employers might be encouraged to design more flexible work arrangements to their employees. Second, pension systems should allow or at least not penalise combining pensions and working longer at reduced hours in terms of retirement benefits. Promoting gradual withdrawal from the labour market without generating too early a switch to partial employment remains a challenge though.

Flexible working time arrangements to combine work and care-giving are becoming more frequent. In Canada, under the Employment Relations (Flexible Working Arrangements) Amendment Act of 2007 all employees with caring responsibilities have the right to request flexible working arrangements. In England, from 1 April 2015, the Care Act 2014 places new duties on local authorities to assess and support adult carers to maintain or re-enter employment and training, for example by helping to ensure that the person they care for is looked after while they are at work. These measures can help fight inequalities among older workers, in particular women, triggered by long-term care needs of family members and often resulting in employment, earnings and pension losses for the carers.

### *Removing barriers to retain and hire older workers*

Several factors discourage employers from hiring and retaining older workers, especially the most vulnerable among them. First, there needs to be a better match between the costs of employing older workers and their productivity, even though seniority wage-setting has diminished in many countries. A New Pay System (NPS) has been finalised for central government employees in Finland. In 2008, the pay system was further developed through collective and sector agreements.

Second, the desire to protect jobs of older workers has to be balanced with the need to enhance labour mobility, both in terms of hiring of older job seekers and of job-to-job moves for older workers. Special employment protection and unemployment benefit rules for older workers can be counterproductive. For example, policies that penalise firms for laying-off older workers can reduce hiring rates of older workers. Firms may also seek to avoid these penalties through various early retirement arrangements and schemes. In Poland, special employment protection rules are intended to limit the layoff of older workers with less than four years remaining until retirement age. According to Kryńska et al. (2013), employers refrain from recruiting people soon to be “protected” by this regulation. According to Cahuc et al. (2016), a longer unemployment insurance period after age 50 in France has created a disguised form of early retirement and a rising trend in the subsidised termination of employment contracts by mutual agreement (“rupture conventionnelle”) after the age of 58. Ultimately, older workers are best served by efforts to improve their employability and increase the range of job opportunities more generally.

### *Coping with inequality at older ages*

The third set of policies to prevent ageing unequally focuses on reduction of inequalities in old-age pensions and long-term care. Its main objectives are to avoid old-age poverty, limit retirement income inequality and inequality in living standards and well-being of the elderly by: providing adequate old-age pensions and social assistance in a financially sustainable way; developing age-friendly environments; providing affordable good-quality long-term care; and strengthening support for informal carers, who are often themselves aged.

Over past decades, most OECD countries have been reforming their pension systems (see OECD, 2015b). Reforms mainly aimed to improve the financial sustainability of pension systems in light of demographic changes. As a result, replacement rates have been reduced and pension benefits more closely aligned to earnings history, e.g. through the development of defined contribution (DC) or notional defined contribution (NDC) schemes, with less pooling and lower redistribution to low-income contributors (OECD, 2015b; Quesnel-Vallee et al., 2015). Closer contribution-benefit links tend to increase the transmission of wage inequality to retirement income inequality as the capacity of individuals to contribute will be reflected in the pensions they receive. More recently, concerns about retirement income adequacy and prevention of poverty among retirees have been gaining traction in public policy debates.

### *Effects of higher retirement ages on inequalities*

Many OECD countries have mechanisms in place to increase the retirement age in line with life-expectancy gains in order meet the twin goal of pension adequacy and financial sustainability of pension systems (OECD, 2015b; 2016f). These reforms raises three main issues with respect to their impact on inequalities due to the substantial socio-economic differences in life expectancy discussed above.

The first issue is about the healthy or unhealthy years added to the life span and what this means for people's capacities to work until higher retirement ages. If growing life expectancy were mostly adding unhealthy years, higher retirement ages would indeed mean that workers would be forced to retire earlier than the new normal pension age, generally with reduced benefits. The data, however, show that the share of healthy years in the steadily growing life duration expected at birth, at age 50, or at age 65 has been relatively stable over time – although it declined slightly over the past decade – suggesting that rising longevity also increases people's work capacity at a given age.

The second issue is whether inequalities are exacerbated by pension rules given that poorer groups die younger than their richer peers. It is often argued that increasing the retirement age is regressive. This is indeed the case: as low-income workers tend to have shorter lives, a one-year increase in the retirement age represents a larger proportional cut in their total pension benefits paid during retirement than it does for higher-income people. As shown above though, this effect is quantitatively small: if retirement ages were increased by three years between 2015 and 2060 – life expectancy at 65 years is projected to increase by 4.2 years on average – the total pension benefits of low-educated retirees relative to those of the highly educated groups would be reduced by 2.2%.

The third and main reason why a higher retirement age might be regressive is grounded in fewer employment opportunities for more disadvantaged older workers. This is a major challenge for policy makers, but it does not mean that a higher retirement age is an inadequate policy. Instead, it underlines the crucial importance of improving the situation and opportunities of older workers through inclusive labour market policies for older ages.

Most pension arrangements do not take these life-expectancy differences into account. The rules of defined-benefit (DB) pension schemes and the way annuity markets and insurance companies work in defined-contribution (DC) schemes typically disregard inequalities in life expectancy. Most use a uniform benefit accrual rate in DB schemes and common mortality tables when converting assets from DC schemes into pension annuities, despite the fact that people's remaining life years are different.<sup>23</sup> This means that a pure DC scheme, for example, which is a priori regarded as distribution-neutral, is



in fact regressive. People with shorter life expectancies receive – for shorter periods – lower benefits than their individual situation would warrant, thus subsidising those who get paid higher pensions for a longer period.

Pension policy measures to take account of socio-economic differences in life expectancy could target the benefit formula (granting higher accrual rates for low earnings, as applied in Portugal), the level of contribution rates (increasing with income such as in Brazil) or through a higher wage ceiling for contributions than for pension entitlements. In DC schemes, the annuity factors for conversion of assets into a pension benefit could be set in ways that increase pensions for people with low pensionable income (who die earlier on average) while people with high pensionable income (who die later on average) would receive lower benefits. The United Kingdom introduced a rare example of this through private “enhanced annuities” (OECD, 2016g): higher annuities are paid for the same accumulated pension assets to people with certain health or behavioural factors which are associated with lower life expectancy, such as smoking, obesity or cardiovascular disease, and which are more prevalent in lower socio-economic groups. OECD (2016f) calls for more accurate mortality data by socio-economic groups so that higher benefits could be offered to people with higher health risks. Schemes “rewarding” risky behaviours should be designed carefully though.

*Voluntary pensions are typically subsidised, which tends to be regressive*

Contributions to public pension systems are exempt from taxation while pension benefits are taxed upon receipt. This mechanism generates tax advantages as marginal taxes on earnings are typically higher than those applying to pension benefits. Beyond the specificities of the tax structure, the amount of these tax advantages is larger, the larger the contributions, and therefore the larger the earnings. Private pensions also generally are tax-advantaged and, depending on the specific schemes, this can benefit high-income more than low-income earners, such as in Chile, Denmark, Israel or Switzerland (OECD, 2016f).

Voluntary pensions are savings that are earmarked for retirement. The positive side is that they rely on individual choices, which could improve welfare. This advantage has to be tempered by income adequacy risks for those who “choose” not to be covered, especially given the social gradient of that “choice”. Due to higher savings capacity and financial literacy among advantaged socio-economic groups, voluntary pension coverage is heavily biased in favour of workers with high earnings. Voluntary pensions might therefore magnify the tax exemptions which benefit the better-off in mandatory schemes, and as a result tend to increase old-age inequality.

Where replacement rates from mandatory pension schemes are low, increasing the mandatory component would be preferable to subsidising voluntary private schemes. Moreover, these subsidies should be limited, with voluntary pensions being instead subject to the standard taxation of savings instruments, with well-designed auto-enrolment schemes (OECD, 2014b). When coverage is low, providing incentives, through targeted matching contributions or a flat introductory bonus contribution, should encourage participation of low-income earners. In New Zealand the auto-enrolment KiwiSaver scheme promised a temporary flat rate payment to all new members as an incentive and over 70% of those enrolled have remained within the scheme. In the auto-enrolment scheme in the United Kingdom the government pays 25% of the minimum employee contribution as a bonus, which will equal 1% of qualifying earnings from April 2019. Riester pensions in Germany have provided subsidies and taxed deductions based on marital status and family composition, which have been successful in persuading

families to contribute, but less so for lower earners – even though participation in Riester plans is less skewed towards the high-income than other occupational and private plans in the country (Börsch-Supan et al., 2012). Overall, improving financial literacy would contribute to expand coverage, and is likely to reduce inequality.

### *Redistribution in pension systems to protect retirees at risk*

In most countries, the most extreme retirement income adequacy risks and prevention of old-age poverty are addressed through first-tier safety-net pensions. OECD (2015b) identifies significant scope for benefit improvement in several countries with high old-age poverty rates and low safety-net benefits, even in relatively less affluent countries, such as Chile, Korea, Mexico and Turkey, but also in high-income countries like Switzerland and the United States. Moreover, many countries increase first-tier pensions in line with prices, meaning that retirees will increasingly lag behind workers' living standards, especially the very old, who are often women.

Low-income workers, even when they contribute for a full career, are at particular risk of old-age poverty in Mexico, Chile, the United Kingdom, Japan, Germany, Poland, the United States, Sweden, Slovenia and Canada. In these countries, workers earning half the average wage will receive net replacement rates below 60%, i.e. less than a third of average wage. Among them, due to close contribution-benefit links, pension inequality is more reactive to wage inequality in Germany, Poland and Sweden, and also in Chile and Slovenia, thereby increasing old-age inequality risks.

Most pension systems include redistribution mechanisms to compensate for some of the pension impact of time spent in unemployment and taking care of children. Such pension credits are effective instruments to offset the effects of career interruptions. At the same time, they should avoid encouraging workers to stay out of work. Policy makers need to strike the right balance between protecting the period of leave from work and setting benefit entitlements to ensure that people return to work. In contrast, credits for periods of higher education are generally regressive as they tend to reward people with higher lifetime earnings. Most OECD countries which had credits for periods of higher education have abolished them or are phasing them out.

### *Increasing pension coverage to ensure adequate pensions*

Insufficient coverage through earning-related pension systems not only results in inadequate old age incomes but also increases old-age inequality because low coverage disproportionately affects low earners. Mandatory pension systems in most OECD countries have very high levels of coverage as informal sectors are relatively small, but there are exceptions, such as Chile, Mexico, and Turkey. In Korea many older people are still not covered due to the relatively recent introduction of the pension system. Many less developed countries are suffering from low coverage rates. The share of the workforce contributing to a pension plan ranges from about 12% in India (OECD, 2013d) and Indonesia (Muliati, 2013), to over 50% in Brazil (Rofman and Oliveri, 2012; OECD/IDB/The World Bank, 2014). Promoting formal labour market participation is the most efficient way of increasing coverage. However, most Latin American countries have struggled to close the coverage gap this way, ending up expanding social pensions instead to address adequacy concerns with the added side effect of straining government finances (OECD/IDB/The World Bank, 2014). Expanding mandatory pensions to cover self-employed workers is another important measure to increase coverage. Reducing the size of the informal sector more generally requires a range of labour market, tax and structural policies.

### *Ensuring a sufficient level of conversion of private pensions into annuity payments*

One important objective of pension systems is to pool longevity risks and prevent those lucky enough to live a long life from falling into poverty. Annuities are the instruments that ensure that individuals, possibly including widow(er)s, do not outlive accumulated assets. This is especially relevant for retirees who have saved less during working age and have accumulated low pension assets. Individuals covered by public pensions are typically immune from that risk as pension benefits are in that case provided in the form of monthly instalments until they die. However, shortfalls in annuitisation in private schemes, such as e.g. in Australia, Switzerland and the United States, and potentially the United Kingdom in the future, raise concerns.

Within private pensions, automatic annuitisation is common for DB while DC plans allow easier access to lump-sum distributions (Orlova et al., 2015). There is ample evidence of economic myopia: individuals tend to underestimate financial needs and life duration, and find lump sums attractive. This is worrying in terms of inequality as insufficient financial literacy is closely related to other socio-economic disadvantages. Short-sighted behaviour is indeed one key reason why pension systems enhance welfare, especially for those with low financial wealth. It is therefore critical to ensure a high enough replacement rate from annuities by discouraging early lump-sum withdrawals on a sufficiently high threshold of the pension assets.

### *Carefully designing survivors pensions*

Older women are the most exposed to old-age poverty risks. Survivor benefits play an important role to avoid the poverty of widow(er)s, although less than in the past thanks to improvements in women's labour force participation. They should, however, be carefully designed to avoid inefficient forms of redistribution and work disincentives (Chapter 5). Some countries, such as Sweden, have indeed decided to phase survivors' benefits out. However, as gender gaps in employment and earnings are still substantial in many countries, care needs to be taken not to leave women who worked part-time and had low earnings with insufficient resources in old age, in particular after the death of the spouse which can dramatically reduce household income.

According to Orlova et al. (2015), the choice to subscribe, or not, to the joint-and-survivor life option for private pensions in the United States substantially increases the risk that surviving spouse falls into poverty: a great majority of couples prefer to opt out from the survivor pension to get a higher pension at the time of retirement. Hence, the joint-and-survivor life option should be automatic and reflected in either higher contributions or lower benefits. Survivor pensions are not mandatory in any scheme in Denmark, Iceland and Latvia (James, 2009).<sup>24</sup> Here again, survivors' benefits are less common in DC schemes.

### *Toward a unified pension framework for all workers*

Inequalities in the pension treatment of different categories of pensioners can be substantial and give way to suspicion and distrust towards those who are perceived, rightly or wrongly, to be getting a better deal. Belgium, France, Germany and Korea are the only OECD countries that maintain a separate pension system for civil servants (OECD, 2016f). Moreover, among the countries with a fully integrated system, Canada, Iceland, Ireland, Mexico, Norway, the United Kingdom and the United States top up civil servant pensions which results in large benefit differences. Many countries also have

special schemes for specific groups in the public sector, such as police, firefighters, teachers or local government employees. A unified framework covering all workers in an identical and financially sustainable way would contribute to limiting inequality, enhance transparency and labour mobility, and reduce costs. To address the situation of workers in arduous professions, assistance such as retraining and offers of alternative job opportunities would need to be provided throughout the career to ensure that workers do not get sick and disabled on the job. Rather than introducing separate early retirement schemes, training programmes should be targeted to employees who are deemed unfit to continue in their previous occupation (OECD, 2016f).

### *Developing age-friendly environments*

Developing age-friendly environments to foster older people's autonomy is an integral component of a strategy to promote healthy ageing (WHO, 2016). It has the potential to limit socio-economic inequalities in old age as poor older people in particular might need supportive environments to lead a life of dignity when faced with declines in capacity. Enabling greater functional ability – including to meet basic needs, be mobile, continue to learn, build and maintain relationships – can help older people live in a place that is right for them (WHO, 2016). Creating more age-friendly environments requires promoting multisectoral action beyond the health sector, for example in such areas as transport, housing and urban planning.<sup>25</sup>

### *Reducing inequalities in long-term care: Making home care affordable for all*

Many older people with LTC needs prefer to stay in their home for as long as possible. As a result, most OECD countries have aimed to reduce the use of institutional care and promote community care. However, while all countries for which data are available cover the cost of institutional care for those who cannot afford it (even if some expect people to put nearly all of their income towards the cost), there are gaps in the coverage of home care needs. Some older people may therefore have incentives to go into a care institution where their care needs will be met and their food and board provided, even if home care might in some cases meet their needs more effectively and give them a better quality of life.

Comprehensive social protection systems, such as those found in Nordic countries and the Netherlands, ensure access to affordable LTC for all, irrespective of income. However, this requires high public spending. Adequate support for low-income people is provided at a lower cost in countries with targeted systems, such as England and Belgium – although richer people are required to make large contributions that may reduce their living standards or deplete their assets. Where social protection is neither comprehensive nor well-targeted, home care is often unaffordable to people with low incomes.

### *Reducing inequalities in caring through better support to informal carers*

Although many people want to provide informal care to friends and family, doing so has costs. There is an opportunity cost to the time spent providing unpaid care; and caring can conflict with work responsibilities or increase the risk of mental health problems. Strengthening social protection for LTC can help to reduce disparities in providing care: in countries with comprehensive LTC coverage, such as the Netherlands, Iceland or Sweden, inequalities along socio-economic lines in the provision of informal care are less pronounced. Countries must also do more to support informal carers. A range of policy options exist, including cash benefits, respite care, training and counselling, but evidence of their effectiveness is mixed and further evaluations are needed. Interventions may need

to be targeted on those who need them most, in particular women with low socio-economic status.

More flexible working arrangements of employees with a dependent elderly will be needed. To meet those needs, many countries provide employees with a right to either flexible working time or to family-caregiver leave, but often without financial compensation. It is also important that such leave can be granted within a short notice period given that LTC needs are largely unpredictable. In April 2017, the European Commission adopted a Directive proposal which would introduce a carer's leave of five days per year compensated at least at the level of sick pay.<sup>26</sup>

### *Redesigning policies in a life course perspective*

The best policies to prevent ageing unequally are those that start early and that work together in a comprehensive package across the various dimensions of inequality, picking up on disadvantage as soon as it arises. To do so requires rethinking the way policy is made and moving out of policy silos. The evidence on how inequalities compound over the life course calls for joint action by family, education, employment, social and territorial development ministries and agencies. Integrating policies and social services, in particular for more vulnerable groups, has the potential to address the multiple underlying reasons of vulnerability simultaneously. It can also facilitate information and knowledge sharing between administrations and agencies and reduce the cost burden of delivering support, both in the short term but even more so in the longer term by preventing inequalities from widening. Countries will differ in the way such knowledge sharing and joint policy action is best set up, but all will need strong leadership in identifying needs, acting upon them with appropriate policies and co-ordinating policy responses between the different actors.

## Notes

1. Non-standard employment has increased in most OECD countries at a moderate pace since the mid-1980s, although its share has declined in European Nordic countries (OECD, 2015a).
2. Regions within the 34 OECD countries are classified on two territorial levels reflecting the administrative organisation of countries. The 391 OECD large (TL2) regions represent the first administrative tier of subnational government. The 2 197 OECD small (TL3) regions are contained in a TL2 region.
3. The new collected data show estimated longevity gaps at age 65 between the highest and lowest education groups which are substantially larger in most countries than those found in previous studies, due to more precise information on mortality after the age of 75 (see Chapter 4).
4. It uses data from the Harmonized Survey of Health, Ageing, and Retirement in Europe (SHARE) 2004-2013, Health and Retirement Survey (HRS) in the United States 2000-2014, English Longitudinal Study of Ageing (ELSA) 2002-2012, Japanese Study on Aging and Retirement (JSTAR) 2007-2011, and China Health and Retirement Longitudinal Study (CHARLS) 2011-2013. The 12 European countries are Austria, Belgium, Czech Republic, Denmark, England, France, Germany, Italy, Netherlands, Spain, Sweden and Switzerland. Disability is measured using four self-reported indices: i) at least one limitation in Activity of Daily Living (ADL), ii) at least one limitation restriction in Instrumental Activity of Daily Living (IADL), iii) at least one functional limitation related to mobility, and iv) being limited in paid work because of a health problem. See Box 6.4 in Chapter 6 for the full list of limitations in ADL and IADL that are considered.
5. These absolute values should be taken cautiously as true limitations could be overestimated given that studies (e.g. Bound, 1991; Baker et al., 2004) find that some non-employed workers report worse than actual health to justify not working.
6. *2016 OECD Income Distribution Database*.
7. In each country, it is assumed for estimation purposes that the level of inequality differs across cohorts but that the evolution of inequality with age is the same across cohorts (age and cohort fixed effects).
8. In Australia and Switzerland, this partly reflect the fact that many pensioners have taken their accumulated pensions as lump sums, which are not counted as current income, rather than annuitising them to provide income streams.
9. Family affluence is defined as a four-item measure of family wealth that includes: car possession, the availability of a bedroom for each child, holiday or travel over the last 12 months, and the number of computers owned by the family. The scale has been developed in the World Health Organization (WHO) Health Behaviour in School-aged Children Study.

10. Determining how exactly health affects labour market outcomes is complicated for various reasons. Beyond two-way causation, there are also other, unobserved factors that affect health and labour market outcomes, and measuring the true health status is also a challenge. Moreover, because the employed and non-employed might differ in characteristics that influence both wages and health, but that are not captured in the data – such as individuals’ motivation – the estimated effect of health on wages is prone to sample selection biases. Best efforts to correct for these limitations are discussed in greater detail in Chapter 2. Estimates presented in this report should thus be treated with caution and taken to indicate approximate rather than precise effects.
11. The effective age of labour market exit was only higher in 2000 than in 2014 for men in Denmark, Greece, Iceland, Japan and Mexico and women in Greece, Ireland and Mexico.
12. This part is based on the Survey on Health, Ageing and Retirement in Europe (SHARE), the Health and Retirement Study (HRS) and the English Longitudinal Study on Ageing (ELSA), covering many European countries, Israel and the United States. The OECD has computed an aggregate measure of health from a number of health indicators, including self-assessed health and a personal history of diabetes, high blood pressure, cancer, mental health problems and previous stays in hospital (see Chapter 5).
13. The covered period varies across countries. Birth cohorts are grouped per decade of birth year: from 1910-1919 to 1980-89 while age groups cover five-year periods.
14. With currently available data, when period effects are explicitly controlled for, such as through the Deaton-Paxson transformation (Deaton and Paxson, 1994), the age-cohort patterns are basically similar to the unadjusted ones shown in Figure 2. The Deaton-Paxson normalisation constrains the estimated time effects to be orthogonal to a linear time trend and to add up to zero. Hence, any linear time trend is therefore attributed to cohort and/or age effects, but not to time effects.
15. For Australia and Switzerland, this is subject to data limitations referred to in the endnote 8.
16. The linear correlation coefficient is 0.87 between the two series.
17. Persons living in collective households and in institutions are generally excluded from surveys used in the OECD Income Distribution database.
18. In Chile, just taking into account gender differences in life expectancy lowers female pensions by 5% compared to male’s and the replacement rate from 39 to 37%; this comes on top of the impact of gender gaps in the labour market.
19. The pension wealth calculations assume that people work until the normal retirement age. Given the socio-economic differences in health status and employment rates, however, the increase in the statutory retirement age might raise the effective retirement age less for low-educated than high-educated workers.
20. Estimates for France include the *Allocation personnalisée d’autonomie* (APA) and tax reductions for disabled people. Some people in France get LTC through their health insurance, but access to this cover varies by region. Where people do get support from health insurance, coverage may be more comprehensive than shown in Figure 1.23. Future work will explore this issue in more detail.
21. <http://www.springboardcourses.ie/pdfs/Springboard%20Trend%20Analysis.pdf>.

22. [http://www.akava.fi/en/current\\_issues/current\\_themes/longer\\_careers\\_with\\_the\\_job\\_life\\_cycle\\_model](http://www.akava.fi/en/current_issues/current_themes/longer_careers_with_the_job_life_cycle_model).
23. The exception to common mortality tables is the use of gender-specific tables in Chile, Indonesia and Mexico. Gender-specific mortality tables lead to lower pensions for women with the same pension contributions as men given that women live longer on average; with respect to life expectancy this is thus “fairer” but, at the same time, women are disadvantaged during their working lives through persistent wage and employment gender gaps; while addressing life expectancy inequality, gender-specific tables therefore exacerbate the economic vulnerability of older women.
24. There are no mandatory survivors pensions in Australia either, but accumulated pension assets are predominantly withdrawn as lump sums and pension balances are transferrable to the spouse on death of the holder.
25. In Portugal, the Ministry of Health proposed a National Strategy for Active and Healthy Ageing. An interministerial work group was created in October 2016 to develop the Strategy. It is meant to help local authorities and policy makers in charge of social, labour market and health policies co-ordinate their actions to promote active and healthy ageing.
26. [http://europa.eu/rapid/press-release\\_IP-17-1006\\_en.htm](http://europa.eu/rapid/press-release_IP-17-1006_en.htm).



## *References*

- Baker, M., M. Stabile and C. Deri (2004) “What Do Self-Reported, Objective, Measures of Health Measure?”, *Journal of Human Resources*, Vol. 39, pp. 1067-1093.
- Börsch-Supan, A., M. Coppola and A. Reil-Held (2012), “Riester Pensions in Germany: Design, Dynamics, Targeting Success and Crowding-in”, *NBER Working Paper Series*, No. 18014, Cambridge, United States.
- Bound, J. (1991) “Self-reported Versus Objective Measures of Health in Retirement Models”, *Journal of Human Resources*, Vol. 26, No. 1, pp. 106-138.
- Cahuc P., J.-O. Hairault and C. Prost (2016), “The Employment of Seniors: A Choice to Clarify and Personalize”, *Les notes du Conseil d’analyse économique*, No 32, May.
- Canning, D. and D. Bowser (2010), “Investing in Health to Improve the Wellbeing of the Disadvantaged: Reversing the Argument of *Fair Society, Healthy Lives* (The Marmot Review)”, *Social Science and Medicine*, Vol. 71.
- Chen, Y. and Li H. (2008), “Mother’s Education and Child Health: Is There a Nurturing Effect?”, *Journal of Health Economics*, Vol. 28, pp. 413-426.
- CHRODIS (2016), “Good Practices in the Field of Health Promotion and Chronic Disease Prevention Across the Life Cycle – Outcomes at a Glance”, Joint Action CHRODIS Work Package 5, Federal Centre for Health Education (BZgA), Germany and EuroHealthNet, Brussels.
- Commonwealth Fund (2016), “2016 International Health Policy Survey”, November.
- Corna, L.M. (2013), “A Life Course Perspective on Socioeconomic Inequalities in Health: A Critical Review of Conceptual Framework”, *Advances in Life Course Research*, Vol. 18, pp. 150-159.
- Dannefer, D. (2003), “Cumulative Advantage/Disadvantage and the Life Course: Cross-Fertilizing Age and Social Science Theory”, *Journal of Gerontology*, Vol. 58B, No. 6, pp. 327-337.
- Deaton, A. (2013), “What Does the Empirical Evidence Tell Us About the Injustice of Health Inequalities?”, in Nir Eyal, Samia Hurst, Ole Frithof Norheim and Daniel Wikler (eds.), *Inequalities in Health: Concepts, Measures and Ethics*, Oxford University Press, Oxford, United Kingdom.
- Deaton, A. and C. Paxson (1994), “Saving, Growth, and Ageing in Taiwan”, in D.A. Wise (ed.), *Studies in the Economics of Aging*, Chapter 9, Chicago University Press for the National Bureau of Economic Research.
- de la Maisonneuve, C. and J.O. Martins (2013), “Projection Method for Public Health and Long-term Care Expenditures”, *OECD Economics Department Working Paper*, No. 1048, OECD Publishing, Paris, <http://dx.doi.org/10.1787/5k44v53w5w47-en>.
- Devaux, M. and M. de Looper (2012), “Income-Related Inequalities in Health Service Utilisation in 19 OECD Countries, 2008-2009”, *OECD Health Working Papers*, No. 58, OECD Publishing, Paris, <http://dx.doi.org/10.1787/5k95xd6stnxt-en>.

- Devaux, M. and F. Sassi (2015), “The Labour Market Impacts of Obesity, Smoking, Alcohol Use and Related Chronic Diseases”, *OECD Health Working Papers*, No 99, OECD Publishing, Paris, <http://dx.doi.org/10.1787/5jrqn5fpv0v-en>.
- Espelt, A. et al. (2010), “Disability Among Older People in a Southern European City in 2006: Trends in Gender and Socioeconomic Inequalities”, *Journal of Women’s Health*, Vol. 19, No. 5.
- Fernald, A., V. Marchman and A. Weisleder (2013), “SES Differences in Language Processing Skill and Vocabulary Are Evident at 18 Months”, *Developmental Science*, Vol. 16, No. 2, pp. 234-248.
- Gallo, W.T. et al. (2000), “Health Effects of Involuntary Job Loss Among Older Workers Findings from the Health and Retirement Survey”, *Journals of Gerontology Series B: Psychological Sciences and Social Sciences*, Vol. 55, No. 3, pp. S131-S140.
- García, J.L. et al. (2016), “The Life-cycle Benefits of an Influential Early Childhood Program”, *NBER Working Papers*, No. 22993, National Bureau of Economic Research, Cambridge, United States.
- George, L.K. and K.F. Ferraro (2016), “Aging and the Social Sciences: Progress and Prospects”, in L.K. George and K.F. Ferraro (eds.), *Handbook of Aging and the Social Sciences*, Eight edition, Chapter 1.
- Glied, S. and A. Lleras-Muney (2008), “Technological Innovation and Inequality in Health”, *Demography*, Vol. 45, No. 3, pp. 741-761.
- Goldman, D. et al. (2009), “The Benefit of Risk Factor Prevention in Americans Aged 51 Years and Older”, *American Journal of Public Health*, Vol. 99, No. 11.
- Harkness, S. (2013), “Women’s Employment and Household Income Inequality”, in J. Gornick and M. Jantti (eds.), *Income Inequality: Economic Disparities and the Middle Class in Affluent Countries*, Stanford University Press, Stanford, United States, pp. 207-233.
- Heckman, J. and P. Carneiro (2003), “Human Capital Policy”, in Heckman, J. and A. Krueger (eds.), *Inequality in America: What Role for Human Capital Policy?*, MIT Press.
- Herd, P. (2006), “Do Functional Health Inequalities Decrease in Old Age? Educational Status and Functional Decline Among the 1931-1941 Birth Cohort”, *Research on Aging*, Vol. 28, No. 3, pp. 375-392.
- Hidajat, M.M., M.D. Hayward and Y. Saito (2007), “Indonesia’s Social Capacity for Population Health: The Educational Gap in Active Life Expectancy”, *Population Research and Policy Review*, Vol. 26, No. 2, pp. 219-234.
- ILC Global Alliance (2009), “Global Aging Report: Threats to Longevity”, *International Longevity Centre Global Alliance Publication*.
- Inchley, J. et al. (2016), “Growing Up Unequal: Gender and Socioeconomic Differences in Young People’s Health and Well-being”, *Health Policy for Children and Adolescents*, No. 7, World Health Organisation – Europe.
- James, E. (2009), “Rethinking Survivor Benefits”, *Social Protection and Labor Discussion Paper*, No. 928, World Bank.

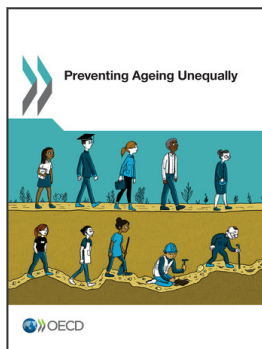
- James, C., M. Devaux and F. Sassi (2016), “Health and Inclusive Growth”, *OECD Health Working Papers*, forthcoming.
- Kautz, T. et al. (2014), “Fostering and Measuring Skills: Improving Cognitive and Non-cognitive Skills to Promote Lifetime Success”, *OECD Education Working Papers*, No. 110, OECD Publishing, Paris, <http://dx.doi.org/10.1787/5jxsr7vr78f7-en>.
- Kryńska, E. et al. (eds.) (2013), *Diagnosis of the Current Situation of Women and Men Aged 50+ on the Labour Market in Poland: Final Report*, University of Lodz.
- Messias, E. (2003), “Income Inequality, Illiteracy Rate, and Life Expectancy in Brazil”, *American Journal of Public Health*, Vol. 93, No. 8.
- Mondal, N.I. and M. Shitan (2013), “Relative Importance of Demographic, Socioeconomic and Health Factors on Life Expectancy in Low- and Lower-Middle-Income Countries”, *Journal of Epidemiology*, Vol. 24, No. 2, pp. 117-124.
- Muir, T. (2017), “Measuring Social Protection for Long-term Care”, *OECD Health Working Papers*, No. 93, OECD Publishing, Paris, <http://dx.doi.org/10.1787/a411500a-en>.
- Muliati, I. (2013), “Pension Reform Experience in Indonesia”, *IMF paper for the IMF Conference for Designing Equitable and Sustainable Pension Post Crisis World*.
- Murtin, F. and M. Mira d’Ercole (2015), “Household Wealth Inequality Across OECD Countries: New OECD Evidence”, *OECD Statistics Brief*, No. 21.
- OECD (2017a), *Inequality Pattern in Selected Emerging Economies*, OECD Publishing, Paris, forthcoming.
- OECD (2017b), *Report on the implementation of the OECD Gender recommendations – Some progress on gender equality but much left to do*, OECD Publishing, Paris, forthcoming.
- OECD (2016a), *OECD Employment Outlook 2016*, OECD Publishing, Paris, [http://dx.doi.org/10.1787/empl\\_outlook-2016-en](http://dx.doi.org/10.1787/empl_outlook-2016-en).
- OECD (2016b), *Society at a Glance 2016: OECD Social Indicators*, OECD Publishing, Paris, <http://dx.doi.org/10.1787/9789264261488-en>.
- OECD (2016c), *Health at a Glance: Europe 2016: State of Health in the EU Cycle*, OECD Publishing, Paris, <http://dx.doi.org/10.1787/9789264265592-en>.
- OECD (2016d), *Back to Work: Japan: Improving the Re-employment Prospects of Displaced Workers*, OECD Publishing, Paris, <http://dx.doi.org/10.1787/9789264227200-en>.
- OECD (2016e), “New Markets and New Jobs”, *OECD Digital Economy Papers*, No. 255, OECD Publishing, Paris, <http://dx.doi.org/10.1787/5j1wt496h371-en>.
- OECD (2016f), *OECD Pensions Outlook 2016*, OECD Publishing, Paris, [http://dx.doi.org/10.1787/pens\\_outlook-2016-en](http://dx.doi.org/10.1787/pens_outlook-2016-en).
- OECD (2016g), *OECD Business and Finance Outlook 2016*, OECD Publishing, Paris, <http://dx.doi.org/10.1787/9789264257573-en>.
- OECD (2015a), *In It Together: Why Less Inequality Benefits All*, OECD Publishing, Paris, <http://dx.doi.org/10.1787/9789264235120-en>.

- OECD (2015b), *Pensions at a Glance 2015: OECD and G20 indicators*, OECD Publishing, Paris, [http://dx.doi.org/10.1787/pension\\_glance-2015-en](http://dx.doi.org/10.1787/pension_glance-2015-en).
- OECD (2015c), *Health at a Glance 2015: OECD Indicators*, OECD Publishing, Paris, [http://dx.doi.org/10.1787/health\\_glance-2015-en](http://dx.doi.org/10.1787/health_glance-2015-en).
- OECD (2015d), *G20 Framework for Promoting Job quality*, OECD Publishing, Paris, <http://g20.org.tr/wp-content/uploads/2015/11/G20-Framework-on-Promoting-Quality-Jobs.pdf>.
- OECD (2014a), *Ageing and Employment Policies. Switzerland. Working Better with Age*, OECD Publishing, Paris.
- OECD (2014b), *OECD Pensions Outlook 2014*, OECD Publishing, Paris, <http://dx.doi.org/10.1787/9789264222687-en>.
- OECD (2013a), *PISA 2012 Results: Excellence through Equity (Volume II): Giving Every Student the Chance to Succeed*, OECD Publishing, Paris, <http://dx.doi.org/10.1787/9789264201132-en>.
- OECD (2013b), “The OECD Action Plan for Youth”, OECD, Paris, <http://www.oecd.org/els/emp/Youth-Action-Plan.pdf>.
- OECD (2013c), *OECD Employment Outlook 2013*, OECD Publishing, Paris, [http://dx.doi.org/10.1787/empl\\_outlook-2013-en](http://dx.doi.org/10.1787/empl_outlook-2013-en).
- OECD (2013d), *Pensions at a Glance Asia/Pacific 2013*, OECD Publishing, Paris, [http://dx.doi.org/10.1787/pension\\_asia-2013-en](http://dx.doi.org/10.1787/pension_asia-2013-en).
- OECD (2012a), *Equity and Quality in Education: Supporting Disadvantaged Students and Schools*, OECD Publishing, Paris, <http://dx.doi.org/10.1787/9789264130852-en>.
- OECD (2012b), *Closing the Gender Gap: Act Now*, OECD Publishing, Paris, <http://dx.doi.org/10.1787/9789264179370-en>.
- OECD (2011a), *Divided We Stand: Why Inequality Keeps Rising*, OECD Publishing, Paris, <http://dx.doi.org/10.1787/9789264119536-en>.
- OECD (2011b), *Doing Better for Families*, OECD Publishing, Paris, <http://dx.doi.org/10.1787/9789264098732-en>.
- OECD (2011c), *Help Wanted?: Providing and Paying for Long-Term Care*, OECD Publishing, Paris, <http://dx.doi.org/10.1787/9789264097759-en>.
- OECD (2010a), *Off to a Good Start? Jobs for Youth*, OECD Publishing, Paris, <http://dx.doi.org/10.1787/9789264096127-en>.
- OECD (2010b), *Obesity and the Economics of Prevention: Fit not Fat*, OECD Publishing, Paris, <http://dx.doi.org/10.1787/9789264084865-en>.
- OECD (2009), *Doing Better for Children*, OECD Publishing, Paris, <http://dx.doi.org/10.1787/9789264059344-en>.
- Orlova N.S., M.S. Rutledge and A.Y. Wu (2015), “The Transition from Defined Benefit to Defined Contribution Pensions: Does It Influence Elderly Poverty?”, *Center for Retirement Research at Boston College Working Papers*, No. 17.
- Paris, V. et al. (2016), “Health Care Coverage in OECD Countries in 2012”, *OECD Health Working Papers*, No. 88, OECD Publishing, Paris, <http://dx.doi.org/10.1787/5jlz3kbf7pzv-en>.

- Pisani, E., M.O. Kok and K. Nugroho (2017), “Indonesia’s Road to Universal Health Coverage: A Political Journey”, *Health Policy Plan*, Vol. 32, No. 2, pp. 267-276.
- Peng, D. (2015), “Long-term Care for Older Persons in China”, *SDD-SPPS Project Working Papers Series*.
- Putnam, R. (2015), *Our Kids. The American Dream in Crisis*, Simon & Schuster Publisher.
- Quesnel-Vallee, A., A. Willson and S. Reiter-Campeau (2015), “Health Inequalities Among Older Adults In Developed Countries: Reconciling Theories and Policy Approaches”, *Population Change and Lifecourse Strategic Knowledge Cluster Discussion Paper Series*, Vol. 3, No. 1, Article 6.
- Rofman, R. and L.M. Oliveri (2012), “Pension Coverage in Latin America”, *World Bank discussion paper*, No. 1217
- Sarkeala, T. et al. (2011), “Disability Trends Among Nonagenarians in 2001-2007: Vitality 90+ Study”, *European Journal of Ageing*, Vol. 8, No. 2, pp. 87-94.
- Sassi, F. et al. (2009), "Improving Lifestyles, Tackling Obesity: The Health and Economic Impact of Prevention Strategies", *OECD Health Working Papers*, No. 48, OECD Publishing, Paris, <http://dx.doi.org/10.1787/220087432153>.
- Schoon I. et al. (forthcoming), *The Impact of Early Life Skills on Later Outcomes. Final Report*, OECD Publishing, Paris.
- Sullivan, D. and T. von Wachter (2009), “Job Displacement and Mortality: An Analysis Using Administrative Data”, *Quarterly Journal of Economics*, pp. 1265-1306.
- WHO (2016), *WHO Global Strategy and Action Plan on Ageing and Health*, April.
- World Bank (2016), “Live Long and Prosper: Ageing in East Asia and Pacific”, World Bank, Washington DC.
- Yu, H. (2015), “Universal Health Insurance Coverage for 1.3 Billion People: What Accounts for China’s Success?”, *Health Policy*.

## Database references

- OECD Education Database, <http://www.oecd.org/education/database.htm>.
- OECD Income Distribution Database, <http://www.oecd.org/social/income-distribution-database.htm>.
- OECD Regional Database, <http://www.oecd.org/cfe/regional-policy/regionalstatisticsandindicators.htm>.
- OECD Wealth Distribution Database, <http://stats.oecd.org/index.aspx?DatasetCode=WEALTH>.



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