

Pension Indicators 2018



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FOREWORD

The aim of pension policy is to ensure sufficient earnings-related pensions, the financial sustainability of the earnings-related pension scheme and longer working lives. The Finnish Centre for Pensions first introduced indicators for the monitoring and evaluation of pension provision in 2013. *Earnings-related pension indicators* provide a perspective on the current status of earnings-related pension provision as well as on realised and predicted development. The collection of indicators is intended for decision-makers and other parties interested in the future development of earnings-related pension provision. There is more information relating to indicators on the website of the Finnish Centre for Pensions and its various publications.

The Pension indicators have been grouped according to three central goals: length of working life, pension level and pension financing. The core indicators include central issues in terms of the development of the earnings-related pension provision and the monitoring of the reforms. The supplementary indicators offer, as their name reveals, additional insight.

The indicators of this review have been compiled by Mikko Kautto, Jari Kannisto, Marja Kiviniemi, Juha Knuuti, Jukka Lampi, Heidi Nyman, Kaarlo Reipas, Juha Rantala and Janne Salonen of the Finnish Centre for Pensions, as well as Peter Halonen of The Finnish Pension Alliance TELA.

Helsinki, September 2018

Mikko Kautto

Director, Finnish Centre for Pensions

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1 Length of the working life

1.1 Core indicators

- 1.1.1 Expected effective retirement age
- 1.1.2 Duration of active working life and duration of employment
- 1.1.3 Employment rate
- 1.1.4 Working life length of new retirees

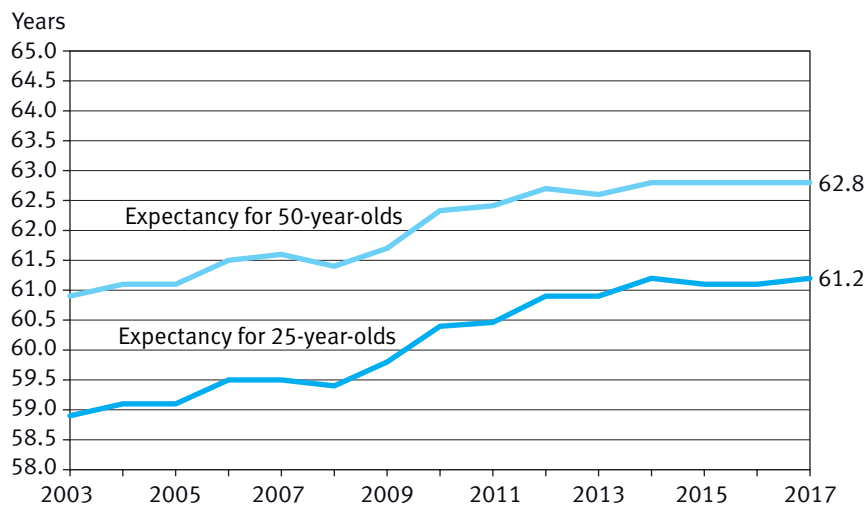
1.1.1 Expected effective retirement age

The expected effective retirement age depicts the average retirement age for insured persons of a certain age when presuming that the retirement risk and mortality per age group does not change. Part-time pension retirees or partial old-age pension retirees are not included when calculating the expectancy.

The expected effective retirement age can be calculated for persons at any age. The expectancy for a 25-year-old has been selected as the basic indicator.

Figure 1.1.1a.

Expected effective retirement age in 2003–2017, all retirees on earnings-related pension

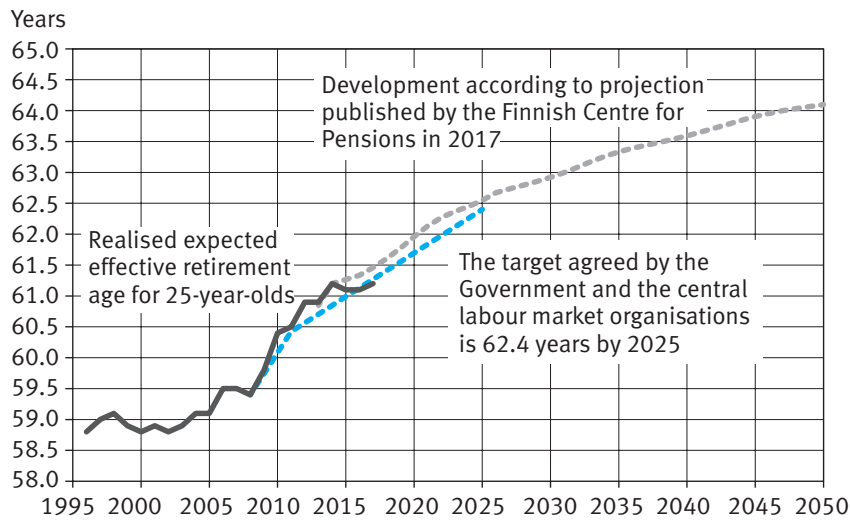


The expectancy for a 25-year-old has risen by 2.3 years from the level prior to the previous pension reforms (2003). In 2017, the expected effective retirement age for a 25-year-old was 61.2 years. It rose by 0.1 year compared to in 2016. If a person aged 50 was still insured for an earnings-related pension and not retired in 2017, their expected effective retirement age was 62.8 years, that is, 1.6 years higher than that of a 25-year-old. The expected effective retirement age of the 50-year-old has remained unchanged since 2014.

Additional information: *Effective retirement age in the Finnish earnings-related pension scheme*. Statistics from the Finnish Centre for Pensions 03/2018.

Figure 1.1.1b.

Expected effective retirement age in 1996–2050: realisation, goal and projection



In 2009 the government and central labour market organisations set as a goal that the expected effective retirement age of a 25-year-old should rise to 62.4 years by 2025. In order to implement the retirement age goal, government proposals to change the earnings-related pension acts were confirmed in January 2016. New earnings-related pension acts came into force on 1 January 2017.

The expected effective retirement age at the beginning of the 2000s was around 59 years. Following a moderate rise in 1996–2004, the expectancy increased appreciably in 2005–2014, largely in response to the phasing out of the unemployment pension from 2009. In the past few years, once that effect ceased to be in force, the average effective retirement age has remained virtually unchanged. In order to reach the target set for 2025, the expectancy should rise by 1.2 years from its level in 2017. The Finnish Centre for Pensions impact assessment of the 2017 pension reform projected that as the age limits for old-age pension are progressively raised, the targeted levels for expected retirement age should be reached by around 2025. (*Effects of the 2017 earnings-related pension reform: projections based on the government bill*. Finnish Centre for Pensions, Reports 08/2015).

1.1.2 Duration of active working life and duration of employment

The duration of active working life depicts the average number of years a 15-year-old is expected to take part in the workforce during the remaining years of life, if the work force shares of the year in question would prove to be permanent.

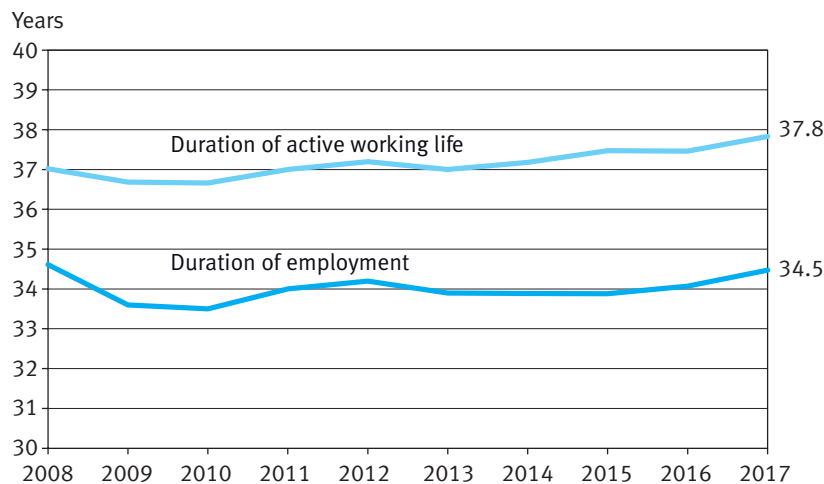
The duration of employment depicts the average years that a 15-year-old person can be expected to be in employment or self-employment during the remaining years of life, if the rates of employment during the year in question would prove to be permanent. Its annual values are cyclical in the same way as the employment rate.

The calculations are based on data from the workforce research of Statistics Finland. The variables used are workforce share and employment rate. More detailed definitions can be found at the website of Statistics Finland, http://stat.fi/til/tyti/index_en.html.

The calculations have been carried out at the Finnish Centre for Pensions.

Figure 1.1.2.

Duration of active working life and duration of employment for a 15-year-old in 2008–2017



The duration of active working life has increased by just under one percentage point during the period under review. With the exception of some fluctuation in the wake of the 2008 financial crisis, the duration of employment has remained steadily at around 34 years.

The difference, about three years between the duration of active working life and the duration of employment is due to unemployment.

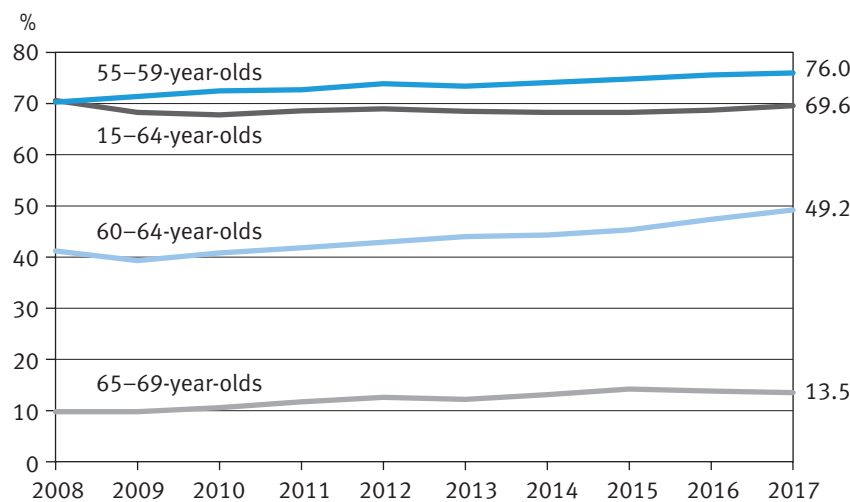
1.1.3 Employment rate

The *employment rate* is the percentage share of employed persons in the population of the same age. The review is based on the annual average values of the labour force survey by Statistics Finland. Normally, the employment rate is calculated as a percentage share of same-age population among the employed between 15 and 64 years of age. This being the case, 65–69-year-olds do not impact the employment rate of the population as a whole.

As employed is considered a person who, during the survey week, was in gainful employment and receiving monetary salary for at least an hour or fringe benefits for work, or profit if self-employed, or someone who has been temporarily off work. More detailed definitions are available from Statistics Finland: http://stat.fi/til/tyti/index_en.html.

Figure 1.1.3.

Employment rate by age group in 2008–2017



The employment rate rose in the 2000s, right up until the financial crisis of 2008. Development has been particularly favourable in the age cohorts of those who have turned 55.

Since 2008, the employment rate among 55–59-year-olds has been higher than in the whole working age population. The employment rate in this age cohort has trended upwards and in 2017 reached its highest level since 2000 (76.0 per cent), edging up 0.84 percentage points from the previous year.

Employment has also improved significantly among the 60–64-year-olds. Since the financial crisis the employment rate in this age group has reached a new record for the 2000s and was last year 49.2 per cent. In 2017 it was up 1.8 percentage points from 2016.

The employment rate for the 65–69-year-olds has improved, particularly after the 2005 pension reform. The likely main reason for this is that the age when the insurance obligation ends has risen from 65 to 68 years. Before the reform, the employment rate of this age group was around 5 per cent. In 2015 it was 14.2 per cent, nearly three times as high as at the turn of the century. After that it was gone down by 0.7 percentage points in the last two years to 13.5 per cent.

Despite strong employment trends in the 55+ population, the employment rate for the total population has remained persistently around the 70 per cent mark. A return to the level in 2008 has seemed almost unattainable. Yet, in 2017, the employment rate rose by 0.9 percentage points to above the level in 2007. With a continued favourable economic development, the average employment rate for the total population in 2018 may exceed the pre-financial crisis level of 2008 (70.3%).

1.1.4 Working life length of new retirees

By *length of working life* is here meant the duration of the time, in months or years, of coverage by the earnings-related pension scheme. In such cases, working life only includes employment insured for earnings-related pensions or self-employment. In this review, a person is considered to have been at work during a specific month, if he or she has been employed or self-employed and insured for earnings-related pensions during said month, according to register information.

A person's working life begins no earlier than from the beginning of the month following their 17th birthday: this is the age at which pension begins to accrue. Until the end of 2016 the lower age limit was 18 years. Since the review ends with retirement, the working life does not comprise work carried out alongside receiving a pension, if the pension in question is not part-time pension. The information is based on the statistical registers of the Finnish Centre for Pensions.

Table 1.1.4.

The length of working lives of retirees in 2017, years

	Average	Median
All new retirees in 2017		
Both sexes	32.7	37.0
Men	33.5	37.8
Women	31.9	36.2
Those retiring on an old-age pension in 2017		
Both sexes	35.4	38.8
Men	36.1	39.3
Women	34.7	38.3

In recent years the average length of working life has been stable at just under 33 years. The median is around four years higher. There has been little movement in this figure in recent years, but it seems that the median length of working life is now on a slight downward trend. At the same time as increasing numbers are transitioning directly from work into old-age retirement, the average length of working life for those retiring on old-age pension seems to be getting shorter. Trends over the past few years indicate that retirement on disability pension is also happening after shorter average working histories. For the time being these shifts are nevertheless so small that it would be premature to talk about a turnaround in this trend. Since the distribution of working life length is heavily skewed, the median provides a more robust measure than the average. Based on the median, over half of all new earnings-related pension retirees in 2017 had worked for at least 37.0 years before retiring.

Since some of the new retirees have left working life behind due to disability, which shortens working lives, it is natural that we should review those retiring on an old-age pension and their working lives separately. The length of working lives of those retiring directly on old-age pension in 2017 was 35.4 years on average, and the median was 38.8. In other words, half of all new old-age retirees worked at least for 38.8 years before retiring.

The working lives of men retiring on an old-age pension were 1.4 years longer than those of women. The difference between men and women is slightly bigger when considering all new retirees (1.6 years). Parental leave and periods of caring for a child are most likely the reason for differences between men and women in this case. In addition, the average effective retirement age for men is slightly higher than that for women: 60.9 years for men and 60.7 years for women in 2017. The median retirement age was 63.1 years for both genders.

1 Length of the working life

1.2 Complementing indicators

- 1.2.1 The expected effective retirement age, median and average value
- 1.2.2 Expected effective retirement age of 60- and 62-year-olds
- 1.2.3 Share of insured that have retired on an earnings-related pension
- 1.2.4 Age-standardized incidence of disability pensions
- 1.2.5 Duration of active working life in the Nordic countries and the EU
- 1.2.6 Employment rate of 55–67-year-olds
- 1.2.7 Employment rate of 20–29-year-olds
- 1.2.8 Employment rate of 55–64-year-olds in the Nordic countries and the EU

1.2.1 The expected effective retirement age, median and average value

The effective retirement age can be described by the indicators expectancy, median and average value.

The expected effective retirement age (*expectancy*) depicts the average retirement age for insured persons of a certain age when presuming that starting pensions and mortality per age cohort remain at the level of the year under review. The expected effective retirement age can be calculated for persons at any age. The expectancy for a 25-year-old has been selected as the basic indicator.

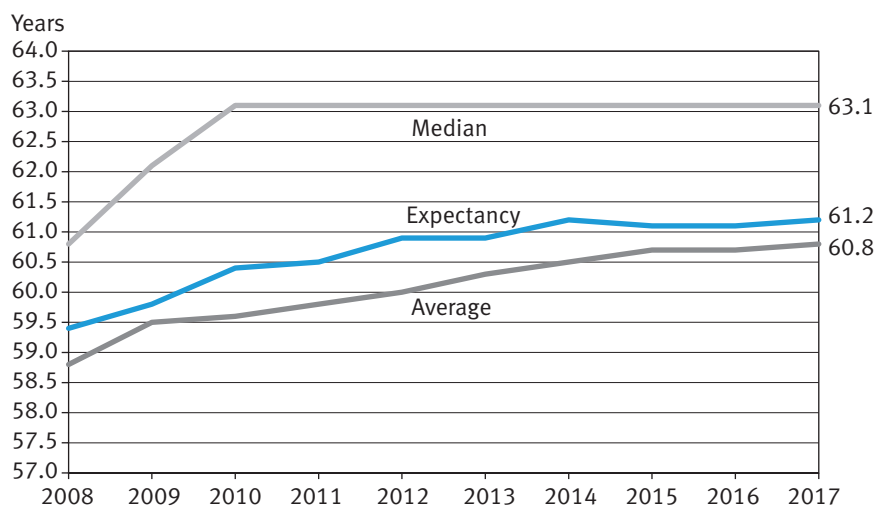
The *median* is the age that 50% of retirees are younger than and 50% are older than.

The *average* age is the arithmetic mean of the ages of those who retired.

People who have taken out a part-time pension or a partial old-age pension are not included in the figures of retirees.

Table 1.2.1.

The expected effective retirement age, median and average value in the earnings-related pension scheme in 2008–2017



All indicators show that the effective retirement age has risen in the 2000s.

The average and median values indicate the effective retirement age for a given year; they cannot be used for inferences about changes occurring over time. The population age structure has had a major effect on the effective retirement age in the 2000s. Baby boomers have reached pensionable age, and their large numbers have had the effect of driving up the effective retirement age. This surge effect has now passed as baby boomers have moved into retirement, and consequently the average and the median have been edging down again. On the other hand, the age cohorts now approaching retirement are continuing to grow smaller, which will have the effect of pushing up the average. Retirement age expectancy, by contrast, is unaffected by the population age structure; that figure only depends on changes in retirement behaviour.

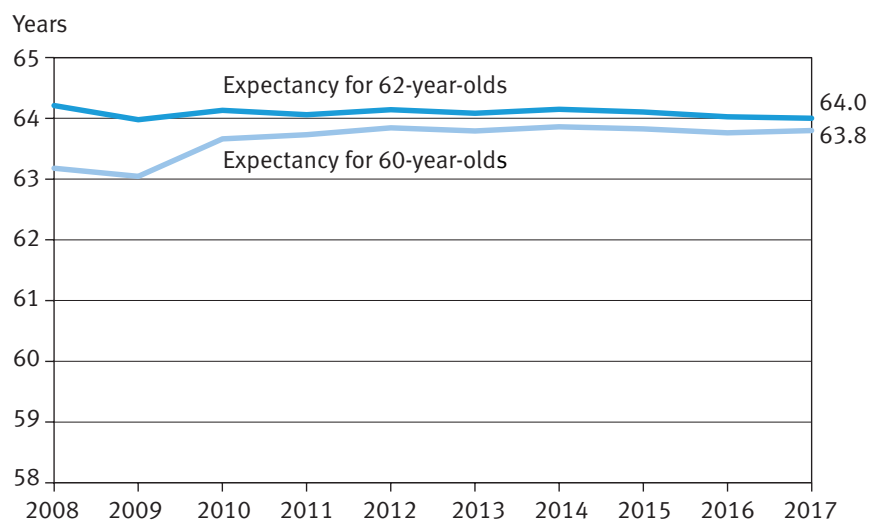
1.2.2 Expected effective retirement age of 60- and 62-year-olds

The *expected effective retirement age* depicts the average retirement age for insured persons of a certain age when presuming that starting pensions and mortality per age cohort remain at the level of the year under review. Part-time retirees are not included when calculating the expectancy.

The expected effective retirement age can be calculated for persons at any age. The expectancy for a 25-year-old has been selected as the basic indicator.

Figure 1.2.2.

Expected effective retirement age for 60 and 62-year-olds in 2008–2017, all retirees on earnings-related pension



The figure above shows how the expected effective retirement age has developed over the past nine years in two age groups approaching retirement. The expectancy for 60-year-olds has increased by almost one year. The sharp upturn in 2010 is attributable to the discontinuation of the unemployment pension. Since then there has been only little upward movement, and in the past couple of years the trend has moved slightly downwards.

The expected effective retirement age for 62-year-olds has been virtually unchanged throughout the period under review. It dipped temporarily in 2005 when the lower age limit for flexible old-age retirement was set at 63 years, but it then quickly climbed back to around 64 years.

The expected effective retirement ages of 60-year-olds and 62-year-olds have converged over time. During the period under review the difference has been reduced from one year to 0.2 years, and the gap is continuing to narrow. The main reason lies in the closure of some early retirement avenues, particularly the phasing out of unemployment pensions, which has meant that fewer people are now retiring at age 60 or 61.

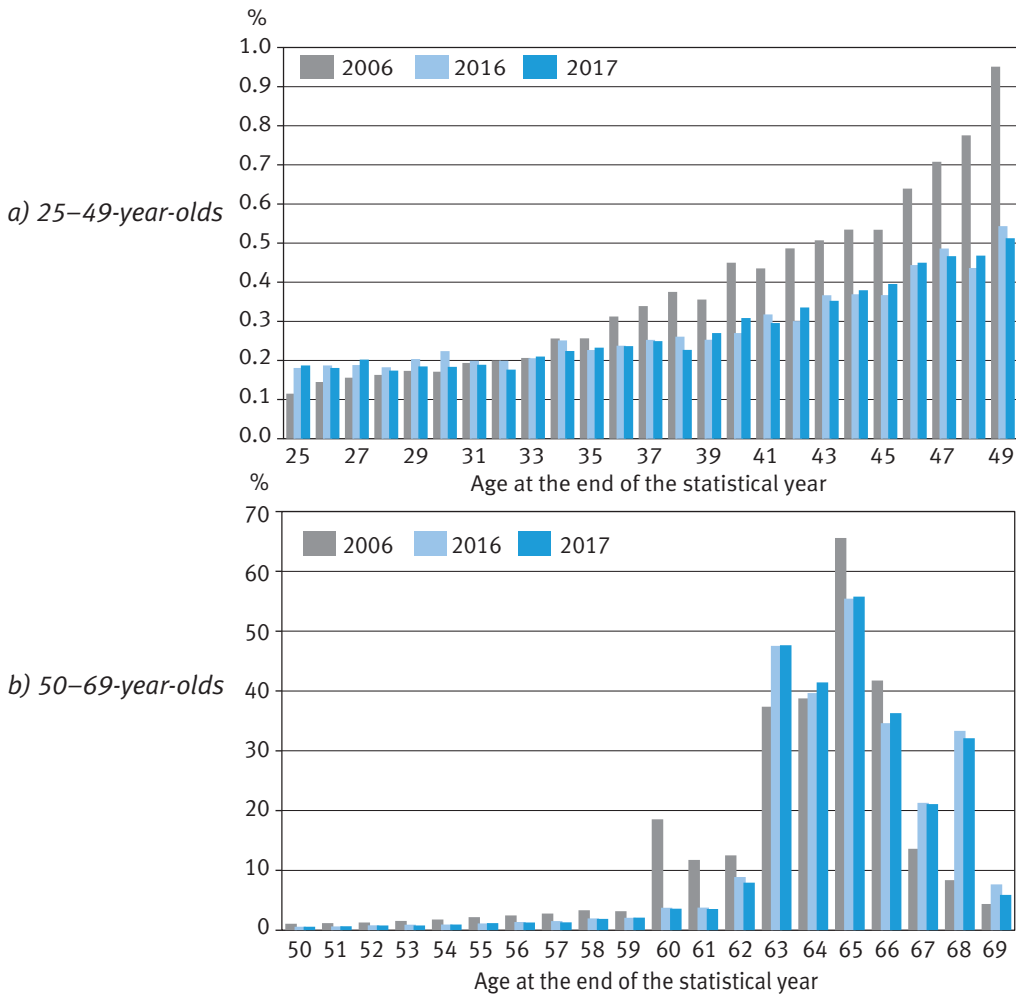
Additional information: *Effective retirement age in the Finnish earnings-related pension scheme*. Statistics from the Finnish Centre for Pensions 03/2018.

1.2.3 Share of insured that have retired on an earnings-related pension

The share of insured that have retired on an earnings-related pension depicts the percentage share of new retirees among persons of the same age who are insured but not retired. The ratio can be interpreted as the risk of retirement at a certain age. This retirement risk is also used to calculate expected retirement age.

Figure 1.2.3.

Share of insured that have retired on an earnings-related pension, 2006, 2016 and 2017



Please note the different scaling in figures a and b.

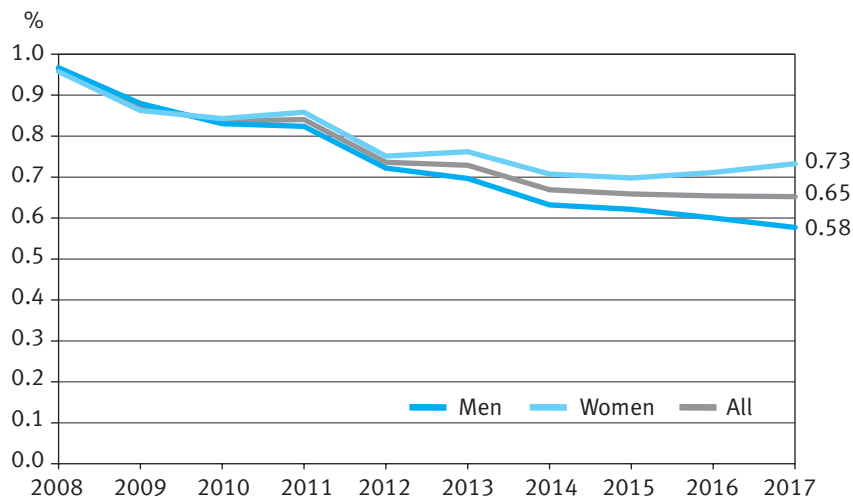
After 2005, the share of new retirees on an earnings-related pension has clearly dropped in the age groups of those under 63. The exception is those under the age of 30, where no decline is noticeable. After 2005, a new group of people with short working lives, mostly young, have come under the right to earnings-related pension. Previously they were left entirely outside the earnings-related pension scheme, and in reality their pension security is still based on national pension security, in addition to which they now receive a small earnings-related pension. Among the middle-aged, the number of new retirees on a disability pension has declined, mainly due to the population's improved health and better health care services. The decrease in options for early retirement, especially the termination of the unemployment pension, can be seen clearly where the older working population is concerned. This is especially true in the age cohorts of 60 and 61-year-olds, for whom retirement used to be much more common than it is now.

1.2.4 Age-standardized incidence of disability pensions

The incidence of disability pensions depicts the percentage share of the non-retired population that has begun receiving disability pension during the year in question. The figures have been age-standardized, using those insured for earnings-related pension in the last year as standard population. By standardizing them, the impact that age structure differences in the population have on the incidence is removed.

Figure 1.2.4

Age-standardized incidence of disability pensions for 25–62-year-olds in the earnings-related pension scheme in 2008–2017 by gender, %



The incidence of disability pensions has decreased by about 0.3 percentage points over the period under review, more so for men than for women. Since 2010, women's starting pensions have been slightly higher than men's.

There has been hardly change in the incidence numbers for those under 45, meaning that the decrease has happened in older age cohorts. In 2017, 22 per cent of all new disability retirees were under 45. The age group 45–54 accounted for 24 per cent and the age group 55–62 for 54 per cent.

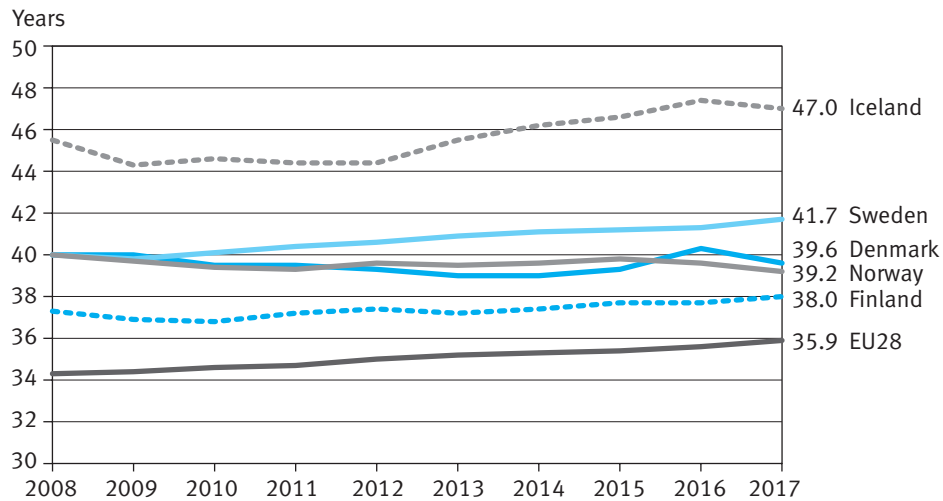
In 2017, a total of 18,600 persons insured for earnings-related pension retired on a disability pension. The most common reasons for retirement on a disability pension are musculoskeletal disorders and mental and behavioural disorders. Those retiring based on musculoskeletal diseases accounted for 34 per cent, and those retiring for reasons of mental health for 29 per cent.

1.2.5 Duration of active working life in the Nordic countries and the EU

The duration of active working life depicts the average number of years a 15-year-old is expected to take part in the workforce during the remaining years of life. The figures come from Eurostat: <http://ec.europa.eu/eurostat/database>.

Figure 1.2.5.

Duration of active working life of a 15-year-old in the Nordic countries and the EU in 2008–2017



The duration of active working life has increased throughout the European Union. In the Nordic countries, the expected duration of active working life began decreasing in Norway, Denmark and Iceland in the wake of the 2008 financial crisis. Iceland has, in recent years, returned to the path of growth.

In Finland, the active working life duration is shorter than in the other Nordic countries. The difference to Sweden was 3.7 years in 2017.

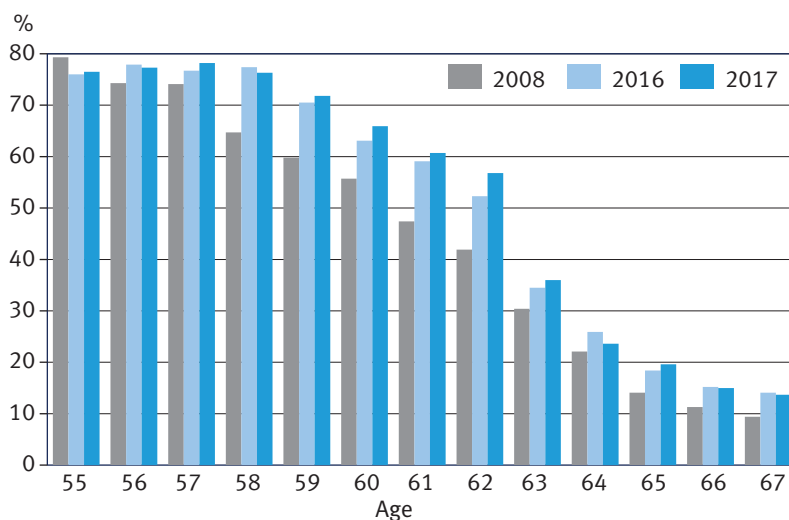
1.2.6 Employment rate of 55–67-year-olds

The *employment rate* is the percentage share of employed persons in the population of the same age. The review is based on the annual averages of the labour force survey by Statistics Finland

As employed is considered a person who, during the week of research, was in gainful employment and receiving monetary salary for at least an hour, or fringe benefits for work, or profit if self-employed, or someone who has been temporarily off work. More detailed definitions are available from Statistics Finland: http://stat.fi/til/tyti/index_en.html.

Figure 1.2.6.

The employment rate of 55–67-year-olds, 2008, 2016 and 2017



The employment rate has been rising in recent years in the older workforce. In the past ten years the employment rate has increased clearly in all 55+ age groups. This positive trend continued in 2017. Although the employment rate of the 65–67-year-olds continues to be rather low, it has increased by almost one third since 2008. In 2016 and 2017, the employment rates of the 65+ age group have ceased to increase at the same pace. At times, they have even decreased.

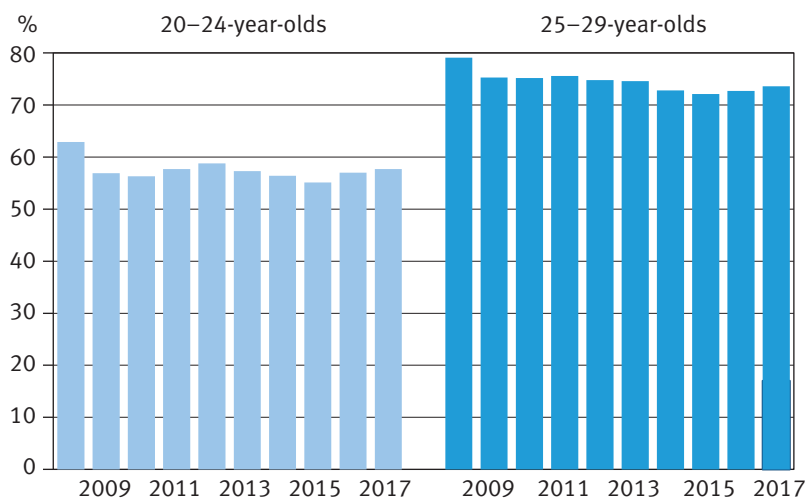
1.2.7 Employment rate of 20–29-year-olds

The *employment rate* is the percentage share of employed persons in the population of the same age. The review is based on the annual averages of the labour force survey by Statistics Finland

As employed is considered a person who, during the week of research, was in gainful employment and receiving monetary salary for at least an hour, or fringe benefits for work, or profit if self-employed, or someone who has been temporarily off work. More detailed definitions are available from Statistics Finland: http://stat.fi/til/tyti/index_en.html.

Figure 1.2.7.

The employment rate of 20–29-year-olds in 2008–2017



After 2004 the youth employment rate climbed steadily until the 2008 financial crisis, which was most noticeably reflected in the 2009 employment figures for young people. The economy has continued to remain sluggish until last year, when it seems that young people's employment rate has taken a turn for the better. However, the gap to the pre-financial crisis level is still more than five percentage points. In 2017 the employment rate for people aged 20–24 was 57.7 per cent, for those aged 25–29 it was 73.6 per cent.

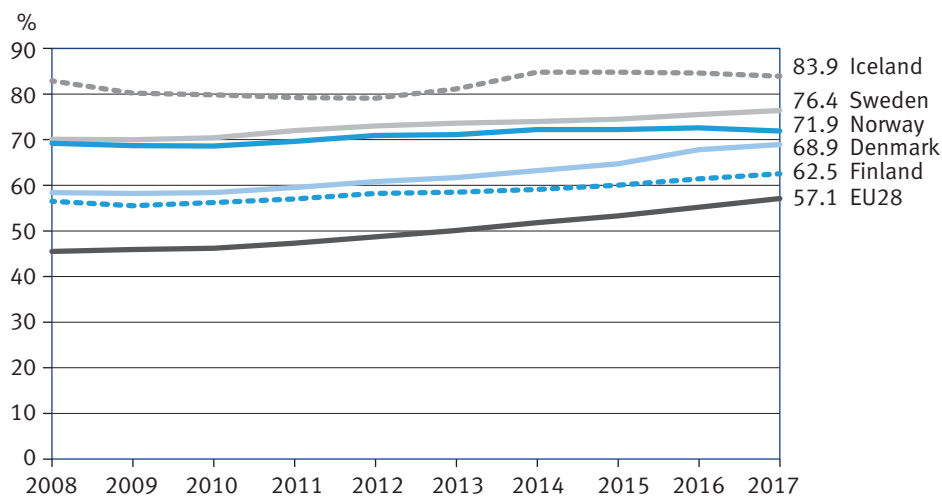
1.2.8 Employment rate of 55–64-year-olds in the Nordic countries and the EU

The *employment rate* is the percentage share of employed persons in the population of the same age. The review is based on data collected by Eurostat from the workforce research of different countries. The definitions of the statistic are the same as in the workforce research of Statistics Finland. For more details, please visit Eurostat at: <https://ec.europa.eu/eurostat/data/database>.

As employed is considered a person who, during the week of research, was in gainful employment and receiving monetary salary for at least an hour, or fringe benefits for work, or profit if self-employed, or someone who has been temporarily off work.

Figure 1.2.8.

The employment rate of 55–64-year-olds in the Nordic countries and the EU in 2008–2017



The EU employment rate for 55–64-year-olds has increased in the 2000s. The same trend is seen in all Nordic countries except Iceland, which has posted the highest Nordic employment rate throughout the period under review. In recent years Iceland's employment rate seems to have steadied at around 85 per cent.

Although the employment rates have improved in Finland in recent years, they have pulled ahead in the Nordic countries (particularly in Denmark). Earlier, the employment rate of the elderly Danish population was only slightly higher than in Finland, but in recent years it has grown quickly. It is now at the same level as that in Sweden and Norway. Despite the downturn in the employment rate of the Norwegian elderly population last year, it is still nearly 10 percentage points higher than in Finland. At least some of the differences between the Nordic countries are explained by part-time employment, which is far more common in Sweden and Norway than in Finland.

Although the employment rate of 55–64-year-olds has risen in Finland, the difference to the EU median has been reduced. In the last decade, the growth in the employment rate of the elderly population in the EU and the euro area has been twice as high compared to Finland.

In 2017, the employment rates of the elderly in the Nordic countries rose the most in Finland and Denmark, by an ample percentage point. In Sweden, the growth was less than one percentage point, and in Iceland and Norway the employment rate decreased.

2 Level of pensions

2.1 Core indicators

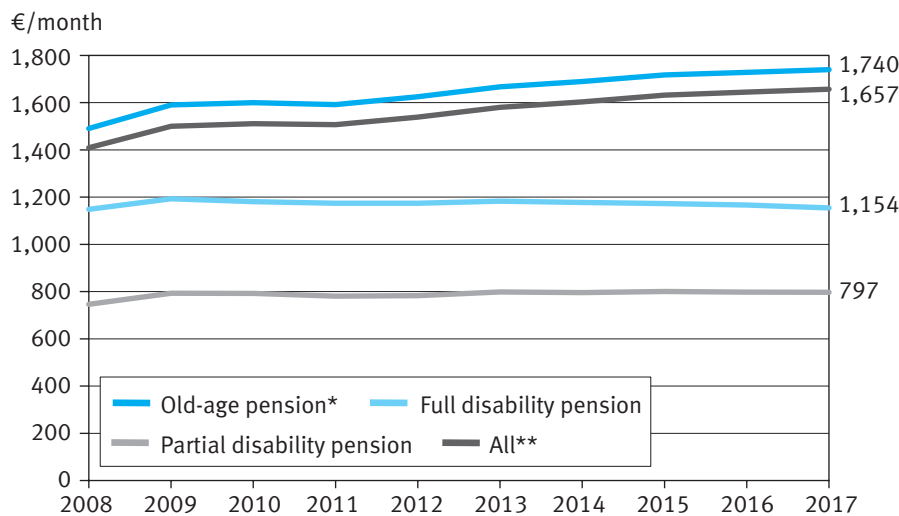
- 2.1.1 Average total pension in one's own right
- 2.1.2 Average total pension in one's own right in relation to average earnings
- 2.1.3 Average total pension in relation to average earnings in 2015–2085
- 2.1.4 Pension replacement rate
- 2.1.5 Calculation of the development of theoretical pension replacement rates

2.1.1 Average total pension in one's own right

The average total pension in one's own right depicts the average total pension of persons resident in Finland and receiving old-age or disability pension from the earnings-related and/or national pension scheme. The pension contains the individual's own earnings-related and national pension as well as surviving spouse's pension. The total pension also comprises special provision pensions¹ as well as front-veterans' supplements, child increases and guarantee pensions paid by Kela (the Social Insurance Institution).

Figure 2.1.1.

The average total pension in one's own right by pension benefit in 2008–2017, in 2017 currency



*Old-age pension doesn't include partial old-age pensions.

**Contains unemployment pensions up until 2014.

The average total pension of old-age pension recipients has seen a real growth of 17 per cent during the time period.

The average total pension of those receiving a full disability pension has remained at the same level throughout most of the period under review. The total average pension of those receiving a partial disability pension has also remained fairly stable during the period under review. According to the definition, the partial disability pension is half the size of a full pension. Partial disability pensions are, however, relatively speaking better than full pensions. In 2017 the total average pension of those receiving partial disability pension was 69 per cent of the total pension of those receiving a full disability pension.

¹ The Motor Liability Insurance Act, The Occupational Accidents, Injuries and Diseases Act, The Act on Compensation for Military Accidents and Service-Related Illnesses, The Act on Compensation for Accidents and Service-Related Illnesses in Crisis Management Duties.

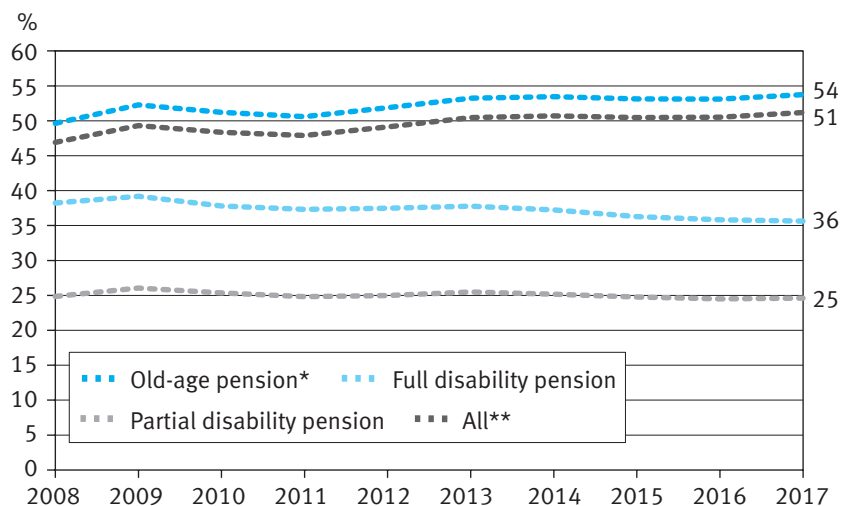
2.1.2 Average total pension in one's own right in relation to average earnings

The average total pension in one's own right depicts the average total pension of persons resident in Finland and receiving old-age or disability pension from the earnings-related and/or national pension scheme. The pension comprises the individual's own earnings-related and national pension as well as surviving spouse's pension. The total pension also comprises special provision pensions¹ as well as front-veterans' supplements, child increases and guarantee pensions paid by Kela (the Social Insurance Institution).

The average earnings are based on the average wages and self-employment income of different professions, as reported in the income distribution statistic of Statistics Finland. More detailed definitions are available from Statistics Finland: http://www.stat.fi/til/tjt/kas_en.html

Figure 2.1.2.

The average total pension in one's own right in 2008–2017, in percentage of the annual average earnings of the year in question by pension benefit



*Old-age pension doesn't include partial old-age pensions.

**Contains unemployment pensions up until 2014.

The income ratio of all pension recipients and the working population has remained around 50 per cent throughout the entire period under review. There was a slight decline in the latter half of the 2000s, but towards the end the level once again rose to what it had been at the start of the review period. The income ratio has remained virtually the same due to the development in old-age pensions. The average old-age pension in relation to the average income of the working population has remained around 50 per cent, and even exceeded it in the last few years. Moderate changes in average earnings have also affected the development of the income ratio in recent years.

The status of recipients of a full disability pension in relation to people still in the labour market has slightly weakened during the period under review. For recipients of disability pension, the income ratio to the working population decreased from 38 per cent to 36 per cent. The income ratio between recipients of a partial disability pension to the working population has been approximately 25 per cent throughout the period under review.

¹ The Motor Liability Insurance Act, The Occupational Accidents, Injuries and Diseases Act, The Act on Compensation for Military Accidents and Service-Related Illnesses, The Act on Compensation for Accidents and Service-Related Illnesses in Crisis Management Duties.

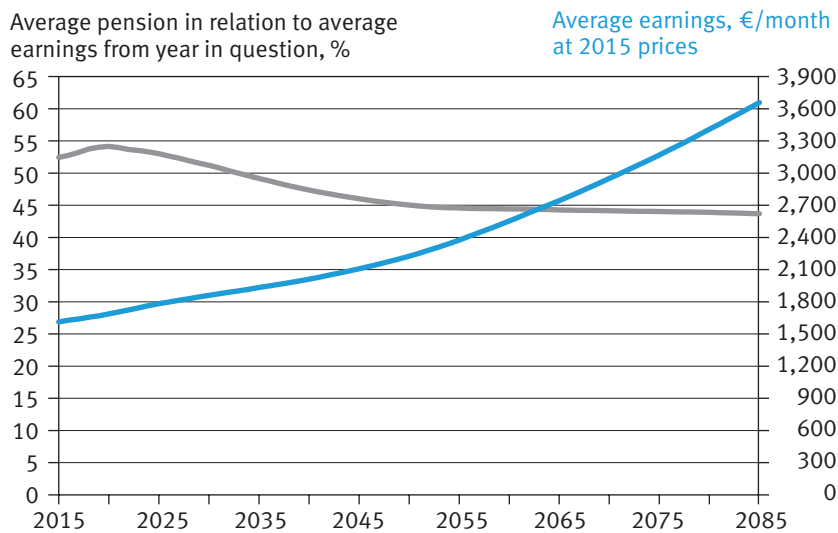
2.1.3 Average total pension in relation to average earnings, 2015–2085

The estimated development of the average total pension in one's own right from 2015 to 2085 is based on the long-term projections of the Finnish Centre for Pensions from the year 2016 (*Statutory pensions in Finland – long-term projections 2016. Finnish Centre for Pensions, Reports 02/2017*).

The average total pension in one's own right depicts the average total pension of persons resident in Finland and receiving old-age, disability or unemployment pension from the earnings-related and/or national pension scheme. The pension contains the individual's own earnings-related and national pension as well as surviving spouse's pension. The total pension also comprises special provision pensions¹ as well as front-veterans' supplements, child increases and guarantee pensions paid by Kela (the Social Insurance Institution).

Figure 2.1.3.

The average total pension in one's own right in 2015 currency and percentage rates from the average earnings of each year in 2015–2085



From 2015 to 2085 it is projected that the purchasing power of the average pension will more than double. At 2015 price level, the pension will increase from just over EUR 1,600 to around EUR 3,700 a month. The rise in pension purchasing power is mainly attributable to rising earnings levels.

In 2015, the average pension was just over half the average earnings of the insured. The ratio of earnings-related pensions to earnings level is still slowly rising due to slow growth of average earnings and the earnings-related pension scheme maturing. From the 2020s onwards, however, earnings growth will begin to outpace pensions growth. This is mainly due to the life expectancy coefficient. In addition, the discontinuation of the final salary principle in 2005 and higher accrual rates in the public sector compared to the private sector in the 1990s, both contributed to reduce the average pension to average earnings ratio.

Pensions paid out by Kela are indexed to wage growth and consumer price inflation, at 50 per cent each. For this reason Kela pensions grow more slowly than earnings. By 2085 the ratio of the average pension to average earnings will settle at the level of 44 per cent.

¹ The Motor Liability Insurance Act, The Occupational Accidents, Injuries and Diseases Act, The Act on Compensation for Military Accidents and Service-Related Illnesses, The Act on Compensation for Accidents and Service-Related Illnesses in Crisis Management Duties.

2.1.4 Pension replacement rate

In this instance, the *pension replacement rate* is defined as depicting the earnings-related pension percentage share of the earnings level preceding retirement, of a person retired on an earnings-related pension. The earnings-related pension includes all pensions in one's own right paid as earnings-related pensions. The earnings level has been determined two and three years before the pension contingency year, based on earnings received.

Included in the review are persons who retired on an earnings-related pension in 2017 and had earnings from work during the years 2014 and 2015. Excluded from the review are thus those new retirees who did not have earnings during the two calendar years under review. Part-time pension recipients have also been excluded from the review during that time. The limitations screened out approximately half of all new retirees. Many left outside the review retired as a result of disability or unemployment.

The earnings have been indexed to the statistical year by the cost-of-living index.

Table 2.1.4.

The pension replacement rates of those retiring from work in 2017

	Replacement rate					
	Average	Lowest decile i.e. 10%	The lower quartile i.e. 25%	Median i.e. 50%	The upper quartile i.e. 75%	Highest decile i.e. 90%
All new retirees						
Both sexes	60	31	47	58	67	81
Men	64	38	51	60	70	88
Women	57	29	44	56	66	76
Wage earners						
Both sexes	58	30	47	57	66	76
Men	61	36	51	59	67	78
Women	56	29	44	56	65	74

The pension replacement rate for people retiring in 2017 who were part of the research was 60 per cent on average. The replacement rate varies greatly. If earnings from the last working years differ significantly from the average earnings of one's whole working life, the replacement rate may be very high or it may be very low. The replacement rate median was 58 per cent, and that describes the average pension replacement rate fairly well. Every second replacement rate was between 47–67 per cent. The replacement rate was slightly higher for males than for females.

The replacement rate for wage earners was slightly lower than that of the self-employed. The divergence was also smaller than for the self-employed. In 2017, the replacement rate of the wage earners was 58 per cent on average and the median was 57 per cent.

The presented basic replacement rates are, by nature, quite stable. Changes take place slowly. There is a downward trend in the average rates: they have decreased by one percentage point per year. In 2012, the average replacement rate of the new retirees was 66 per cent. The changes in median or quartile figures have been minor.

2.1.5 Calculation of the development of theoretical pension replacement rates

By *theoretical pension replacement rate* is meant the amount of the starting pension in relation to the last earned wage calculated with the help of pension models. With the help of these models, it can be seen how the rules determining the level of pension affect the level of the starting pension.

The replacement rate has been calculated based on the assumption that the working life has begun at the age of 25 and continued without interruption until retirement. In the calculation, earnings are assumed to have developed according to an undulating earnings profile, where the earnings are 75 per cent of average earnings at the start of the working life and 105 per cent at the end. The same earnings profile has been used in the EU when calculating the theoretical replacement rate indicator.

The assumptions used in the projection are based on the latest projections of the Finnish Centre for Pensions. Below we describe the theoretical replacement rates of three different cohorts born in 1955, 1962 and 1985. The calculation provides a replacement rate for the same cohort according to retirement age. The working life is expected to be equally long for the different cohorts.

Table 2.1.5.

Pension replacement rates for persons born in 1955, 1962 and 1985 according to the pension reform that came into force in 2017

Retirement age	Replacement rate		
	Born in 1955	Born in 1962	Born in 1985
63 yrs 3 mo	50.1*		
64	52.9		
65	56.7	50.3	
66	60.6	54.0	
67	64.4	57.9	50.0*
68	68.6	61.8	53.3

*For those born in 1955, the retirement age is 63 years and 3 months; for those born in 1962 it is 65 years and for those born in 1985, it is 67 years and 1 month.

Theoretical pension replacement rates are lowered as we go from the oldest cohort to the youngest. According to the population forecast, life expectancy will be extended, meaning that the life expectancy coefficient will lower the pension level and replacement rate. Working longer improves the replacement rates in each cohort.

2 Level of pensions

2.2 Complementing indicators

- 2.2.1 Average total pension in one's own right and share of pension income per decile
- 2.2.2 Pension replacement rate distribution
- 2.2.3 Income of pensioner households
- 2.2.4 The low income of pensioners

2.2.1 Average total pension in one's own right and share of pension income per decile

The average total pension in one's own right per decile depicts the total pension of pension recipients in different deciles.

The share of pension recipient deciles in the pension income depicts the pension income share of pension recipients in different deciles.

The deciles have been arrived at by arranging pension recipients in ascending order based on total pension, and by dividing pension recipients into ten groups of equal size.

Recipients of pension in one's own right are those Finnish residents receiving old-age, disability, unemployment or special farmers' pensions from the earnings-related and/or national pension scheme. Unemployment pensions have not been paid out since 2014.

The total pension comprises the individual's own earnings-related and national pension as well as surviving spouse's pension. The total pension also comprises special provision pensions¹ as well as front-veterans' supplements, child increases and guarantee pensions paid by Kela (the Social Insurance Institution).

Figure 2.2.1a.

The average total pension of pension deciles of recipients of pension in one's own right in 2008–2017, in 2017 currency

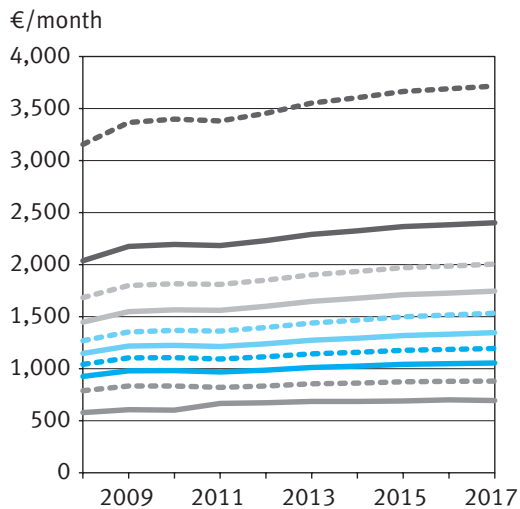
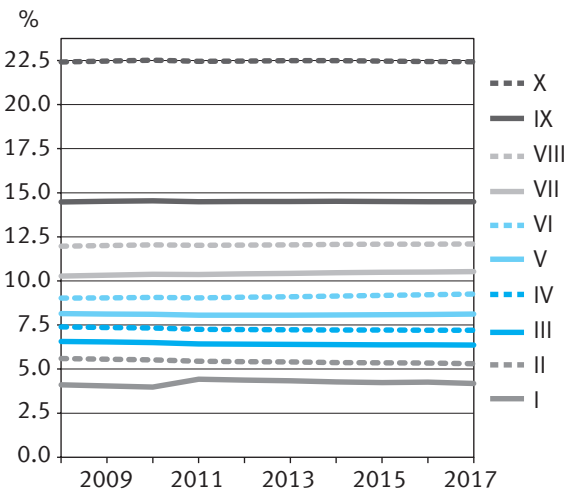


Figure 2.2.1b.

Share of deciles of recipients of pension in one's own right in the pension income in 2008–2017, %



The pension level has risen in all pension income categories during the period under review. However, the pension level has risen more in the higher than in the lower deciles, resulting in greater differences between pensions when it comes to actual euro amounts. In the uppermost decile, the average pension has risen by approximately EUR 500, and in the lowest by approximately EUR 100.

The income share of the lowest decile is less than five per cent, while it is over 20 per cent in the uppermost decile. The three lowest deciles, in other words 30 per cent of pension recipients, receive approximately 15 per cent of the pension income, while the share of the three highest deciles is half. The distribution of pension income has remained very stable during the period under review.

¹ The Motor Liability Insurance Act, The Occupational Accidents, Injuries and Diseases Act, The Act on Compensation for Military Accidents and Service-Related Illnesses, The Act on Compensation for Accidents and Service-Related Illnesses in Crisis Management Duties.

2.2.2 Pension replacement rate distribution

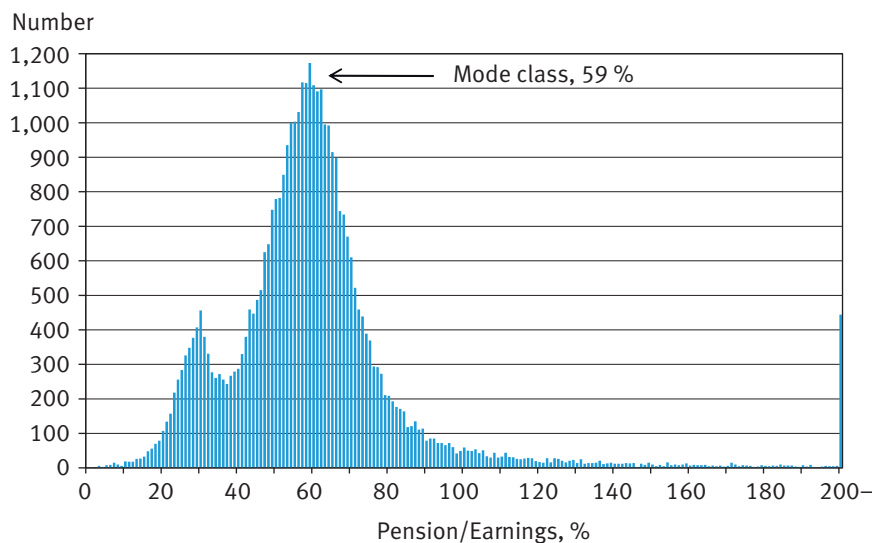
The pension replacement rate here depicts the earnings-related pension percentage share of the earnings level preceding retirement, of a person retired on an earnings-related pension. The earnings-related pension includes all pensions in one's own right paid as earnings-related pensions. The earnings level has been determined two and three years before the pension contingency year, based on earnings received.

Included in the review are persons who retired on an earnings-related pension in 2017 and had earnings from work during the years 2014 and 2015. Excluded from the review are thus those new retirees who did not have earnings during the two calendar years under review. Part-time pension recipients have also been excluded from the review during that time. The limitations screened out approximately half of all new retirees. Many left outside the review retired as a result of disability or unemployment. The definition is the same as in section 2.1.4.

The earnings have been indexed to the statistical year by the cost-of-living index.

Figure 2.2.2.

The ratio of pension to preceding earnings of those retiring on an earnings-related pension in 2017



The ratio of pension to preceding earnings varies a lot for the newly retired. In some situations, the replacement rate can rise very high percentage-wise. In such cases it is usually not a question of large pensions, but of small and irregular earnings during the final years of working life. The replacement rate distribution of earnings-related pension clearly has two peaks. The smaller peak comes at the 30 per cent mark and the higher peak at the 60 per cent mark. The concentration at the 30 per cent mark can be explained by the partial disability pensions. The partial disability pension is half the amount of a full pension.

2.2.3 Income of pensioner households

A household consists of persons living and dining together. The member of the household that earns the most determines the socio-economic status of the household. The categories are professionally active, pensioners and others. By income is meant the household's disposable money income per consumption unit. This is referred to as equivalent income. Starting from the statistical year 2011, Statistics Finland has calculated the equivalent income based on money income, following the practices of Eurostat. Previous years have been updated to correspond to this concept. According to the previous definition, equivalent income also included imputed income items such as housing income. Pensioners, more often than the rest of the population, live in homes that they own and have fully paid for, which weakens the position of pensioners in the new calculation method. More detailed definitions are available from Statistics Finland: http://tilastokeskus.fi/til/tjt/index_en.html.

Figure 2.2.3a.

Households' disposable money income per consumption unit, in 2007–2016, the average, in 2016 currency

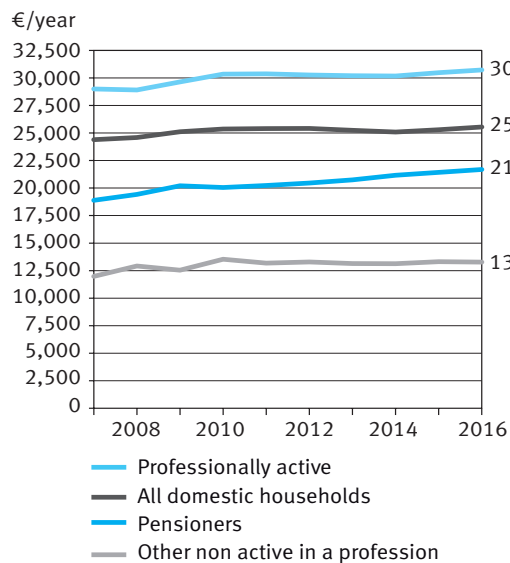
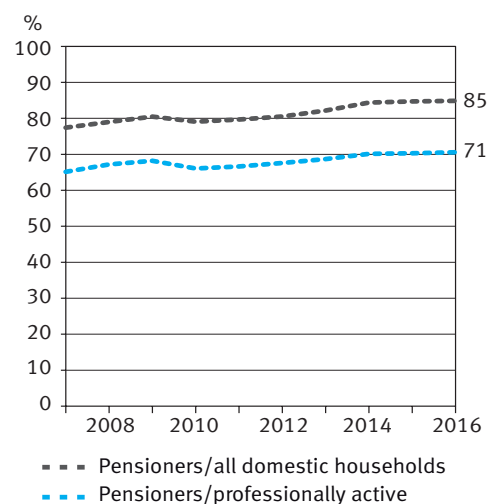


Figure 2.2.3b.

Income of pensioner households in relation to wage earners and all domestic households in 2007–2016



In 2016, the average income of those living in pensioner households was EUR 21,700 per year, i.e. roughly EUR 1,800 per month. Those who fared best were professionally active households, where the real income was EUR 30,700. In a weaker position, with annual incomes of EUR 13,300 on average, were persons living in other domestic households: in practice students and the long-term unemployed.

Compared to 2007, real growth in the income of pensioner households has been 15 per cent. In relation to those who are professionally active, the income of pensioner households has ranged between 65–71 per cent. Economic fluctuations are reflected in this ratio. During periods of uptrends, the position of pensioner households compared to the professionally active will usually weaken, and correspondingly improve during periods of decline. Compared to the population as a whole, the income of pensioner households has varied between 77–85 per cent. In 2016, the ratio was 85 per cent.

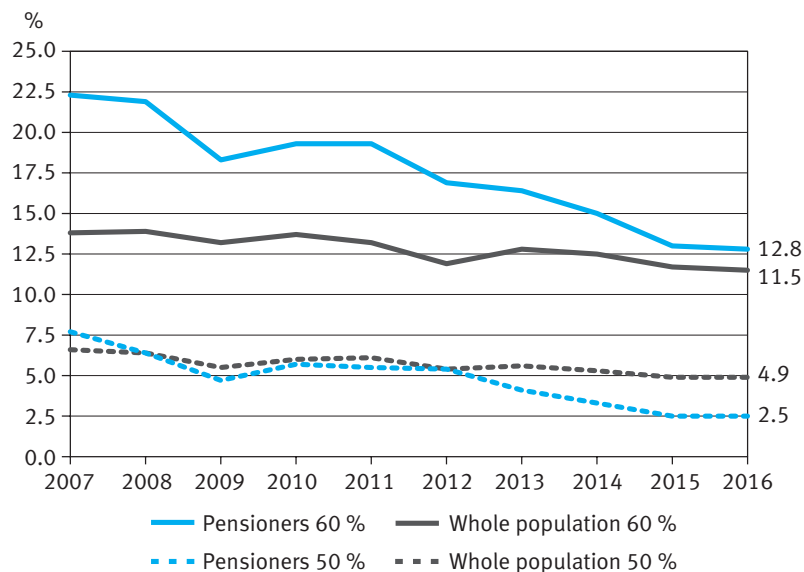
2.2.4 The low income of pensioners

The *low income rate* depicts the share of the population falling below the low income limit. The low income limit is based on the household's disposable money income per consumption unit. The EU countries follow a uniform definition according to which a person is considered to be a low income earner if the income is smaller than 60 per cent of the median income, but a 50 per cent limit is also used.

Starting from the statistical year 2011, Statistics Finland has calculated the equivalent income based on financial income, following the practices of Eurostat. Previous years have been updated to correspond to this concept. According to the previous definition, equivalent income also included imputed income items such as housing income. It is more common for pensioners to own and have fully paid for their homes, which is why the omission of housing income from the income particularly raises the low income rate of pensioners. More detailed definitions are available from Statistics Finland: http://tilastokeskus.fi/til/tjt/index_en.html.

Figure 2.2.4.

The low income rate of pensioners and the entire population at the low income limit of 60 and 50 per cent in 2007–2016



In 2016 the pensioner low income rate was 12.8 per cent when calculated based on the 60 per cent limit, which is 1.3 percentage points higher than for the population as a whole. Compared to 2007, the pensioner low income rate has dropped by 9.5 percentage points and by 2.3 percentage points for the population as a whole. The occasional shift in pensioner low income rate is also greater than for the population as a whole. The fluctuation is affected by changes to the poverty limit, since the income distribution of pensioners is concentrated more around the 60 per cent poverty limit than other population groups. Changes to the low income limit thus affect the number of low income pensioners the most, and thereby the pensioner low income rate. Using the lower limit of 50 per cent, pensioner low income rate is slightly lower as for the population as a whole.

3 Pension expenditure and financing

3.1 Core indicators

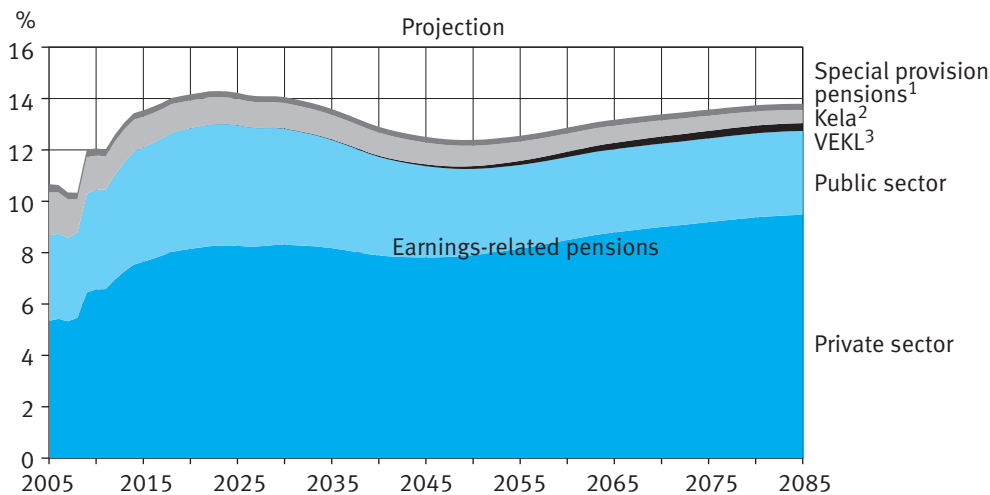
- 3.1.1 Statutory pension expenditure in relation to the gross domestic product
- 3.1.2 Earnings-related pension expenditure in relation to the sum of earnings
- 3.1.3 Expenditure and contribution rates under the Employees Pensions Act
- 3.1.4 Accrued pension rights and the funding ratio

3.1.1 Statutory pension expenditure in relation to the gross domestic product

The estimate is based on the long-term projections of the Finnish Centre for Pensions from the year 2016 (*Statutory pensions in Finland – long-term projections 2016. Finnish Centre for Pensions, Reports 02/2017*).

Figure 3.1.1.

Statutory pension expenditure in relation to the gross domestic product in 2005–2085, %



¹ The Motor Liability Insurance Act, The Occupational Accidents, Injuries and Diseases Act, The Act on Compensation for Military Accidents and Service-Related Illnesses, The Act on Compensation for Accidents and Service-Related Illnesses in Crisis Management Duties.

² Comprises national pensions and guarantee pensions.

³ The act on pension state funds replacing pensions during periods of care for child younger than 3 years or during studies.

Prior to the onset of recession in autumn 2008, statutory pension expenditure stood at about 10 per cent of GDP. GDP dropped in 2009, but pension expenditure increased, which sharply drove up the pension expenditure to GDP ratio. It is expected that relative expenditure will continue to grow until the early 2020s, when pension expenditure will account for just under 14 per cent of GDP.

Over the next few years expenditure growth will mainly be the result of the increasing average pension and rising number of pensioners, while GDP growth will remain slow. Thereafter, over the next 30 years, the pension expenditure to GDP ratio will fall back to around 12 per cent. This will primarily be due to delayed retirement and a reduced average pension to average earnings ratio.

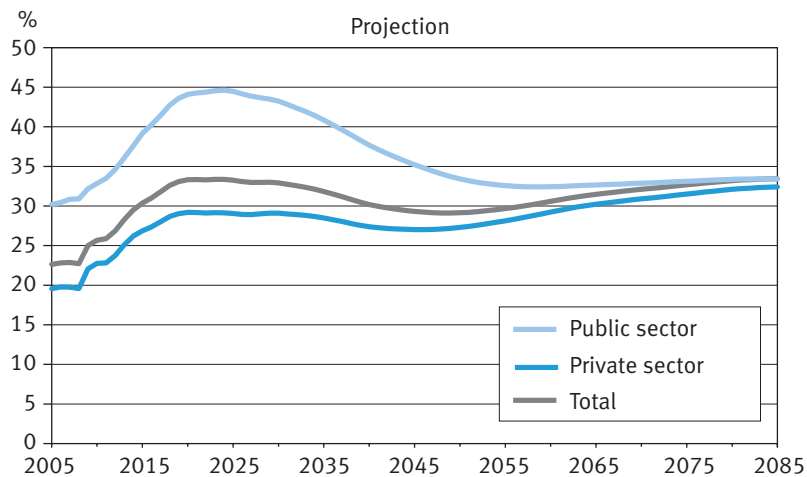
In the latter half of the century, the trend towards delayed retirement will slow and the growing share of pensioners in the population will turn the pension expenditure to GDP ratio onto a slight upward path.

3.1.2 Earnings-related pension expenditure in relation to the sum of earnings

Estimate of the development of earnings-related pension expenditure in relation to the financial bases, in other words the sums of earnings per economic sector is based on the long-term projections of the Finnish Centre for Pensions from the year 2016 (*Statutory pensions in Finland – long-term projections 2016*. Finnish Centre for Pensions, Reports 02/2017).

Figure 3.1.2.

Earnings-related pension expenditure in relation to the sum of earnings in 2005–2085, %



Pension expenditure in relation to income from work is on different trajectories in the public and private sectors. In the private sector, the expenditure ratio in 2015 was 26.9 per cent. The ratio will fluctuate within the range of 27 and 29 per cent through to 2060, and then turn to moderate growth. In 2015 public sector earnings-related pension expenditure stood at 39.2 per cent of the public sector payroll, and expenditure will continue to rise until 2024. At this point the expenditure ratio will reach 45 per cent, before beginning to slowly edge back to 33 per cent.

The persistently high public sector expenditure ratio has its background, firstly, in the fact that pension benefits in the public sector used to be more generous than in the private sector; and secondly, in privatizations that have resulted in employees transferring to the private sector. In the long term, the public and private sector expenditure ratios will move ever closer to each other with the increasing convergence of benefit rules.

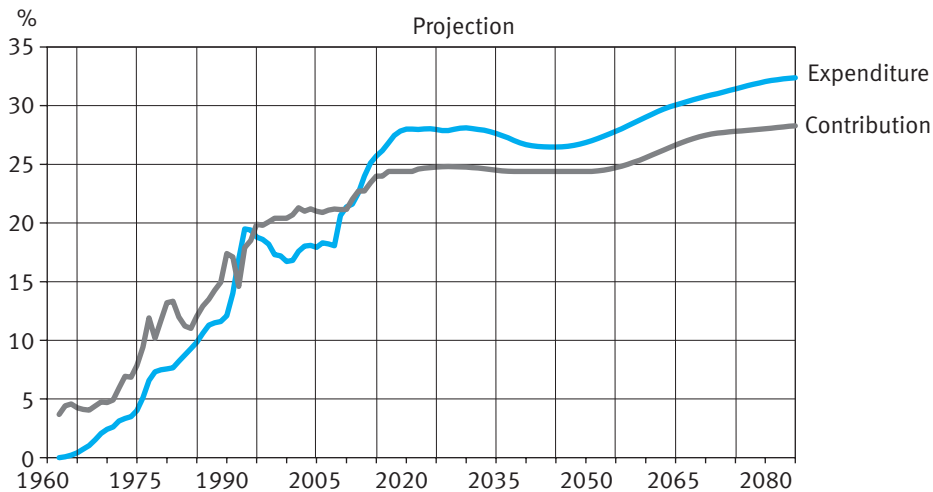
The total amount of earnings-related pension expenditure includes the pension expenditure accrued from periods of study and caring for a child at home (VEKL). This is not, however, included in sector-specific expenditure.

3.1.3 Expenditure and contribution rates under the Employees Pensions Act

The realised and projected development of pension expenditure and contributions in the private sector in relation to the corresponding wage sum is based on the long-term projections of the Finnish Centre for Pensions from the year 2016 (*Statutory pensions in Finland – long-term projections 2016*. Finnish Centre for Pensions, Reports 02/2017).

Figure 3.1.3.

Expenditure and contribution rates under the Employees Pensions Act in 1962–2085



Since the introduction of the Employees' Pensions Act (TEL), private sector pension expenditure growth has almost continuously outpaced payroll growth. This is because of population aging and the phasing in of new benefits. However this trend is set to be reversed over the next few years, and in 2020–2050 the pension expenditure to payroll ratio will decline by just under two percentage points. This change will be due to delayed retirement and a reduced average pension to average earnings ratio. In the latter half of the century, the trend towards delayed retirement will slow and the growing share of pensioners in the population will turn the pension expenditure to payroll ratio onto an upward trend.

The spike in the expenditure ratio in the 1990s was caused by the reduced payroll during the recession. Since 2009, under the conditions of a sluggish economy and growing pension expenditure, the expenditure ratio has risen sharply.

Part of private sector employees' earnings-related pensions are prefunded. This explains why pension contributions exceeded pension expenditure up until 2012. Since 2013 the yield on pension assets has made it possible to keep the contribution rate lower than expenditure. The long-term projection for the contribution rate is not based on spending pension assets; rather, the pension assets at the end of the calculation period in relation to the payroll are higher than they were at the beginning of the projection period.

3.1.4 Accrued pension rights and the funding ratio

By capital value of pensions accrued up to a certain point is meant the amount of money that would be sufficient to fund pensions accrued up to that certain point in time.

The estimates of the accrued pension rights are based on the long-term projections of the Finnish Centre for Pensions from the year 2016 (*Statutory pensions in Finland – long-term projections 2016*. Finnish Centre for Pensions, Reports 02/2017).

Table 3.1.4.

Pension funds, accrued pensions rights and the funding ratio in 2014 and 2015, with a real discount rate of 2.5 per cent. The money amounts are at current prices.

	The Employees Pensions Act		All	
	2014	2015	2014	2015
Pension funds, billion €	109.6	113.9	173.4	180.7
Accrued pension rights, billion €	412.8	421.3	709.1	721.9
Funding ratio, %	26.6	27.0	24.4	25.0

The amount of earnings-related pension funds refers to the current value of earnings-related pension institutions' investment assets at the end of each year. This is significantly affected by annual fluctuation in investment returns. The growth in pension funds in 2015 is largely explained by good investment returns.

The value of accrued pensions has been calculated using a 2.5 per cent real discount rate. The value of earnings-related pensions accrued by the end of 2015 totalled EUR 721.9 billion, three and a half times the value of 2015 GDP.

The funding ratio is obtained by dividing the amount of earnings-related pension assets by the capital value of accrued pensions. This key figure shows to what extent pensions can be financed from pension funds already accrued and from the future yield of these funds. At year-end 2015 the funding ratio for the whole earnings-related pension scheme was 25.0 per cent, while the figure for the Employees Pensions Act was 27.0 per cent.

3 Pension expenditure and financing

3.2 Complementing indicators

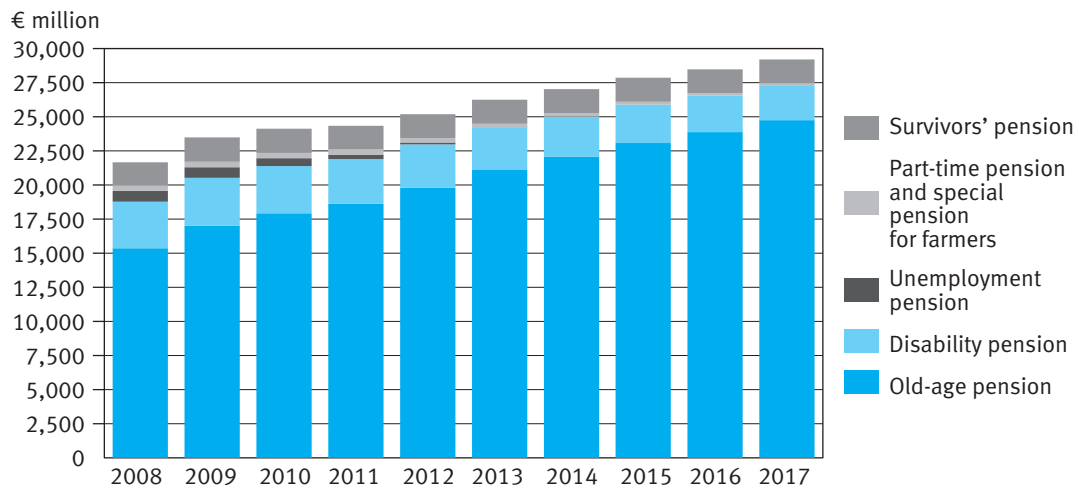
- 3.2.1 Earnings-related and national pension expenditure
- 3.2.2 Earnings-related pension contribution rates
- 3.2.3 Earnings-related pension funds in relation to the sum of earnings
- 3.2.4 Investment returns
- 3.2.5 Internal rate of return on earnings-related pension contributions by generation

3.2.1 Earnings-related and national pension expenditure

Earnings-related and national pension expenditure consists of old age, disability, unemployment, part-time and survivors' pensions and special pensions for farmers paid by the earnings-related pension providers and Kela (the Social Insurance Institution). Unemployment pensions have not been paid out since 2014.

Figure 3.2.1.

The earnings-related and national pension expenditure by pension benefit in 2008–2017, in 2017 currency



In 2017, earnings-related and national pensions totalled over EUR 29 billion, of which the share of the earnings-related pensions was EUR 27 billion and that of the national pensions was EUR 2.2 billion. The share of old-age pensions in the overall pension expenditure was 85 per cent, that of disability pensions was 9 per cent and that of survivors' pensions, about 6 per cent.

In addition to national pensions, Kela paid guarantee pensions at a sum of EUR 193 million and front veterans' supplements and child increases of EUR 21 million in 2017.

3.2.2 Earnings-related pension contribution rates

The table 3.2.2 shows the average pension contribution rates for 2008–2017. The rates under the relevant pension acts include both employer and employee contributions. The contribution components have been calculated on the wage earners' earnings based on the rules of the different pension acts.

The employee contribution is the same for all employees, but dependent on age. In 2017 the base contribution rate was 6.15 per cent, while employees aged 53–62 pay an increased rate of 7.65 per cent of wages. The increased rate was previously applied to employees over 53 with the exception of those insured under MEL: in their case half of the pension contribution was covered by the employer until the end of 2015.

Entrepreneurs' and farmers' pension contributions depend not only on age, but also on income from work. Grant recipients have been insured under MYEL (Farmers' Pension Insurance Act) since 2009. The average contribution rate of grant recipients is close to that of farmers.

At the beginning of 2017, the Local Government Pensions Act (KuEL), the State Employees' Pensions Act (VaEL) and the Evangelical-Lutheran Church Pensions Act (KiEL) merged into the Public Sector Pensions Act (JuEL). The pension contributions of public sector employers are regulated under the Keva Act (Keva's member corporations), the Act on the financing of state pensions (State) and the Act on the financing of pensions of the Evangelical-Lutheran Church (Evangelical-Lutheran Church).

Table 3.2.2.

*Average earnings-related pension contribution rates in 2008–2017 according to pension act**

Year	TyEL ¹	MEL	State	Keva's member corporations ²	Evangelical-Lutheran Church ³	Employee contribution ⁴		YEL	MYEL
						Basic contribution	Increased contribution		
2008	21.1	22.0	24.7	28.1	31.1	4.1	5.2	19.3	10.6
2009	21.3	22.0	25.0	28.2	31.5	4.3	5.4	19.6	10.8
2010	21.6	22.0	25.1	28.4	31.8	4.5	5.7	20.1	11.1
2011	22.1	22.2	24.9	28.7	31.8	4.7	6.0	20.2	11.3
2012	22.8	22.4	25.0	29.1	33.3	5.15	6.5	21.1	11.8
2013	22.8	22.6	24.9	29.6	33.7	5.15	6.5	20.9	12.9
2014	23.6	22.8	26.5	29.8	34.1	5.55	7.05	21.8	13.4
2015	24.0	22.8	26.4	29.8	34.3	5.7	7.2	22.6	13.7
2016	24.0	22.8	24.1	29.4	30.5	5.7	7.2	22.6	13.6
2017	24.4	22.0	23.6	28.5	30.7	6.15	7.65	23.1	13.9

¹ TyEL contribution rates take into account employer-specific customer rebates and temporary reductions to the contribution.

² The contribution of Keva's member corporations include the components based on wage and pension expenditure among entrepreneurs.

³ Contribution rates of the Evangelical Lutheran Church Pension Act do not contain a pension fund contribution, which was 1.2% of the church tax during the years 2013–2015 and 4.0% of the church tax in 2016 and 2017.

⁴ The confirmed contribution rates of employees are included in the table. They are the same for all insured employees, except for those insured under MEL before 2016 (when the pension insurance contribution was shared evenly between the employer and the employee). The contribution rates are estimated average contributions.

Part of the figures are estimates.

* Pension acts, see p. 44.

3.2.3 Earnings-related pension expenditure in relation to the sum of earnings

The TyEL and MEL pension funds shown in Table 3.2.3 include solvency capital and the technical reserves used in solvency calculations.

YEL and MYEL pension funds are based on the corresponding technical reserves as defined under the relevant acts. For public sector pension providers, the figures are based on investment assets. The sums of wages and earnings are based on information reported by the pension providers to the Finnish Centre for Pensions.

Pension funds increased until the financial crisis of 2008, when the value of the funds dropped strongly. Also, due to weak economic development internationally, stock markets fell and bent the investment profits as well as pension funds in 2011, but since then the amount of funds in relation to the wage sum has grown annually.

The total earnings-related pension assets amounted to approximately 200 billion euros at year-end 2017. This equals 90 per cent of GDP in Finland. The pension assets grew by nearly 6 per cent during the year under review. The growth was mainly due to the favourable investment returns. The sum of earned income grew by slightly less than 2 per cent compared to the year before.

Table 3.2.3.

The earnings-related pension funds in relation to the sum of earnings in 2008–2017, %

	TyEL	MEL	State	Keva's member corporations	Evangelical-Lutheran Church	Other public	YEL	MYEL	All
2008	150.8	236.0	158.4	152.6	141.3	376.0	3.6	1.7	143.3
2009	177.2	283.3	182.3	179.9	167.1	393.0	3.4	1.9	167.3
2010	190.8	319.6	212.0	199.9	189.9	405.5	3.3	2.5	182.6
2011	176.6	303.8	209.3	194.6	183.5	412.1	3.0	3.0	171.5
2012	185.5	326.4	232.1	215.6	202.7	417.0	2.8	3.7	183.1
2013	198.4	334.8	247.2	231.1	222.5	431.2	2.7	4.6	195.7
2014	209.0	359.5	270.2	253.8	243.0	434.7	2.7	5.6	208.9
2015	214.8	390.7	289.4	267.2	257.5	439.5	2.7	7.0	217.0
2016	218.8	414.1	310.7	288.0	280.0	439.5	2.6	8.0	225.6
2017	225.4	436.6	334.7	310.3	309.6	401.1	2.5	9.5	236.1

TyEL The Employees Pensions Act

MEL The Seafarer's Pensions Act

YEL The Self-Employed Person's Pensions Act

MYEL The Farmers' Pension Insurance Act

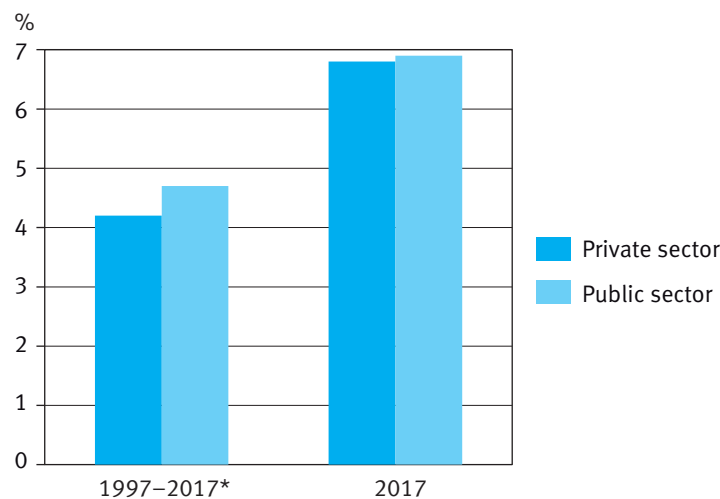
Other public: Pension rule of the Social Insurance Institution, pension rule of the regional government of Åland

3.2.4 Investment returns

When calculating profit from earnings-related pension investments, the calculation method used is that determined by the Financial Supervisory Authority. Investment profits include the so-called cash income, in other words dividends, interest rates and rent as well as increases and decreases in value of realised and unrealised investments. The profit rate is achieved by proportioning these to the capital employed. Real profit is arrived at when the impact of consumer pricing on the purchasing power of capital employed is taken into account alongside nominal profit.

Figure 3.2.4.

The average real annual profit of earnings-related pension investments in per cent of the capital employed in 1997–2017



*The private sector: Average profit of pension provider investments used for the year 1997.

The public sector: Average profit of Keva investments used for the years 1997–1999.

Profits vary from year to year, first and foremost due to changes in value. The year 2017 was a good investment year. Private-sector investments produced a real profit of 6.8 per cent, and those of the public sector, 6.9 per cent. The investment operations of earnings-related pension providers in the private sector carried a slightly lower risk than those of the public sector. Private-sector actors are obligated to meet statutory demands for solvency.

Due to annual shifts in investment profits, they are also depicted in terms of average value over several years. Sufficiently comprehensive, comparable profit series that cover the entire field begin in 1997. In the private sector, the real average profit of twenty-one years was 4.2 per cent per year. In the public sector it was 4.7 per cent.

Source: <http://www.tela.fi>

3.2.5 Internal rate of return on earnings-related pension contributions by generation

The internal rate of return is the interest rate that, when used for discounting, gives equal current values for the pension contributions and benefits for each birth-year cohort. The internal rate of return can thus be interpreted as the return on earnings-related contributions by cohort.

The calculation of the internal rate of return is based on a combination of historical data and a projection. The historical data covers the years 1962–2013. In some details, where the realised development is concerned, estimates have had to be used, but these estimates have little significance on the overall picture. As of 2014, the internal rate of return is based on the long-term projections of the Finnish Centre for Pensions from the year 2016 (*Statutory pensions in Finland – long-term projections 2016*. Finnish Centre for Pensions, Reports 02/2017).

Table 3.2.5 presents the internal real rate of return on the earnings-related contributions of insured wage-earners in accordance with the Employees Pensions Act and the acts preceding it for cohorts born between 1940 and 2000. In practice, all statutory earnings-related pensions of private-sector wage-earners are included in the calculation. Only the Seafarer's Pensions Act is excluded.

Table 3.2.5.

Internal real rate of return on the earnings-related pension contribution of private-sector wage-earners by year of birth, %.

	Year of birth												
	1940	1945	1950	1955	1960	1965	1970	1975	1980	1985	1990	1995	2000
Internal rate of return, %	6.5	4.9	3.9	3.2	2.6	2.3	2.2	2.1	2.1	2.2	2.2	2.2	2.2

The pension system's operating costs are included in the realised and projected pension contribution, and are thus a factor that reduces the internal return.

Pension contributions are tax-deductible, and pension payments received by the pensioner are taxable income. Taxation is not, however, taken into account in the calculation of the internal return.

The pension system's operating costs are included in the realised and projected pension contribution, and are thus considered as a factor that reduces the internal rate of return. Pension contributions are tax deductible, and pension payments received by the pensioner are taxable income. Taxation is not, however, taken into account in the calculation of the internal rate of return.

The real internal rate of return declines from 6.5 per cent for those born in 1940 to 2.2 per cent for those born in 1970. For subsequent generations the internal rate of return is steady at this level through to those born in 2000. Data limitations mean that people born before 1940 are not included in the calculation. However it is reasonable to assume that the internal rates of return for these generations would be even higher than for subsequent generations. The most important reason for the declining internal rate of return lies in the phasing in of new pension benefits and rising TEL/TyEL contribution rates in response to population aging.

In autumn 2015, the Finnish Centre for Pensions published a report reviewing the earnings-related pension contributions and benefits of wage earners in the private sector according to generation (*Yksityisalojen palkansaajien työeläkkeet syntymävuoden ja sukupuolen mukaan*. Eläketurvakeskuksen raportteja 09/2015).



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The Finnish Centre for Pensions, an expert on earnings-related pensions, is a statutory body that develops pension provision and produces joint services for all parties to the scheme. In the Reports series, we publish reviews, surveys and projections that serve the assessment and development of the pension provision.



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