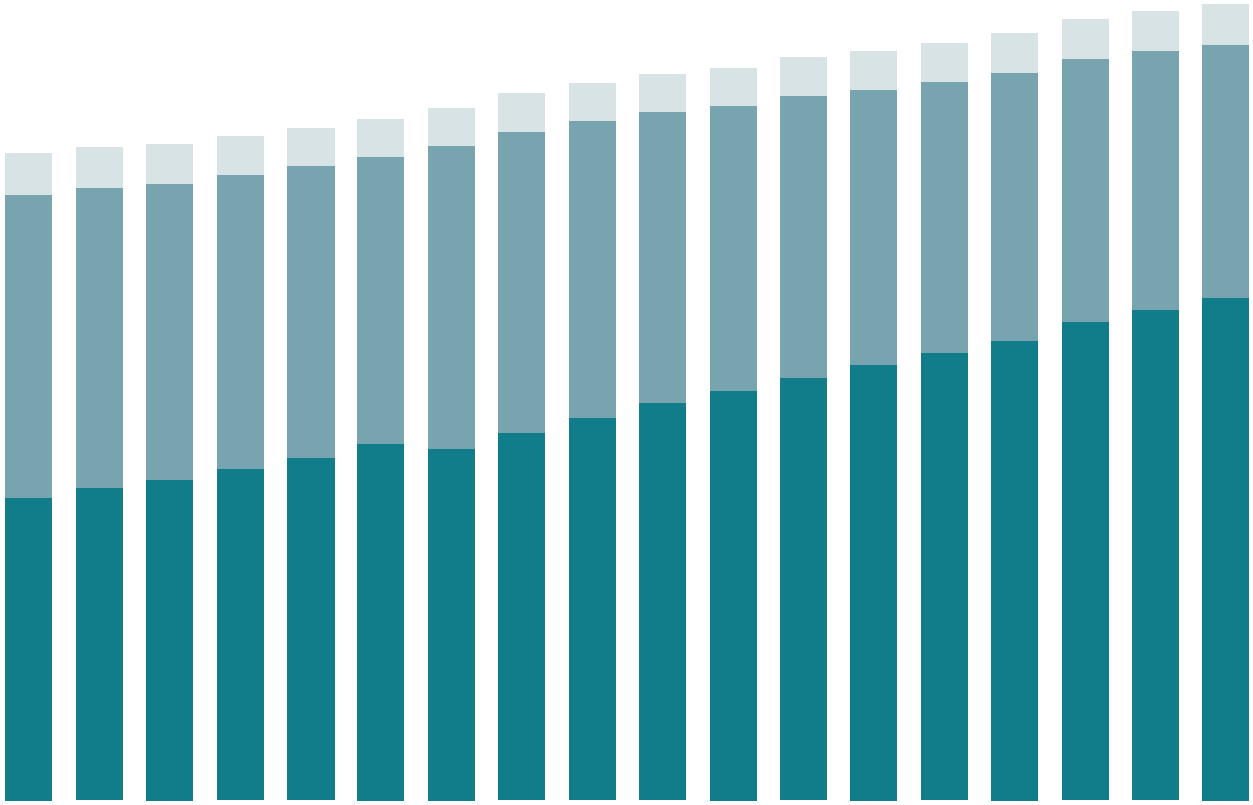
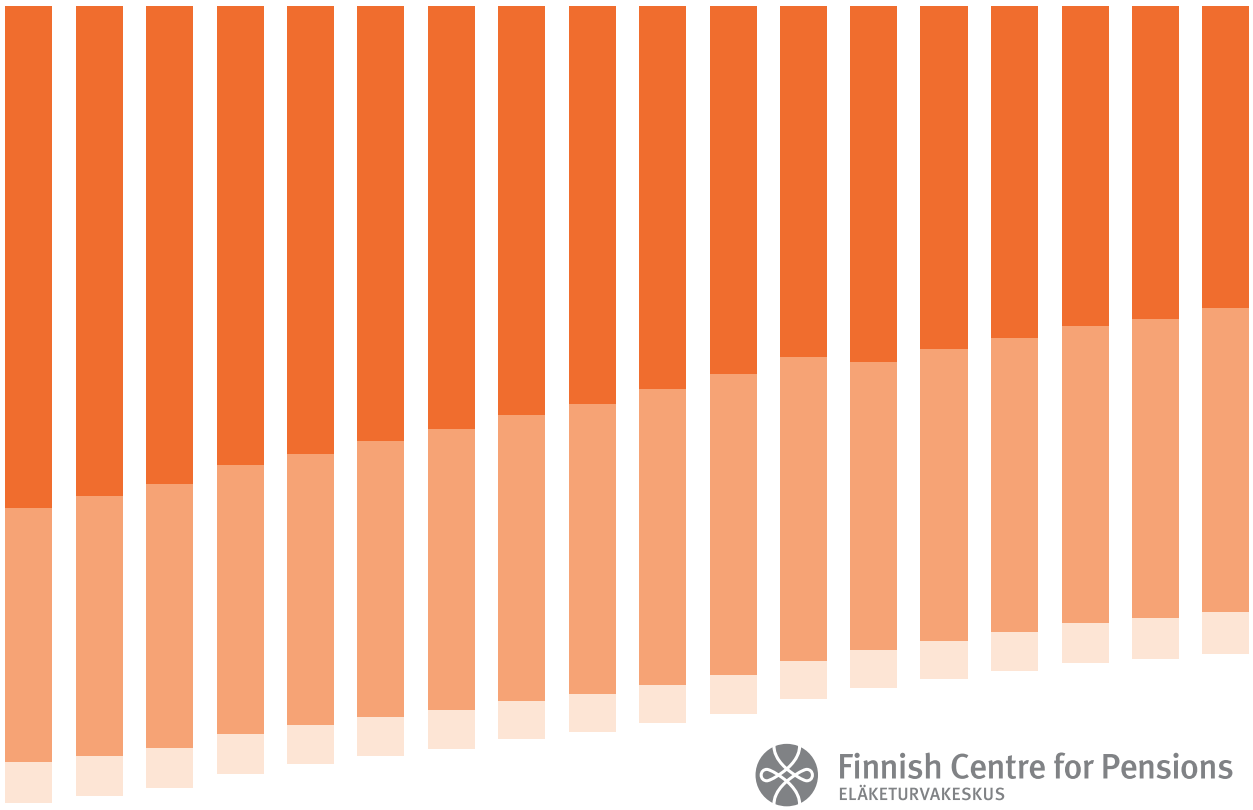


Pension adequacy and sustainability

– An evaluation of the Finnish pension system

Torben M. Andersen
Professor, Aarhus University



Finnish Centre for Pensions
ELÄKETURVAKESKUS

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Preface

This report presents an evaluation of the Finnish pension system commissioned by the Finnish Centre for Pensions. The evaluation has been prepared over the period 2020 to 2021.

The report follows a tradition of external reviews of the Finnish pension system as reported by Börsch-Supan (2005), Barr (2013) and Ambachtsheer (2013).

The present evaluation focuses on the structure, adequacy and sustainability of the Finnish pension system in the perspective of recent reforms and changing demographics.

Unfortunately, the COVID-19 pandemic has caused some obstacles for the work, precluding site-visits. Virtual meetings have been a workable, but not perfect, substitute.

A number of persons have contributed with insights into the Finnish pension system, data and responses to my questions, including Suvi-Anne Siimes, Risto Murto, Katja Bjerstedt, Ilkka Kaukoranta, Mikko Laaksonen, Pasi Mustonen, Vesa Rantahalvari, Antti Tanskanen, Heikki Tikanmäki and Reijo Vanne.

Particular thanks go to Mikko Kautto, Jaakko Kiander, Susan Kuivalainen and Ismo Risku for detailed, insightful and constructive comments and discussions on earlier drafts of this report.

All errors and misunderstandings remain the responsibility of the author.

Torben M. Andersen

Aarhus, May 2021

Executive summary

The Finnish pension system rests on two pillars: statutory earnings-related defined benefit pensions and residence-based and means-tested base pensions (Kela pensions: national and guarantee pensions). The earnings-related part of the system has a hybrid financing structure including both PAYG and funding, while the base pensions are financed via the public budget.

The Finnish model has proven robust and is well functioning, and the outcomes stand strong in international comparison. The key strengths of the system are:

- From a citizen's perspective it is a one-stop-shop with a relatively simple defined benefit structure, and portability of pension entitlements across jobs.
- Pension adequacy assessed in terms of both poverty alleviation and replacement rates is currently on par with or better than most other countries.
- Automatic adjustment mechanisms linked to longevity – adjustment of benefit levels and statutory retirement ages – play a crucial role for the financial viability of the system, and therefore its resilience.

The key challenges are:

- The financial viability of the system is challenged in the medium to long run since the built-in adjustment mechanisms are not strong enough to ensure a balance between contributions and pension expenditures.
- The regulatory framework for pension providers' investment policies is not clearly aligned to the properties of the pension system, and there is a need to analyse whether it is adequately calibrated to the risks in the system so as to achieve an appropriate return-risk balance.
- The projected real value of pensions and thus material living conditions increase across all groups. However, there is a widening gap between pensioners and those active in the labour market, and also in the long run a tendency towards widening inequality within the group of pensioners.

It is important to stress that the financial challenge develops over time, and there are no immediate or urgent problems, but they must be addressed. This can be done in many ways within the overall frame of the existing system. It is a robust outcome of the projection analyses that a financing problem arises, and neglecting this issue increases the likelihood that large changes will be needed at some point in the future. This creates uncertainty and has intergenerational distributional consequences. It is therefore important to formulate a reform strategy that involves taking a stand on whether contribution rates should be increased to allow for pre-funding of future expenditure increases or the built-in adjustment mechanisms should be further strengthened to minimize the need for discrete interventions in the future.

The following summarizes in more detail the main points of the report.

Pension systems around the world are challenged, not least by demographic changes and low return rates. In particular, defined benefit systems are under pressure, and a number of countries have made radical reforms moving towards defined contribution schemes shifting more risk to the individual.

The Finnish pension system has the earnings-related defined benefit pensions as the backbone, and the base (national and guarantee) pensions as a backstop ensuring a minimum income for pensioners. Pension entitlements are thus defined in a relatively transparent way. From an individual perspective, this has the advantage of reducing information problems prevalent in countries where the pension income has many sources. From a labour market perspective, portability has the advantage that pension rules and benefit entitlements are not a barrier to job-shifts, and this is conducive to adjustment and flexibility in the labour market.

The complications in the Finnish system arise on the financing side. Despite the uniform benefit rules, the contribution rates differ, and the financing involves both PAYG and funded elements. For a number of reasons, contribution rates differ across groups although the benefit rules are essentially the same. In a longer-term perspective, it is a question of whether different funding rules for similar benefits are acceptable.

Longevity adjustments of both benefits and statutory retirement ages contribute significantly to the robustness of the system. While increasing retirement ages are justified in terms of healthy ageing, this does not apply to all, and therefore the exit routes from the labour market for individuals with reduced work capabilities are important. The main routes in Finland are disability pensions, and both their eligibility criteria and the financing are important. On the eligibility side, a difficult question is whether age (or length of work career) in itself should be assigned weight or if eligibility should depend on screening. The financing of disability pensions includes experience rating. While experience rating may induce firms to invest in work environment and safety, this only applies to large firms. Moreover, the design of the system distorts hiring decisions to the disadvantage of more vulnerable groups in society. There is a need for a careful reconsideration of the design of the scheme. Especially in a forward perspective it is not clear whether the system is capable of coping with the challenges arising when the statutory retirement age increases with longevity since heterogeneity within cohorts with respect to health, work capabilities etc. may increase.

It is a difficult design problem to settle the division of labour between base pensions and the earnings-related pensions since it involves distribution, incentive and financing issues. In the Finnish pension system, people out of work due to e.g. parental leave or sickness generally accrue pension rights. This is an attractive property, providing insurance by making replacement rates less dependent on such events and, moreover, it reduces the burdens falling on base pensions. Means-testing of the base pension targets the least well-off pensioners but also implies high effective tax rates. Although the base pension is phased out over a relatively short interval compared to other countries, many persons receive the national pension in combination with an earnings-related pension. This group faces - via the means-testing of the national pension –

a high implicit taxation of the higher entitlement to earnings-related pensions following from an increase in earnings.

The self-employed are a particular issue in the current design of the pension system. Pension contributions are based on self-reported income, but this is associated with problems of underreporting. This is problematic since the logic of the system builds on the idea that individuals contribute based on their actual income. A possible solution would be to base the pension contributions of the self-employed on their taxable income, as is the case in e.g. Sweden. One argument given for specific rules for the self-employed is the funding needs for their business, but it is unclear whether such issues should be addressed within the pension system.

While there may be historical reasons for specific schemes for e.g. farmers, it is less obvious in present times why rules for the self-employed are not uniform. Over time, the role of farmers has decreased while new types of self-employed have appeared. This is an argument for considering a uniform scheme for all self-employed. Moreover, trend changes in the labour market associated with so-called atypical jobs (the gig economy) imply that the group of self-employed may grow, and the present design implies that this group may end up with low pension entitlements.

Adequacy

Assessing in terms of outcomes measured by both poverty rates and replacement rates, the Finnish pension system is on par or better than in most other countries. Although poverty alleviation among pensioners is not complete, fewer pensioners than in the population at large fall below commonly used poverty thresholds. Replacement rates are also high by international standards.

In a forward perspective, the projected real value of pensions and thus material living conditions increase across all groups. However, there is a widening gap between pensioners as a group and those active in the labour market. This is mainly a result of the life-expectancy coefficient and the wage-price indexation (both the wage coefficient and the pension index) falling below the average wage growth in society. While the latter contributes to the financial viability of the pension system. The question is whether this development is politically sustainable. In the longer run, there is also a tendency towards widening inequality within the group of pensioners across education, gender, and age.

The adjustment of Kela pensions (guarantee and national pensions) has large distributional implications, and the fact that it is only price indexed is a potential challenge. Although in the past there have been discrete increases in the base pension, a formal indexation rule would contribute more security and equal treatment across cohorts. Indexation below wage growth implies that Kela pensions increase by less than the poverty thresholds, and therefore relative poverty among pensioners tends to grow. Whether this is a politically acceptable trajectory is an open question.

Kela pensions serve the distributional purpose of ensuring that all pensioners obtain the politically acceptable minimum living standard. Accordingly, these pensions are

means-tested, but it is against the earnings-related pension only (guarantee pension; all types of pension income). This raises questions on how precisely the least well-off pensioners are targeted, since some may have e.g. a low earnings-related pension but high levels of wealth. Other countries base means-testing on wider income concepts and/or include wealth.

A defined benefit scheme maps labour market outcomes into pension levels. This is desirable in terms of replacement rates, but it also implies that labour market differences are reflected in pension coverage. This is most notable for the gender differences in employment rates and, in particular, in wages being projected into pensions. It is open for discussion whether this is a problem created in the labour market, and thus should be solved there, or whether it is a problem for the pension system per se.

Pension adequacy also depends on how interrupted work careers affect pension entitlement. Although pension entitlements are also accrued based on most forms of social transfer income, interrupted employment spells can have significant effects for pension entitlements.

Sustainability

The long-run financial sustainability of the pension system is challenged since future benefit expenditures following from accrued pension entitlements cannot be financed by current contribution rates. Although the longevity adjustments (the life expectancy coefficient affecting benefit levels and the indexation of the statutory retirement age) constitute significant adjustment mechanisms contributing to the financial robustness of the system, they are not sufficient. Hence, changes in longevity are not fully accommodated by these automatic adjustment mechanisms. A low fertility rate is another important demographic factor influencing the financial viability of the system.

Indexation – both the wage and the pension index – raises difficult dilemmas. The current indexation rules create some financing space when real wages grow. However, they also imply a widening gap between pensions and wage income for the employed, and therefore increasing inequality. Without compromising the financial viability of the system, there is a choice between initial benefit levels and their indexation to price and wage developments.

For the funded part, it is an open issue whether the regulatory framework for investments is appropriate and whether changes could allow for a better risk-return balance. The funded part constitutes a significant part of the financing. The principles underlying the regulatory framework for the investment policies are rather complicated. It is a hybrid that has evolved over the years, and it is unclear whether it adequately reflects the risks present in the pension system. There is a need for a careful analysis of whether the regulatory framework is appropriately designed given the liability risks present in the pension system.

Although the financial problems develop over time, it is important to take a stand on the strategy to ensure a financially robust pension system. While the problems develop gradually, reform strategies have implications for intergenerational distribution, eventual reforms have a long phasing-in period, and unsolved financing problems leave uncertainty on the future of benefit entitlements and the pension system more generally. Addressing the financial sustainability problem is thus of utmost importance to ensure the robustness of the system and therefore, ultimately, its credibility. In the past, the social partners have taken responsibility in ensuring adjustments and changes, and this is also required in the present situation.

The modes of adjustment are contribution rates, benefit levels and retirement ages. Given the already implemented longevity indexation, the focus turns to contribution rates and benefit levels. An issue of discretion vs rules arises here. Implementing reforms from time to time is one way to adjust the system. This has the advantage that more information is accumulated but the disadvantage that it creates uncertainty on the future design of the pension system. There is also a risk that reforms are delayed, which may add to the problems and have unintentional intergenerational distribution consequences.

A more rule-based system has automatic built-in adjustment mechanisms (like the life expectancy coefficient and indexation of statutory retirement ages to longevity). Such automatic mechanisms have the advantage that they are planned well in time and the adjustments are only triggered if needed. Since the automatic adjustment mechanisms tied to longevity developments are insufficient to ensure the financial viability of the system, additional automatic mechanisms are needed. One option is an automatic balancing mechanism – as seen in e.g. the Swedish scheme – specifically targeted to ensure the financial viability of the system. Such a mechanism can run either via contributions and/or benefit levels.

Importantly, public finances are not satisfying the criteria for fiscal sustainability; that is, the current tax system is not delivering sufficient revenue to cover projected future expenditures following existing welfare arrangements. Demographic trends affect the labour force and thus revenue and expenditures on pensions, health and old-age care. The fiscal sustainability problem is relatively large in international comparison. Ultimately, the financial sustainability of the pension system and other welfare arrangements must be considered jointly, and lack of sustainability creates uncertainty detrimental to the basic objectives of welfare and pension systems. Moreover, the issue of sustainability not only involves the technical specificities but also political sustainability: is the system considered fair and delivering acceptable outcomes?

Finally, important inputs into the political discussion are reliable analyses to identify challenges, clarify possible solutions and quantify effects and developments. The existing analyses provide a very solid basis and valuable inputs to such discussions. However, given the importance of these analyses, it is worthwhile to invest more in the analytical tools in terms of further model developments.

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1 Introduction

The pension system is the bedrock of welfare systems. It aims at reaching multiple goals including poverty alleviation among the elderly population, ensuring decent pension levels relative to income prior to retirement, and fair retirement options.

The Finnish pension system rests on two pillars: statutory earnings-related defined benefit pensions and residence-based and means-tested basic pensions (Kela pensions: national and guarantee pensions). The earnings-related part of the system has a hybrid financing structure including both pay-as-you-go (PAYG) and funding, while the basic pensions are financed via the public budget.

Designing pension systems involves many policy choices and trade-offs, and therefore pension systems tend to get complicated. This is a fact seen in large cross-country differences in the structures of pension systems, even among otherwise similar countries. This reflects the many design possibilities in combination with different political priorities. There is no uniquely best pension system, and most systems are hybrid in the sense of including elements of the prototypes of funded and PAYG schemes. This factor also makes international comparisons of pension systems difficult.

This report evaluates the Finnish pension system focusing on pension adequacy and sustainability, see remit in Appendix I. The following reviews the strengths and weaknesses of the system and compares the outcomes to the other Nordic countries as well as to the OECD. The outset is a well-functioning pension system[1], but there may be scope for some improvements and a need for adjustments, not least in light of looming demographic changes. Pension systems have a long-time horizon, and it is accordingly important to take a forward perspective on the possible challenges and ways to address them.

Specifically, this report is organized as follows: As a background for the subsequent discussion, section 2 gives a brief overview of the Finnish pension system. The core of the report is organized around the two themes: adequacy and sustainability. Section 3 assesses the adequacy of pensions from both a level and distribution perspective, including both recent and projected future developments. This section also includes an international comparison primarily focusing on poverty and replacement rates. Section 4 turns to the sustainability issue, pointing in particular to the role of demographic factors (fertility and longevity) and productivity growth. The financial viability of current arrangements and various modes of addressing the financing challenges are discussed. This discussion includes the funding structure and the investment policies for the funded part as well as the interaction between the pension system and public welfare arrangements. The section also includes a discussion of the methods used for projecting future pensions and the financial viability of the system. Finally, section 5 offers a brief summary.

1 The Melbourne Mercer global pension index 2020 ranks Finland 5th among 39 countries, and it is in the B tier (out of seven tiers). The report points in particular to a need to increase savings and contribution rates, to improve the protection of both parties in case of divorce, and to increase employment rates, see https://www.mercer.com.au/our- thinking/global-pension-index.html#contactForm.

2 The Finnish pension system[2]

The Finnish pension system is built around a mandatory earnings-related pension system. It is a defined benefit scheme which is partly PAYG and partly funded. Contributions are made by all employed persons, employers and the self-employed. Pension entitlements also accrue during periods when receiving social benefits.

The organisation of the pension system depends on the area of work. The benefit rules are similar across the different areas, but the mode of financing differs, cf. below. The overall structure of the system is determined in negotiations between the social partners.

This section provides an overview of the main characteristics of the Finnish pension system. The latest changes to the system are a major pension reform in 2005 and a further reform implemented in 2017. It is beyond this report to detail the history of the system, and the report takes outset in the structure of the system after the abovementioned reforms. The focus is on the forward properties, and therefore the text mainly covers key elements of the system applying under current rules, while the various transition rules are not covered systematically. Since various reforms are still being phased-in, the pension entitlements of many will depend, for a number of years, on accruals determined by rules applied in the past.

2.1 Benefit structure

The defined benefit scheme has two core elements: i) Kela pensions made up of the guarantee pension and the national pension, and ii) the earnings-related pensions. The earnings-related pensions are regulated by a number of pension acts, but despite differences across e.g. the private and the public labour market, the schemes are harmonized such that benefit entitlements are acquired under (almost) similar rules for all, see below. While individual work histories may involve accrual of benefit entitlements under a number of pension acts, the entitlements accumulated in the different parts of the pension system are aggregated and coordinated such that the pension system effectively is a “one-stop-shop” arrangement from the individual’s perspective. As a consequence, institutional details and differences are not directly important to the individual. This contributes to transparency and is conducive to labour market mobility since job shifts have no (major) effect on benefit entitlements. Information on individual pension entitlements are accessible via an online platform that also shows the consequences of e.g. changes in the retirement age.

Kela pensions (guarantee and national pensions) serve a distributional purpose. Both elements are means-tested. The national pension is means-tested against the earnings-

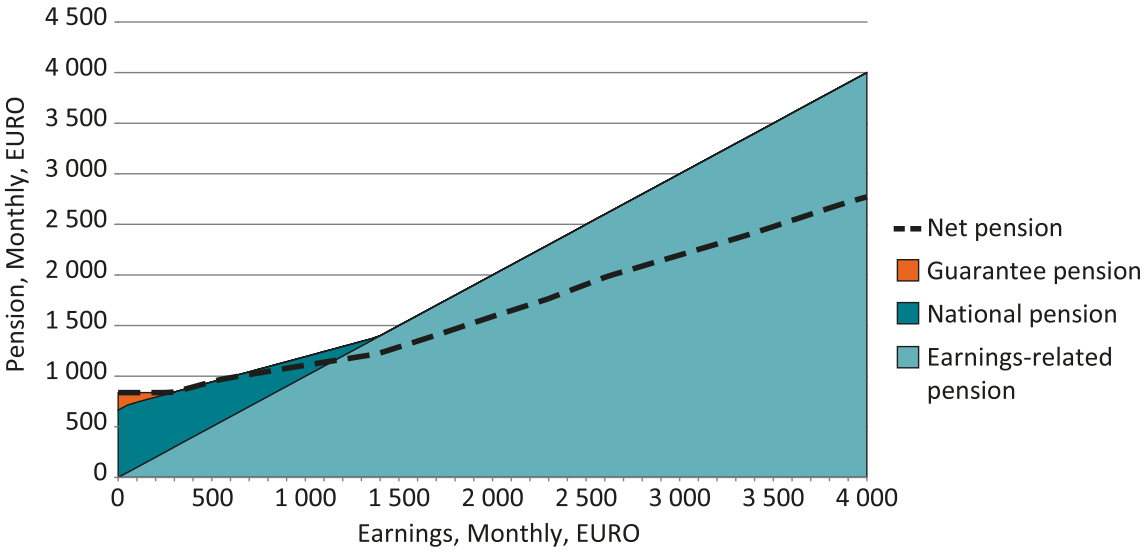
2 The key sources for this section are OECD (2019), EU (2015), Barr (2013) and material at www.etk.fi.

related pension[3], while the guarantee pension is means-tested against all forms of pension income. The earnings-related benefits are individualized, but Kela pensions have family conditionalities (single versus couples). The benefit structure is illustrated in Figure 2.1 for a single (based on amounts applying in 2020). The taper rate for the guarantee pension is 100%, reflecting that this element of the Kela pension defines the minimum pension benefit across all pensioners. The national pension has a taper rate of 50% (and a small deduction), and it is a top-up for individuals with relatively low earnings-related pensions. In addition, there may be an entitlement to means-tested social transfers, including the housing allowance and the care allowance for pensioners and the front veterans' supplement.

Individuals accrue an annual earnings-related benefit entitlement depending on their annual gross income with an accrual rate of 1.5% (since 2017; during a transition period until 2025 the accrual rate for the age group 53 to 62 years is 1.7%). In the private sector, there is a minimum earnings limit for pension insurance (2020: 60.57 euros per month), but neither earnings nor contributions have a ceiling, except for the self-employed (YEL) (2020; minimum income: €7,959 and income limit: €180,750).

Figure 2.1

Earnings-related pension, national pension and guarantee pension, single, 2020



Note: Net pension is the after-tax value of the pension.

Source: www.kela.fi.

Accrued pension benefits are indexed by the so-called wage coefficient defined as a weighted average of wage increases (80%) and price increases (20%). The benefit entitlement at retirement thus consists of the sum of accrued pension rights (including accumulated increases via the wage coefficient) during work-life.

3 The part of pensions accrued from period of child homecare and studies is not included in the income tests for the national pension.

At retirement, the actual annual/monthly pension is computed based on the accrued rights times the life expectancy coefficient (introduced in 2005 with effect from 2010). The latter is an actuarial adjustment depending on remaining life expectancy (mortality rates). For a given accumulated benefit entitlement, the annual pension benefit thus depends on the expected pension period. This adjustment of benefits to longevity reduces the financial exposure of the system to changes in longevity and gives the individual an incentive to adjust the retirement age to longevity. Specifically, the life expectancy coefficient is based on unisex mortality statistics for the past 5 years and an annual discount rate of 2%.

Pensions paid are indexed by the earnings-related pension index defined as a weighted average of wage increases (20%) and price increases (80%). The guarantee and national pensions are indexed by the consumer price index. However, there have been occasional discrete adjustments implying that the average adjustment exceeds price increases[4] (projections assume a 50–50 weight on price and wage inflation).

All pension income is taxable income but taxed more leniently than wage income due to specific tax deductions applying to pension income for both municipal and central-government income taxation.

However, if pension income after deduction of the abovementioned allowances exceeds a threshold, there is an additional central-government tax.

The income concept underlying accrued pension entitlements is gross earnings (wages and salaries) for wage earners. For self-employed it is the pensionable income declared by the self-employed (so-called YEL income). Individuals without income from work accrue pension entitlements if receiving social benefits (parental allowance, sickness allowances, home care subsidies and earning-related unemployment allowances), completing education (vocational or tertiary education) and during child-care periods.[5] In these cases, the pension entitlement is based on a fixed amount or previous salary.

Voluntary pension saving is possible; contributions are deductible in the income tax, and taxable income when paid out. Voluntary pension savings are not important, and they are small in international comparison. This may be attributed to the general coverage of the earnings-related system, the relatively high replacement rates (also with no ceilings on pensions for high-income groups). In 2015 only 2% of total pension outlays came from voluntary pension savings accounts, according to Sankala and Reipas (2017).

4 There have been discrete increases in the national pension (2001, 2005, 2006, 2008 and 2020), but also decreases (between 2015 and 2019) since the regular annual price indexing was either limited or abolished altogether. Similarly, there have been discrete increases in the guarantee pension (2016, 2018, 2019 and 2020).

5 This is quantitatively important. In 2019 about 950.000 persons acquired pension entitlement for unsalaried periods. The number of employed persons covered was about 2.4 million persons; see Finnish Centre for Pensions (2020).

2.2 Benefit eligibility and retirement ages

All residents are eligible for the national pension if they have lived in Finland for at least three years after the age of 16. The pro rata principle applies, and 40 years of residence is required to receive the full amount[6]. The guarantee pension is available to persons receiving national pension or disability pensions; i.e. there is a residence test, but the pro-rata principle does not apply.

The statutory retirement age determines the earliest age at which individuals can claim the pension benefits. Following the 2017 reform, the statutory retirement age is cohort specific. During a transition period, the statutory retirement age increases in steps from 63 to 65 years (63 years for those born in 1954 or earlier, and increases three months per year for subsequent cohorts, reaching 65 years in 2027 for those born in 1962). In the future (for cohorts born in 1965 or later, indexation takes effect from 2030), the statutory retirement age is indexed to developments in life expectancy. The indexation targets that the share of life working relative to years in retirement equals the ratio achieved in 2025[7]. This implies that the statutory retirement age increases with longevity, but less than one-to-one. The statutory retirement age cannot increase by more than two months from one birth cohort to the next (this applies from 2025).

For both the national pension and the earnings-related pension, later retirement is possible and is rewarded by an increase in the pension benefit amounting to 0.4% for each month retirement is postponed after the statutory retirement age.

Early full-time retirement is not possible under the earnings-related scheme. However, partial retirement (25% or 50%) is possible, and pension entitlements are (permanently) reduced by 0.4% per month for the share of pensions taken early. For cohorts born in 1965 or later, this partial retirement option is available three years before the statutory retirement age.

It is possible to combine work and pensions. Legislation requires that employment is terminated before the pension can be paid out. Subsequently, it is possible to return to work (also with the same employer).

Individuals with a significant loss of work capabilities can be granted a disability pension, full or partial (50%). The typical pathway runs via sickness (sickness allowance) over rehabilitation (rehabilitation subsidy/fixed term disability pension) to the disability pension. The pension benefit equals the pension accrued in the earnings-related pension system, including the projected accrued pension rights accumulated until the statutory retirement age if continued work had been possible (the standard accrual rate of 1.5% and the life expectancy coefficient apply). The projected future income is based on the average income over the five years preceding eligibility for the disability pension.

6 Eventual foreign pensions are included in the means test for the guarantee pension.

7 Specifically, the statutory retirement age is calculated such that the difference between the statutory retirement age and 18 years divided by the life expectancy at the statutory retirement age equals the value of this ratio in 2025. The life expectancy at a given time is calculated based on the mortality statistics for the latest 5 years.

The years-of-service pension can be granted at the age of 63 to individuals who have done mentally or physically demanding work requiring a special effort for at least 38 years. Moreover, a precondition is a reduction in work capability, but not to the extent that a disability pension can be granted. The pension is determined in the same way as for the disability pension (but without the projected accrued pension rights). For individuals born in 1965 or later, the years-of-service pension is an option in a two-year window before the statutory retirement age.

There is also an age contingency in the unemployment benefit system since unemployed persons who have met the work requirement after reaching the age of 58 years have a longer benefit period (500 days, while it in general is 400 days). This gives some scope to bridge from unemployment to retirement. This scheme is being phased out (fully eliminated by 2025).

Finally, there is a survivors' pension for the surviving spouse, children or in some cases a former spouse (if alimony is paid). The pension is based on the deceased person's accrued pension entitlement (if not retired, computed as for the disability pension) and the number of beneficiaries. The maximum share going to the spouse is 50% (no children) and 33% to a child (no siblings), respectively. The surviving spouse's pension is income-tested against the pension entitlement of the spouse (in payment or accrued). A reform of the survivors' pension (effective 2022) implies, among others, a fixed term (max 10 years, applying for persons born in 1975 or later) for the payment of the pension.

2.3 Financing and contribution rates

The funding of pension expenditures varies by pension act, but generally includes both PAYG and funding elements. Contribution rates vary between about 13% for farmers to about 28% for local government employees (JuEL). Contribution rates have an employer and employee component. Pensions of central government employees and parts of the pensions of entrepreneurs, agricultural entrepreneurs and seafarers are financed from the central government budget[8]. In the private sector, about 80% of pension payments are PAYG financed, and the remaining 20% are funded. The funded part is collective in the sense that it has no direct effect on the size of pensions, cf. above on pension entitlements. The funding serves to stabilize contribution rates and to pre-fund expected increases in pension outlays. The funded part is the responsibility of the provider that has insured the employee's work, whereas the non-funded part, or the pooled component of the pension, is the joint responsibility of all pension providers (coordinated by the Finnish Centre for Pensions). In addition, contributions have a part covering operating costs, see below.

The costs of pension entitlements accrued from unsalaried periods are distributed between private and public sector pension providers in relation to the insured wage sums.

8 In the national accounts, private sector earnings-related pension funds are included in general government finances, and their assets in general government financial assets. The surplus in the earnings-related pension schemes cannot be used to reduce general government gross debt; it must be reinvested.

Contributions are paid from the age of 17 for workers and 18 for self-employed until retirement or age 70 (applies for cohorts born 1962 or later, and it is not indexed to longevity; earlier ages apply for older cohorts). For newly self-employed, there is a 22% discount on the contribution for the first four years of self-employment. When on parental leave, no contributions are paid.

For the largest private earnings-related pension scheme (TyEL), the contribution rate for 2020 was initially set at 24.4% (the employee share is 7.15% for persons aged under 53 and above 62, and 8.65 % for persons between 53 and 62 years of age). The contribution rate has the following main components: i) old-age pension (funded): 3.5%, ii) pooled (PAYG) pension: 19.9%, and iii) disability: 1%. Contribution rates are set to ensure the payment of pensions and the funding required by law in the long run. The corona crisis has triggered the so-called EMU stabilization scheme, allowing a temporary reduction in contribution rates under dire economic circumstances[9]. As a consequence, the contribution rate has been reduced by 2.6 percentage points to 21.8% for 2020.

Pension companies provide statutory pensions for private sector employees. There are industry-wide pension funds, but employers can also establish their own firm-specific pension fund, but that is not usual. More than 95% of private sector employees are covered by pension insurance agreements managed by pension insurance companies. Currently there are four of them (ten years ago there were seven companies). Most funds are mutual companies owned by their customers, but dividends cannot be paid to the owners. The funds administer the pension policies and manage the funded part of the pensions. Although the product (pension policy) is the same, pension companies compete on service and rebates. The price differences are based on cost efficiency and solvency. Each pension company can annually pay up to 1% of their solvency capital as a contribution discount to their customers (these discounts average about 0.5% of the private sector wage sum). There is a shared liability across all funds in the event of bankruptcy.

The pension expenditures in a given year follow from the defined benefit formula; that is, the sum of benefit in payment across all recipients. This defines total pension expenditures, a part of which is funded under the responsibility of the pension funds. The funded part is determined by the funded contributions and the required rate of return (3%). The difference between total pension expenditures and the funded part, the pooled pension expenditures, is financed by the pooled contributions. The Finnish Centre for Pensions is the clearing central matching pooled pension expenditures and contributions.

In a given year, pooled contributions and pooled pension expenditures are not necessarily equal for a given pension fund, and buffer funds accommodate such differences. The buffers rest with the individual pension funds.

9 The EMU-buffer fund agreed by the social partners in 1997 allows for temporary reductions in pension contribution rates under dire economic circumstances. Subsequently, when the economic situation improves, contribution rates are raised to replenish the buffer fund (early 2020: about 7 billion euros). The buffer fund constitutes 2.5% of the wage sum. In the wake of the corona crisis, the employer's contribution rate has been lowered by 2.6 percentage points and will be increased between 2022 and 2025 to rebuild the buffer.

The pension funds accumulate funded contributions and investment returns. Pension funds are not required to match pension liabilities one-to-one but are allowed some scope for risky investments to generate a higher rate of return. The pension liabilities – the technical provisions – are computed based on principles (including a discount rate of 3%) approved by the Ministry of Social Affairs and Health.

Solvency regulations apply only to private sector earnings-related pension providers, that is, earnings- related pension insurance companies, company pension funds and industry-wide pension funds.

Specifically, the capability of pension providers to carry risk – including insurance and investment risk – is determined by the solvency capital. The solvency limit is set depending on the investment portfolio so as to ensure that the solvency capital is intact with a 97% probability over a one-year horizon. A corridor is defined around the solvency capital with the maximum being three times the solvency limit, and the minimum 1/3 of the solvency limit. If solvency capital exceeds the maximum, the excess must be used for customer rebates. If the solvency is below the solvency limit but above the required solvency capital, customer rebates cannot be granted, and a turnaround plan must be submitted to the Financial Supervisory Authority. If the solvency capital falls below the required solvency capital, a short-run plan must be submitted. Investment risk is determined on the basis of 18 asset classes (risk groups). Given the expected return and the associated risk, a capital requirement is set for each asset class. The overall capital requirement is set taking the correlation between risk groups into account.

A part of the technical provisions consists of the so-called equity-linked buffer fund, which constitutes between –20% and +1% of the technical provisions. This buffer fund absorbs short-run return variations and allows pension funds to adopt a riskier investment strategy to increase returns.

Disability pensions are financed via the contribution rate. In 2020, the average disability pension component is 1.0 percentage point of the total TyEL pension contribution. For private sector employers, the financing includes experience rating based on disability pension expenditures relative to the average level. The experience rating applies to large companies with an annual wage bill in excess of almost 2 million euros. Companies belong to one of 11 contribution categories depending on the size of the disability risk measured as the ratio (computed over a rolling two-year window) of the funded pension expenditure of newly granted disability pensions to the average theoretical disability pension expenditure. The lower the disability pension costs at a particular company, the lower the contribution category and thus its disability pension contribution. The age distribution of the employees does not affect the determination of the contribution category since the pension expenditure is determined separately for each age cohort.

However, there are possible selection effects within age cohorts.

2.4 Discussion

Discussions on pension system design typically take outset in two prototype systems: a defined benefit pay-as-you-go pension scheme (DB-PAYG) or a defined contribution funded scheme (DC-F). It is well understood that these schemes have various pros and cons. For instance, the DC-F scheme offers a higher expected return than the DB-PAYG, but the latter is better suited to take distribution considerations into account.

Likewise, the two systems have different implications for risk diversification and thus insurance. Hence, neither of the prototypes is ideal, and pension systems are typically hybrids including elements of different types of pension schemes.

This also applies to the Finnish pension system, which is a DB-scheme with both PAYG and funded financing. From an individual perspective, the DB-benefit scheme has the advantage that benefit rules are (almost) uniform across the labour market. Distributional goals are ensured via the backstop offered by the Kela pension. Pension entitlements are thus defined in a relatively transparent way in a one-stop shop. From a labour market perspective, portability across jobs has the advantage that job-shifts are not associated with changes in pension benefit rules, which in turn is conducive to adjustment and flexibility in the labour market. From an individual perspective, this has the advantage of overcoming information problems which are present in countries where the pension income has many sources. However, as in most other countries, pension issues are a low-interest topic, and both the perceived and actual knowledge of the pension system is scant, see Tenhunen et al. (2020).

The complications in the Finnish system arise on the financing side. Despite the uniform benefit rules, the contribution rates differ, and the financing involves both PAYG and funded elements[10]. For a number of reasons, contribution rates differ across groups although the benefits rules are essentially the same. In a forward perspective, it is a question whether different funding rules for similar benefit rules are sustainable. Among other things, different funding has distributional implications; see further discussion on the self-employed below.

While there is competition between pension companies, it is unclear how strong the competitive forces are. Competition can work as a disciplining device to strengthen the performance of the companies, which is particularly important given the mandatory nature of the system. However, the strength of the competitive factor is questioned by the fact that the investment performance of the non-competitive public sector pension insurer (KEVA) is on par with the private providers. Moreover, the competition introduces a possibility of shift in pension provider as a critical risk factor for pension providers, which in turn affects the risk profile of investment policies, see discussion below. Allowing a contribution discount of up to one percent of the solvency capital

10 Vidlund et al. (2016) provide a comparison of contribution rates in Austria, Denmark, Finland, France, Germany, Netherlands, Norway, Sweden and Switzerland. They conclude that the total pension contribution as a share of the total wage sum or GDP does not differ much across the compared countries, and Finland is very close to the average across the eight included countries.

seems a wide margin given the current low-return environment. There is a need to assess these issues more carefully, also in relation to the framework regulating the investment policies of the pension providers discussed in Section 4.

The design of the disability pension system is important in a forward perspective. Experience rating in the financing of disability pension raises several issues. While experience rating may induce firms to invest in work environment and safety, this only applies to large firms. Moreover, the design of the system distorts hiring decisions to the disadvantage of more vulnerable groups in society. There is a need for a careful reconsideration of the design of the scheme. The projections reported in Tikanmäki et al. (2019, page 36) assume that disability incidences at given ages decline. While this may be justified in terms of recent developments including healthy ageing, less physically demanding work etc., there are also trends going in the opposite direction. In a forward perspective, it is not clear whether the system is capable of coping with the challenges arising when the statutory retirement age increases with longevity, and there may be increasing heterogeneity within cohorts with respect to health, work capabilities etc.

People out of work due to e.g. parental leave or sickness generally accrue pension rights. This is an attractive property since it makes replacement rates less dependent on such events, and it reduces the burdens falling on Kela pensions. It is a difficult design problem to settle the division of labour between Kela pensions and earnings-related pensions since it involves distribution, incentive and financing issues. Means-testing of Kela pensions targets the least well-off pensioners but also implies high effective tax rates. Although Kela pensions are phased out over a relatively short interval compared to other countries[11], many persons receive the national pension in combination with an earnings-related pension. This group faces – via the means-testing of the national pension – a high implicit taxation of the higher entitlement to earnings-related pensions following from e.g. an increase in earnings.

The current design raises specific issues for the self-employed. Basing pension contributions on self-reported income creates underreporting problems[12]. This is problematic since the entire system builds on the premise that individuals contribute based on their actual incomes. One argument given for a special arrangement for self-employed is the funding needs for their business, but it is unclear whether such funding issues should be addressed within the pension system. Moreover, trend changes in the labour market associated with so-called atypical jobs (the gig economy) imply that the group of self-employed may grow, and the present design implies that this group may end up with low pension entitlements. A possible solution would be to base the

11 In comparison to e.g. Denmark and Norway, see e.g. Andersen (2021). The phasing out has implications for targeting, but also for incentives and financing. Clearly, the financing burden is larger, the less phasing out there is. The phasing out creates an effective tax rate which may influence savings and retirement incentives. The higher the tapering rate, the higher the effective tax rate, but it applies to a narrower income interval than a lower tapering rate.

12 Nivalainen and Tenhunen (2020) find that the self-declared income (YEL) is lower than the actual income among the self-employed. There is considerable variation among the self-employed both in income and in how the self-reported income relates to their actual income.

pension contributions for self-employment on their taxable income, as is the case in e.g. Sweden. While there may be historical reasons for specific schemes for e.g. farmers, it is less obvious in present times why rules for the self-employed are not uniform. Over time the role of farmers has decreased, while new types of self-employed have appeared, and this is an argument for considering a uniform scheme for all self-employed.

All the design aspects discussed here should be seen in relation to the outcomes; pension adequacy and the sustainability of the system discussed in the next chapter.

3 Pension adequacy

The adequacy of pensions can be assessed in terms of both poverty and replacement rates. The former is showing the extent to which the design of the pension system avoids poverty among elderly citizens, and the latter how the pension system supports consumption smoothing over the life cycle. In addition, there are insurance aspects associated with how various hazards through life affect the individual pension entitlement (including disability pensions), see below.

As a general proviso, it should be remarked that material living conditions for pensioners cannot be assessed solely from pension income due to access to tax-financed welfare arrangements like health care, old-age care etc. These are generally needs-tested and therefore also have a strong redistributive effect, see e.g. Aaberge (2010) and Vaalavuo (2018; 2020). Taking the provision of welfare services into account is especially important when making international comparisons.

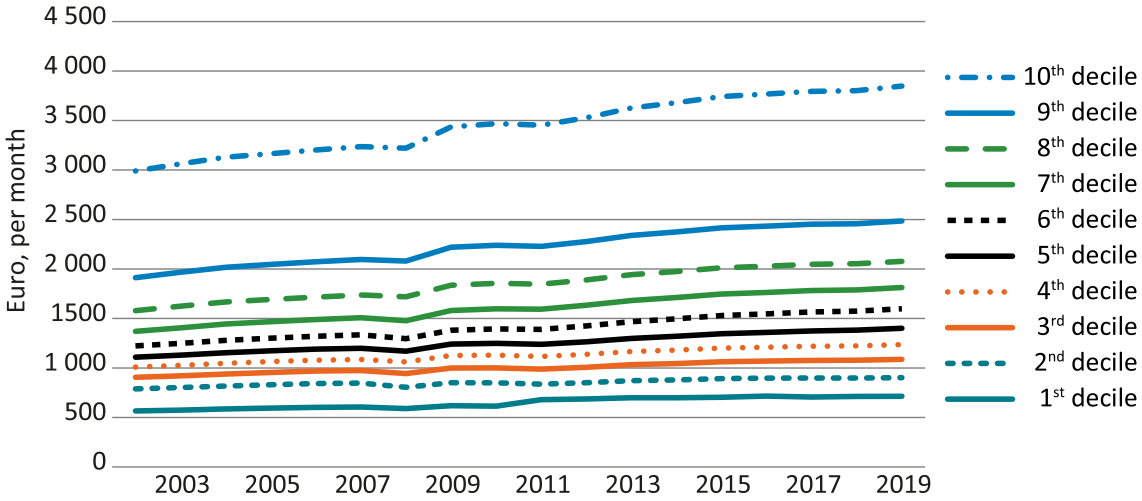
This section first considers the recent developments in poverty and replacement rates, and then turns to projected developments. The section also includes a comparison to the other Nordic countries and the OECD.

3.1 Poverty

Generally, pensioners have experienced increased real income in recent years, see Figure 3.1, and the income distribution among pensioners has been relatively steady. The average pension income relative to average earnings has been at about 50% of average earnings over the period 2000–2017 (falling for disability pensions).

Figure 3.1

Real value of pension benefits across decile groups, 2002–2019



Note: Index year 2019.

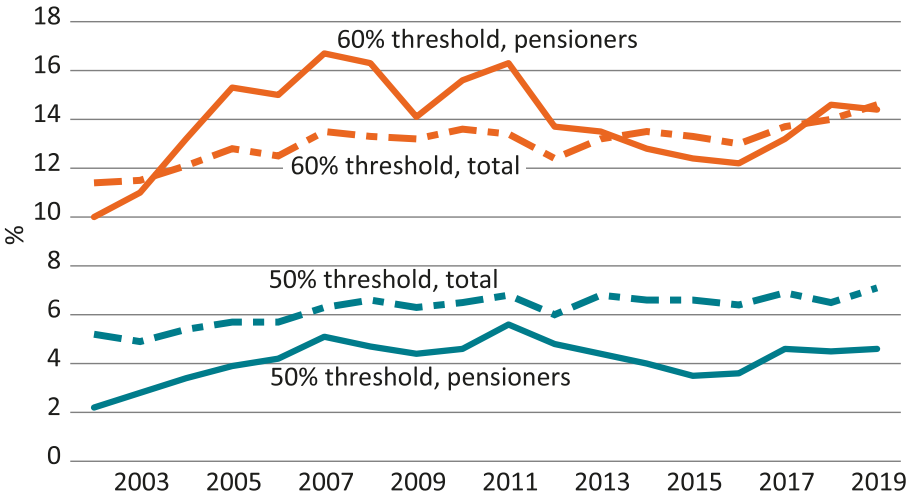
Source: Finnish Centre for Pensions.

Poverty is conventionally assessed by using income thresholds defined in terms of the median income[13], and often applied thresholds are 50% (OECD) and 60% (EUROSTAT). Figure 3.2 shows the development in the poverty rate for pensioners and all households over the period 2002–2019. An upward trend in poverty rates for pensioners was broken around 2012, but poverty has risen slightly more recently, irrespective of the specific poverty thresholds used. The poverty rate for pensioners is about the same level (slightly lower for the 50% threshold) and displays the same development as for households generally. Poverty among the elderly is critical since they have few options for adjustment. Note the large difference in the poverty rate depending on whether the threshold is set at 50% or 60% of the median income, reflecting that many pensioners are positioned in this interval.

The national and guarantee pension constitute a relatively constant share of the poverty thresholds. The sum of Kela pensions (national and guarantee pension) has been slightly above 70% (60%) of the poverty income threshold given as 50% (60%) of the median income. Hence, pensioners without earnings-related pension (and pensioners' housing allowances) are at risk of falling below the poverty line.

Figure 3.2

At-risk-of-poverty rate (%) in 2002–2019, poverty threshold 60% and 50% of median disposable income

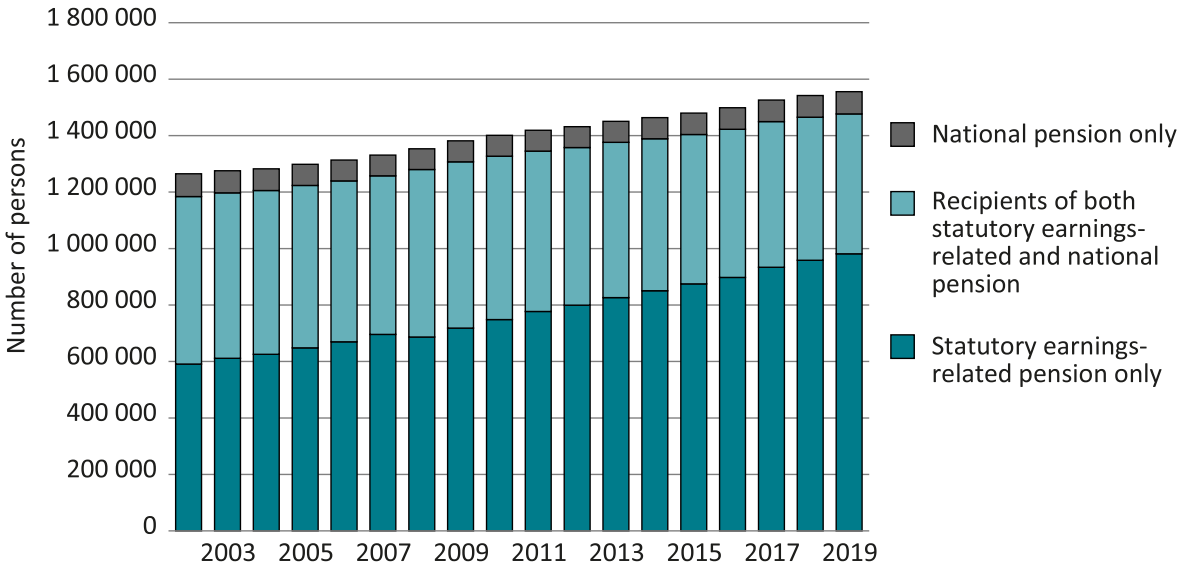


Source: Statistics Finland.

Many pensioners are dependent on the national pension, see Figure 3.3. Among all pensioners in 2019, 5% had only the national pension (including, if eligible, the guarantee pension), and 32% combined it with the earnings-related pension. However, the trend is that fewer receive the national pension. In 2002, 47% received the earnings-related pension only, and in 2019 the share was 63%. This trend is expected to continue due to increases in accrued earnings-related pensions. Note that the group receiving both the national and earnings-related pensions is affected by means-testing (see discussion in Chapter 2) and thus the implied incentive effects.

13 Equivalized to take account of household size and structure.

Figure 3.3
Pension recipients by pension structure in 2002–2019



Source: Finnish Centre for Pensions.

Based on self-reported assessments, about half of all pensioners reported financial strains, and about one in ten severe economic problems, see Ahonen et al. (2018). In general, individuals with lower income and poorer health face a more difficult economic situation, see Ahonen et al. (2019). In particular, those retiring after prolonged periods of unemployment or disability more often find their economic situation strained.

There is a selection effect among those continuing working until their statutory retirement age – or combine pensions and work – in terms of education, health and other socioeconomic factors. These differences also show in geographical differences since income levels and thus pensions are generally lower in rural than urban areas. A recent study by Rantala (2020) shows that poverty among pensioners is more prevalent among women than men, and singles than couples.

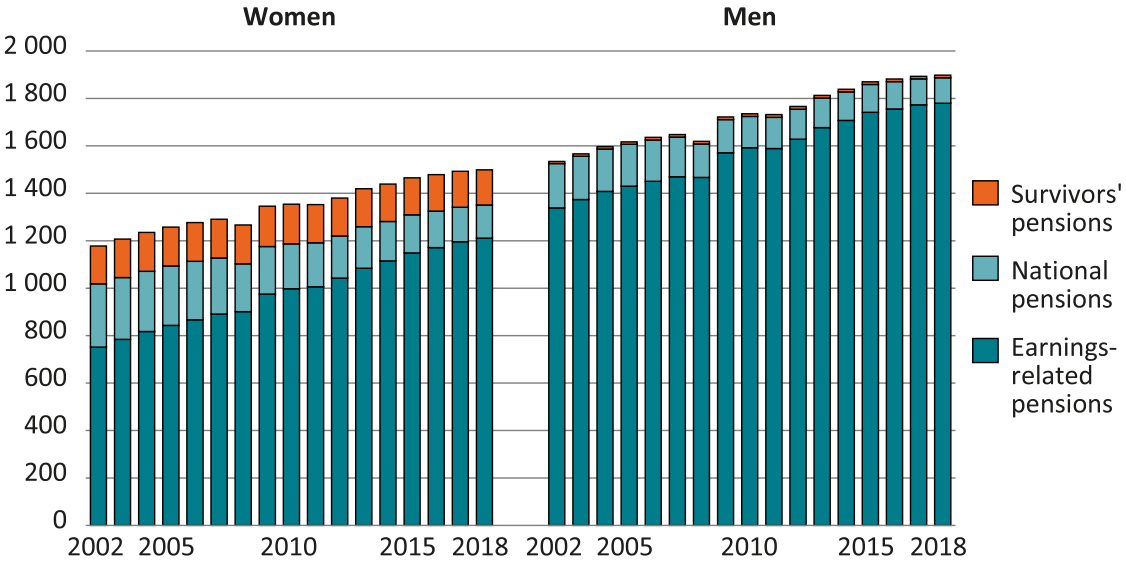
3.2 Pensions – levels and distribution

The earnings-related pension system transforms earnings during working life into pension entitlements in retirement. Hence, differences in wage and employment levels are reflected in earnings-related pensions. There are well known gender differences in both wage and employment levels. Accrual during unsalaried periods can compensate for differences in employment rates but not in wage levels. This results in a clear gender difference in the earnings-related pension, see Figure 3.4. Since Kela pensions are

means-tested against the earnings-related pensions, it follows that, on average, women receive higher pension supplements than men. Moreover, since women tend to live longer and their own pension tends to be smaller than that of their spouse, they also receive, on average, the larger part of survivors' pensions. Irrespective of this, there is a clear gender difference in pensions. These differences are projected to narrow only very slowly. The median pension for women was about 74% of that for men in 2015, and it is projected to be 85% in 2085. However, since the average longevity for women exceeds that for men, in general, women benefit more from the pension system in a life-time perspective than men, see Tikanmäki et al. (2019). Nonetheless, when assessing distributional questions based on annual material living conditions, there is a significant difference between men and women.

Figure 3.4

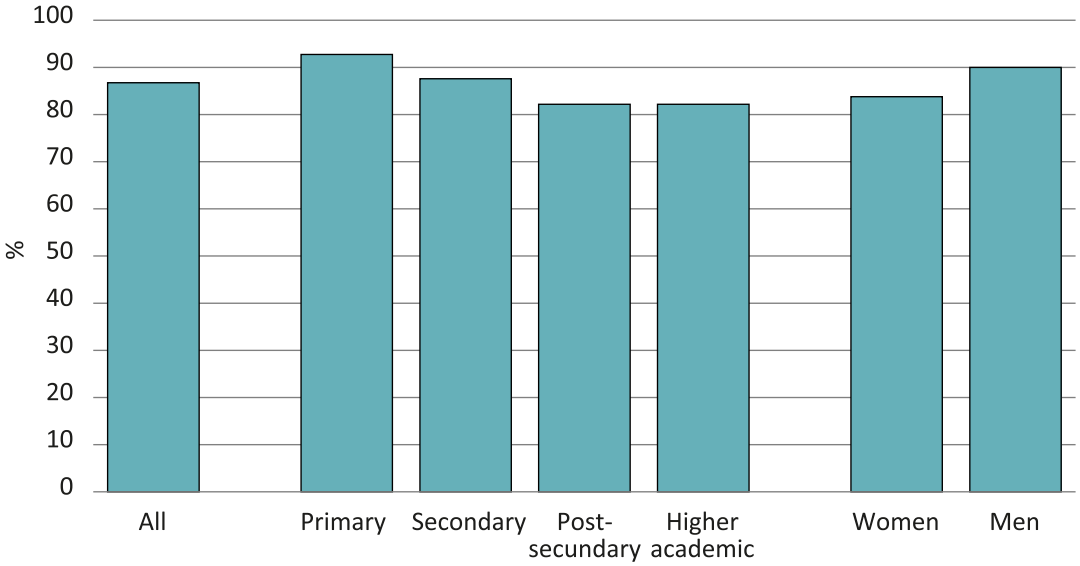
Level and structure of total pension in 2002–2018, by gender (€/month at 2018 prices)



Source: Finnish Centre for Pensions.

Net replacement rates for those retiring in 2017 are shown in Figure 3.5. The median net replacement rate for all newly retired is 87%. There is an educational gradient with the replacement rate decreasing in the level of education, as should be expected given the distributional role of Kela pensions. The median replacement rate for women is lower than for men. Within all groups, there is considerable variability in replacement rates. Across all persons, the 1st decile cut-off has a replacement rate of less than 61%, and the 9th decile cut-off a replacement rate of over 147%. The median replacement rate is lower than its mean value; that is, there is an asymmetric distribution with a "tail" having high replacement rates.

Figure 3.5
Median net replacement rates for individual retiring in 2017



Note: Income in 2018 relative to the average income in the years 2013, 2014 and 2015.
Source: Rantala et al. (2021).

From an individual perspective, there are various hazards affecting pension entitlements. Some of these risks are (partly) insured by the system, while others are not. The ultimate insurance in the pension system is provided by Kela pensions (the guarantee and national pensions, and supplements), setting the lowest level of income for pensioners. These pensions are tax-financed, and hence there is collective risk diversification via the social safety net and via taxpayers. An important risk factor is mortality, which is discussed in Section 4.

The family situation matters for living standards. The benefit entitlement is individual, and therefore changes in the family situation do not directly affect accrued pension entitlements. But there are indirect effects to the extent that the family work-life balance results in one of the spouses (typically women) having a less strong attachment to the labour market due to maternity and parental leave as well as part time work. While some gender differences in the labour market are counteracted by accrual of pension rights during parental leave etc., there is still a difference since the benefit entitlement depends on wage income, see Kuitto and Kuivalainen (2021). It is a consequence that divorce may have large implications for material living conditions for women. Gender differences in pensions are also discussed in Section 3.4.

The individual labour market history in terms of wage income is projected into benefit entitlements, cf. above. For periods with unemployment or other reasons for not working, pension entitlements are still accrued but based on lower income (partial insurance of the risk). Hence, labour market risks translate into different pension risks or differences. While gender and socioeconomic differences in the length of working lives are modest, differences in pay are an important factor. Kela pensions play a crucial role for those with a marginal attachment to the labour market. The role of work histories for pension entitlements is documented in Kuivalainen et al. (2020).

OECD (2015) presents estimates of the consequences of how incomplete careers affect pensions. While the effect of e.g. unemployment and child-care is mitigated in the Finnish system, it is nonetheless such that a total period of unemployment of 5 years over the work career reduces the pension by 8% for an average-wage worker compared to a non-interrupted career.

Mothers staying home in a period totalling 5 years have a drop in pensions of 5%, and for a 10-year period the drop is 15%. While this involves both insurance and incentive aspects, the current design has a gender bias in the sense that interrupted work careers are more prevalent for women than men.

Similarly, benefit entitlements depend on when income is earned over the work-life. Since benefit entitlements are indexed by the wage coefficient, which falls below average wage developments, and other things being equal, there is an advantage of having earnings concentrated later in the life cycle. This is advantageous mainly for the more educated groups who are both entering and leaving the labour market later than the less educated groups[14].

The individual is exposed to price and wage risks influencing accrued pension entitlements. First, since both entitlement accrual and pension paid out are indexed above price inflation (under the empirical relevant assumption that price inflation is less than wage inflation), the real consumption value of the pension entitlement is always ensured for the individual. However, there is a risk related to real wage developments. Although higher real wage growth leads to higher pension benefits, pension benefits decline relative to wages, see below. Moreover, there may be increasing inequality among pensioners since the base pensions and earnings-related pensions are not indexed in the same way.

3.3 Projected pension levels

The developments in pensions can be assessed both from an absolute and a relative perspective. The absolute angle considers the development in the level of pensions, that is, the real value of pensions. The relative perspective focuses on pensions relative to the general income developments in society. It is a classical discussion whether distributional issues should be considered from an absolute or a relative perspective. Most policy discussions are based on the relative view, as also reflected in conventional measures, including the poverty rate and the Gini coefficient. It should also be noted that considering pension levels in aggregate terms over time includes cohorts differing in many aspects, including longevity, and hence changes over time may reflect composition effects.

The following reports projections of pensions based on the analysis in Tikanmäki et al. (2019), to which reference is made for a detailed account of the specific assumptions underlying the analyses.

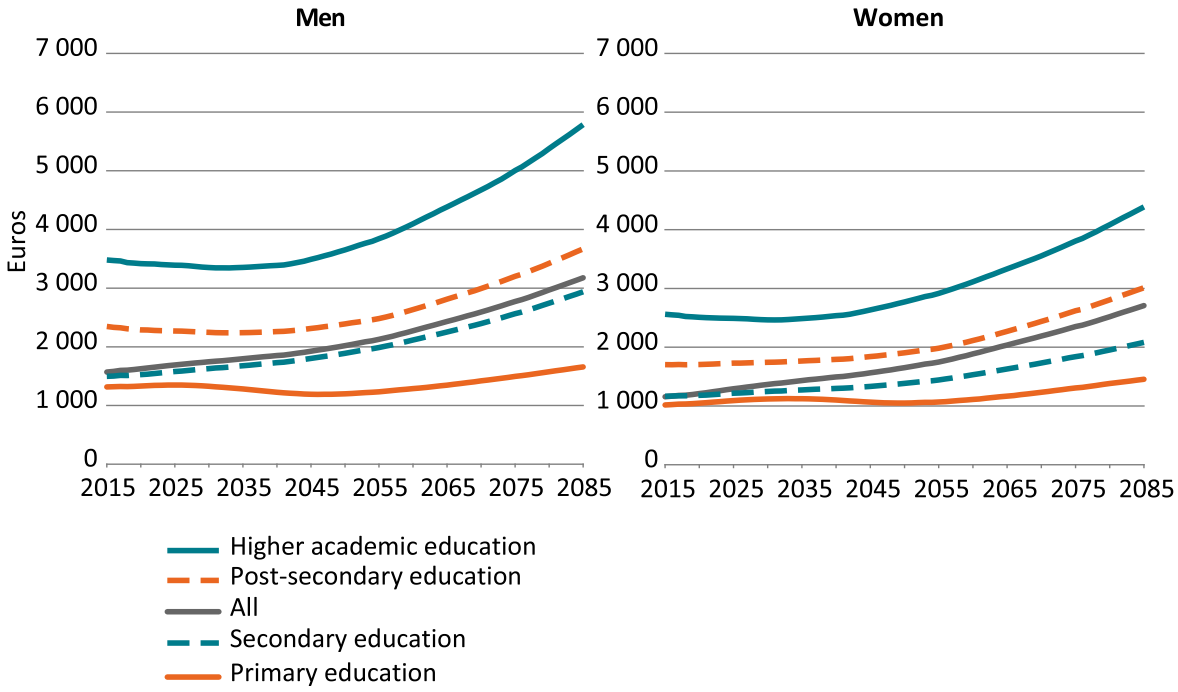
14 Since the wage coefficient is based on average wage developments, it is relatively more beneficial to groups experiencing wage growth below the average, and vice versa for groups with wage growth above the average.

A key factor affecting the projections is the underlying productivity, and thus wage growth, and how it interacts with the indexation mechanisms in the pension system. The indexation of both pension accrual (the wage coefficient[15]) and pension benefit (the pension index[16]) ensures that the real consumption value of the pension benefit does not decline[17], but that it generally increases, cf. above. However, it is also a built-in property that pension benefits increase by less than wages

Developments in the real values of pensions across educational groups for men and women are shown in Figure 3.6. The projection has the highest increases for the highly educated, and only moderate increases for groups with primary education. According to the projection, the differences in pensions across educational groups remain relatively stable in the first part of the projection period, but then widen primarily due to an increasing gap between those with primary education and other groups. This translates into more widening income inequality among pensioners in the long run.

Figure 3.6

Projection of the real value of median pensions across educational groups, men and women, 2015–2085



Note: Median pension received by educational level, 2017 prices.

Source: Tikanmäki et al. (2019).

15 The wage coefficient i_t^w can be written $i_t^w=\alpha\hat{w}_t+(1-\alpha)\hat{p}_t$, where α is the weight (0.8) to wage inflation ($\hat{w}_t$), and 1–α (0.2) the weight to price inflation ($\hat{p}_t$). It follows straightforwardly that $i_t^w=\hat{p}_t+\alpha(\hat{w}_t-\hat{p}_t)$. The coefficient thus fully compensates for price increases, and compensates real wage increases partially (by the fraction α).

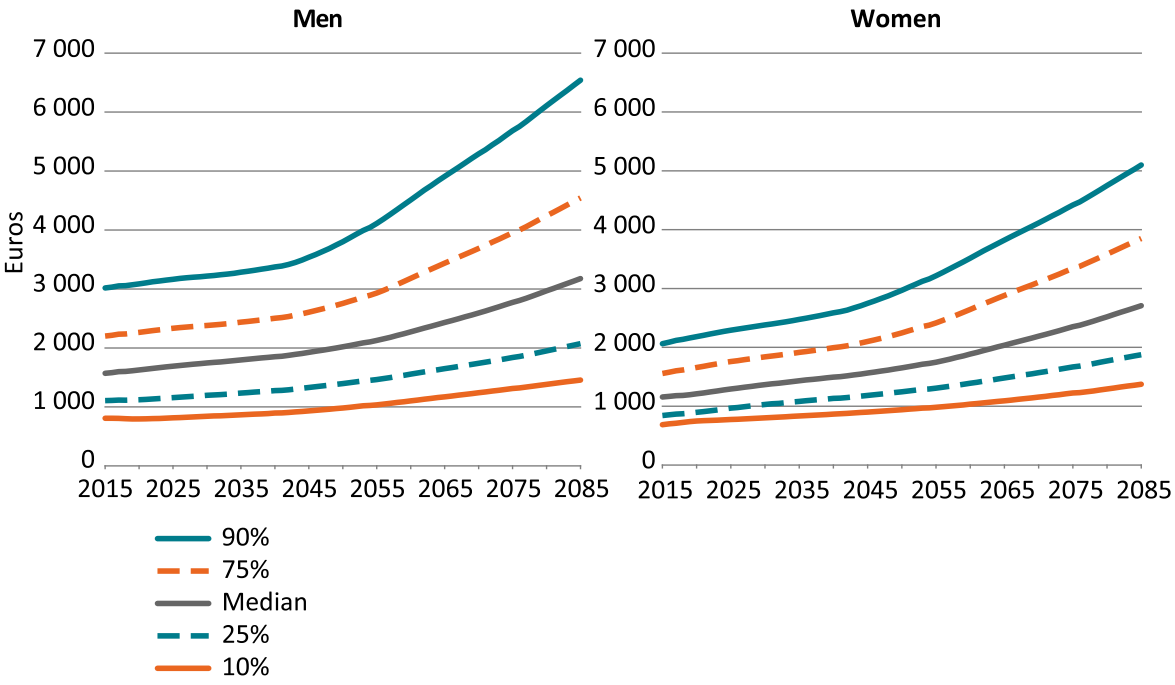
16 The pension index i_t^p can be written (using the same notation as in footnote 15) $i_t^p=\beta\hat{w}_t+(1-\beta)\hat{p}_t$, where β is the weight (0.2) to wage inflation, and 1–β the weight (0.8) to price inflation. It follows that $i_t^p=\hat{p}_t+\beta(\hat{w}_t-\hat{p}_t)$. The index thus fully compensates for price increases, and compensates real wage increases partially (by the fraction β).

17 Tikanmäki et al. (2019) assume in the baseline scenario that the national and guarantee pensions are 50–50 indexed to prices and wages, and an appendix compares to full price or wage indexation.

This is confirmed by Figure 3.7, showing the development in the real value of pensions for individuals at different positions (10th percentile, 1. quartile, median, 3. quartile and the 90th percentile) in the income distribution for the group of pensioners. All groups of pensioners experience an increasing real value of pensions, and in that sense they are better off (the absolute criterion). However, while the relation is relatively stable in the first part of the projection period, there are widening differences towards the end of the period, where the bottom lags behind and the top advances relative to the median. There is also a clear gender difference: men generally experience higher growth in the real value of pensions than women.

Figure 3.7

Projection of the distribution of pensions, men and women, 2015–2085

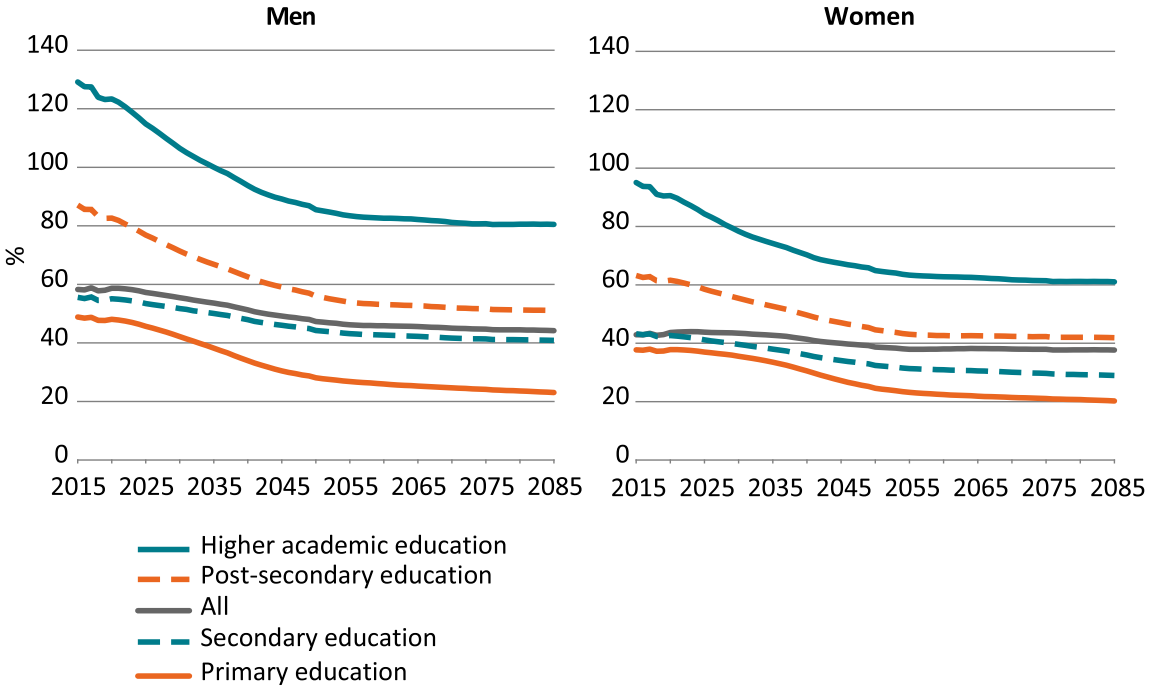


Note: Pensions are measured in 2017 prices.

Source: Tikanmäki et al. (2019).

Turning to the development in pensions relative to the development in wage income (the relative criterion), there is a general decline across gender and educational groups, see Figure 3.8. The decline is generally larger for men than women. The decline is most pronounced in the first part of the projection period, and it may reflect that the current group of pensioners has entitlements accrued on various rules applying in the past while the outcomes towards the end of the projection period more clearly reflect current rules. The composition of the group of pensioners and developments in longevity also play a role.

Figure 3.8
Projection of median pensions relative to educational groups, men and women, 2015–2085



Note: Pensions are measured in 2017 prices.
Source: Tikanmäki et al. (2019).

It is an implication that relative poverty among pensioners increases. When the base pension does not follow the general wage developments, it follows that pensions increase by less than the poverty thresholds set in terms of median income (whether it is set at 50% or 60% of median income).

3.4 The outcomes of the Finnish pension system in international comparison

The outcomes of the pension system can also be assessed by comparisons to other countries. A comparison to the other Nordic countries is particularly interesting. Within the frame of the so-called Nordic welfare model, similar objectives are pursued, although the pension systems differ significantly across the countries, see e.g. Andersen (2021). Rather than focusing on the technical details underlying the design of the pension systems, the ultimate assessment depends on the outcomes. The following considers poverty rates and replacement rates (pensions relative to income when working). Comparisons across countries are not straightforward due to differences in policy designs, and the following uses OECD data, which allows for cross-country

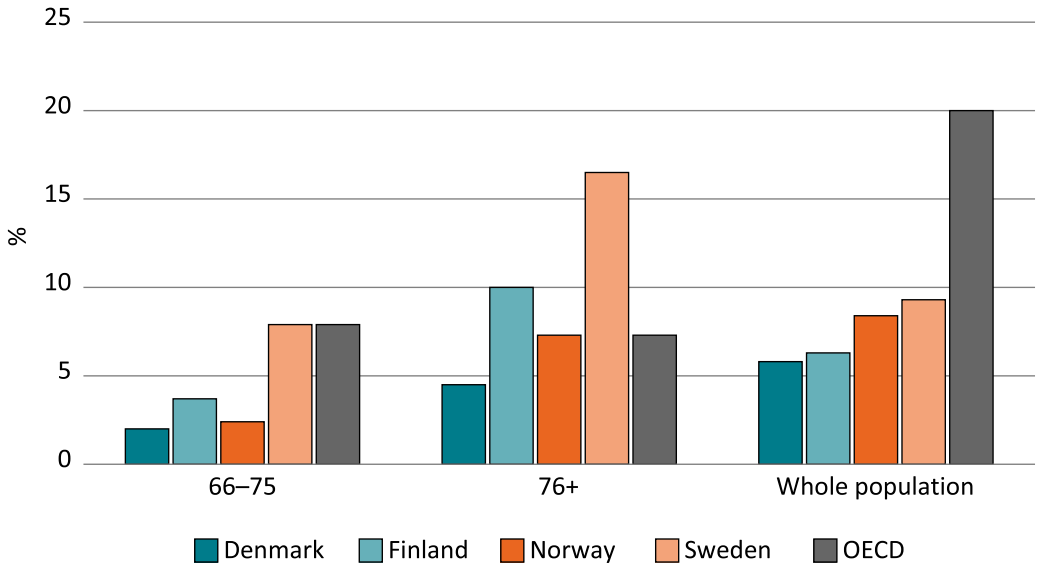
comparisons but at the cost of some simplification[18]. Comparisons across the Nordic countries are particularly interesting since welfare arrangements are more similar. Note moreover that international comparisons of pension benefits do not explicitly take into account whether pension systems are financially viable.

3.4.1 Poverty

A key distributional indicator is the poverty rate among the elderly, see Figure 3.9. For the Nordic countries, the poverty rate for the age group 66–75 is lower – with the exception of Sweden – than the OECD average, and also compared to the entire population. For the age group above 75, the picture is less clear. Here, Denmark is below, Norway is close to, and Sweden and Finland come out above the OECD average.

Figure 3.9

Poverty rates, elderly and the entire population, Nordic countries and the OECD



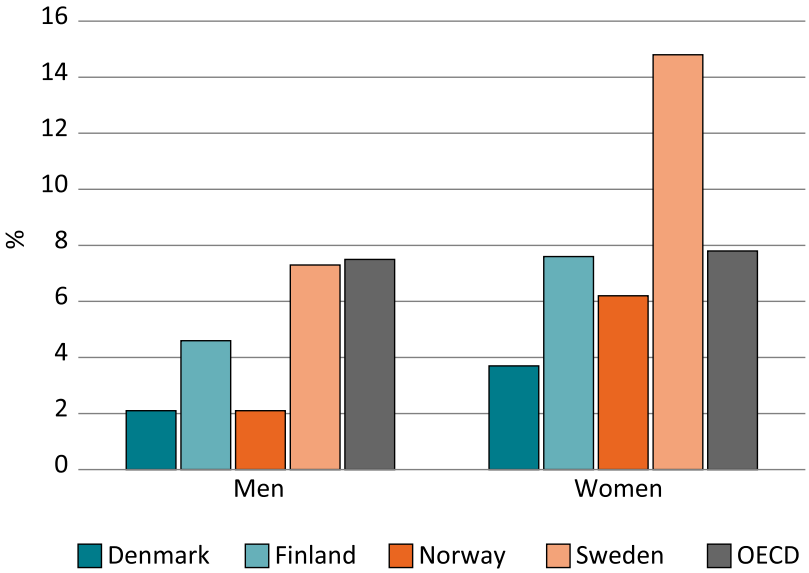
Note: Percentage of population group with incomes less than 50% of median household disposable income. Data applies to 2016.

Data source: OECD (2019).

Considering gender differences (Figure 3.10), poverty rates are higher among women than men in the Nordic countries, while the OECD average is about the same for both genders. The gender difference in the Nordic countries can in part be explained by differences in household structures with relatively more single person households (especially women), see Ahonen and Kuivalainen (2021). For women, Sweden is clearly above, Norway and Finland are close to, and Denmark below the OECD average, see Figure 3.10.

18 It should be noted that the statistics reported here apply to different age groups including different cohorts, and pension entitlements are typically acquired under different rules applying through work-life. In addition, changes in the cohort composition (education, family structure etc.) may play a role.

Figure 3.10
Poverty rates, age group 66 years or older, men and women, Nordic countries and OECD average



Note: Percentage of population group with incomes less than 50% of median household disposable income. Data applies to 2016.
Data source: OECD (2019).

Turning to poverty alleviation, residence requirements for public pensions should be mentioned. They may play a growing role due to an increasing number of immigrants, although Finland has not seen as high an immigration flow as many other countries. In all Nordic countries (and most other countries), public pensions have a residence requirement, and full pensions require 40 years of residence[19], otherwise a pro-rata reduction of benefits will be applied. Thus, migrants arriving at more mature ages do not qualify for the full pension (and often have lower employment rates). This is particularly important for immigrants from low-income countries, who typically do not bring any significant pension entitlements with them from their former country of residence. They are thus in a high-risk group of ending up in poverty when retiring.[20] It should be noted that they may qualify for other transfers, e.g. special income transfers, as part of the social assistance scheme and housing subsidies. There is a clear overrepresentation of immigrants among recipients of national and, in particular, the guarantee pension.

19 There is no residence requirement for the guarantee pension, but for the national pension there is.
20 As an example, most pensioners falling below the poverty line in Denmark are immigrants, see Pensionskommissionen (2015).

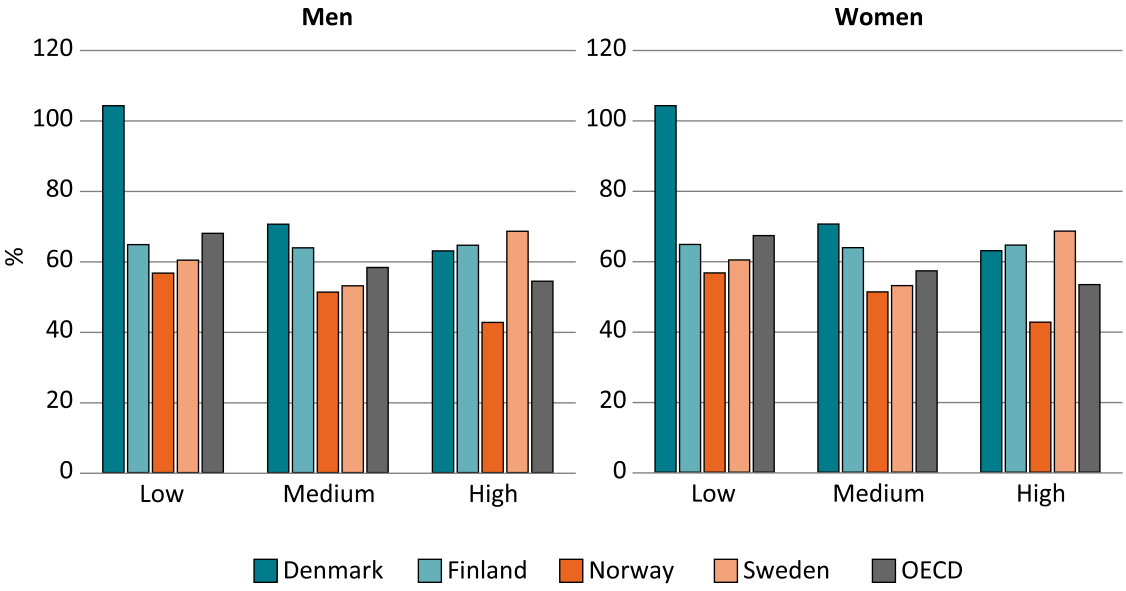
3.4.2 Replacement rates

An important objective for pension systems is to ensure that retirement is not associated with a significant drop in material living standard. A metric for this is the replacement rate, giving the ratio of the retirement income to the income before retirement. Avoiding a drop in material living standard at retirement does not require a replacement rate of 100%, since retirement is associated with, among other things, less costs of going to work (e.g. transport), less durable consumption (acquired at younger ages), and no pension contributions etc.

Replacement rates in the Nordic countries and the OECD average are shown for low, medium and high income groups in Figure 3.11. It should be noted that the replacement rates are measured relative to wages, and since wage dispersion differs across OECD countries, a given fraction of the mean wage selects different groups in different countries. Hence, some care should be exercised in such cross-country comparisons. In addition, as noted above, pensions should be seen relative to other welfare arrangements. In the Nordic countries, health care is publicly provided and heavily subsidized[21]. A given living standard can thus be maintained with a lower replacement rate than in countries with more self-financing of health and old-age care.

Figure 3.11

Net replacement rates across income groups, Nordic countries and OECD average



Note: Net replacement rates are computed based on assumptions on earnings during work-life and taking into account tax payments both when working and being retired. The earnings levels are defined in terms of individual earnings, multiple of average; low: 0.5, medium: 1, and high: 1.5. Data applies to 2018.

Data source: OECD (2019).

21 In all Nordic countries, per capita health expenditures are higher than the OECD average, and the larger part is tax financed, see OECD (2017b). There are user payments for parts of health and old-age care.

There are, however, some notable differences in replacement rates across the Nordic countries. In Norway and in particular in Denmark, the replacement rate declines as income increases. In Denmark, the replacement rate for low-income groups is close to 100%, because the level of social benefits to non-employed individuals in the work-age population is close to the public pension (the flat rate pension plus supplements) offered to individuals without any (significant) private pension[22], see also Pensionskommissionen (2015). For Finland, the replacement rates are largely invariant to the income level, while Sweden has a u-shaped pattern, with the replacement rate being highest for low- and high-income groups, and lowest for medium-income groups. The first part reflects the distributional concern, and the second part that supplementary labour market pensions are most prevalent/extended for high-income groups.

Gender differences are smaller in the Nordic countries than across OECD countries. This partly reflects the universal coverage of pension arrangements as well as a higher employment rate for women. Most mandatory schemes apply unisex principles in the sense that mortality rates are not gender-specific when computing the benefit offered as life-annuities. In this context, differences between levels and ratios should be kept in mind. Differences in wage levels, and hence pension benefit levels, are partly concealed when considering replacement rates.

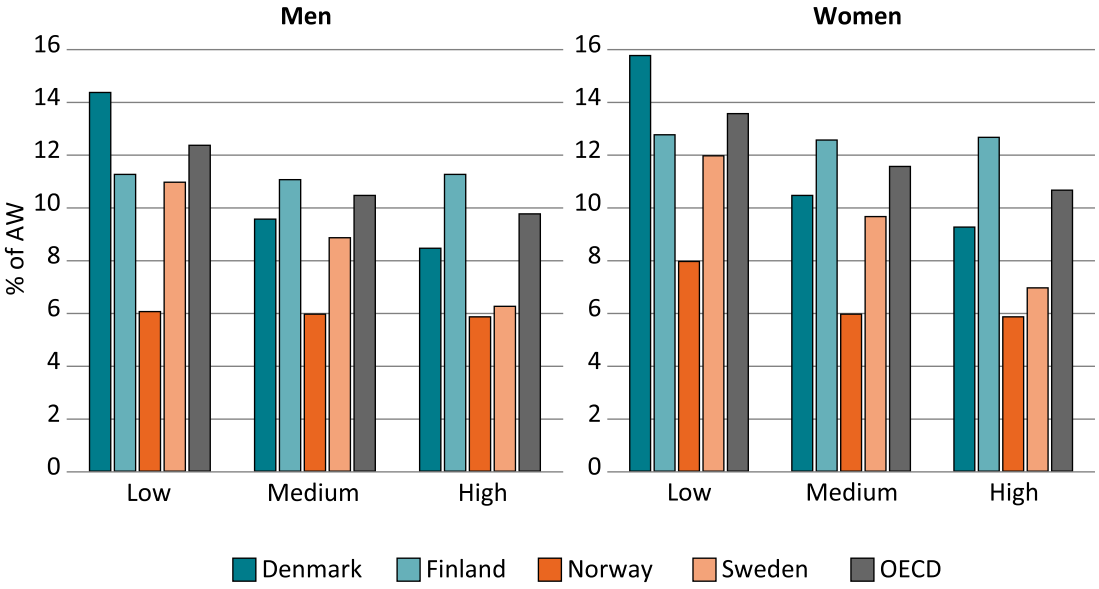
Alternatively, pension coverage can be assessed in terms of pension wealth relative to income, see Figure 3.12. Where the replacement rate discussed above gives a snapshot view, the pension wealth gives a metric on the total resources available for retirement (and thus independent of the specific benefit profile etc.). The pension wealth is the present value of the expected pension benefit flows.[23] For the Nordic countries, the net pension wealth is on par with or higher than the OECD average for low-income groups, while the picture is more blurred for the high-income groups. For all income groups, net pension wealth is generally smaller for Norway.

22 A replacement rate above 100% arises when social assistance for individuals below the statutory retirement age is kept low to ensure sufficient work incentives, and the base/minimum pension is higher since there is no work requirement once the retirement age is reached.

23 Note that the pension to income ratio tends to be larger for women than men, given the use of unisex mortality tables in pension schemes.

Figure 3.12

Net pension wealth, gender and income level, Nordic countries and OECD average



Note: Pension wealth relative to individual earnings before retirement. Pension wealth is the present value of pension benefits discounted by a real rate of interest of 2%, using average mortality by age and gender, and the statutory retirement age. The wealth levels are defined in terms of individual earnings, multiple of average; low: 0.5, medium: 1, and high: 1.5. Data applies to 2018.
Data source: OECD (2019).

Finally, private savings depend on the type of pension arrangement. In general, mandatory savings crowd out voluntary savings, whether in a DB-PAYG or DC-F scheme, see Andersen and Bhattacharya (2011; 2019). However, there is a notable difference between the two schemes. A pay-as-you-go scheme tends to reduce total savings, while a funded defined contribution scheme tends to increase total private savings (voluntary and mandatory). In Finland, as noted above, voluntary pension savings are low. The total household savings rate is also low in international comparison[24]. This can be interpreted either as a crowding out of voluntary savings or that the pension system is designed so as to deliver an appropriate pension income for most.

24 According to Eurostat data, the gross household savings rate over the period 2016–2019 in Finland is about 7.2%, which is much lower than in the other Nordic countries: Denmark (11.2%), Norway (12.8%) and Sweden (16.3%).

3.5 Discussion

Assessing the Finnish pension system in terms of outcomes measured by both poverty rates and replacement rates, it is performing on par or better than those in most other countries. Although poverty alleviation among pensioners is not complete, relatively few pensioners fall below the poverty line (although more than in Denmark and Norway). Replacement rates are also high by international standards.

In a forward perspective, the projected real value of pensions, and thus material living conditions, increases across all groups. According to the projection, the distributional profile is relatively stable in the first part of the projection period but then tends to widen in the long run. There is a widening gap between pensioners as a group and those active in the labour market throughout the projection period.

The wage-price indexation (both the wage and the pension index) maintains the real value of pensions, but it implies that pensions grow by less than wages. While this contributes to the financial viability of the pension system (see Section 4), it also has distributional consequences, and the question is whether this development is politically sustainable.

The adjustments of the base pension (KELA: guarantee and national pensions) have large distributional implications, and the fact that it is only price-indexed is a potential challenge. Although in the past there have been discrete increases in the base pension, a politically time-consistent indexation rule would contribute security and predictability. Indexation below wage growth implies that the base pensions grow by less than poverty thresholds, and therefore relative poverty among pensioners tends to increase. Whether this is a politically acceptable trajectory is an open question.

Base pensions serve the distributional purpose of ensuring that all pensioners obtain the politically acceptable minimum pension. Accordingly, these pensions are means-tested to target distributional objectives. The means-testing is against the earnings-related pension only (guarantee pensions; all types of pension income). This raises questions on the precision of the targeting. Some may have low earnings-related pensions but high levels of wealth, and this reduces the distributional precision of the means-testing. Other countries base means-testing on wider income concepts and/or include wealth. Despite the growth of earnings-related pensions, base pensions are still an important supplement for many pensioners.

The tapering rate underlying means-testing is important. In the Finnish case, tapering rates are rather high and therefore apply over a relatively short income/pension interval. However, many have pension levels bringing them in the interval where means-testing matters (their pension consists of both national and earnings-related pensions). This design aims at targeting the base pensions to the lower part of the income distribution (measured by earnings-related pensions), but implies high tapering rates (50%), which in combination with taxation produces high effective tax rates detrimental to work and retirement decisions.

A defined benefit scheme maps labour market outcomes into pension levels. This is desirable in terms of replacement rates, but it also implies that labour market differences are reflected in pension coverage. This is most notable for the gender differences in employment rates and, in particular, in wages, resulting in gender differences in pensions. It is open for discussion whether this is a problem created in the labour market and should be solved there, or whether it is a problem for the pension system per se.

Pension adequacy also depends on how interrupted work careers affect pension entitlement. Although pension entitlements are also accrued based on most forms of social benefits, there are still consequences of interrupted employment spells, and this has a gender bias since interrupted work careers are more prevalent for women than men.

4 Financial sustainability of the pension system

The key elements of any pension system – contributions (taxes), retirement age/period and benefit rules – are tightly related by budget constraints whether the system is a pay-as-you-go or a funded scheme. In case of fundamental changes, at least one of these elements must adjust.

The question is which mode of adjustment to apply when fundamental demographic or economic conditions change. In particular, demographic changes driven by trend declines in fertility and increases in longevity are challenging the sustainability of pension systems in many countries. Both trends affect pension systems critically via both the contribution and the benefit side. Changes in other economic factors like rates of returns, productivity growth, and employment rates (education) are also important.

The pension system has some built-in adjustment mechanisms – automatic stabilizers – ensuring adjustment to changes in fundamentals. As already discussed, indexation has implications for how real wage (productivity) growth affects benefit entitlements. Adjustment to changes in longevity has recently been introduced via both the adjustments of benefits based on the cohort-specific life expectancy coefficient and the longevity indexation of the statutory retirement age. Moreover, the EMU-buffer is an adjustment mechanism, but it is triggered by discrete decisions. While these adjustment mechanisms are very important, they do not ensure that the current system can be maintained in the wake of ongoing demographic changes; there is a financial sustainability issue.

Adjustments are not only a question of ensuring the financial viability of the pension system, but also raise issues in relation to intergenerational distribution and risk diversification. Trend changes in fertility and mortality affect cohort sizes and compositions, which via the pension system have implications for intergenerational distribution. Moreover, via the pension system there is scope for risk diversification across cohorts, which is more difficult, or not even possible, in private markets.

An important input to this discussion is an assessment of the financial sustainability of the pension system, including how it is affected by changes to fundamentals like demographics, rates of returns, economic growth, and employment rates. The latest analysis of the financial sustainability of the Finnish pension system is Tikanmäki et al. (2019). This section draws on this analysis and discusses various factors affecting the financial sustainability of the pension system. The section also includes a discussion of the methods used in analysing sustainability issues.

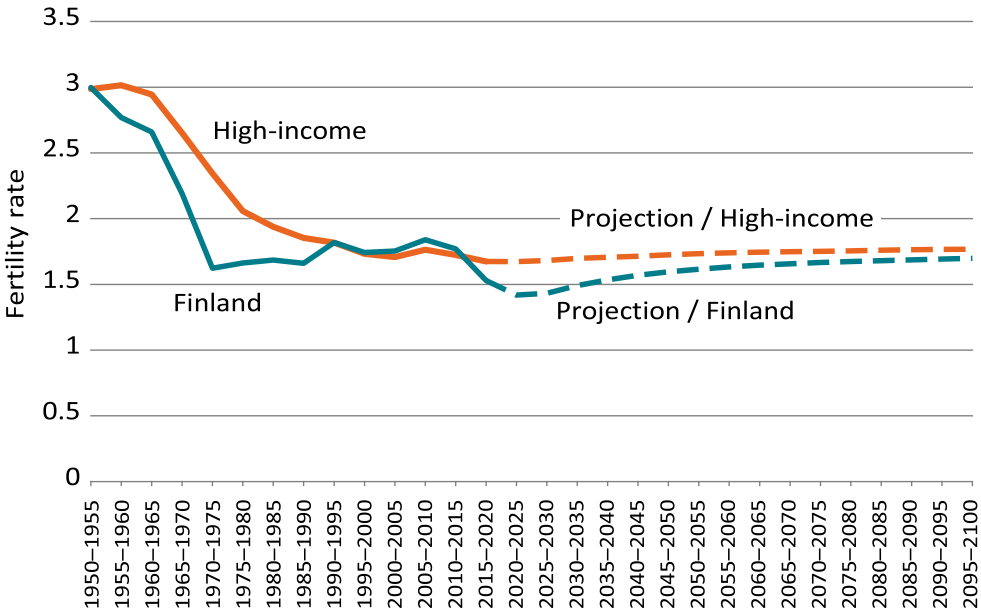
4.1 Demographic developments

A financing challenge is looming in the future. The main reason is demographics. A low fertility rate and increasing longevity imply an ageing of society. The demographic developments are here briefly summarized in Figures 4.1–4.3, using World Bank projections to allow international comparisons. This projection differs from the projection made by Statistics Finland, but the overall trends are the same.

Fertility rates have generally been declining, see Figure 4.1, to a level below reproduction of the population (in the absence of net immigration). This tends to reduce the population size. This is a common phenomenon across high-income countries.

Figure 4.1

Fertility – Finland and high-income countries, 1950–2100



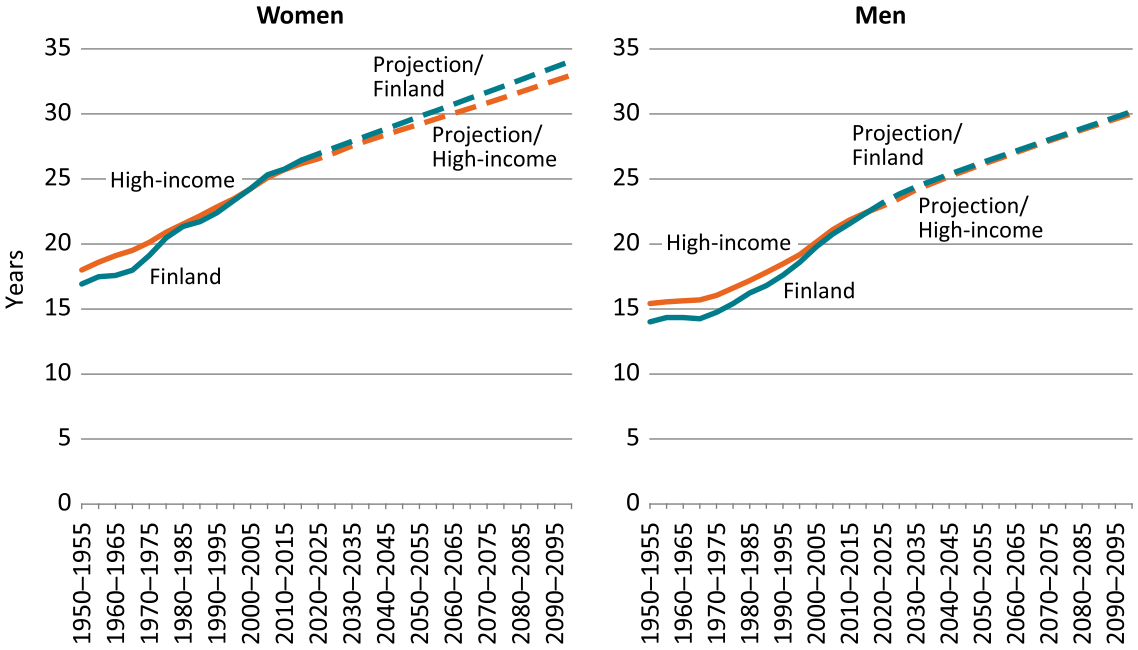
Note: Projection for medium scenario.

Source: UN Population Forecast 2019, https://population.un.org/wpp/.

Longevity has been an increasing trend, in recent times especially for men. Figure 4.2 shows the life-expectancy at the age of 60, which between 1950 and 2020 increased by 7 to 8 years, and a similar increase is projected from 2020 to 2100. There is a gender gap, but it is narrowing over time. The longevity increase is strongly associated with so-called healthy ageing; that is, both physical and mental capabilities of elderly people at a given age have increased across cohorts, see e.g. WHO (2017).

Figure 4.2

Life expectancy at age 60, Finland and high-income countries, women and men, 1950–2100



Note: Projection for medium scenario.

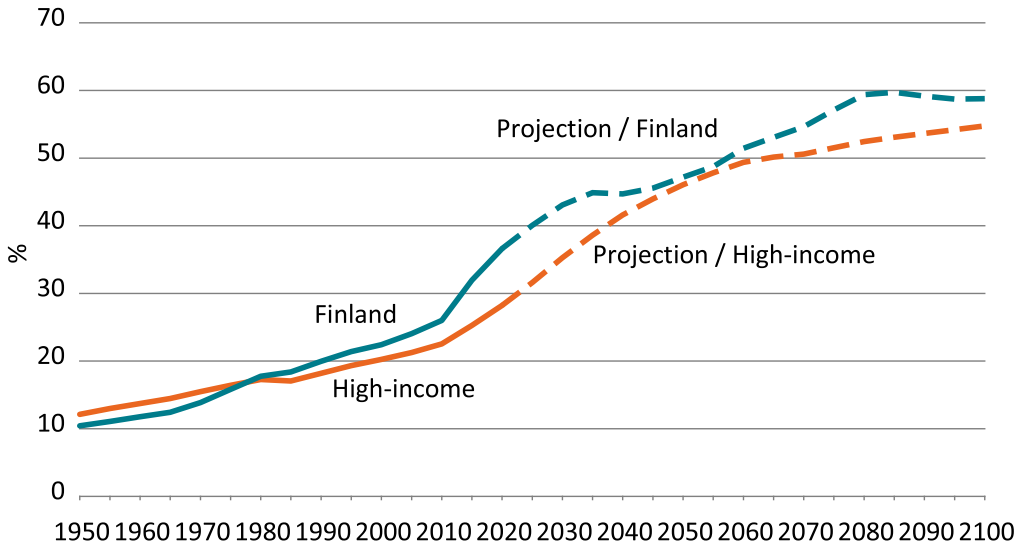
Source: UN Population Forecast 2019, https://population.un.org/wpp/.

A third potentially important demographic factor is migration. Immigration, especially of younger people, is often in policy debates seen as a way to counteract low fertility rates and an ageing population. In this discussion, it is important to distinguish between the demographic and economic consequences of immigration. Immigration can clearly affect the demographic composition of the population, but the economic effects depend on the extent to which immigrants become employed. The latter has proven a challenge for immigrants from low-income countries in labour markets, such as in the Nordic countries, having high qualification requirements for most jobs. Immigration, especially from outside the EU, has been low in Finland compared to most other European countries, see e.g. EEAG (2020). In a forward perspective, the scope for immigration is also constrained by the fact that many countries, e.g. in Eastern Europe, experience a rapid ageing of their populations and therefore take steps to avoid emigration of the young[25].

The net-result of these demographic drivers discussed above is an increase in the so-called dependency ratio (number of persons aged 65 or more relative to the population between 15 and 64 years). While there has been some increase in the past, the dependency ratio is on a steeper incline. The increase in Finland is slightly above the general trend among high-income countries, see Figure 4.3.

25 An interesting example is Poland, which has recently introduced an income tax break for most young below the age of 26 to reduce emigration and incentivize return migration. This should be seen against the backdrop of large net emigration flows and an ageing population.

Figure 4.3
Projected dependency ratio, Finland 1950–2100



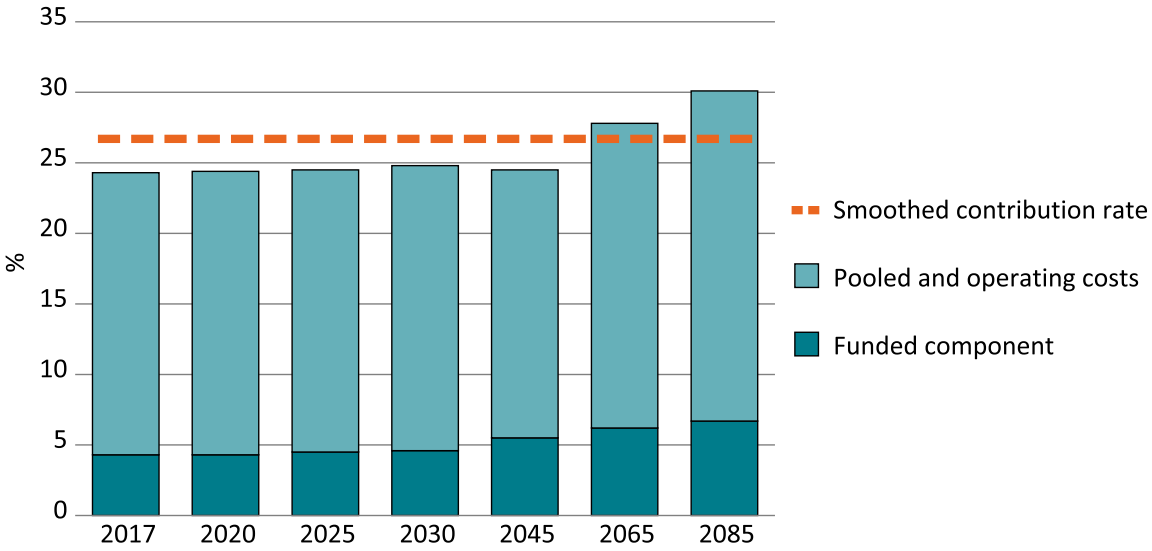
Note: Population in age group 65+ years relative to population aged 15–64 years.
Source: UN Population Forecast 2019, https://population.un.org/wpp/.

4.2 The financing challenge

The demographic changes reviewed above – alongside rates of returns, productivity growth and other factors – have important implications for the trajectory for both contributions and pension benefits accrued given the current design of the pension system. Figure 4.4 reports the projection of contribution rates for private pensions needed to ensure financial viability (TyEL), see Tikanmäki et al. (2019). For the next 20–25 years, the required contribution rate is relatively steady with a weak increasing trend, but then it increases significantly. The pooled component reflects the age composition at a given point in time. Until 2030, a small increase in the contribution rate is needed to ensure that the buffer fund does not fall below its lower limit, and then after a small fall, the contribution rate increases alongside the increase in the dependency ratio. The funded part is more forward-looking, capturing accrued pension rights that increase primarily due to extended working lives. Accordingly, the funded component is steadily increasing over the projection period. Sensitivity analyses are reported in Tikanmäki et al. (2019), and they show that a robust conclusion is that there is a long-run financing issue[26]. The analysis also reports combined scenarios, and even in the "optimistic" scenario with higher productivity growth, higher employment rates and higher investment returns compared to the baseline scenario, an increase in the contribution rate is required.

26 See also the analysis of the financing of earnings-related pensions in Risku et al. (2020).

Figure 4.4
Projected contribution rates, TyEL, 2017–2085



Note: The funded component includes funded old-age and disability contributions.
Source: Tikanmäki et al. (2019).

Consider alternatively an immediate increase in the contribution rate to ensure financial viability of the pension system given current benefit rules and the changing demographics. In this case, the contribution rate becomes 26.7% over the entire projection period, exceeding 24.4% in 2020, but lower than 30.1% in 2085, see Figure 4.4. Adopting this path for the contribution rate implies pre-funding[27]; that is, in the near future the contribution rate is higher than needed to finance pension expenditures, and oppositely in the far future. In the initial years, more assets are accumulated such that they – including the returns – can finance pension expenditures in excess of contributions.

It is noteworthy that a sustainability problem remains despite recent reforms (including the lifetime coefficient and longevity adjustment of the statutory retirement age). The current system does not have sufficient automatic adjustment mechanisms to cope with changes in the age composition of the population. The system has a backstop in the requirement that contribution rates are set such that buffer funds constitute at least 20% of the coming years' pension expenditures, but it is not an automatic mechanism, since it requires discretionary initiatives.

27 Private sector pension schemes have been prefunded since contributions exceeded expenditure until about 2010 (except during the crisis years in the 1990s). This has accumulated into assets which are now an important part of private pension financing.

The projected required increases in the contribution rate may appear to be a far-in-the-future problem with amble time to contemplate possible changes. However, this conceals important intergenerational implications. Postponing increases in e.g. contribution rates until expenditures increase implies a burden shifting to future cohorts since the higher future contribution rates will apply to cohorts being active in the labour market at that time. Oppositely, if the funded part is increased via an immediate increase in the contribution rate, the financing burden falls on cohorts currently active who will be pensioners in the future. Hence, how the financing challenge is addressed has important intergenerational implications; see also discussion below on fertility. Postponing the adjustment is not distributionally neutral, which is why the financial challenge, although not an acute problem, must be discussed.

4.3 Automatic adjustment mechanisms

While textbook models define PAYG pension schemes as having a period-by-period balanced budget, this is neither feasible nor desirable in practice. On the practical side, total contributions and pension expenditures fluctuate for many reasons, and they cannot be determined with full accuracy in advance. Adjusting contribution rates or pension benefits ex post to balance the budget is not desirable and thwarts one of the key objectives of pension systems: to provide security and predictability. Moreover, year-by-year changes in contribution rates have efficiency costs via work and savings incentives. Smoothing contribution rates minimizes potential distortionary effects. This argument applies both to short-term variations and to situations where there is a trend in the financing needs. Allowing for budget variations also provides risk diversification across employers, employees and pensioners compared to a situation with changes in either contribution rates or benefit levels to balance the budget on a period-by-period basis.

Therefore, pension systems, even though not fully funded, have pre-determined contribution rates and benefit rules and operate with buffer funds to accommodate short-run variations in contributions and benefits. This is also the case in the Finnish system, which also has an element of funding.

However, this leaves the problem that predetermined contribution rates and benefit rules may not ensure a solvent system, that is, a balanced budget on average across the short-run variations in contributions and pension expenditures. If the given contribution rate and benefit rules are not viable, something will have to give in. This is particularly the case when trend changes develop systematic imbalances, as most recently discussed in many countries in relation to the upward trend in longevity. This raises difficult problems on how and when to adapt to such changes.

In principle, two approaches are available: either discrete changes from time to time, or built-in automatic adjustment mechanisms coping with changes affecting the financial viability of the pension system. The latter refers to explicit contingencies linking contribution rates or benefits to demographics, macroeconomics and financial variables. The choice between the two alternatives raises political economy issues since discrete changes may be subject to reform delay causing the adjustment problems to grow and having implications for intergenerational risk diversification and distribution. Rules have the potential advantage that they are less vulnerable to political procrastination, and therefore they can strengthen the credibility, continuity and consistency of the pension system. By adopting rules, the focal point in political discussions is changed from being a question of the need for reforms to a question of violating predetermined rules; the political costs of procrastination increase. Clearly, all of this presumes support for the rules in the first place. Rules typically also imply more gradual changes than discrete reforms undertaken from time to time, often in an atmosphere of crisis. Generally, rules do not eliminate risks since they are state-of-nature contingent, but political risks are reduced.

Discrete changes depend on particular projections of future developments. But such projections are uncertain and may subsequently be revised. Moreover, this approach leaves it uncertain when and how sustainability problems will be resolved. Automatic adjustment mechanisms are a more flexible way of adjusting to new information, e.g. indexation of the statutory retirement age does not require that a stand is taken today on longevity in say 20 or 30 years, but it ensures that there are adjustments if longevity actually increases.

Automatic adjustment rules basically make contribution rates and/or benefit levels dependent on the state of nature in some pre-specified way. The challenge here is implementation. While, in principle, it is possible to design sophisticated rules coping with all eventualities, actual rules must be simple. Hence, rules can cope with some adjustment problems, but it is not realistic that the pension system can be completely "automated".

The Finnish pension system includes two automatic adjustment mechanisms in relation to longevity: the life expectancy coefficient adjusting benefit levels, and the longevity indexation of the statutory retirement age. These are important adjustment mechanisms reducing the importance of the upward trend in longevity for the financial sustainability of the pension system, see discussion below.

Note that there are additional automatic mechanisms in the system via indexation – the wage and the pension index – which are important for pension adequacy (see discussion above), although they also have financing implications, to be discussed below. The EMU-fund is an adjustment mechanism on the contribution side which is unique in international comparison, but it relies on discrete decision-making.

While automatic adjustments of benefits and statutory retirement ages are crucial for the financial viability of the pension system, they do not respond to all changes affecting the dependency ratio. One such factor is fertility, discussed below. In principle, properties of the pension system could be linked to cohort fertility, but this is less straightforward than indexation of statutory retirement ages to longevity. This raises the question whether more general contingencies related to the overall solvency of the system could be introduced. Such general contingencies are less common, but there are two notable cases.

The German pension system has a sustainability mechanism linking both contributions and benefit entitlements to the developments in the ratio between contributors and beneficiaries. Specifically, the ratio is defined as the number of contributors to pensioners, taking into account contribution bases and the number of pensioners receiving the minimum pension. If this ratio declines, the contribution rate increases and benefit levels decrease, see e.g. Börsch-Supan and Wilke (2006) and Vidal-Meliá et al. (2009). While this adjustment mechanism more broadly targets demographic changes, it is not tightly related to the solvency of the system.

The Swedish NDC has an explicit solvency-based mechanism, see e.g. Palmer (2000) and Pensionsmyndigheten (2011). Pension accruals and benefits are regulated by the income index (defined as the growth rate of the contribution base). To ensure that the pension system is financially viable, indexation may be reduced below the income index; that is, pension accrual and benefits in payments are adjusted. The trigger is the so-called balance ratio given as the ratio of the system assets to liabilities. The assets are current and expected future contributions to the system plus buffers funds, and the liabilities are the pension payments to current pensioners and current contributors. If the balance ratio is lower than one, the indexation of accruals and benefits is reduced below the income index. If the ratio is above one, buffer funds are accumulated. The adjustment thus both affects pension accrual (future pensioners) and pension benefits (current pensioners). Although the contribution rate is constant, less pension entitlements are accrued, and pension benefits in payment are reduced.

There is a strong case for the strengthening of the automatic adjustment mechanisms, but there are important decisions to be made in both defining the appropriate triggers and how the adjustments should be split between contribution rates, benefit levels and statutory retirement ages. Answering these questions would require a detailed analysis considering the workings of such adjustment mechanisms across a variety of demographic and economic changes impacting the pension system.

4.4 Fertility

The fertility rate affects the relation between the number of contributors and beneficiaries. Population growth is part of the implicit return offered by a PAYG scheme. If the number of contributors grows more than the number of pensioners, individuals receive more in old-age pensions than they contributed as young, and vice versa (see box below).

Family choices on fertility thus affect the pension system. Other things being equal, a higher fertility rate eases the financing of a defined benefit scheme, and it is a fundamental source of the system's implicit return. Clearly, this is an aggregate effect too small to be taken into account in the fertility decision of potential parents; see e.g. Cigno and Werding (2007) for discussion and references. This gives an argument for child allowances to achieve the socially optimal level of fertility (see e.g. Groezen et al. (2003)) or making pensions positively dependent on the number of children (see e.g. Sinn (2001)). Introduction of automatic adjustment mechanisms linked to fertility is less straightforward than longevity indexation and probably also has less public appeal.

For Finland, fertility rates have been on a downward trend and are projected to fall further/stabilize at a low level, see Figure 4.1. This raises a question of how the pension system can cope with the implications. The effects are potentially large. In the long-term projections, the fertility rate is set at 1.45, and the required contribution rate (for TyEL) increases from 24.4% to 30.1%, see Figure 4.4. If the fertility rate instead becomes 1.7, the contribution rate projected for 2085 is 3.2 percentage points lower than in the baseline projection, while a fertility rate of 1.2 increases the contribution rate by 4 percentage points.

The long lags for changes in fertility rates to affect the dependency ratio underline the importance of long- term policy planning in pension policies. A low fertility rate gives a prefunding argument; that is, increase contribution rates now to accumulate funds to counteract the consequences of low fertility rates. In this way, the cohorts having fewer children instead contribute more to their pensions by paying higher contribution rates. Postponing an increase in the contribution rate to the future shifts the financing burden on to the smaller cohorts; that is, they end up financing the consequences of their parents and grandparents having fewer children.

Box I: PAYG pensions: Demographics, productivity growth and indexation

Consider the following simplified version of a PAYG pension system. The balanced budget constraint for the scheme reads

$$\tau_t N_t w_t = N_{t-1} b_t$$

where τ_t is the contribution/tax rate, N_t is the number of workers, w_t the wage income of those working, N_{t-1} the number of pensioners, and b_t the pension level. Hence, $N_t w_t$ is the wage sum in period t. The system has an implicit return of the system given as the future pension benefit relative to the contribution made when working, which for a constant contribution rate ($\tau_t = \tau$ for all t) is

$$\frac{b_{t+1}}{\tau w_t} = \frac{N_{t+1}\, w_{t+1}}{N_t\, w_t}$$

The implicit return equals the growth rate of the wage sum, or the sum of population growth and wage (productivity) growth. This is a basic insight from the pension economics literature. Consider now a DB system where the pension (b_t) is determined by the benefit rule

$$b_t = b(1+i_t^w)w_{t-1}$$

where i_t^w is the wage coefficient, see footnote 15. Given the defined benefits, a strict PAYG system requires that the contribution rate adjusts to balance the budget. Inserting the benefit formula in the budget constraint yields

$$\tau_t N_t w_t = N_{t-1}\, b(1+i_t^w)w_{t-1}$$

and the period t contribution rate becomes

$$\tau_t = b(1+i_t^w)\frac{N_{t-1}}{N_t}\,\frac{w_{t-1}}{w_t}$$

Defining wage growth as $\frac{w_t}{w_{t-1}} \equiv 1+\hat{w}_t$, the contribution rate can be written

$$\tau_t = b\,\frac{N_{t-1}}{N_t}\,\frac{1+i_t^w}{1+\hat{w}_t}$$

This expression shows how the contribution rate financing the defined benefits would have to adjust to changes originating from demographics $\left(\frac{N_{t-1}}{N_t}\right)$ and wage-price developments $\left(\frac{1+i_t^w}{1+\hat{w}_t}\right)$.

The demographic part implies that a decrease in fertility ($N_t < N_{t-1}$), other things being equal, requires an increase in the contribution rate. Similarly, while not explicit in the present formulation, an increase in longevity (for an unchanged retirement age) requires an increase in the contribution rate. The price-wage part implies that the contribution rate decreases when real-wage (productivity) growth increases. If the indexation of pension benefits falls short of wage growth, $i_t^w < \hat{w}_t$. Let $i_t^w = (1-\alpha)\hat{p}_t + \alpha\hat{w}_t$, corresponding to the applied wage coefficient, it follows that

$$\frac{1+i_t^w}{1+\hat{w}_t} = \frac{1+(1-\alpha)\hat{p}_t + \alpha\hat{w}_t}{1+\hat{w}_t} \cong 1-(1-\alpha)(\hat{w}_t - \hat{p}_t)$$

This shows that higher real wage (productivity) growth reduces the required contribution rate when benefits are adjusted by less than wage growth. Phrased more generally, if pension accrual and benefits are indexed by less than wage growth, higher wage growth creates some financial space in a PAYG pension system.

4.5 Mortality and longevity

The pension system offers pensions which are implicit annuities; that is, the benefits are paid for the remaining lifetime. Hence, the individual does not face a risk that pension benefits are exhausted if reaching high ages. Moreover, given the indexation schemes, the real purchasing power of the pension will not decline but is likely to increase, although a decline cannot be completely ruled out.

It is an attractive property of a pension scheme that it offers annuities, and it is in accordance with a basic result in the pension literature by Yaari (1966) that the fundamental risk associated with the length of life and thus the need for savings is perfectly resolved by saving in annuities[28]. From a welfare state perspective, annuitization serves to ensure that all pensioners have an acceptable material living standard (in the Finnish case with a backstop in terms of the base pension). Supposing counterfactually that the earnings-related pensions where not annuities but paid out over a given number of years, some of the elderly population would experience that their earnings-related pension would not cover their remaining lifetime. This would require larger precautionary savings, or the burden on the tax-financed base pensions would be larger. Likewise, public provision of health care, old-age care etc. constitutes implicit life-annuities reducing the need for precautionary savings. The overall arrangements thus provide insurance against longevity and health hazards.

Provision of annuities is not a given, and market solutions are often incomplete, or agents choose annuitization to an insufficient degree; see e.g. Modigliani (1986) and the so-called annuitization paradox. The mandatory earnings-related pension scheme thus effectively creates an implicit annuitization market overcoming potential market failures, and this has a value for risk-averse households. The annuities in the Finnish pension system are based on the average mortality rates for the cohorts. Post the setting of the statutory retirement age and life expectancy coefficient, all changes in the cohort-specific mortality rates are collectively insured (do not affect benefits).

Longevity trend

Longevity has been on an upward trend historically, and although demographic projections are uncertain, an increase in longevity is to be expected with a high probability. The uncertainty pertains to how large these increases will be and when/if they level off at some point. This is a global phenomenon and a major challenge for pension systems and public finances.

The immediate effect of an increase in longevity in a defined benefit scheme with a given retirement age is an extended retirement period. For unchanged contribution/tax rates, this challenges the financial viability of the system. Moreover, there are intergenerational implications since older cohorts benefit from increases in the retirement period, while the implied financial burden falls on the younger cohorts in

28 It is often argued that annuities make it impossible to leave bequest. This is not the case, since not all wealth is annuitized. Moreover, individuals with strong bequest motives can save out of pensions to leave bequests.

the contributing phase of the life-cycle. Granted that an increase in longevity is welfare improving, it can be questioned whether the financial consequences should fall on the shoulders of younger generations or whether those benefitting from the increased longevity should contribute to its financing; see Andersen and Pedersen (2006). Increasing the retirement age alongside increases in longevity is an adjustment strategy balancing the number of years an individual is contributing to and benefitting from the system. A key argument in support of this solution is that increasing longevity is strongly associated with healthy ageing; that is, more years in relatively good health are added to the life-span, which in turn makes it feasible to postpone retirement from the labour market. Such longevity indexation of retirement ages has been introduced by many countries in response to the trend increase in longevity, although the specific indexation formulas differ, see OECD (2017a). These changes are associated with increases in employment rates for the affected age groups.

The life expectancy coefficient in the Finnish pension system adjusts the annual benefit flow to the life expectancy for members of a given cohort. If longevity goes up, the annual benefit falls, and this gives the individual an incentive to postpone retirement to avoid this reduction in pension benefits. However, if individuals do not respond in this way, a political problem can arise as a result of declining pensions. It is an open question to what extent such incentives affect retirement decisions[29]. This is the reason for linking both benefit levels and retirement ages to longevity.

Empirical evidence documents the very strong statutory influence statutory retirement ages have on retirement decisions with so-called bunching of retirement ages at the statutory retirement age; see Blundell et al. (2016), Gruber and Wise (2004), and Bösch-Supan et al. (2018). This suggests that it is important to change the statutory retirement age to ensure later retirement. Sweden is an interesting example since the Swedish system for some years has had built-in incentives for individuals to postpone retirement alongside increases in longevity. However, retirement ages did not respond much to increases in longevity; see e.g. Pensionsåldersutredningen (2013). In response to this, an explicit longevity indexation of the statutory retirement ages has recently been implemented.

Longevity indexation has furthermore the advantage that it removes the problem of predicting longevity far into the future and determining statutory retirement ages or benefits based on such predictions. The lead time by which the statutory retirement age is locked for a given cohort is important for planning and risk sharing. Any changes in longevity before the statutory retirement age is locked fall on the cohort, while those appearing later are collectively insured since retirement ages and benefits are not adjusted ex post.

The lead time also has implications for individual planning. The current arrangement locks the retirement age (and life expectancy coefficient) of a cohort when it turns

29 This also points to a political dilemma. If many retire early (retiring before the target retirement age), it has a systemic effect on the financing of the pension system – a fact not internalized in individual decision-making. Even though the benefit flow is reduced due to the longer retirement period, this may subsequently create a political pressure for measures to improve the position of pensioners.

62 years, which is a relatively short lead time. Going forward, increasing longevity increases the lead time, but the present arrangement implies that the lead time differs across cohorts. Alternatively, the scheme could be changed so as to always lock the statutory retirement age with a lead time of e.g. five years for each cohort.

There are a number of technical issues to discuss on the specific design of these automatic adjustment mechanisms.

Indexation is based on longevity assessed using the so-called calendar method. When there is a trend increase in longevity, this method tends to underestimate the cohort-specific longevity. As an example, according to the calendar method the remaining life expectancy at the age of 63 is 22.3 years in 2020, 23.8 years in 2030, and 26.7 years in 2055. However, according to the cohort method, the remaining life expectancies are 24.4 years in 2020, 25.7 years in 2030, and 28.2 years in 2055; see Tikanmäki et al. (2019, p. 109). Consequently, the retirement age increases by less under the calendar method than the cohort method when there is an underlying upward trend in longevity. There is a corresponding longer retirement period, which is collectively financed, and it effectively implies that cohorts are treated differently.

Whether this is an intended policy or it should be changed by basing the indexation on the cohort method is an open question. An advantage of the calendar method relative to the cohort method is that the latter relies on predictions while the former is based on actual observations.

Importantly, despite these two crucial adjustment mechanisms linked to longevity, the financial viability of the pension system is not neutral with respect to changes in longevity (mortality rates). This is seen from the long-term projections reported in Tikanmäki et al. (2019). In the baseline scenario, the contribution rate increases (TyEL) from 24.4% in 2020 to 30.1% in 2085. The required contribution rate becomes 32.4% in case of lower mortality/longer longevity (for persons above the age of 50, the mortality function is shifted one year at 15-year intervals, with interpolation for in-between years).

This point is also seen by comparing the statutory retirement age with the so-called target retirement age. The latter is defined as the retirement age that neutralizes the effect of longevity on the pension benefit arising via the life expectancy coefficient. The target retirement age is higher than the statutory retirement age, see Tikanmäki (2019, Table 4.2), and the gap is larger for younger cohorts due to the upward trend in longevity. As an example, the statutory retirement age for the cohort born in 1985 is projected to be 67 years and one month, while the target retirement age is 69 years and 10 months, that is, 2 years and 9 months higher. This gap between the statutory and the target retirement age is increasing over time due to the upward trend in longevity. The target retirement age does not have an explicit role in the pension system, but it serves as a signal on the role of longevity for the pension system and brings the indexation of the statutory retirement age in perspective.

4.5.1 Heterogeneity in longevity

Longevity adjustments via both the life expectancy coefficient and the statutory retirement age are based on average cohort mortality. However, it is well established that there is substantial heterogeneity with a strong socio-economic gradient in longevity; see Bosworth (2018) for an overview, and Tarkiainen et al. (2013) for an analysis for Finland.

This raises the question whether the distributive aims built into the pension scheme are counteracted by a regressive element to the extent that high income/educated groups have longevity above the average. This applies both to the benefit levels and retirement incentives. Since benefits are life-long, groups with longevity above the average gain from this arrangement compared to an actuarial fair scheme. Moreover, the premium to delayed retirement (0.4%+1.5% accrual) is also more attractive to groups with high longevity (conditional on reaching the statutory retirement age) since the gain from later retirement comes from higher pension benefits in the form of life-annuities.

The differences in mortality rates, and thus longevity across groups, raise several issues. The first is that the clearest socio-economic divide in longevity is between men and women. The system is thus distributing in favour of women, which may be a politically desirable feature, see Chapter 3. Less so is the implied distribution from low skilled to highly educated. However, having one and not the other is difficult.

In theory, a solution would be a split of the population into risk classes. This may be politically controversial. In economic terms it is not straightforward either. Differences in mortality are not entirely exogenous and depend on behaviour (a moral hazard problem). Allowing for risk classes also introduces selection problems since mortality rates have multiple causes, and therefore a classification based on some characteristics would leave heterogeneity within the defined classes. This creates an adverse selection problem and may also be politically problematic. A further problem is that information on mortality rates develops through life (differences in age-conditional survival rates tend to increase with age, at least up to some point). Hence, the individual risk classification may change over the lifespan, posing a difficult implementation problem.

In assessing the risk and distribution implications, it is crucial to keep in mind what is being compared. A mandatory pension system is largely motivated by individuals on their own saving insufficiently for old age, market failures in annuity markets and distributional concerns. It is therefore not meaningful to compare the existing pension system to some ideal but unrealistic first best world[30]. The current arrangement must be evaluated relative to an environment with market failures and behavioural imperfections. In this second-best setting, it is important that the system is providing insurance which is not readily available in private markets (or only at high costs). Moreover, there are other elements of the pension system – and welfare arrangements more generally – that do not suffer from this regressive bias. This includes disability pensions, accrual of pension benefits when out of work etc. Ultimately, the (re)distributive role falls on the public

30 Even computing the expected present value of the existing system for specific groups implicitly assumes that there are markets that offer different (annuity) prices to different risk classes.

sector. The earnings-related pension scheme is not designed to be redistributive, Kela pensions are, and they are tax-financed.

Increasing the statutory retirement age may put pressure on early exit routes from the labour market. While the longevity indexation is motivated by "healthy ageing", these developments are associated with heterogeneities across the population. Not all experience healthy ageing, and for this group the "early retirement" options are important. In a forward perspective, the pressure on the system is likely to be larger, and this raises the question whether the current system (including disability pensions, years-of-service pension) can cope with these developments. There is a need to carefully consider the design of the exit routes. It should also be kept in mind that the increase in the statutory retirement age is crucial for the financial viability of the pension system given the upward trend in longevity. Keeping statutory retirement ages unchanged to avoid the above-discussed problems is not an obvious solution, it is financially demanding, and it also has distributional implications.

4.6 Productivity growth

A PAYG pension scheme offers an implicit return, which is basically determined by the growth of the wage sum, see Box I. Hence, for a given contribution rate, the pension can grow by the growth rate of the wage sum. In the simplest case – with constant employment, retirement age, and longevity – this equals the growth rate for wages. The Swedish notional defined contribution pension scheme offers an implicit return determined by the growth of the wage sum, but with the crucial proviso that benefits are regulated by less if the financial viability of the system is not ensured, see above.

The benefit rule in the Finnish system has indexation below the wage growth rate. This applies both to the accruals indexed by the wage coefficient and pension benefits indexed by the pension index, see discussion above. Hence, although higher wage (productivity) growth increases absolute pension expenditures, they decline relative to GDP or the wage sum. This creates a financial space that can be used to finance other changes (see Box I).

To illustrate, the long-term projections reported in Tikanmäki et al. (2019) assume that long-term productivity growth is 1.5% per year. In the baseline scenario, the contribution (TyEL) increases from 24.4% in 2020 to 30.1% in 2085. If long-term productivity growth is 2% per year, the contribution rate increases only to 29.4%, while a productivity growth rate of only 1% implies a contribution rate of 30.6%. Hence, the higher productivity growth, the smaller the financial sustainability problem.

This shows a dilemma in the design of the system. On the one hand, indexation below wage growth leads to a widening gap between pensions and earnings of the working population and thus income inequality (although indexation ensures that the real value of pensions is protected, see Chapter 3). On the other hand, this reduces the financial sustainability problem. Full indexation to wages would thus create a straightjacket for economic policy in the sense that all initiatives to boost productivity – in part or fully motivated by financing problems arising from an ageing population – do not contribute

to solving the sustainability problem[31] since pensions and thus pension expenditure rise proportionally with productivity.

Oppositely, it may be questioned whether indexation below wage growth is politically time-consistent; that is, will a trend decline in pensions relative to the income of the working age population be acceptable or does it create a political pressure which eventually would lead to an increase in pension benefits?

Finally, note that indexation can be changed without necessarily impairing the financial viability of the system based on actuarial principles. For a given expected present value of benefits there is a relation between the initial level and the profile over time of benefits; the higher the initial value, the less the increases in the future, and vice versa. The pension index implies, as discussed above, that the real value of the benefit is always ensured and there is an increase as a fraction of real wage increases in society. Taking an actuarial perspective, the indexation could be changed to have, e.g., higher weight on wages, and therefore a lower initial pension. This would imply that the pension benefit over the pension period is more closely aligned to wage development and thus the general development in material living conditions in society. In choosing between the level and profile of benefits, there is also a question of whether needs are declining with age, which gives an argument for a high initial level and a less steep profile. There is also a distributional aspect attached to the profile of benefits over the retirement period. The actuarial adjustment in the life expectancy coefficient is based on average mortality rates. A relatively high initial value of benefits is advantageous to those with relatively short longevity, and vice versa. Moreover, the pension index cannot be seen independently of the indexation of Kela pensions. If Kela pensions are indexed by less than earnings-related pensions, they decline in relative importance over the life-time, and vice versa. It is an open question whether this is a desirable design feature.

4.7 Funding

Pensions are financed by a mixture of PAYG financing and funding. Funding has the advantage that it generates a higher return (=market return) than the implicit return in a PAYG financed scheme. This also applies currently, although risk free rates of returns are low (or even negative at some maturities) since the relevant comparison is to a wider set of assets (marginal product of capital), see e.g. Blanchard (2019). The challenge for a funded scheme is that it takes time to build up the funds, while a PAYG scheme offers an immediate financing option.

For private sector pensions, funds have been accumulated in the past due to contribution rates exceeding the level required on a PAYG basis. The funding currently contributes a non-trivial part of pension financing amounting to 20% of total pension expenditures. The financing problem faced by the pension system discussed above raises the question whether contribution rates should be increased to further strengthen pre-funding.

31 Clearly, there can still be gains in other dimensions; the general living standard would be higher.

A crucial question in relation to the funded part is whether the design of the regulatory framework is appropriate. In Finland, solvency regulations apply only to private sector earnings-related pension providers[32]. In other countries, occupational pension insurers follow national or European (Solvency II) solvency regulations. The latter builds, among others, on the premise that pension providers face the risk that individual savers can shift provider at short notice, and therefore a short-run risk measure is relevant. The Finnish pension system differs in a number of respects, and this justifies having a different regulatory framework.

The current regulatory framework for the funded part (discounting of liabilities, solvency capital, solvency limits, equity-linked buffer fund) is relatively complicated, and it is unclear whether it sets the appropriate framework for pension providers, in particular their investment policies.

The funding in the Finnish system is different than in a classical DC funded scheme. In the latter case, the funding is tied to the individual pension entitlements and the possibility of shifting pension/insurance provider. This is not possible in the Finnish case, but the employer can shift provider. This is motivated as a mechanism to foster competition between providers. As discussed in Chapter 2, it is unclear how effective this competition is. Potential efficiency effects from competition should be seen in the perspective of both the implications for investment policies and the availability of other possible governance mechanisms to ensure that the pension providers serve the interests of pensioners (returns and costs).

First, on the governance issue there are various ways of holding pension providers accountable for their performance via reporting requirements, benchmarking, peer-reviews etc., see also Ambachtsheer (2013). Openness and access to information allowing outside experts to assess the performance may be as or more effective than the competitive forces prevailing in the present system via the option of employers to shift pension providers. The Finnish Centre for Pensions does publish comparisons of pension providers, but these activities can be strengthened.

Second, in relation to the investment policies, the nature of the liabilities (accrued pension rights) is that they have a long-time horizon, that is, a long-time span between contributions and later receipt of pensions. Moreover, this linkage is not individual but holds at the system level. The funded part is collective in the sense that the accumulated funds (including the returns) finance a part of the pension expenditures following the accrual rules. Therefore, the risk profile on the liability side is different from a classical DC funded scheme, and the regulatory framework should reflect this. The investment policies should be regulated based on the relevant risk metric given the nature of the liabilities. The pension liabilities – the technical provisions – are discounted at a high rate, reflecting the illiquidity of the liabilities (although both the level and the fact that it is not dependent on market developments at the relevant maturities can be discussed). A key question concerns the acceptable risk

32 There is no solvency regulation for Keva, the State Pension Fund (VER), the Church Pension Fund (KER), the Finnish earnings-related pension insurance companies (Elo, Ilmarinen, Pensions-Alandia, Varma, Veritas) and the Seafarers' Pension Fund (MEK).

taking in the investment policies given the nature of the liabilities so as to reach an appropriate balance between risk and rates of return. There is a need for an evaluation of the regulatory framework to assess whether it is adequately designed given the characteristics of the liabilities for the funded part of the pension system.

It is difficult to compare investment performance across pension funds and countries. Existing comparisons do indicate that the return attained in the funded part of the Finnish pension system are to the low side in international comparison, both for the buffer funds (no solvency regulation) and the investment funds (subject to solvency regulation), see Finnish Centre for Pensions (2020a). This evidence is only indicative since comparisons of realized returns do not reveal the underlying ex ante risk exposure and other constraints and considerations guiding investment policies.

Finally, it is an issue whether there is a home bias in investment policies. The share of investments in Finland has decreased over time and constitutes currently (2019) about 25% of total assets, slightly less – 20% – are invested in the Eurozone, and almost 60% outside the Eurozone. Considering this from a systemic perspective, it is important whether the investment policies hedge the risk in the wage sum (contribution base). Hence, a large risk exposure to the domestic market introduces a systemic risk in the sense that the return on investments is low (high) when the contribution base is also low (high). A home bias may arise from a pressure to bring the "pension wealth" to use in the country, but this is not advantageous unless there is a clear case of market failures generating domestic capital market barriers. There is a risk that other concerns than the best return-risk outcome guide investments. The Norwegian sovereign wealth fund has a strict policy that investments should be outside Norway (Norwegian Government Pension Fund Global).

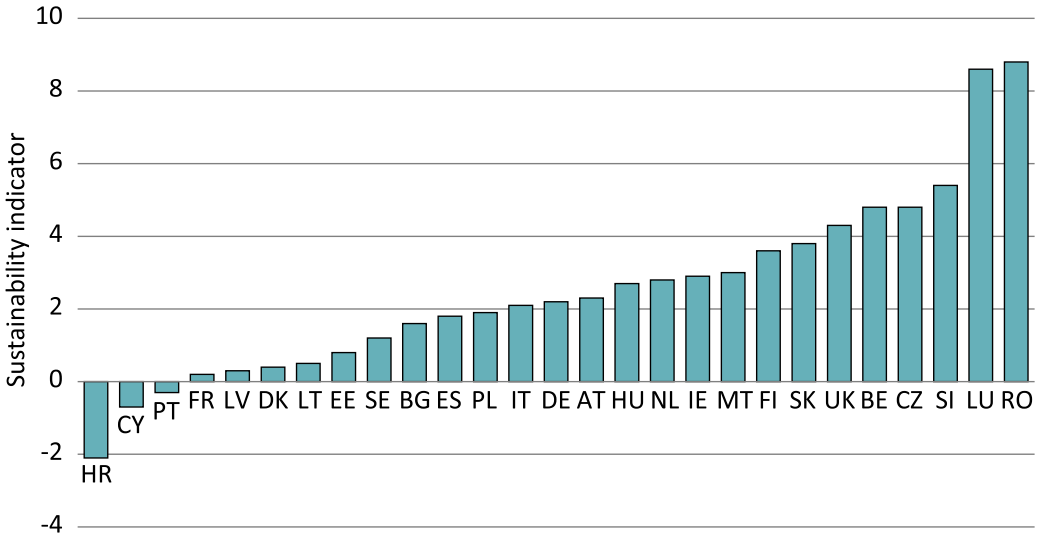
In sum, there is a need for an evaluation of the regulatory framework to assess whether it is adequately designed, given the characteristics of the liabilities for the funded part of the pension system, and whether it gives the appropriate framework for investments policies.

4.8 Welfare arrangements and public finances

While the pension system has some autonomy, it is ultimately a part of the public sector as reflected in the fact that it is included in assessments of fiscal sustainability; the ultimate sponsors are thus the taxpayers.

The future financing problem is therefore a part of the fiscal sustainability gap assessed by the Ministry of Finance (2019) to be about 4.5% of GDP. A sustainability gap essentially implies that the current tax system (including pension contributions) is unable to finance the expenses following from current welfare arrangements (including pension entitlements). A key reason is the changing age composition of the population; see also Economic Policy Council (2020). Figure 4.5 shows the result of a recent EU analysis of the sustainability problem faced by EU countries. Finland is among the countries with the largest unresolved problem.

Figure 4.5
Sustainability indicator – EU countries



Note: The sustainability indicator gives the permanent change in the government budget balances (in % of GDP) to ensure that the present value of revenue covers the present value of expenditures (taking into account the initial debt level). The computations assume a horizon running until 2070.
Source: European Commission (2020).

While there are financing problems to be solved within the pension system, the larger part of the problem rests outside the pension system. Solving the fiscal sustainability problem is of crucial importance, and it would add to the credibility of the entire welfare-pension arrangement.

Public finances depend critically on the employment rate. Reforms to increase employment are thus one way to solve the fiscal sustainability problem. The employment rate is of some importance for the pension system, but the effect on pension contributions and accrual of pension rights are muted by the fact that most non-employed also contribute, and pension entitlements depend on earned income. This is reflected in the sensitivity analysis reported in Tikanmäki et al. (2019), showing that the needed contribution rate is relatively invariant to variations in the employment rate. Employment rates are therefore more important for public finances generally than for the pension system in a narrow sense[33].

However, developments in the labour market do have some distributional implications since earned income is mirrored in pension entitlements. Hence, improving employment and qualifications can contribute to a more equal distribution of incomes and thus pensions more generally.

33 On a technical level, the fact that the pension system is a part of fiscal sustainability analyses stresses the importance of using common assumptions for projections of pension developments and public finances, see section 4.7.

The long phasing-in time and the importance of steady rules for individual planning give a strong argument for avoiding frequent changes in the pension system. At the same time, the design should be robust and predictable, which is best served by having appropriate automatic adjustment mechanisms (rule-based adjustment), see discussion above. Frequent structural changes create uncertainty and have economic costs. As an example, the so-called competitiveness pact reduced the employers' share and increased the employee's share of the contribution rates between 2017 and 2020. This measure was not due to the financing needs of the pension system; instead, its aim was to reduce employers' costs. Similar effects could equally well have been achieved through other measures.

Related to the above is the question of how contribution rates affect the incentive structure in the labour market; is the contribution rate a tax? The answer to this question depends on the extent to which the contribution paid affects the pension received for the individual, and the extent to which this link is perceived and taken into account. In the textbook case of forward-looking individuals and a mandated funded defined contribution scheme, the contribution rate is non-distortionary since there is such a one-to-one link. In a DB-PAYG scheme like the Finnish, there is some link between individual contributions and accrued pension benefits, but it is not one-to-one, and hence this is an intermediary case. The contribution rates thus have a distortionary element to be taken into account in conjunction with taxes when considering the incentive effects of the pension system on e.g. labour supply.

The incidence of the contribution rate is another issue. Does it matter whether the contribution is levied on the employer or the employee? In the short run with wage rigidity it matters, but in the medium to long run where wages can adjust there is no effect; this is a standard insight in labour economics; see e.g. Cahuc et al. (2014). What matters to employers is the total costs of labour, and to employees the after-tax value of wages (with proper adjustment for contribution rates, cf. above). The total wedge between the two wage concepts is crucial for the labour market responses, but whether the contribution is levied on the employer or employee side does not have any importance in the medium to long run as it will be fully reflected in wages.

Fiscal sustainability is also of importance for the pension system through a different channel. As discussed above, the level of pensions should be seen in perspective of the fact that the welfare state provides health care and old-age care. This reduces the individual need for precautionary savings to deal with various hazards through life. To the extent that the fiscal sustainability of the welfare system is not ensured, uncertainty with respect to the adequacy of pensions and the need for additional pension savings (and eventual private acquisition of such services) becomes more relevant. In addition, there are distributional consequences to be taken into account.

Finally, the sustainability discussion has both a technical and political side. The above discussion has mainly focused on the technical question of whether the budget requirements for fiscal sustainability are met.

Technical sustainability is a necessary but not sufficient condition. Political sustainability concerns whether the outcomes of the system are considered adequate and fair. If not, the support for the system may dwindle, building up pressure for political changes.

4.9 Financial sustainability – methods and analysis

Long-term analyses and projections are made regularly at the Finnish Centre for Pensions; the latest is reported in Tikanmäki et al. (2019). The projection reports the development in total pension expenditures, benefit levels, distribution and the financing of private sector earnings-related pensions. The analyses also include sensitivity analyses considering the role of assumptions of key demographic and economic variables.

Key elements in the projections are developments in demographics, in the labour market and key macro variables (price and wage inflation, rates of return). The demographic variables follow Statistics Finland's population projection. Employment projections are done independently based on a so-called cohort component model. This is a deterministic model, rich on institutional details, but it does not include any behavioural responses. Pension expenditures are computed separately for each pension scheme in an earnings-related pension expenditure module, see Appendices 8 and 9 in Tikanmäki et al. (2019).

The outcomes of the projection are clearly laid out and discussed in the report, and the method applied is relevant and well documented. The projection thus provides an indispensable input for discussing the developments in pensions and their financing.

A key aspect in the projection is the development in employment rates. The overall developments in labour force participation, employment and unemployment are determined in the LTP model. The structural unemployment rate is exogenously given (7.9%). The projection is done at a group level according to sex and age. The more detailed split, including education, is done in the sub-model ELSI. This sequential method raises some questions on consistency, especially whether long-term developments in, for instance, employment rates and retirement behaviour can be made without taking into account e.g. developments in education and health (longevity). Basing projections on a more explicit overlapping generations model would be one way to incorporate important feedback effects, e.g. from pension replacement rates to retirement behaviour.

This also brings up the question whether patterns observed in the past are reliable predictors of future developments. Specifically, retirement preferences and behaviour may change over time and across cohorts. While in the past retirement was associated with a deterioration of mental and physical capabilities and thus hardship in continuing working, retirement is increasingly seen as a third life phase with options for realizing various goals. Increases in education and other factors may work in the opposite

direction, making some wanting to stay on longer in the labour market. Changes in the labour market are also important; structural changes, skill and task biases may influence the possibilities for continued work. Both early and late retirement relative to the statutory retirement may increase, and the projection would gain in value by more clearly integrating such issues in the sensitivity analyses.

A specific issue arises in relation to official projections, in particular of fiscal sustainability, see Tikanmäki et al. (2019, p. 43). Clearly, different institutions can arrive at different projections of key variables like e.g. the employment rate, and separate and independent assessments serve to qualify the debate and improve the information set. However, it is a potential source of confusion that projections for the pension system are not done under the same assumptions as assessments of fiscal sustainability by the Ministry of Finance.

This problem could be resolved by reporting projections based on both the own best assessments and based on government assessments of key variables such as the employment rate.

Related is the issue of whether projections should be produced based on existing legislation, rules etc. or more plausible/projected trajectories. A case in point is the indexation of Kela pensions.

Formally, these pensions are price indexed. Historical experience and other arguments suggest that it is unlikely that they will only be regulated according to price changes over longer periods. Therefore, the projection assumes the Kela pensions to be indexed 50–50 by wage and price increases (an appendix discusses alternative indexation rules and their implications, see Tikanmäki et al. [2019]). This can be a source of confusion. If the projection serves to inform the public of what can be expected in terms of pension developments, the latter assumption is more plausible. If the purpose of the projection is to inform policy makers, stakeholders etc. on developments and the implied need for policy initiatives, the former assumption is most appropriate.

It is also an issue how the funded part of the pensions and the associated returns should be handled. The projection is deterministic and illustrates uncertainty by means of sensitivity analyses, which is a common approach in such analyses. However, since the rate of return is risky, the certainty equivalent approach taken may not fully reveal the sensitivity of the financing to development in returns and the risk taking of the pension funds. It would strengthen the analyses if risk could be explicitly integrated rather than just discussed in terms of sensitivity analyses. For the latter it would also be relevant to consider combined scenarios to produce a better overview of possible trajectories.

The long-term projection assumes a real rate of return of 2.5% for the period 2019–2028, and 3.5% from 2029 and onwards, see Tikanmäki et al. (2019). Sensitivity analyses show that a scenario where the real rate of return is one percentage point lower than in the baseline scenario would imply that the contributions for TyEL pensions

would have to increase to 32% rather than 30% in the baseline scenario. The rate of return assumptions in the baseline scenario seems to be to the high side compared to most long-term predictions. Projections based on calibrated overlapping generations models have a real rate of return on safe bonds at around 0.5% or lower in 2030 and falling thereafter, see Papetti (2019) and Bielecki et al. (2018). Pension funds may be able to generate a higher return by accepting more risk, but this brings up the question of how to take account of this risk in the long-term projections.

4.10 Discussion

The long-run financial viability of the pension system is not ensured. Current contribution rates are not consistent with the future benefit expenditures following from accrued pension entitlements. The financing problem develops gradually but steadily. Although the longevity adjustments (the life expectancy coefficient affecting benefit levels and the indexation of the statutory retirement age) constitute significant adjustment mechanisms contributing to the financial robustness of the system, they are not sufficient. Hence, changes in longevity are not fully accommodated by these automatic adjustment mechanisms. A low fertility rate is another important demographic factor influencing the financial viability of the system.

Addressing the financial sustainability problem is thus of utmost importance to ensure the robustness of the system and, ultimately, its credibility. The financing problem is developing gradually, but it is important to determine a reform strategy due to the long phasing-in period and to avoid unintentional intergenerational distribution consequences.

The modes of adjustment are contribution rates, benefit levels and retirement ages. Given the already implemented indexation of the statutory retirement age (and changes in the mechanism are ruled out), the focus turns to contribution rates and benefit levels. An issue of discretion vs rules arises here. Reforms from time to time are one way to adjust the system. This has the advantage that more information is accumulated, but the disadvantage that it creates uncertainty on the future design of the pension system. There is also a risk that reforms are delayed, which may both add to the problems and have unintentional intergenerational distribution consequences.

A more rule-based system has automatic adjustment mechanisms, such as the life expectancy coefficient, and indexation of statutory retirement ages to longevity. Such mechanisms have the advantage that they are planned well in time, and that the adjustments are only triggered if needed. Since the automatic adjustment mechanisms tied to longevity developments are insufficient to ensure the financial viability of the system, additional automatic mechanisms should be considered. One option is an automatic balancing mechanism – as seen in e.g. the Swedish scheme – to ensure the financial viability of the system. Such a mechanism can run either via contributions or benefit levels.

In the past, there have been pension reforms to address challenges to the pension system, and the social partners have taken responsibility to ensure adjustments and changes, see Barr (2013). In the present situation, it is important that the social partners decide on a reform strategy. The longer a decision is postponed, the larger the need for a reform and uncertainty on the future of the pension system.

Importantly, public finances are not satisfying the criteria for fiscal sustainability; that is, the current tax system is projected to deliver insufficient revenue to cover projected future expenditures. Demographic trends affect the labour force and thus revenue and expenditures on pensions, health, and old-age care. The fiscal sustainability problem is large in international comparison. Ultimately, the financial sustainability of the pension system and other welfare arrangements must be considered jointly since lack of sustainability creates uncertainty detrimental to the basic objective of providing social insurance. The issue of sustainability not only involves the technical specificities but also political sustainability; is the system considered fair and delivering an acceptable outcome? Some of these aspects were discussed in Section 3 and should be integrated in the discussion of pension reforms.

Indexation – both the wage and the pension index – raises difficult dilemmas. The current indexation rules contribute to creating some financing space when real wages grow. However, they also cause a gap between pensions and wages for the employed, therefore increasing inequality. Without compromising the financial viability of the system, there is a choice between initial benefit levels and their indexation to price and wage developments.

For the funded part, it is unclear whether the regulatory framework for investment is appropriate given the nature and risk of the liability side. The funded part constitutes a significant part of the financing, and a sub-optimal return-risk balance in investment policies has implications for how much the funded part can contribute to the financing of pensions. The earnings-related pensions with defined benefit rules do not have an individual link between funded contributions and pension entitlements, and this is important for the risk profile of the system. The current regulatory framework is a hybrid, which has evolved over time, and it is not clear that it is adequate given the structure of the system, and there is a need for careful analysis to ensure that it is appropriately designed.

Finally, important inputs into the political discussion are reliable analyses to identify challenges, clarify possible solutions and for quantification. The existing analyses provide valuable inputs and a very solid basis for such discussions. However, given the importance of these analyses it is worthwhile to invest more in the analytical tools by further model developments.

5 Concluding remarks

Pension systems around the world are challenged, not least by demographic changes. In particular, defined benefit systems are under pressure, and a number of countries have made radical reforms moving towards defined contribution schemes placing more risk on the individual.

The backbone of the Finnish pension system are the earnings-related defined benefit pensions with Kela pensions (guarantee and national) as a backstop ensuring a minimum income for pensioners. The advantage of this system is that it ensures broad coverage, and it is similar across the labour market, which is conducive for flexibility and adjustment. There are no acute problems calling for reforms, but there are a number of design issues discussed in this report. The key issue is to decide on a reform strategy such that problems can be addressed in due time, and the consequences of adjustments, including the implications for intergenerational risk diversification and distribution, can be carefully considered.

The basic structure of the Finnish pension system has proven robust. In international comparison, the outcome is among the best performers. In international perspective, the financing challenge pertaining to the pension system per se is also relatively small, but the sustainability issue also involves the overall welfare package. Public finances face a significant sustainability problem, which is large in international comparison. This has a negative spill-over effect on the pension system raising credibility questions on future welfare arrangements.

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Annex I Remit for the evaluation

The overall purpose of the evaluation project is to give an outside assessment of the adequacy and sustainability of the Finnish pension system.

The Finnish system consists of statutory earnings-related occupational pensions and residence-based and means tested basic pension (national pension and guarantee pensions). The earnings-related part of the system is a hybrid one which is partly funded and based on a defined benefit principle.

Earnings-related pensions are financed mostly by employer and employee contributions and investment returns. The total contribution rate amounts to ca 25% of gross wages. About 30% of the total pension liability is funded.

Pension adequacy

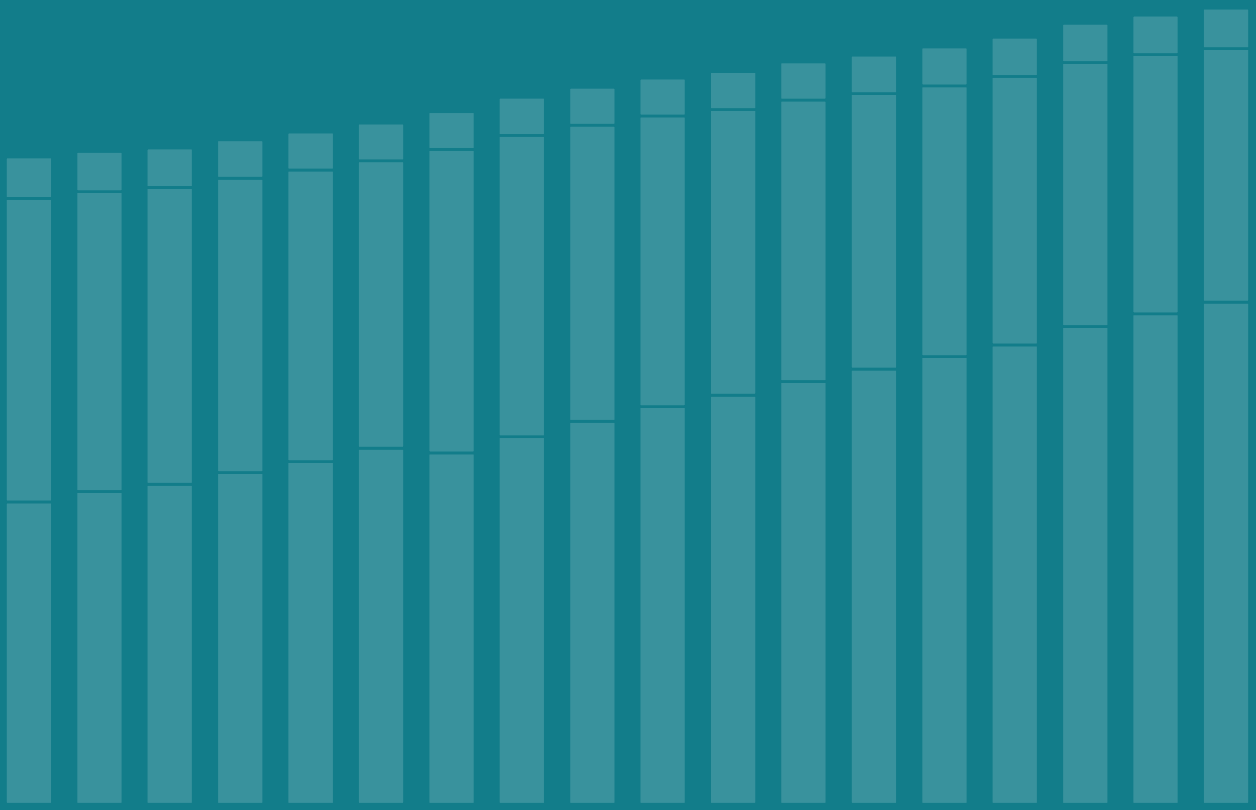
The adequacy of pensions can be evaluated by assessing the absolute and relative income levels of pensioners and the replacement ratios of pensions. These are documented in the many publications of the Finnish Centre for Pensions. International comparisons are also relevant. In addition to the present income distribution and poverty rate of pensioners also the projected future distributions are relevant. Future pensions will be affected by the longevity coefficient and indexation rules, which may change the relative income position of retirees depending on the developments of longevity and average earnings.

The primary focus in the evaluation should be on the statutory earnings-related pensions which form the basis for pension income. However, when considering the adequacy both the national pension scheme and the earnings-related pension scheme and their joint impact should be acknowledged.

Sustainability of the pension finance

The sustainability of the financing of the earnings-related pension system is assessed regularly by the Finnish Centre for Pensions. This is done by using model-based scenarios to compute the sufficient level of contributions in the long term, given the current rules. If there is no upward pressure on the contribution rate in the future the system is viewed as sustainable. The scenarios are based on the population forecast of Statistics Finland and a set of assumptions on economic variables.

The method and assumptions of these computations could be assessed in the evaluation. It would also be relevant to consider the aspects of intergenerational equity and the built-in behavioural incentives of the pension system. The last part of the assessment could contain suggestions of possible reforms.



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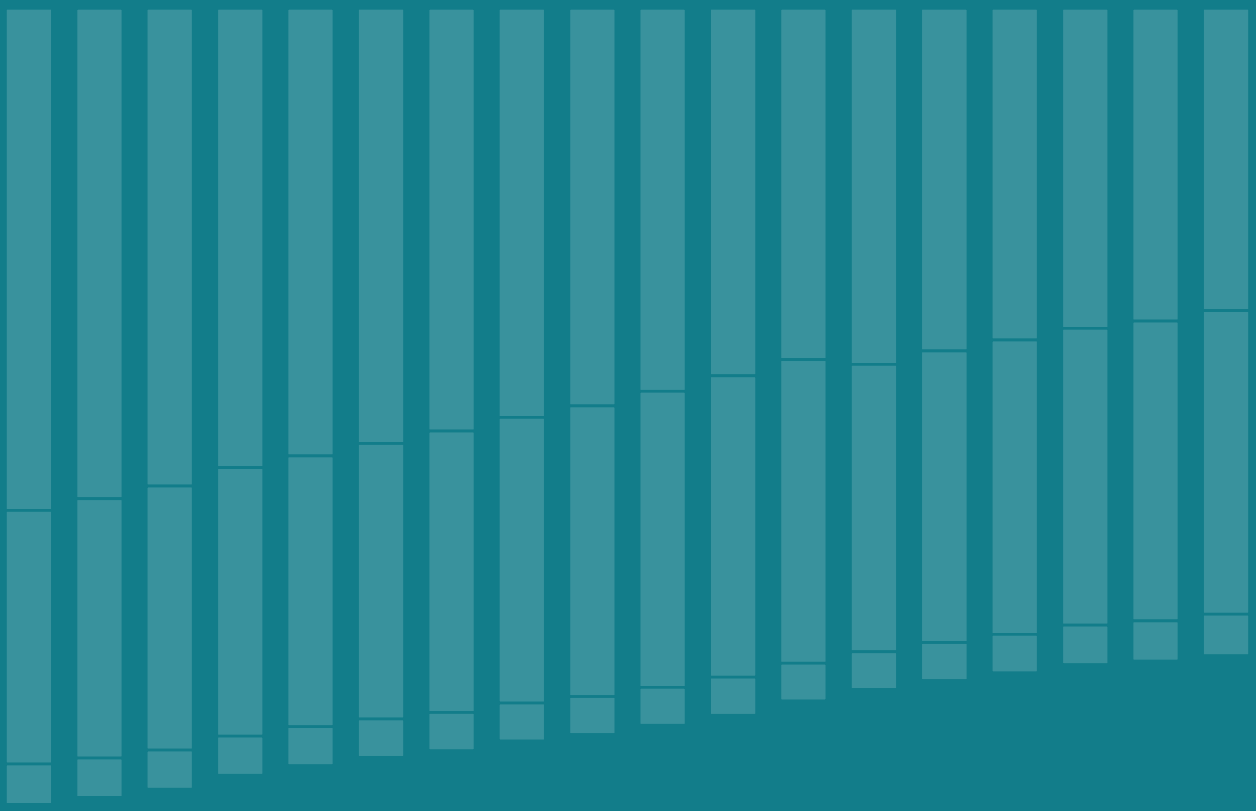
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