Preliminary consequence analysis of the results of the 2017 pension reform negotiations

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Finnish Centre for Pensions
ELÄKETURVAKESKUS

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Introduction

The Confederation of Finnish Industries, the Commission for Church Employers, the Local Government Employees, the Central Organisation of Finnish Trade Unions (SAK), the Finnish Confederation of Professionals (STTK) and the Office for the Government as Employer have reached an agreement on the content of the pension reform that is to come into force in 2017. The results of the negotiations are based on the goals of the government and the labour market organisations to postpone the effective retirement age and to reduce the sustainability gap of public finances. The agreement has been published in full on the website of the Finnish Centre for Pensions.

Among others, the following reports published in 2013 and 2014 have acted as background information for the preparatory work for the pension reform:
- The pension system in Finland: Adequacy, sustainability and system design (Barr 2013)
- The pension system in Finland: Institutional structure and governance (Ambachtsheer 2013)
- Statutory pensions: Long-term projections 2013 (Risku *et al* 2013 [in English 2014])
- Linking retirement age to life expectancy: what happens to working lives and income distribution? (Lassila *et al* 2013)
- Vuoden 2005 eläkeuudistuksen vaikutus eläkkeellesiirtymisikään (The impact of the 2005 pension reform on the effective retirement age) (Uusitalo & Nivalainen 2013)
- Adjusting the Finnish pension system to increase in life expectancy: report of the pension panel (2013; Executive Summary in English)
- Socioeconomic differences: working lives, retirement and the pension system (Järnefelt *et al* 2014; Executive Summary in English)
- Views on how to improve the survivors' pension (Hietaniemi & Ritola 2014; Executive Summary in English)
- Selvityksiä ja laskelmia Suomen eläkejärjestelmää koskeneen kansainvälisen arvion johdosta (Reviews and calculations due to the international assessment of the Finnish pension system) (Kautto 2014)

The actual negotiations have concerned versatile issues relating to earnings-related pension benefits and their financing. In line with the 2012 Work Career Agreement, the negotiations have focused on the following issues: taking into account the increasing life expectancy, the age limits of the pension system, the early retirement systems, pension accrual rates and the starting point of pension accrual, determining the disability pension, deducting the employee's contribution from the pensionable wage, indexes and the contribution development.

In the course of the negotiations, the Finnish Centre for Pensions has provided calculations and memorandums of subjects requested by the negotiating parties. Utilising data provided by the Finnish Centre for Pensions, the Ministry of Finance has compiled a projection of the effects of the results of the negotiations on the sustainability gap of public finances.

This memorandum presents assessments made at the Finnish Centre for Pensions of the consequences of the 2017 pension reform agreement. The evaluations are preliminary and may be supplemented and further defined at a later stage. Among other things, the detailed content of the reform, the more detailed assessments of the behavioural effects of the reform and updated assessments of the general economic development may affect the content of the consequence analysis.

The consequence assessments of this memorandum are based mainly on the results of the long-term projection model (LTP) of the Finnish Centre for Pensions. The LTP model was developed in order to assess the development of pension expenditure, pension contributions and average pensions. In addition to the calculations based on the LTP model, data of the population that will be affected by the reform and the possible behavioural effects of the reform were required. More precise and detailed assessments of the effects of the reform on pension levels have also been required. Answers to these questions have been sought from the data in the pension and earnings registers of the Finnish Centre for Pensions and through a microsimulation model developed at the Finnish Centre for Pensions.

The consequence analysis has been compiled at the Finnish Centre for Pensions. Kaarlo Reipas, Ismo Risku, Mikko Sankala, Hannu Sihvonen and Heikki Tikanmäki have produced the calculations included in this analysis. Jukka Appelqvist, Marjukka Hietaniemi, Noora Järnefelt, Mikko Kautto, Satu Nivalainen and Jukka Rantala have also participated in the work relating to the assessment of the consequences.

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Suggested amendments

The currently valid pension legislation has been described in the pension acts (see, for example, Työeläkelainsäädäntö 2014, Eläketurvakeskuksen käsikirjoja 01/2014). Data on the Finnish pension system and on how pensions are determined can be found, for example, on the website etk.fi/en.

The agreement concerning the 2017 earnings-related pension reform has been published on the website etk.fi/en.

Figure 1 and Table 1 present the target retirement age, the earliest eligibility age for old-age pension and the upper age limit of the insurance obligation per birth year cohort, in line with the agreement. These age limits are defined partly directly in the agreement and partly based on the future demographic development and employment trend. Table 2 presents the proposed central amendments to the pension benefits included in the agreement.

Figure 1. Age limits of the old-age pension. Some age limits have been defined directly in the agreement (continuous line) and some have been defined based on the future demographic development and employment trend (broken lines)
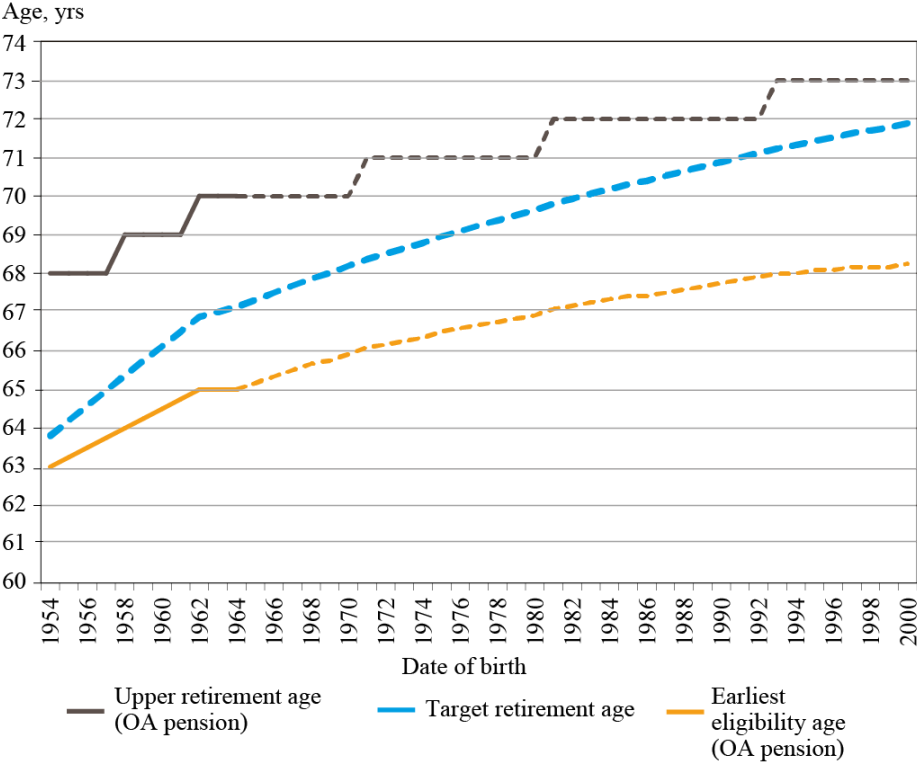
Table 1. Earliest eligibility ages for old-age pension for those born between 1950 and 1964, as well as assessments of target retirement ages and the earliest eligibility ages for old-age pension for those born after 1964, in line with the agreement

Year of birth	Earliest eligibility age for old-age pension[1]	Target retirement age[2]
1950	*63 yrs*	
1951	*63 yrs*	
1952	*63 yrs*	
1953	*63 yrs*	
1954	*63 yrs*	63 yrs 10 mos
1955	*63 yrs 3 mos*	64 yrs 2 mos
1956	*63 yrs 6 mos*	64 yrs 7 mos
1957	*63 yrs 9 mos*	65 yrs
1958	*64 yrs*	65 yrs 4 mos
1959	*64 yrs 3 mos*	65 yrs 9 mos
1960	*64 yrs 6 mos*	66 yrs 1 mo.
1961	*64 yrs 9 mos*	66 yrs 6 mos
1962	*65 yrs*	66 yrs 11 mos
1963	*65 yrs*	67 yrs
1964	*65 yrs*	67 yrs 2 mos
1965	65 yrs 2 mos	67 yrs 4 mos
1966	65 yrs 4 mos	67 yrs 6 mos
1967	65 yrs 6 mos	67 yrs 8 mos
1968	65 yrs 8 mos	67 yrs 10 mos
1969	65 yrs 9 mos	68 yrs
1970	65 yrs 11 mos	68 yrs 2 mos
1975	66 yrs 6 mos	69 yrs
1980	66 yrs 11 mos	69 yrs 8 mos
1985	67 yrs 5 mos	70 yrs 4 mos
1990	67 yrs 9 mos	70 yrs 11 mos
1995	68 yrs 1 mo.	71 yrs 5 mos
2000	68 yrs 3 mos	71 yrs 11 mos

[1]The earliest eligibility age for persons born in 1965 and later will be determined based on the demographic development and the employment trend.

[2]The target retirement age will be determined based on the development of the earliest eligibility age and the life expectancy.

Table 2. Determining pensions based on current legislation and on the agreement for the pension reform

Old-age pension

	Currently	Results of negotiations
Retirement age	Flexible, 63–68 yrs	Flexible in a 5-year window. The earliest eligibility age will rise for those born in 1955 or after with 3 months/birth year cohort until age 65. As of 2030, the rise will be approx. 1–2 months/birth year cohort. The upper age limits will rise correspondingly.
Pensionable earnings	The earnings for each calendar year, reduced with the employee's share of the contribution and adjusted with the wage coefficient	The earnings for each calendar year, adjusted with the wage coefficient
Employee's pension contribution	Increased contribution as of age 53 Deducted from the pensionable wage that the pension is based on.	Contribution increased by 1.5 percentage points for 53–62-year-olds during the transition period until the end of 2025. Not deducted from the pensionable wage that the pension is based on.
Accrual rates	1.5% under 53 yrs 1.9% 53–62 yrs 4.5% 63–67 yrs	1.5% as of age 17 until the upper retirement age. During the transition period, 1.7% for 53–62-year-olds until 31 Dec. 2025.
Reduction for early retirement / Deferred retirement	No reduction for early retirement. Increment for deferred retirement, 0.4% for each deferred month after the upper retirement age	In the partial old-age pension, a reduction of 0.4% for each month that the pension is taken early. Increment for deferred retirement to the accrued pension as of the earliest eligibility age for old-age pension, 0.4% for each deferred month.
Life Expectancy Coefficient	Calculated for each age cohort at age 62.	Calculated for each age cohort at the age of one year below the earliest eligibility age for old-age pension when the earliest eligibility age for old-age pension exceeds 65 years. As currently until then.

Disability pension

	Currently	Results of negotiations
Exit age of projected pensionable service	63	The earliest eligibility age in the year of occurrence of the disability pension.
Assumed earnings of the pension for the projected pensionable service	5 calendar years before the disability, reduced by the employee's contribution, adjusted with the wage coefficient.	5 calendar years before the disability, adjusted with the wage coefficient.
Accrual rate of earnings for the projected pensionable service	1.5%	1.5%

Life Expectancy Coefficient	The life expectancy coefficient that is applied to 62-year-olds in the contingency year of the disability. Applied only to the pension earned before the onset of the disability.	When the earliest eligibility age has become 65 years, the life expectancy coefficient of the year in which the disability began will be applied to the total disability pension. As currently until then.
Impact of age and working life	For persons who have turned 60, the vocational nature of the disability will be highlighted, which means more lenient criteria for the disability pension.	In addition to the disability pension, a years-of-service pension will be introduced. It may be granted to persons aged 63 who have worked for at least 38 years and have strenuous and wearing work. The required reduction in work capacity will be more lenient than the current criteria for persons who have turned 60 years, emphasising profession

Part-time pension

	Currently	**Results of negotiations**
Type of pension	Part-time pension	Partial old-age pension
Earliest eligibility age	61 years for those born in 1954	61 years, will rise to 62 years in 2025
Preconditions	Longish working life Transition possible only from full time work Earnings during retirement must amount to 35–70% of the regular earnings level Must be agreed on with the employer	No particular requirements or restrictions
Pension level	50% of the difference between the regular earnings and the earnings of part-time work.	25% or 50% of the accrued old-age pension.
Reduction for early retirement	The part-time pension or the subsequently granted old-age pension is not subject to a reduction for early retirement	A permanent reduction for early retirement on the portion of the pension that is withdrawn. The reduction will amount to 0.4% per month, if the pension starts before the earliest eligibility age of the old-age pension.
Old-age pension	New pension accrues for part-time work at a rate of 1.9% and 4.5% as for other work.	Pension will accrue for work done while drawing a partial old-age pension at a rate of 1.5% as for other work.
Deferral	If the part-time pension continues after age 68, it becomes an old-age pension of the same size as the part-time pension. The portion not taken out is deferred.	An increment for deferred retirement on the portion of the pension left undrawn as of the earliest eligibility age for the old-age pension.

Assessing the long-term consequences and assumptions made for the assessment

Projection model used to produce the consequence analysis

The Finnish Centre for Pensions published its most recent long-term projection in October 2013 ([Statutory pensions: Long-term projections 2013](#), Reports 03/2014 [in English]). The report contains calculations using a long-term projection model on the statutory pension expenditure and the development of the average benefit level and the financing of private-sector earnings-related pensions from 2013 to 2080.

This consequence analysis was made using the same long-term projection model (the so-called LTP model) as was used when producing the projections in the above-mentioned report. More detailed descriptions of the projection model and its source data and assumptions used in the model projections are included in the report in question.

Update of the projection model

For this consequence analysis, the projection was updated with the realised and foreseeable economic outlook. The long-term assumptions are, however, invariably equal to those of the 2013 report. It is sensible and possible to make a more thorough update of the source data of the LTP model and new projections at a later stage. The update of the projection has been described in a separate memorandum (available in Finnish).

The population projection used in this projection is the same as in the LTP 2013 report. The population projection equals the 2012 population projection of Statistics Finland until 2060. According to it, the working-age population will decrease slightly until the 2030s, while the number of people aged 65 and above will continue to grow throughout the projection period. As a result, the old-age dependency ratio (the ratio of 65-year-olds to 15–64-year olds) will rise from the current approximately 30 per cent to 44 per cent in 2030 and 50 per cent in the 2060s.

The number of employed people has been updated to correspond to the realised employment rates and the most recent projections of the development of the national economy. As a result of the updates, the number of employed people will be smaller in the near future compared to the LTP 2013 projection. The difference in the number of employed people will reach its peak in 2015, when the number of employed people will be 1.7 per cent less than in the baseline projection of the LTP 2013. The number of employed people is assumed to return gradually to the long-term development path. In 2030, the number of employed people is predicted to be approximately 2,380,000, which constitutes an increase of a few ten thousand people compared to the baseline projection. The employment rate in 2030 has been assumed to be approximately 72 per cent. The number of elderly people will grow faster than the working-age population, so the proportion of employed people in the population will diminish. Due to

changes in the age structure of the population, the ratio of pension recipients to employed people will also increase.

Correspondingly, GDP of the realised years has been updated to equal the realised development, and for the next few years, the growth in GDP has been revised downward. Due to the weak economic outlook, the growth in the wage-level index in the updated LTP model is slower in the near future; hence, the index increases of accrued pensions and pensions in payment are smaller. The updated LTP model differs from the 2013 projection also in that the weakening of the earnings-related pension index in 2015 is taken into account in the updated projection. In addition, the asset returns in 2013 and 2014 have been taken into account in the updated model. As for the growth in the earnings level and the investment returns, the assumption is a gradual return to the long-term path according to the 2013 LTP model, in which the annual real growth of the earnings level is 1.6 per cent and the annual real return of pension asset investments is 3.5 per cent.

The adjustments made to the employment development, the earnings level index and the short-term economic situation have a slight lowering effect on the wage sum in the first part of the projection period. The reductions in the number of employed people and in the wage sum will raise the pension expenditure relative to the wage sum in the first part of the projection period. The smaller index increases and the weakening index in 2015 have an opposite effect. As a result of the weak employment and wage development in the first part of the projection period, the amount of accrued pensions will be slightly less. Hence, medium-term, the pensions in payment will be somewhat smaller.

The pension expenditure under the Employees Pensions Act (TyEL expenditure) relative to the wage sum will increase faster than assumed in the first part of the projection period, so the pressure to increase the TyEL contribution will appear higher in the updated than in the 2013 baseline projection. The amount of assets will be higher at the beginning of the projection period relative to the wage sum than in the previous projection, in particular due to the lower wage sum. On the other hand, the smaller accrued pensions and the higher amount of assets relative to the wage sum allow for a lower TyEL contribution medium-term.

Producing assessments and uncertainties relating to the projections

In the consequence analysis of this memorandum, the projection model described above is used to compare the current regulations to the development in line with the results of the negotiations. These will be referred to as the baseline and the reference projection.

The consequence analysis has been done so that the parameters regarding the determining of the pension in the 2013 LTP model have been adjusted according to the agreement. When the sections concerning the pension benefits and financing have been adjusted, while the other sections of the projection model (e.g. population and general economic development) have been left unchanged, the

differences between the baseline and the reference projections can be interpreted as the combined effect of the elements included in the agreement.

This consequence analysis does not report the uncertainty inevitably included in the projections. It is clearly impossible to know beforehand what the mortality and retirement rates, the development of earnings levels or the return of pension assets will be decades from now. Assumptions have to be made on how they will develop, based on the historically realised development. The nature of the baseline projection is to describe what the development would look like if the projected population development and the realised development were to continue. The main task of the projections is to support decision making today rather than to produce an exact forecast of the future.

The long-term report published earlier includes projections on how changes in the central assumptions concerning the economic and demographic developments affect the results of the projections. Sensitivity analyses would also produce useful additional data in terms of the interpretation of the consequence analysis at hand, but they would significantly enlarge the content of this memorandum. In approximate terms it can be stated that similar sensitivities and uncertainties apply to the reference projection as what has been reported for the baseline projection. If the economic development continues to be weak, there will be a pressure to raise pension contributions more than what is indicated in the baseline projection.

Changes to retirement, employment and unemployment

Legislative changes would affect retirement on an old-age pension, the disability and unemployment risks of the elderly and the probabilities of retirement on other pensions. The changes in these probabilities determine how large the changes in the numbers of pension recipients, employed and unemployed persons would be as a result of the law reform.

The starting point of the assessment of behavioural changes has been that the law reforms would affect only those individuals who are affected by the changes in age limits due to their own age. This assumption simplifies the compiling and interpretation of the projections. In principle, the changes to pension contributions and pension benefits may also affect the employment of the young and the middle-aged. These effects are, however, indirect and there is no reliable data available on their magnitude or direction.

Assessing the future retirement probabilities is not easy. Continued working and the transition to retirement are affected by many other factors besides pension legislation (Tuominen *et al* 2012). These other factors include, among others, the demand for work, working conditions, work capacity, the attraction of leisure time, the spouse's and family's situation, values and preferences. On the other hand, the existence of retirement routes, the opportunity to use them in alternative ways (substitution) and the signal effects created by the various age limits, as well as communication, values and attitudes relating to pension provision affect the choices people make (e.g. Hakola & Määttänen 2007; Kyyrä 2010; Barr 2013; Määttänen 2013). Based on the research results of the effects of substitution and

signals, it is impossible to make unambiguous conclusions that could be used as guiding principles for the assumptions. The incentive effects vary for people in different situations (Määttänen 2013; Uusitalo & Nivalainen 2013). Behaviour relating to the transition to retirement and its underlying factors vary according to, among other things, gender, education and social status. They also change over time (e.g. Rantala 2008; Järnefelt 2011; Jauhiainen & Rantala 2011; Nivalainen 2013; Järnefelt *et all* 2014).

In particular, the reform will affect the conditions for retiring on an old-age pension and the retirement options after reaching the current earliest eligibility age for old-age pension. Compared to earlier reforms affecting the routes to early retirement, it is more challenging this time to make advance assessments since, for the central parts, there is no experience-based data on how people behave in situations like this. For example, because of the higher earliest eligibility age for old-age pension and the years-of-service pension, the retirement rate for the disability pension has to be assessed for age cohorts who, under previous legislation, could have retired on an old-age pension. In the last resort, it is up to later empirical research to assess the transitions and the effects of other factors.

It is more difficult to estimate in advance the magnitude than the direction of the effects. This is why, in the negotiation phase, the projections made have been based on various behavioural assumptions. The results presented in this memorandum are based on changes in the retirement rate, which rest on the data in the registers of the Finnish Centre for Pensions on the statuses of the population, realised reforms and the effects of previous legislative amendments.

The suggested amendments concern, in particular, the conditions for retiring on an old-age pension. However, raising the earliest eligibility age will not raise the effective retirement age in full (see, for example, Määttänen 2013). With age, the disability risk will grow, and the continuation of the unemployment pathway to retirement and the new years-of-service pension will allow for an early exit from working life, before the general retirement age. As the age limits rise, an improved employment rate and an increase in both the disability pension and the unemployment rates among the age cohorts that are above the earliest eligibility age for old-age pension according to current legislation are to be expected.

The assumptions relative to the retirement rate, the disability risk and unemployment have been defined so that they would concur with the suggested amendments to the benefits. Figures 2 and 3 illustrate the assumptions regarding the disability risk and the old-age retirement rate.

Figure 2. Disability pension retirement rate for persons born in 1962, baseline and reference projections
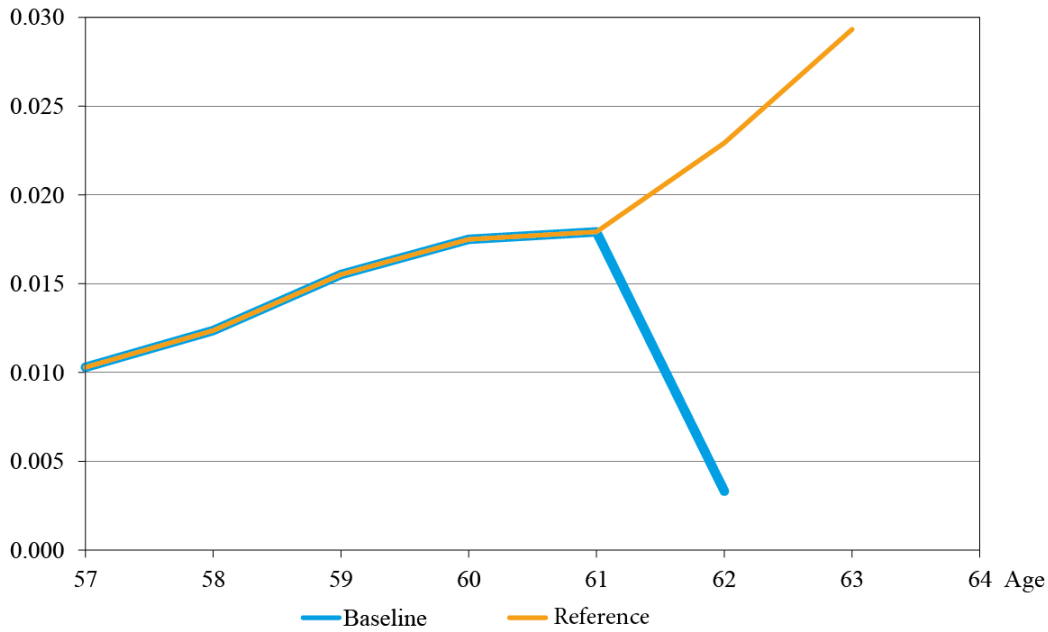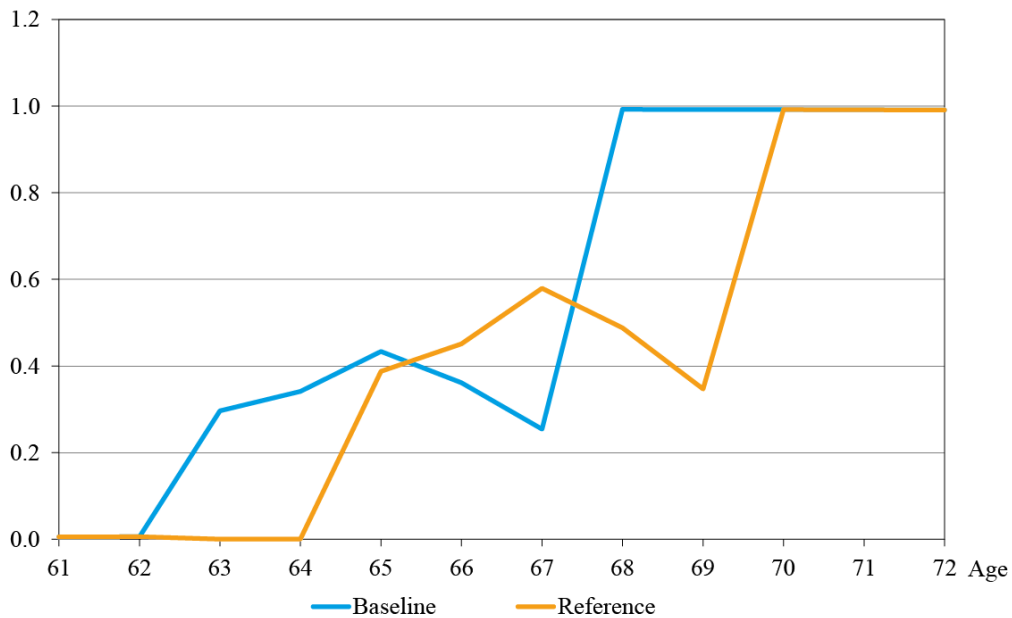

Figure 3. Old-age pension retirement rate for persons born in 1962, baseline and reference projections

It is difficult to provide an advance assessment of the number of persons retiring on a years-of-service pension. Experiences of individual early pensions show that the attractiveness of pension benefits and their terms and conditions, as well as the assessment and interpretation of the terms and conditions,

present significant consequences in terms of retirement. The years-of-service pension according to the agreement requires a work history of 38 years. Potentially, the group of people within the scope of the years-of-service pension is fairly large. In 2011, a total of 70 per cent of 62-year-olds who were not retired had a work history that spanned 35 years or more, while 38 per cent had a work history of 40 years or more. According to the agreement, the terms for determination shall be specified in the preparatory work. At that time, an assessment of the retirement rate on this pension type can also be specified. As for the retirement rate of the years-of-service pension, it has been estimated that less than 5 per cent of those meeting the criteria of a long working life also meet the other criteria for this pension type and will retire on a years-of-service pension.

Results of the projection

The results of the projections based on the Finnish Centre for Pensions' LTP model have been compiled according to the following categories:

- Effect on retirement and employment
- Effect on pension level and life expectancy coefficient
- Effect on the financing of pension provision
- Intergenerational and gender effects

Effect on retirement and employment

According to the agreement, the changes in the age limits after 2030 depend on the future demographic and economic development according to a separate negotiation mechanism. According to the agreement, the raising of the earliest eligibility age for the right to additional days of unemployment security shall be assessed separately based on the realised development.

The projections of this memorandum are based on the assumption that the earliest eligibility ages for retirement will be raised in the future according to a schedule determined by how life expectancy develops. In other words, it has been assumed that the terms limiting the raising of the age limits would not prevent or slow down the raising of the earliest eligibility ages of the old-age pension. Similarly, the raising of the age limits relating to the right to additional days of unemployment security for persons born in 1961 and later has been assumed to be realised.

If the earliest eligibility ages of the old-age pension were to be raised as of 2030 at a slower than expected pace, the reform would raise the pension levels to a lesser degree than estimated. However, the effect of the raised age limits as of the year 2030 on the long-term expenditure and contribution levels is not clear. If the raising of the age limits were to be followed by a sufficient increase in employment, the raising of the age limits might strengthen the financing balance of the pension system. However, if the incapacity for work and the unemployment among the elderly were to rise to high levels, the raising of the age limits would weaken the financial sustainability of the earnings-related pension system. In a situation like this, raising the age limits would lead to a minor increase of the employment rate and the wage sum, but due to a more lenient life expectancy coefficient and an extended imputed working life, the level of starting pensions would rise. In that case, the raising of the age limits realised as of the 2030s would increase the pension expenditure relative to the wage sum.

A gradual raise of the earliest eligibility age for old-age pension will defer retirement and increase the number of employed persons. At the same time, a rise of the earliest eligibility age for old-age pension will increase the total disability pension rate. In the long term, retirement on a disability pension will decrease per age cohort according to the assumptions of the baseline projection. On the other hand, as the earliest eligibility age for old-age pension is raised, the number of older age cohorts with a higher

disability risk than that of younger age cohorts will rise. The combined net effect of these two phenomena is that the number of disability pensions will grow compared to the baseline projection.

The new years-of-service pension will also contribute to a growth in the number of persons retiring before the earliest eligibility age for old-age pension. How common retirement on a years-of-service pension will become strongly depends on the criteria for receiving the pension and how the criteria are interpreted at the time of applying for the pension.

Replacing the part-time pension with a partial old-age pension will reduce the time spent in partial retirement, but it will not significantly affect the expected effective retirement age or employment as it is assumed that working while drawing a pension will not change significantly.

The change concerning the age limits for the right to additional days of unemployment security will increase employment on an annual level only slightly. It will have no impact on the point of time of retirement. The conditions of the years-of-service pension will affect the risk of ending up in the unemployment pathway to retirement. These early exit routes from the workforce partially substitute one another.

Combined, the changes in different pension types and age limits affect the overall retirement rate. The figures calculated based on the assumed transition to retirement provide an estimate of the long-term development of the expected effective retirement age (Figure 4).[1]

According to the projection, an effective retirement age of 62.3 years would be achieved around 2025. If, in addition, one third of those retiring on an old-age pension would defer their retirement until the target retirement age, the expected effective retirement age of a 25-year-old would be 62.4 years in 2025. The said assumption of the effect of the target retirement age has not been included in the consequence analysis presented in this memorandum. Retirement will be further deferred after 2025 due to the increase in the age limits. In 2027, the earliest eligibility age for old-age pension will be 65 years and the expected effective retirement age based on the projection will be 62.4 years. After the 2020s, the earliest eligibility age for old-age pension will increase as it will be linked to the ratio of life expectancy of persons who have reached the retirement age to the projected pensionable service (time from age 18 to the earliest eligibility age for old-age retirement) (Figure 4).
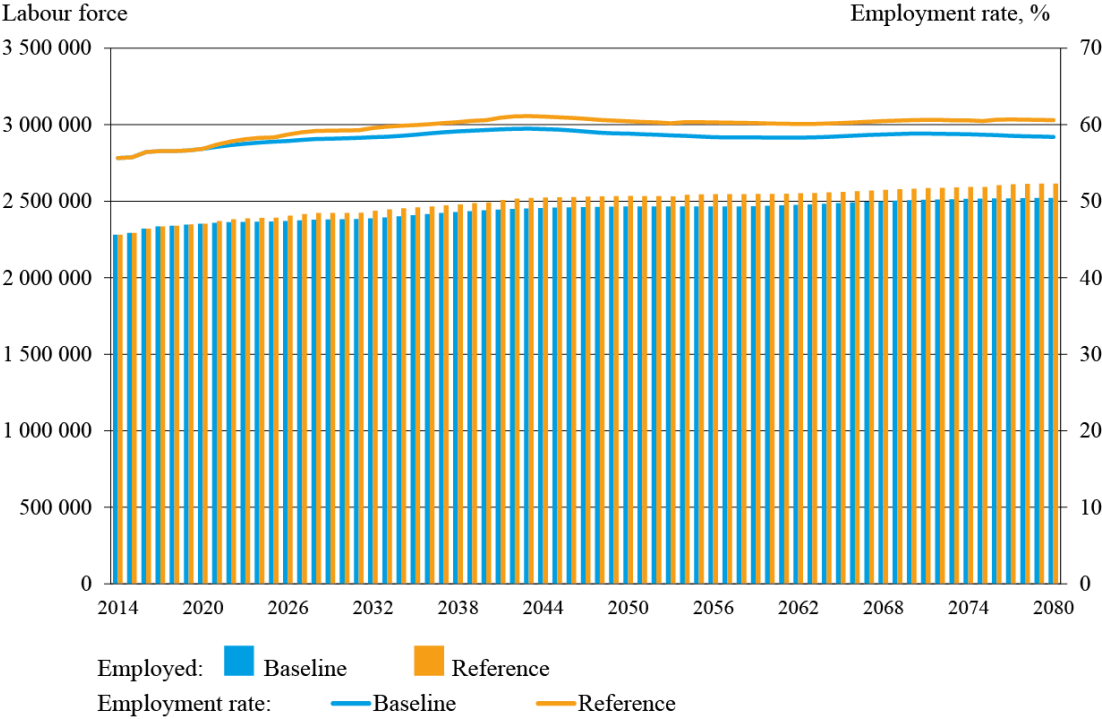
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[1] In the projection, the age limits have been raised in full years. This causes notches to the employment and expenditure development, and in particular to the generation-specific assessments (see Figures 6, 9, 12, 13 and 14). In Figures 4 and 7, the annual-level changes to the retirement age due to the computational technique have been levelled.

Figure 4. Realised development of the expected effective retirement age 2005–2013, as well as the assessed development for 2014–2035 in the baseline and the reference projections
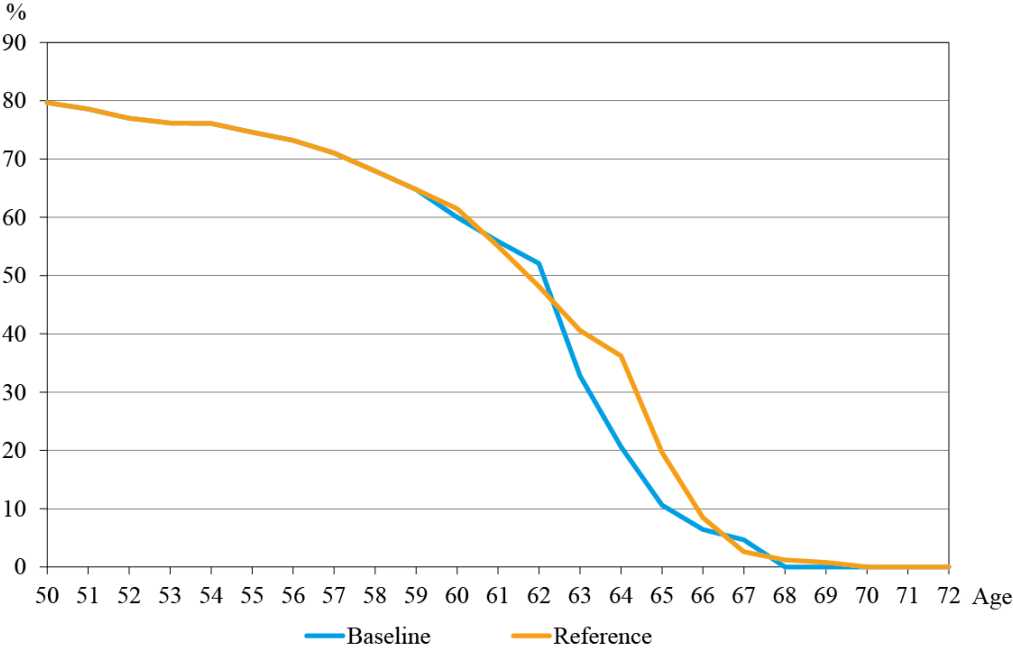
Expected effective retirement age

The reform would lead to an increasing employment rate. In 2025, the number of employed persons would exceed the baseline projection by approximately 24,000 (Figure 5). Overall, as a result of the reform, the employment rate of the age group 15–74-year-olds would be approximately one percentage point higher in 2025 compared to the baseline projection. Due to the gradual raising of the age limits, the difference compared to the baseline projection would grow by nearly two percentage points towards the end of the projection period.

Figure 5. Number of employed and the employment rates in the baseline and the reference projections, 2014–2080

In line with the assumptions made, changes to the employment would be affected only by the higher employment rate of the elderly employees. Figure 6 illustrates the extension at the end of working lives, with a more detailed description of the employment rates among the population aged 50 and above according to the baseline and the reference projections.

Figure 6. Employment rates for persons born in 1962, baseline and reference projections

Effects on pension level

Some of the suggested amendments to benefits will raise while others will lower the pension level. The most noticeable of these are the amendments to the pension accrual period and the pension accrual rates. The accrual period will be extended as the accrual will start already at age 17 and the earliest eligibility ages will rise. The accrual rates will be adjusted to the extended accrual period. The amendments are proposed to be linked to a transition period so that the effects of the increase in the earliest eligibility age for old-age pension and the amendments of the accrual rates will not be allocated in full force to the same age cohorts.
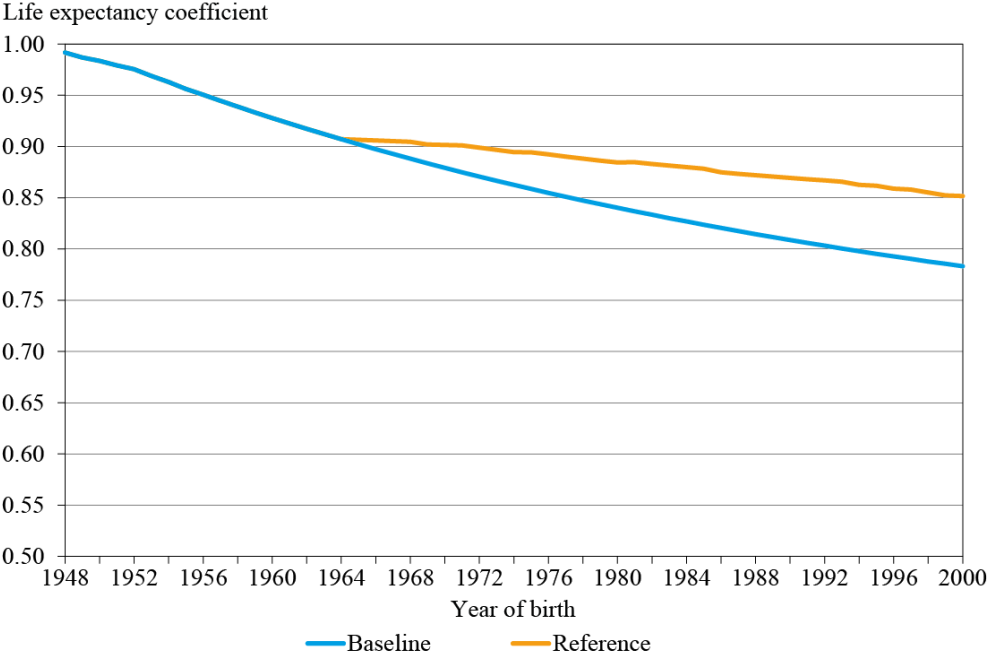
The pension will be defined based on the pensionable earnings, from which the employee's contribution will not be deducted. Thus, the earnings that form the basis for the pension will rise which, over time, will also lead to an increase in the pension level. The amendment will also make the determination of the pension more transparent.

Changes to the life expectancy coefficient have also been proposed. According to the agreement, the life expectancy coefficient will be mitigated when the earliest eligibility age for the old-age pension is linked to life expectancy. The life expectancy coefficient is an automatic stabilizer introduced in the 2005 pension reform. It reacts to the extended life expectancy. The aim of the life expectancy coefficient is to keep the pension capital fixed and to slow down the growth of the earnings-related pension expenditure due to the extended life expectancy.

In the forthcoming reform, the life expectancy coefficient will be mitigated as adjustments to the extended life expectance will be made through amendments in the length of time spent in retirement. If the life expectancy coefficient in its current form were to be applied together with an increased earliest eligibility age for old-age pension, the pension system would adjust to the extended life expectancy with two automatic adaptation mechanisms. The basic task of the current life expectancy coefficient is to stabilise the pension's capital value to a fixed retirement age. When the retirement age will rise as a result of the agreement, the capital value of the pension will decline. Since the retirement age will rise more slowly than the life expectancy, also the time spent in retirement will be extended. The task of the mitigated life expectancy coefficient is to stabilize the capital value of the pension to correspond to the extended life expectancy, which, nevertheless, is shorter than what the retirement time according to the current legislation would be.

As a result of the mitigation, the reducing effect of the life expectancy coefficient on a starting pension will become smaller. Figure 7 presents an estimate of the life expectancy coefficient according to the current legislation and according to the agreement.

Figure 7. Current and mitigated life expectancy coefficient for different birth cohorts

The effects relating to the mitigated life expectancy coefficient will be noticeable in the pension levels of those born after the mid-1960s. The life expectancy coefficient under the current legislation is assessed to reduce the starting old-age pension of, for example, those born in 1980 by approximately 15 per cent. Under the model according to the agreement, the reduction of the level of a starting old-age pension would be 12 per cent.

The proposed amendments also affect the disability pensions in multiple ways. First of all, the so-called projected pensionable service that is taken into account when calculating the disability pension would become longer since the exit year of the computation will span to the earliest eligibility age for old-age pension also in the future. This will result in an increase to the disability pension. The accrual rate for the projected pensionable service will be 1.5 per cent per year. On the other hand, since the life expectancy coefficient will be applied also to the projected pensionable service, the growth of the disability pension level will be more moderate.

The proposed amendments will affect the average pension levels not only directly through the pension determination rules but also indirectly through an extension of working lives. A raise of the earliest eligibility age for old-age pension will extend both the actual working life and the so-called projected pensionable service for which pension accrues. In addition to the projected pensionable service of the disability pension, computational periods include, for example, periods of sickness allowance and earnings-related unemployment security. These will raise the average pension level.

Figure 8 presents the development of the average pension relative to the estimated earnings and self-employment income. In the baseline projection, the ratio of the average pension to the average wages will continue to rise until the early 2020s, largely due to the continued full coming into force of the earnings-related pension system. In the next few years, the new retirees will be persons with a full working life, which means that the average pensions of those retiring will be higher compared to those persons who have retired in the past. Gradually, the reducing effect of the life expectancy coefficient on the pension level will become noticeable and the level of the average pension compared to the average earnings will begin to weaken.

When interpreting the development of the average pension in the reference projection, it is worth noting that the age structure of the employed, the wage sum and the age structure of the population receiving a pension will change due to the law reform. In the reference projection, both the earnings and the pension levels will rise. For a long time, the development trend has been that the average pension grows over time as the starting pensions are higher than the expiring pensions due to an increase in the wage level. In the early stages of the reform, the development trend will change somewhat, as the number of starting old-age pensions will decline due to a rise in the earliest eligibility age for the old-age pension. Furthermore, the pension will be deferred in particular in those groups in which the pension level is higher than average. Combined, these factors will initially be cut out to reduce the average pension relative to the average wage. The situation will stabilise, however, at a later stage. Due to extended working lives and the renewed pension determination rules, the ratio of the average pension to the average wage will be higher already in the 2030s in the reference projection compared to the baseline projection. Towards the end of the projection period, the difference will be even clearer in favour of the reference projection.

Figure 8. Average pension, per cent of average wage 2010–2080
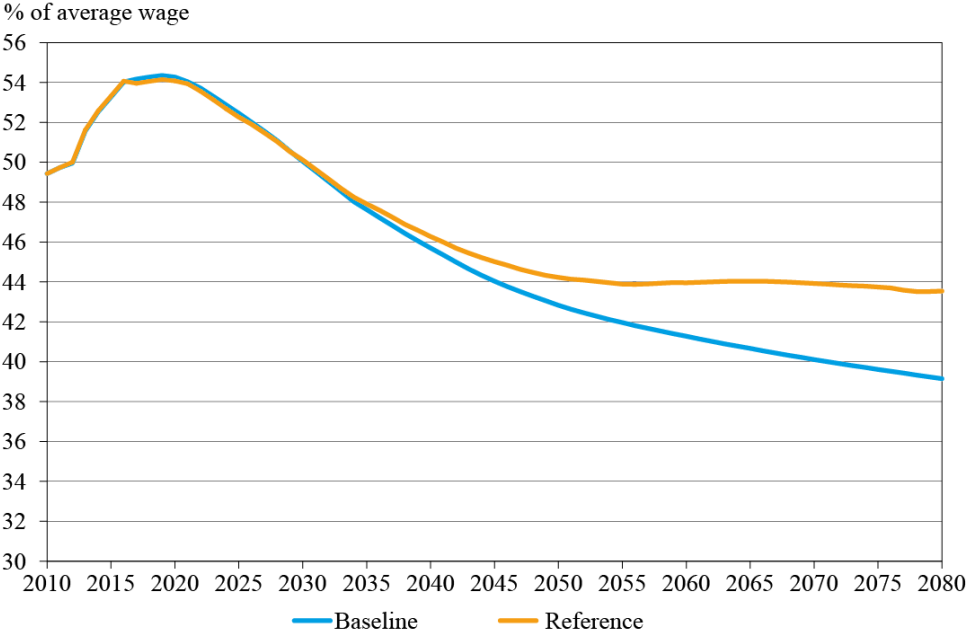
% of average wage

Table 3 reviews the average pension relative to the average earnings among those who have turned 75 years. This group of retirees is already fully retired in both projections, so the table offers a more comparable notion of the reform's effect on the benefit level.

Table 3. Average pension relative to the average earnings 2010–2080 of persons aged 75, %

Year	Current law	Law reform
2010	46.1	
2020	53.1	53.1
2040	46.9	47.5
2060	40.1	43.2
2080	38.1	43.6

Effects on the financing of pension provision

As a result of the reform, the pension levels will rise long-term due to the extended pension accrual period, the termination of the reduction of the employee's contribution and the mitigated life expectancy coefficient. This will increase the pension expenditure given in euros relative to the baseline projection. Changes to the accrual rates will moderate the growth of the benefit level compared to if they had been left unchanged. The growth of pension expenditure will be curbed by a shorter period of time spent in retirement. The growing number of employed persons will raise the wage sum, which means that the pension expenditure relative to the wage sum will be lower. Towards
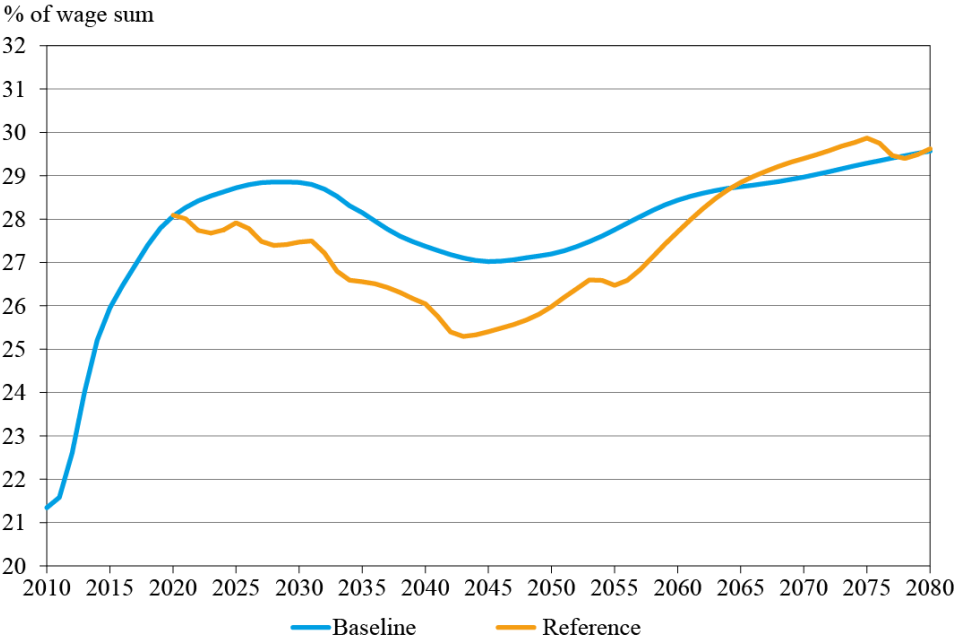
the end of the projection period, however, the growth in the benefit level will raise the pension expenditure ratio to the level of the baseline projection. A lower expenditure rate will also allow for a lower contribution.

The graphs of the pension provision financing cover the pension provision under the Employees Pensions Act (TyEL). As for the Local Government Pensions Act (KuEL) and the State Employees' Pensions Act (VaEL), the difference between the pension expenditure of the reference projection compared to the baseline projection will be presented in Figure 4.

Figure 9 presents the TyEL pension expenditure relative to the TyEL wage sum. The unevenness of the expenditure graph in the reference projection is caused by the raising of the age limits in full years in the LTP model. When, in reality, the retirement age will rise in months, the actual expenditure development will be more even.

The TyEL expenditure relative to the wage sum has grown in particular after 2008, and the ratio is expected to continue growing until 2017, at which time the TyEL expenditure would amount to 28 per cent of the wage sum. Were the reforms to come into effect, the expenditure relative to the wage sum would decrease. Compared to the baseline projection, the TyEL expenditure would be approximately one percentage point lower in 2025 and circa two percentage points lower by 2030. After this, the pension expenditure relative to the wage sum would grow as the pension levels rise.
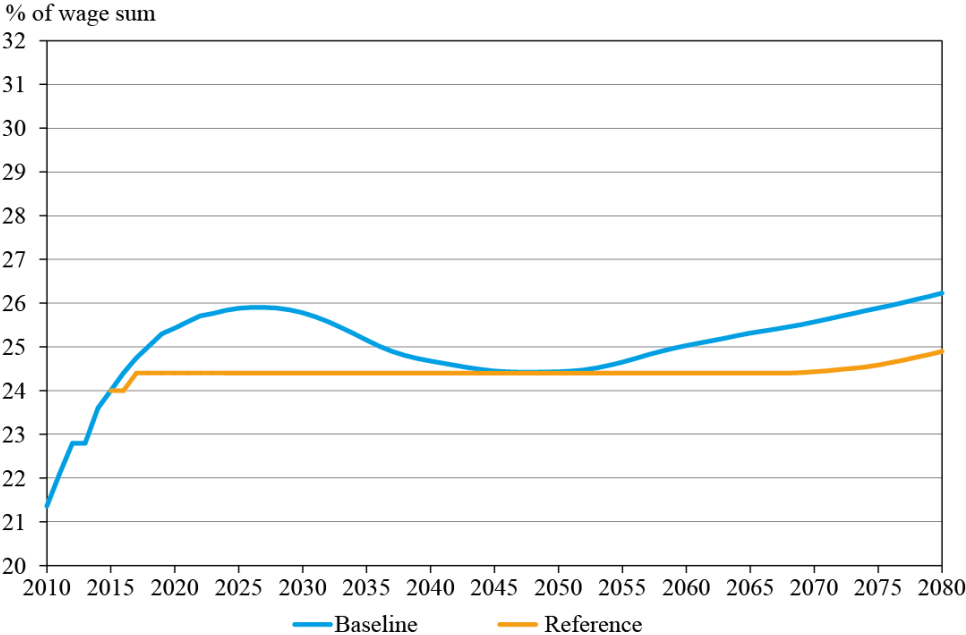
Figure 9. TyEL expenditure relative to wage sum

A development of the pension expenditure as described above means that the pressure to increase the TyEL contribution as noticed in the baseline projection would decrease (Figure 10). Based on the

reference projection, the contribution level agreed for the years 2017 to 2019 would seem to be sufficient to finance pension expenditure for a long time. Increases to the contribution would not be needed until the latter half of the century. The contribution level is affected not only by the amendments to benefits but also by changes to the financing of pensions.

Figure 10. TyEL contribution relative to wage sum

In the early stages of the projection period, the contribution level will be kept stable by dissolving assets to a slightly higher amount than in the baseline projection. However, by mid-century, slightly more assets will accumulate as the pension expenditure relative to the wage sum will be smaller. Towards the end of the century, the pressure to raise contributions will be curbed by dissolving pension assets, but the ratio of assets to the wage sum will still exceed the level according to the projection based on current legislation (Figure 11).

Figure 11. TyEL assets relative to wage sum

% of wage sum
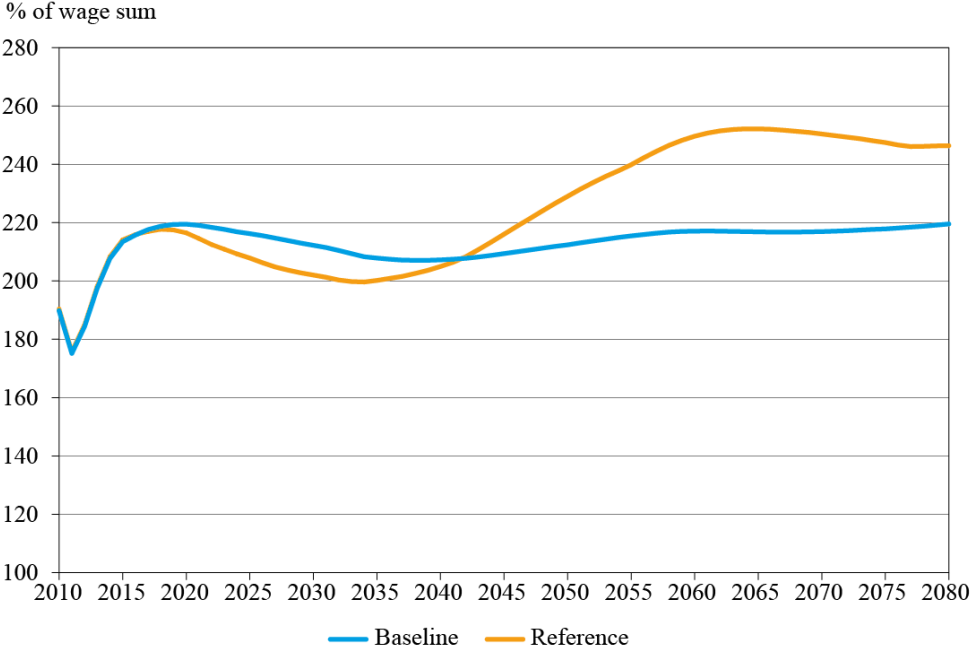

— Baseline   — Reference

Table 4 contains assessments of pension expenditure under TyEL, KuEL and VaEL and, in line with the baseline projection, under all pension acts combined for specific years. For each pension act, the amendment in the pension expenditure as a result of the reform has been indicated in percentage points.

The planned amendments included in the pension reform will reduce the pension expenditure under all pension acts already shortly after the reform will come into effect. The largest relative change will occur in the state pension expenditure. Combined, the statutory pension expenditure relative to GDP will be reduced in 2030 by approximately 0.8 percentage points and in 2050 by approximately 0.9 percentage points.

Table 4. Pension expenditure according to baseline projection under different pension acts, difference relative to reference projection

Act	Year	Expenditure ratio (%) baseline projection	Compared to reference projection
Employees Pensions Act (TyEL)	2020	28,1	0.0
	2025	28.7	-0.8
	2040	27.4	-1.3
	2060	28.4	-0.7
	2080	29.6	0.1
Local Government Pensions Act (KuEL)	2020	29.9	0.0
	2025	32.1	-0.8
	2040	31.1	-1.7
	2060	30.1	-1.4
	2080	30.2	-0.5
State Employees' Pensions Act (VaEL)	2020	79.3	-0.2
	2025	85.5	-1.8
	2040	75.3	-3.4
	2060	44.1	-1.7
	2080	36.3	-0.6

Intergenerational and gender effects

The planned reforms affect different population groups, genders and generations in different ways. Preliminary consequence analyses for age cohorts born in different decades and how the effects are allocated between men and women are presented below. In addition to assessments at an aggregate level, it is worthwhile assessing the impact of the amendments also in light of model calculations.[2]

Assessing and presenting the generational effects relating to how the pension system functions is not simple. Below is an assessment of the effects on various age groups from the point of view of the average pension, on the one hand, and the changing pension capital, on the other.
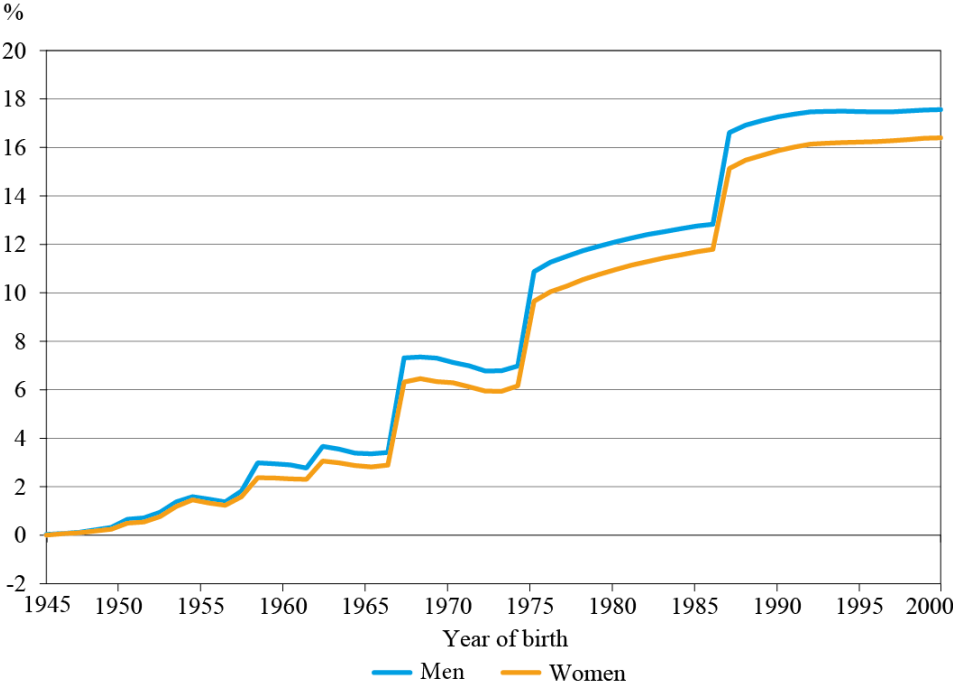
From the point of view of pension income over the entire life cycle, not only the monthly pension should be assessed, but also the estimated length of time spent in retirement, in which case the object of reference will be the pension capital. When, in addition to the pension capital, the pension insurance contributions paid during one's working life are taken into account, it is possible to estimate the combined effect of the amendments.

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[2] The Finnish Centre for Pensions has made such model calculations for retiring persons with difference working lives, earnings levels and pensions. The model calculations are published separately at etk.fi/en.

When assessing the change in the pension capital, the baseline may also be taken into account. In various connections it has been observed that the return rates of younger generations are lower than those of previous generations (see, for example, Gröhn 2007, Korkman *et al* 2008). For this analysis, return rates have not been calculated, nor has the situation of previous generations been taken into account.

Figure 12 presents the effect on the pension level for the population of different birth year cohorts according to the agreement compared to the pension level under current legislation. For comparability's sake, the 75-year-olds have been chosen because the entire age cohort will be retired, in practise, both when the current legislation and the legislation in line with the agreement will be in force. The figure shows that the amendments would have no impact on the pension level of those born before 1950, while the pension level of those born after 1950 would improve. The later a person is born, the higher the effect on the pension level is compared to the baseline projection. For those born in the early 1960s, the benefit level would be a few per cent higher, while it would be more than 15 per cent higher for those born in the 1990s compared to the level in the baseline projection. A review of the development of the average pension reveals no significant gender differences. The notches in Figure 12 are a result of the way the LTP projection has been realised (i.e., the age limits have been increased by full years).

Figure 12. Change in average pension according to year of birth[3] at age 75 for different age cohorts

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[3] The review is based on a comparison of the pension level of 75-year-olds in the baseline and the reference projections.

When reviewing changes in the pension capital, it is natural to also take into account the effects on contributions. On the one hand, the contribution level is lower in the reference projection while, on the other hand, as the working lives are extended, the contributions are paid over an increasing number of years.
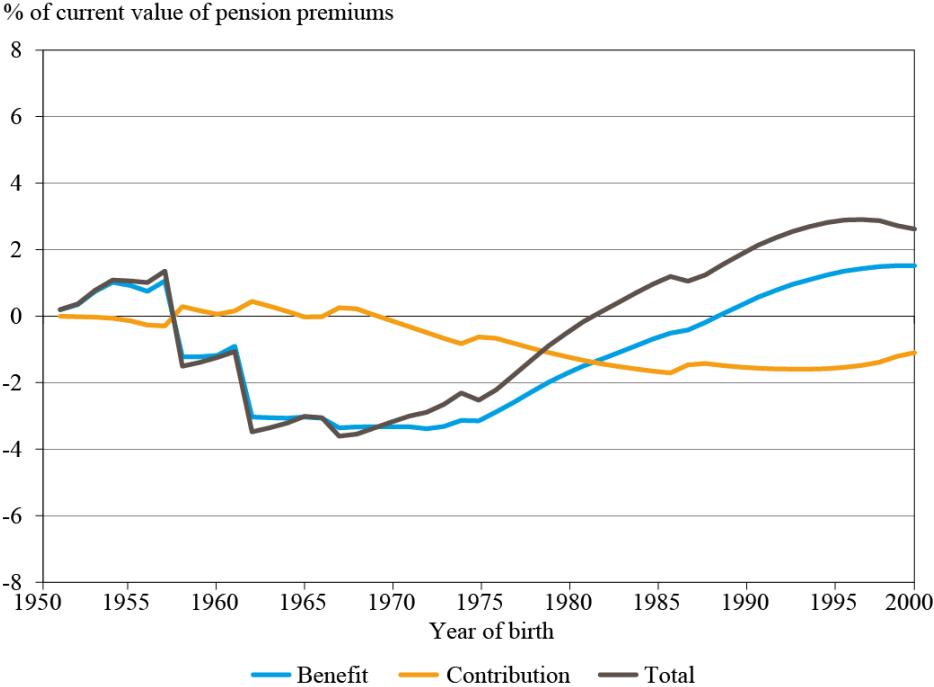
The assessment of generational effects is based on pension contributions paid and the capital value of pension benefits of different generations. The idea is to examine how much the pension contributions and the capital value of pension benefits of each generation would change as a result of the agreement. The pension contributions include both the employee's and the employer's contributions. The reform's effect on the capital value of the pension benefits and the contributions has been proportioned to the capital value of pension benefits that the generations would receive under the current legislation. When calculating the capital value, a real discount rate of 3.5 per cent has been used. The projections of the contributions and the capital values of the benefits include only the contributions and pension benefits under TyEL.

The reform does not affect the generations that have already retired (Figure 13). On the one hand, those who have already retired do not participate in the financing of pensions and, on the other hand, the amendments to benefits that will come into force after the 2017 reform will not affect pensions in payment. Furthermore, the reform will hardly affect those born in the 1950s. For those born towards the end of that decade, the amendments will have a minor effect on the contributions paid and the pensions earned over the total life cycle.

When measured in terms of the net effect of the amendments to the capital values, persons born in the 1960s and the 1970s will lose out on the reform. This is basically so because the current value of the pension capital will be reduced as the time spent in retirement will become shorter. However, deferring retirement means more time in employment for these age cohorts, which will raise the earnings over their life cycle and generate slightly higher pensions.

From the point of view of the pension capital, those born in the 1980s and later will benefit from the reform. The advantage will constitute of an increased average benefit level and a decreased contribution level.

Figure 13. Difference between baseline and reference projection in TyEL contributions and benefits over the life cycle of various cohorts, as well as their combined effect, both genders

% of current value of pension premiums

Based on a comparison of the benefit level, the consequences of the reform are nearly the same for men and women (Figure 12). When reviewed in terms of changes to the pension capital, the change is more beneficial to women than to men. In Figure 14, the effect of the agreement on pension benefits has been specified by gender. The most important reason is the longer life expectancy for women. The reducing effect on the pension income when the retirement ages are raised is smaller for women than for men as the effects are proportioned to the pension income over the life cycle. The effect of the agreement on the pension contribution over the life cycle and the combined effect (contributions and benefits) have been specified per birth year and gender in Figures 15 and 16.

The projections per age cohorts and gender depict the average effects, taking into account the average expected life expectancy for the different age cohorts and genders. The projections are also based on average contributions and expenditures over the life cycle. Due to many factors, there is significant fluctuation between different population groups within generations and genders. Projections based on the average technique do not take this into account.

Figure 14. Differences in TyEL benefits over the life cycle for various cohorts, per gender, baseline and reference projections
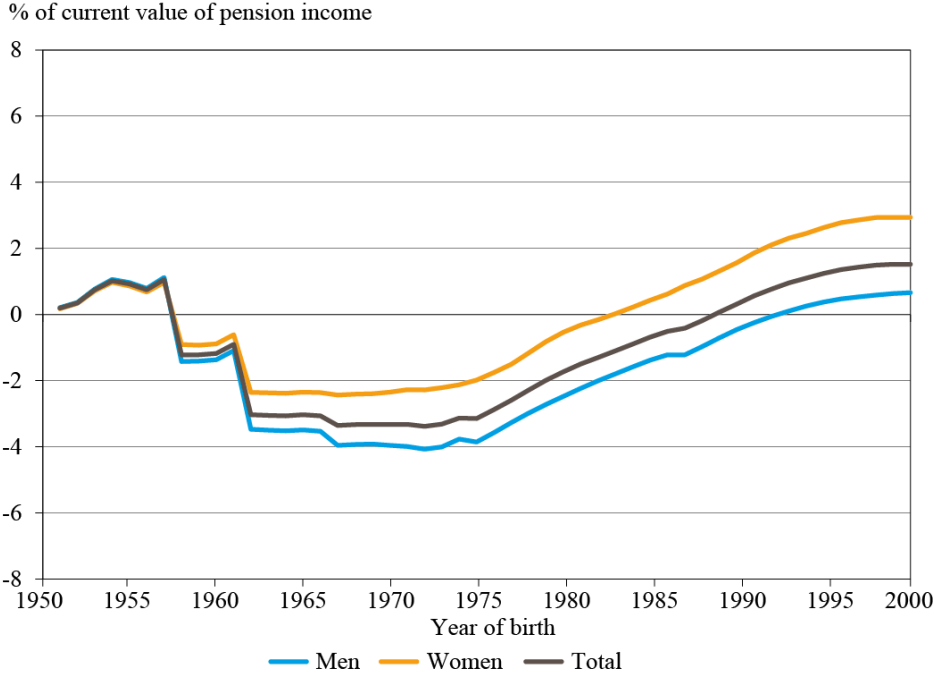
% of current value of pension income

Figure 15. Differences in TyEL contributions over the life cycle for various cohorts, per gender, baseline and reference projections

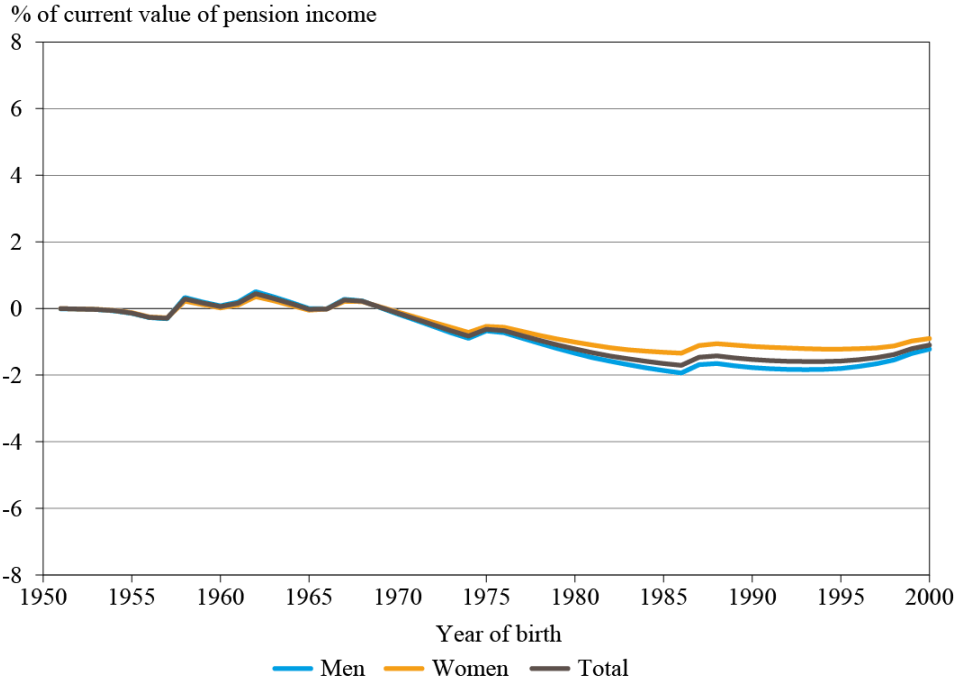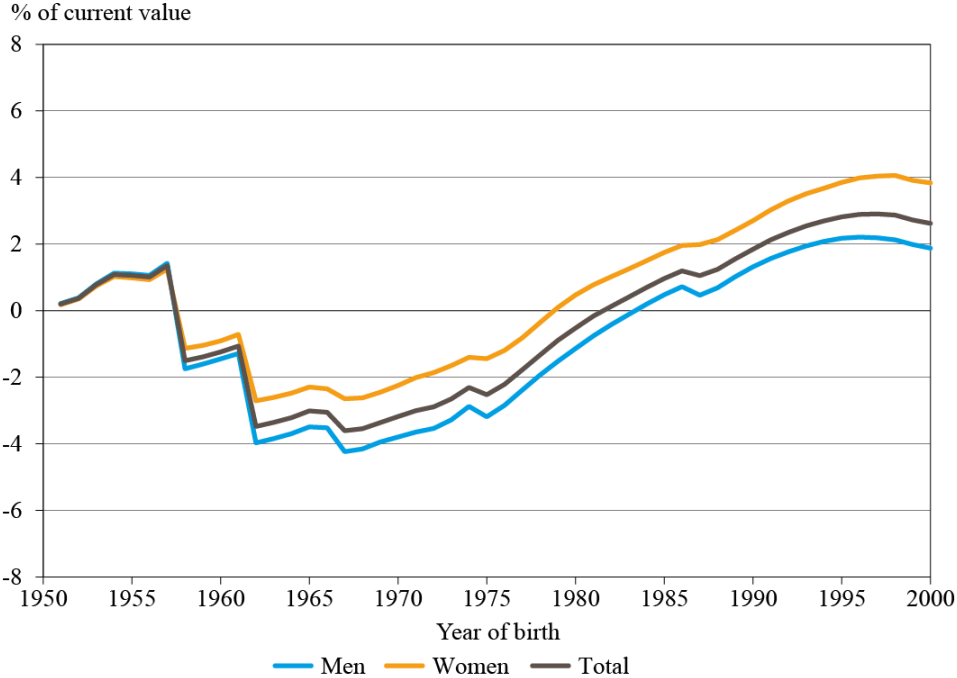% of current value of pension income

Figure 16. Differences in TyEL contributions and benefits combined over the life cycle for various cohorts, per gender, baseline and reference projections

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