Ministry of Social Security and Labour of the Republic of Lithuania

Economic Policy Committee - Ageing Working Group

2024 Ageing Report

Lithuania - Country Fiche

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Matas Vinkus
Pensions group
Ministry of Social Security and Labour
Email: matas.vinkus@socmin.lt

Inga Buškutė
Pensions group
Ministry of Social Security and Labour
Email: inga.buskute@socmin.lt

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Introduction

The present country fiche for Lithuania is part of the 2024 Ageing Report, which provides long-term projections of the economic and budgetary impact of population ageing at unchanged policy. The 2024 edition is the eighth update and covers the period up to 2070.

This fiche was prepared by Ministry of Social Security and Labour of Lithuania. The pension projections presented in this fiche incorporate the macroeconomic assumptions and methodologies agreed within the *Ageing Working Group* of the *Economic Policy Committee*. The projections have been peer reviewed by the other Member States and the European Commission within the *Ageing Working Group*. The projections were finalised in the autumn of 2023 and represent the situation of the pension system on 01/12/2023.

Section 1 provides a general overview of the pension system in Lithuania. Section 2 describes the demographic and labour market assumptions underlying the pension expenditure projections presented in Section 3, which also discusses the sensitivity scenarios around the baseline. Finally, Section 4 gives an overview of the model used to produce the pension projections, with complementary data provided in the methodological annex.

1. Overview of the pension system[1]

1.1. Description of the pension system

Key Features of the Pension System

Since 2004, the Lithuanian pension system consists of **three pillars**: a statutory mandatory PAYG public pension scheme (point based), a statutory quasi-mandatory private funded scheme (defined contributions) and a voluntary private funded pension scheme.

A. Public pension scheme

The social security scheme in Lithuania comprises the social insurance scheme, the state pension scheme, and the social assistance pension scheme. The scheme of state pension benefits is functioning alongside with the social insurance pension scheme as it usually accompanies one of the main pensions (social insurance pension), whereas social assistance pensions are meant for the persons not eligible for a social insurance pension.

The Social insurance pension scheme in Lithuania is universal and it covers all employed workers regardless of the type of employment. It was reformed in 1995 by introducing the insurance principle, extending the career requirement for full coverage, abolishing early retirement provisions and increasing the retirement age. It includes old-age, disability and widow(er)s/orphans' social insurance pensions.

The financing of the pension system was changed in 2019. The financing of the general part of the 1st pillar pension was shifted to the State budget. This shift in financing was accompanied by a reform of the social insurance contributions and personal income tax (see section 3.4.)

Qualifying condition for retiring

In 2022, the statutory retirement age was 64.3 years for men and 63.7 for women. The retirement age is being increased annually by 4 months for women and by 2 months for men until it reaches the age of 65 for both genders in 2026.

TABLE 1 – QUALIFYING CONDITIONS FOR RETIREMENT

			2022	2030	2040	2050	2060	2070
Qualifying condition for retiring ***with*** a full pension	Statutory retirement age - men		64,3	65	65	65	65	65
	Statutory retirement age - women		63,7	65	65	65	65	65
	Minimum requirements	Contributory period - men	32,5	35	35	35	35	35
		Retirement age - men	64,3	65	65	65	65	65
		Contributory period - wome	32,5	35	35	35	35	35
		Retirement age - women	63,7	65	65	65	65	65
Qualifying condition for retirement ***without*** a full pension	Early retirement age - men		59,3	60	60	60	60	60
	Early retirement age - women		58,7	60	60	60	60	60
	Penalty in case of earliest retirement ag		19,2%	19,2%	19,2%	19,2%	19,2%	19,2%
	Bonus in case of late retirement		8%	8%	8%	8%	8%	8%
	Minimum contributory period - men		32,5	35	35	35	35	35
	Minimum contributory period - women		32,5	35	35	35	35	35
	Minimum residence period - men		-	-	-	-	-	-
	Minimum residence period - women		-	-	-	-	-	-

Source: Ministry of Social Security and Labour

[1] For an exhaustive description of pension schemes, please consult the PENSREF database.

In July 2004, an early retirement pension scheme was introduced for people who have 5 years to go until the retirement age and minimum 30 years of service (since 2018 the obligatory period of insurance for early-retirement pension is increased). Those who comply with the obligatory insurance period – which will be valid by reaching the statutory retirement age – will be eligible to an early retirement pension. Under that scheme pensions are reduced by 0.32% for every full month remaining until the retirement age and the reduced pension is paid life-long.

The conditions for early retirement were revised since 2021. The reduction of pensions upon retirement age is not applicable for the recipients with a long career who received early pensions less than 36 months. The early retirement pensioners are not allowed to have income from work or other types of pension benefits (social assistance or state pensions) but it is possible to take a lump sum or pension annuity from the quasi-mandatory private funded pension scheme.

After reaching the retirement age, a person can continue to work and combine a salary with the old-age pension. In case of deferred retirement, the pension is increased by 8% per year.

Pension formula

The overall pension consists of two parts: (i) a flat-rate basic pension (also called general part of pension), and (ii) the earnings-related pension (also called individual part of pension).

General part of pension (basic flat pension)

The basic pension is a flat-rate contributory benefit. Until 2021, the flat amount was reduced proportionally if the requirement to have an obligatory insurance record was fulfilled. Since 2022, the reduction is not applicable anymore and the full amount is paid for those with the minimum years of contributions. On 1 January 2023, the basic monthly pension was EUR 246.21. This amount is the same for those whose insurance record is between the minimum (15 years) and the obligatory record (33.5 years in 2023; increased gradually by 6 months every year until it reaches 35 years in 2027). Every additional year of contributions raises the general pension component by around $1/30^{th}$ = 0.33% (if the eligible retirement age was reached before 2018). With the increase of the obligatory insurance period, this value declines every year until it reaches $1/35^{th}$ = 0.29% by 2027.

$$P_{BFP} = \beta \cdot B$$

where:

- P_{BFP} – basic flat pension;
- β – ratio of insurance period to required insurance period for full pension;
- B – basic pension amount.

Earnings-related pension

The pension formula defines pension points as the ratio of a person's past social insurance contributions and the average contributions paid in the economy. The formula for the calculation of the earnings-related (called individual) part is:

$$P_{ERP} = V \cdot p$$

where:

- P_{ERP} – individual part of pension;
- V – pension points, acquired throughout the whole working career;
- p – pension point value.

As said, pension points *V* are calculated as the ratio of a person's past social insurance contributions and the average contributions paid in the economy for the individual part of the pension. Average wage means the average gross monthly wage in the 3rd and 4th quarters two years before and the 1st and 2nd quarters of the previous year, as published by the State Data Agency. If a person was a participant in the quasi-mandatory private scheme between 2004 and 2018, the amount of pension points will be lower for that period, as they will be calculated on lower contributions because of the transfers to the private pension funds. However, it will be so only for the years before the private pension accumulation reform of 2019, when the splitting of social insurance contribution was abolished.

The maximum number of pension points one can acquire in a given year is set at 5. A contribution ceiling was introduced in 2019 and it was gradually decreased from 120 in 2019 to 60 times monthly average wage amount in 2021. Pension points are calculated by applying income history data solely from the period after 1995 and service years from both periods – before and after 1995. Every year of service before 1995 is credited with the average yearly amount of pension points accrued post-1995. All post-1995 career years are included in the formula, as compared to the 25 best in the old defined benefit system.

Since 2018, the average wage earner accrues 1 point a year theoretically, though in practice it is 1.1 because of the average wage used for the calculation.

There is no minimum amount of social insurance pension guaranteed by the Law. The minimum guarantees for elderly and disabled people are provided by pension supplements (introduced in 2019) and social assistance benefits financed from general taxation.

No income tax is levied on pension benefits paid from the statutory schemes.

Pension indexation

A new indexation mechanism applies since 1 January 2018. The new rule couples pensions with the wage sum in the economy, i.e. the product of average wages and total employment in full-time equivalents. Both the basic pension amount and the pension point value are annually adjusted by the growth of the total wage bill in the economy, averaged over the past three years, the current year, and three forecasted years.

Since 2022, the indexation formula was modified to set preconditions for the faster indexation of the contributory part of the pensions (additional index to be applied to the pension point until the at-risk-of-poverty (AROP) rate for elderly falls below 25% and/or the average pension replacement rate exceeds 50%). The additional index is to be applied if the state insurance budget generates surpluses. For calculating the additional index, up to 75% of the planned surpluses can be used. The amount of the supplementary index is decided by the Government on a yearly basis. The contributory part was indexed additionally by 4.24% in 2022 and by 5% in 2023.

Disability pensions

In 2005, a disability reform was implemented, considerably changing the disability recognition procedure. Since then, disability is linked to the capacity to work rather than merely to a health condition. The level of capacity for work is established (twelve-tiered since 2018) for individuals of working age only. Although the pension formula is the same as for the old-age pension, the benefit is multiplied by a coefficient ranging from 0.5 to 1.5 according to the level of capacity for work. Upon reaching the statutory retirement age, the largest of the two benefits is paid – either the old-age pension or the disability pension.

The qualifying social insurance period depends on person's age at the time of retirement and varies from 2 months at the age of 21 (or below) to 15 years at the age of 60 and above.

Survivors' pensions

Family members of a deceased insured person are entitled to a survivor pension. The widow(er) pensions were reformed in 2007. Only widow(er)s of retirement age or disabled are eligible; the pensions are flat-rate (EUR 34.89 in 2023) and are paid as a supplement to the main old-age or disability pension. Orphan benefits are linked to the pension amount of the deceased (50% of the latter's pension). The orphans' pension can be paid till age 24 if the orphan is studying full-time. In case of several orphans in the family the sum of their pensions cannot exceed the pension of the diseased. If the orphan is disabled and is recognized as permanently disabled, the orphan's pension is paid life-long.

All survivor pensions are indexed by the same index as old-age pensions since 2018.

Single person's benefit

Since July 2021, a single person's benefit was introduced. It is a flat-rate benefit of the same amount as the widow(er)'s pension (EUR 34.89 in 2023) paid from the state budget for every single or divorced person of retirement age or disabled. In 2023, 229 000 persons received this benefit.

State pensions

The state pension system functions independently from the social insurance pension system. The so-called state pensions system evolved after the 1995 pension reform, which tried to clear up the pension system from the privileges such as double counting of the pensionable record for victims of occupation and war or early retirement for mothers of large families and others. All these special provisions were moved to the separate pension system financed from the state budget and not based on any type of contributions. The state pensions are awarded to the persons with distinguished achievements for the state (1st and 2nd degree), officials and military servants, judges, scientists, victims and deprived persons, and mothers of large families. Some of them are earnings-related (e.g. officials and military servants state pensions and judges' state pensions), other are calculated on the special state pension's basis (e.g. 1st and 2nd degree, scientists, mothers and pensions of deprived persons).

Since 2014 state pensions (136.58 EUR per month in 2023) are also paid to mothers that have birthed 5 or more children (previously – 7 or more children).

State pensions are awarded irrespective of the eligibility to social insurance pensions and may be paid out along with them. However, the amount of pensions of the first and second degree and military servants in total may not exceed 1.16 times the average wage in the country.

Since 2021 the indexation of the state pensions was introduced. There was no indexation for those benefits between 1995 and 2020. The consumer price index of the previous year is applicable. In 2023, state pensions were indexed by 4.6%.

The state pension system is financed directly from the state budget. 9.3% of pensioners receive this type of pension and state pension expenditure comprises 0.23% of GDP in 2022. State pensions are included under 'other pensions' in the projections; no separate projections for those pensions were performed – the initial number of the pensioners and expenditure follows the general demographic end economic trend.

Social assistance pensions

Social assistance pensions provide a minimum income to those not eligible to social insurance old-age, disability and survivors pensions. There are no social assistance pension indexation rules and benefits were increased on an ad hoc basis, although the amount of the social assistance pension basis is related to the amount of the minimum consumption needs (i.e., the absolute poverty line) and cannot be lower than 56% of the previous year's amount of minimum consumption needs. In 2023, the amount of minimum consumptions need was EUR 354 (EUR 267 in 2022). The basis for social assistance pensions was EUR 184, which is 21.9% of the minimum monthly salary.

Recipients of statutory old-age pensions whose pensions are less than 100% of the amount of the minimum consumption needs are eligible to a pension supplement from the State budget. Supplements for small social insurance pensions – top up to the ceiling (100% of the amount of minimum consumption needs) depends on service years (full amount with obligatory service years requirement; minimum amount with 15 years minimum requirement). There were 75 000 beneficiaries in 2023 eligible to the average monthly benefit of EUR 25.

Social assistance pension expenditure to GDP comprised 0.26% in 2022 and covered about 6.5% of pensioners.

B. The quasi-mandatory private scheme

The quasi-mandatory private funded pension scheme was introduced on 1 January 2004. The second tier of the statutory pension system is voluntary, though with auto-enrolment since 2019. All employees below 40 years of age are enrolled with the right to opt-out within a set period (6 months); the auto-enrolment procedure is repeated every 3 years. Older employees can join the scheme voluntarily. There are no other limitations on participation except to be insured under the social insurance pension system and aged below the legal retirement age. Opting-out from the scheme once joined is not allowed before retirement (a one-off opting-out possibility was offered in 2019 due to the change of legislation related to the participation conditions).

The scheme before the reform of 2019 was a defined contribution scheme financed by a fraction of the social insurance contribution (2% of gross wage), participant's individual salary (2%) and a supplementary contribution paid for the participant out of the State budget (2%). Another option was to transfer only the part (2%) of social insurance contribution. Since 2019, contributions into the statutory funded pension funds comprise 3% of the participant's salary and 1.5% of the national average salary as a supplementary contribution paid for the participant out of the State budget. In order to encourage participation with the person's private means, the general tax and contribution level was reduced by 1.55 p.p. (that corresponds to 2 p.p. before the tax reform). The old scheme 2+2+2% or 2+0+0% was transformed into 4+2% with the reduced tariffs of 3+1.5% due to the tax reform. Employers and employees can voluntarily contribute more than 3%, qualifying for a tax relief.

The contributions from the State budget are also transferred for parents that are raising children younger than three and receiving maternity (paternity) social insurance benefits or that are covered by the state social pension insurance by state means. Contributions equal 1.5 per cent of the country's average monthly gross wage two years earlier. If these parents are raising more than one child under 3 years of age, a fixed payment to the parents' account is credited for each child.

The members already participating in the pension accumulation were given the possibility during the 2019 transition period to suspend contributions but remain in the pension fund until the pensionable age (with the possibility to renew contributions at any time in the future) or to terminate the contract and transfer all assets to the public scheme (subject to restoration of the previously reduced pensions rights). When the assets transferred to the social insurance budget exceed the amount of the contributions, people acquire additional pension points in the public scheme. At the beginning of 2019, more than half of

participants were paying additional contributions on top of the transferred social security pension contributions. After the choice made in July 2019, the number of active participants fell from 850 000 (58% of labour force) at the end of 2018 to 700 000 (48% of labour force) in 2019 and 645 000 (44% of labour force) in April 2020 due to COVID-19. In 2023, the number of active participants contributing to the system, was 760 000.

Participation in the funded defined contribution system reduced the part of contributions going to the social insurance budget before 2019. The social insurance pension benefit formula reflects this part of "absent" contributions by the fact that fewer pension points are accumulated under the point system. The earning-related part of pension reduction is not applicable anymore for years of accumulation since 2019 and the pension rights were restored for those who have made the decision to transfer all assets back to the public scheme.

At retirement, a participant has an obligation to purchase a pension annuity. With the new legislation in force since 2020, a single centralized public annuity provider was introduced. A lower threshold (EUR 10,807 in 2023) of assets in a pension fund is required for obligatory annuity purchase and less than EUR 5,403 in 2023 – for a lump sum benefit. When the amounts are between EUR 5,403 and 10,807, the programmed withdrawals are paid by the pension accumulation companies. Unisex life tables are used for annuity calculation since December 2012.

Since 2013 it is possible to receive a benefit (annuity) from the pension fund not earlier than 5 years before the retirement and when the early old-age state social insurance pension is awarded.

There are no government guarantees on the return of the quasi-mandatory private funded pension scheme.

C. Voluntary private scheme

The voluntary private funded pension scheme started operating in 2004. Income and corporate tax allowances are applied to contributions made by an insured person or by his employer if they do not exceed 25% of the person's annual earnings. Participation in the system remains very low, at a mere 5% of the labour force and savings are generally small. Legal regulation of voluntary private pension accumulation allows terminating the accumulation agreement and withdrawal of the funds at any time. However, withdrawal of the funds is not taxed by the personal income tax if the duration of accumulation was longer than 5 years and there were less than 5 years left until the retirement age or the person was disabled. Acquisition of annuity is not mandatory, thus, such participants can be called participants in "pension" accumulation with some reservations. The voluntary private scheme is not covered in the projections.

1.2. Recent reforms of the pension system included in the projections

A recent reform included in the projections is the introduction of single person's benefit since 2021, which changed the formula for the calculation of the basic part of pension benefits and changed the indexation rule that allow additional indexation of the contributory part of the pension.

As mentioned above, since 2021, a flat-rate benefit of the same amount as the widow(er)'s pension (EUR 34,89 in 2023) is paid from the state budget to every single or divorced person of retirement age or disabled. In 2023, 229.000 persons received this benefit. A single-person's benefit is indexed by the same index as social insurance pensions (an additional index is not applicable though). A single-person's benefit was included in the projections under "Other pensions".

The basic part of pensions is paid in full amount (without any reduction) for every pensioner with at least 15 years of contributions.

An indexation formula allows application of the additional index in cases when social insurance budget generates surpluses until the following conditions are met:

- the AROP rate for older persons falls below 25%,
- the average pension replacement rate exceeds 50%.

However, the application of the additional index is discretionary: it is up to the Government to decide if the rules set in the law are fulfilled and if there are surpluses of the State Social insurance that could be used for additional indexation. Therefore, this reform is reflected in the indexation of the pensions for the years 2022-2024, but not in 2025-2070.

Pension supplements for small social insurance old-age and disability pensions were included in the projections under "Other pensions".

With the shifting of the general pension component to the State budget in 2019, the State emerged as a third insurer in pension contributions. Changes in financing of the general pension component, social insurance contributions and the personal income tax system were implemented in the projections. The State's allocations for the general part of pensions are included in the projections as State contribution.

The 2019 reform of the funded quasi-mandatory scheme, when the splitting of social insurance contribution was abolished and the fraction of the social insurance contribution was replaced by the person's and State contribution, impacted the coverage of the funded scheme over the entire projection period.

1.3. Description of the actual 'constant policy' assumptions used in the projection

The constant policy scenario is applied. The basic pension amount and point value are fully aligned to the wage sum evolution (the seven-year average of the wage sum growth over the previous three, current and next three years). For the years 2022-2024 additional indexation for the points value is included. However, the supplementary indexation is discretional and decided on a yearly basis, so it is not included in the projections.

The historical values of the growth of the annual gross remuneration since 2016 were used for the calculation of the index in the first projection years and the model output "Total wage sum of contract

workers" was used as a basis for the calculation of the projected pension index. Non-earnings-related state pensions are not indexed as there is no indexation in the Law and only few ad hoc increases for some of them were enacted in the past. Indexing to nominal wage growth is applied to the social assistance pensions, though there is no automatic indexation in the Law.

The below table summarises the indexation rules applied in the projections:

Social security pensions	
Old-age pensions	Basic pension and pension point value and widows' pension are indexed by the seven-year average of the wage sum growth over the previous three, current and (projected) upcoming three years
Disability pensions	
Widows/widowers' and orphans' pensions	
Single person's benefit	
State (special) pensions	
Pensions of the Republic of Lithuania of I and II degree	CPI indexation
Pensions for scientists	
Pensions for casualties	
Other state pensions	
Pensions for officials and military personnel	
Pensions for judges	
Social assistance pensions	100% nominal wage growth

The proportions (by age cohort and sex) of the quasi-mandatory private pension scheme participants who transferred contributions to the pension funds at the beginning of 2022 and those who have suspended contributions were used for the base year.

2. Overview of the demographic and labour force projections[2]

Part 2 contains a description of the main demographic changes implied by EUROPOP2023 and the changes in the labour force as projected by the Cohort Simulation Model. These provide the framework for the pension expenditure projections.

2.1. Demographic projections

Table 2 provides an overview of the demographic developments for Lithuania over the 2022-2070 period. According to the EUROPOP2023 projections by Eurostat, the Lithuanian population would peak at 2.872 million in 2023 and then is expected to shrink by 29.2% (that was 5.7% less than what was projected by EUROPOP2019 used in the 2021 Ageing Report projections) over the projection period and the age pyramid to flatten by 2070.

TABLE 2 – MAIN DEMOGRAPHIC VARIABLES

	2022	2030	2040	2050	2060	2070	peak value	peak year	change 2022-2070
Population (thousand)	2.838	2.729	2.513	2.329	2.159	2.010	2.872	2023	-827
Population growth rate	1,3%	-0,9%	-0,8%	-0,8%	-0,8%	-0,7%	1,3%	2022	-2,0%
Old-age dependency ratio (pop 65+ / pop 20-64)	33,1	41,5	50,3	57,9	71,2	72,4	73,7	2065	39,3
Old-age dependency ratio (pop 75+ / pop 20-74)	13,1	14,6	21,2	25,8	29,3	36,5	36,5	2070	23,5
Ageing of the aged (pop 80+ / pop 65+)	28,2	25,1	30,4	36,3	35,5	42,8	42,8	2070	14,6
Men - Life expectancy at birth	70,8	73,3	76,0	78,5	80,8	82,8	82,8	2070	12,0
Women - Life expectancy at birth	80,5	82,4	84,2	85,9	87,5	88,9	88,9	2070	8,4
Men - Life expectancy at 65	14,4	15,9	17,5	18,9	20,3	21,7	21,7	2070	7,3
Women - Life expectancy at 65	19,5	20,9	22,2	23,4	24,6	25,7	25,7	2070	6,2
Men - Survivor rate at 65+	69,6	74,4	79,2	83,3	86,6	89,3	89,3	2070	19,7
Women - Survivor rate at 65+	88,2	90,2	91,9	93,3	94,4	95,4	95,4	2070	7,2
Men - Survivor rate at 80+	31,4	39,3	47,7	55,5	62,6	68,9	68,9	2070	37,5
Women - Survivor rate at 80+	62,7	68,8	73,9	78,2	81,9	85,1	85,1	2070	22,4
Net migration (thousand)	81,8	-7,7	-0,5	2,8	4,3	5,5	81,8	2022	-76,2
Net migration (% population previous year)	2,9%	-0,3%	0,0%	0,1%	0,2%	0,3%	2,9%	2022	-2,6%

Source: Eurostat, European Commission.

The Lithuanian population is still relatively young and most of the people are of working age. However, a large part of population born during the baby boom is in age groups between 50-60 years and will retire during the next 5-15 years.

As a result of high emigration among younger people and low fertility rates, in particular during the late-1990s and early-2000s, Lithuania is ageing at a fast pace. Although in 2012-2018 net migration was negative, the situation changed in 2019-2022: net migration was positive (10.8 thousand people in 2019, 20 thousand people in 2020, 19.7 thousand people in 2021 and 81.8 thousand people in 2022). The drivers behind the recent shift could be Brexit (the UK was one of the most popular destinations for Lithuanians over last two decades) and the COVID-19 pandemic that boosted re-emigration. Also, since 2022, after the outbreak of the war in Ukraine, Lithuania welcomed around 83 thousand refugees from Ukraine. However, according to EUROPOP2023, in the next two decades (until 2040), the net migration would be negative again. The total population is shrinking, although the projected situation over the period 2022-2070 is better than over the previous 2019-2070 projections' period (projected population in 2070 1.8 million (AR 2021) *vs* 2.0 million (AR 2024)). Also, in EUROPOP2019, the negative net

[2] For more details, see European Commission and EPC (2023), *'The 2024 Ageing Report: Underlying assumptions and projection methodologies'*, European Economy, Institutional Paper 257.

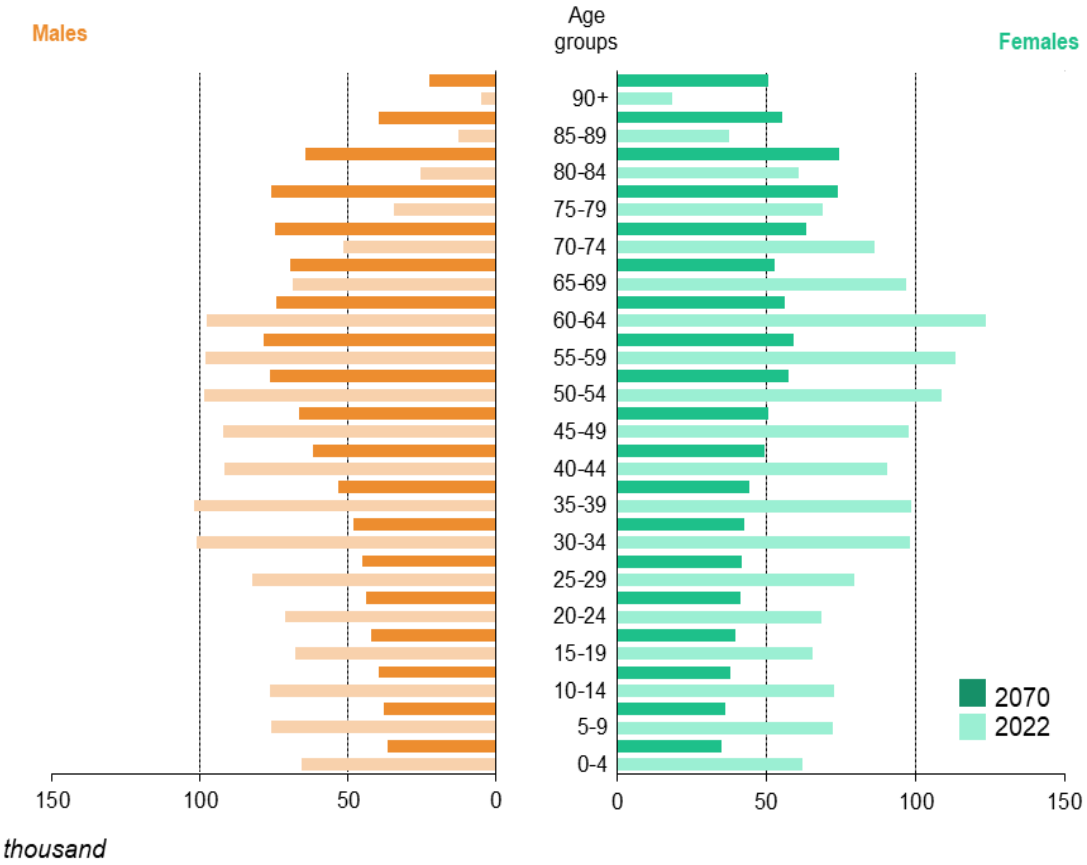
migration was projected for almost the whole projection period (until 2057). In EUROPOP2023, net migration remains negative for a shorter period, until 2041.

The decrease in younger age groups is expected to continue. This is why the old-age dependency ratio (pop 65+/pop 20-64) rises dramatically during this period and peaks at 73.7 in 2065 (Table 2) when the second baby boom generation (persons born in 1984-1994) retires. Compared to the AR 2021, the old-age dependency ratio is higher throughout the projection period. In the previous projection cycle the peak of the old-age dependency ratio was projected in 2062 at the level of 68.6%.

Life expectancy at 65, which is a proxy for the duration of retirement, is projected to continuously increase over the 2022-2070 period, from 14.4 to 21.7 years for men and from 19.5 to 25.7 years for women, which would represent an increase of 7.3 years and 6.2 years between 2022 and 2070, respectively.

However, the increase in the dependency ratio is caused mostly by the falling number of younger people (because of projected high emigration and fertility below the natural replacement rate) rather than by increasing longevity.

FIGURE 1 – AGE STRUCTURE: 2022 VS 2070



Source: Eurostat, European Commission.

2.2. Labour force projections

The labour force is projected by the Commission on the basis of the demographic projections by ESTAT described in the previous section and the participation rates as projected by means of the Cohort Simulation Model. Key variables are shown in Table 3 and Table 4.

TABLE 3 – PARTICIPATION RATE, EMPLOYMENT RATE AND SHARE OF WORKERS

	2022	2030	2040	2050	2060	2070	peak value	peak year	change 2022-2070
Labour force participation rate 20-64	84,2	84,4	84,8	84,6	85,4	85,4	85,6	2065	1,2
Employment rate of workers aged 20-64	79,1	79,1	79,2	79,1	79,9	79,8	80,0	2065	0,8
Share of workers aged 20-64 in the labour force 20-64	93,9	93,8	93,4	93,5	93,5	93,5	94,3	2027	-0,4
Labour force participation rate 20-74	74,6	70,8	70,9	70,2	67,6	70,2	74,6	2022	-4,4
Employment rate of workers aged 20-74	70,2	66,6	66,3	65,7	63,4	65,8	70,2	2022	-4,5
Share of workers aged 20-74 in the labour force 20-74	94,1	94,0	93,6	93,7	93,8	93,7	94,5	2027	-0,4
Labour force participation rate 55-64	75,3	73,2	74,1	74,0	74,5	75,7	75,7	2068	0,4
Employment rate of workers aged 55-64	70,1	68,1	68,7	68,7	69,1	70,3	70,3	2068	0,1
Share of workers aged 55-64 in the labour force 55-64	93,1	93,1	92,7	92,9	92,8	92,8	93,6	2027	-0,3
Labour force participation rate 65-74	20,6	13,4	12,9	13,7	12,7	12,5	20,6	2022	-8,1
Employment rate of workers aged 65-74	20,4	13,3	12,8	13,6	12,6	12,4	20,4	2022	-8,0
Share of workers aged 65-74 in the labour force 65-74	99,2	99,2	99,1	99,1	99,2	99,2	99,2	2067	0,0
Median age of the labour force	43	43	45	44	44	44	45	2040	1

Source: European Commission.

Table 3 shows the expected changes in the employment and participation rates for the overall population at working age (20-64 and 20-74) as well as the rates for those age groups (55-64 and 65-74) that are the most affected by any pension reforms that shift retirement ages (either early or statutory) or by active labour market policies that aim at prolonging the working life.

The participation rates and employment rates are projected slightly lower that over the previous projection cycle. However, projected participation rates in age group 55-64 are higher that previously and are increasing in line with the retirement age and stay comparatively stable thereafter. In 2022, participation among the age group 65-74 reached its highest historical level (20.6% in comparison to 17.5% in 2019 in the AR2021, which was then reported as the highest historical level).

TABLE 4 – LABOUR MARKET EXIT BEHAVIOUR

TOTAL	2022	2030	2040	2050	2060	2070	peak value	peak year	change 2022-2070
Average effective retirement age*	63,1	63,4	63,2	63,5	63,7	63,3	63,8	2057	0,2
Average labour market exit age (CSM)**	64,1	64,8	64,9	64,9	64,9	64,9	64,9	2060	0,7
Contributory period	38,1	38,6	38,6	38,4	38,3	38,3	38,7	2025	0,6
Duration of retirement***	17,9	18,4	19,9	21,2	22,5	23,7	23,7	2070	5,8
Duration of retirement/contributory period	47%	48%	51%	55%	59%	62%	62%	2070	15%
Percentage of adult life spent in retirement****	29%	29%	31%	32%	33%	35%	35%	2070	6%
Early/late exit*****	0,8	0,7	0,7	0,7	0,5	0,8	0,9	2025	0,0

MEN	2022	2030	2040	2050	2060	2070	peak value	peak year	change 2022-2070
Average effective retirement age*	63,3								
Average labour market exit age (CSM)**	64,1	64,8	64,9	64,9	64,9	64,9	64,9	2060	0,7
Contributory period	35,6	37,0	37,0	37,0	37,0	37,0	37,0	2026	1,4
Duration of retirement***	15,2	15,9	17,5	18,9	20,3	21,7	21,7	2070	6,5
Duration of retirement/contributory period	43%	43%	47%	51%	55%	59%	59%	2070	16%
Percentage of adult life spent in retirement****	26%	26%	28%	30%	31%	33%	33%	2070	7%
Early/late exit*****	1,1	0,8	0,8	0,8	0,6	0,8	1,1	2023	-0,2

WOMEN	2022	2030	2040	2050	2060	2070	peak value	peak year	change 2022-2070
Average effective retirement age*	63,0								
Average labour market exit age (CSM)**	64,1	64,8	64,9	64,9	64,9	64,9	64,9	2037	0,8
Contributory period	38,5	39,9	39,9	39,9	39,9	39,9	39,9	2056	1,4
Duration of retirement***	20,6	20,9	22,2	23,4	24,6	25,7	25,7	2070	5,1
Duration of retirement/contributory period	54%	52%	56%	59%	62%	64%	64%	2070	10%
Percentage of adult life spent in retirement****	32%	32%	33%	34%	35%	36%	36%	2070	5%
Early/late exit*****	0,5	0,7	0,6	0,6	0,5	0,8	0,9	2025	0,3

** The 'average effective retirement age' is the age at which people start receiving a pension benefit (old-age, early or disability). It is calculated on the basis of the administrative data on new pensioners for 2022, showing projected data for the other years for the total. ** 'Average labour market exit age (Cohort Simulation Model)' refers to 2023 instead of 2022. *** 'Duration of retirement' is the remaining life expectancy at the average labour market exit age. **** The 'percentage of adult life spent in retirement' is calculated as the ratio between the duration of retirement and the life expectancy minus 20 years. ***** 'Early/late exit' is the ratio between those who exit the labour market before reaching the statutory retirement age and those who exit at or beyond the statutory retirement age. For 2022, the value refers to 2023.*

Source: European Commission.

The average effective exit age calculated by CSM changes only slightly over the projection period. In 2022, the average effective retirement age was 63.1 years. It is expected to peak at 63.8 years in 2057, subsequently declining to 63.3 years by 2070. The reason behind this unsignificant change is that the retirement age will reach 65 years for men and women in 2026 and no further increase is legislated. The contributory period in 2022 was 35.6 years for men and 38.5 years for women. Over the projection period it will increase by 1.4 years for women and by 1.4 years for men. The duration of retirement will increase by 6.5 years for men and 5.1 years for women. The early versus late exit pattern remains almost unchanged over the projection period.

3. Pension projection results

The aim of this part of the country fiche is presenting the updated pension projections for Lithuania and the description of the main drivers behind the results.

3.1. Coverage of the pension projections

All contributory social insurance and non-contributory state pensions (financed from the State budget) are explicitly introduced in the country's pension model (social assistance pensions and pension supplements as well). Disability pensions paid out to people past the standard retirement age are attributed to the category "disability pensions". Projections cover the quasi-mandatory private pensions.

The official EUROSTAT figures (ESSPROS) and the public pension expenditure definition of the AWG are identical up to 2016, with a gap emerging thereafter of around 0.5% of GDP.

TABLE 5 – ESSPROS AND AWG DEFINITION OF PENSION EXPENDITURE (%GDP)

	2013	2014	2015	2016	2017	2018	2019	2020	2021	change 2013- last available year
Eurostat total pension expenditure	7,2	7,0	6,8	6,8	6,7	7,0	7,0	7,5	7,2	0,0
Eurostat public pension expenditure (A)	7,2	7,0	6,8	6,8	6,7	7,0	7,0	7,5	:	0,3
Public pension expenditure (AWG: outcome) (B)	7,2	7,0	6,9	6,8	6,2	6,5	6,4	7,0	6,8	-0,4
Difference Eurostat/AWG: (A)-(B)	0,0	0,0	-0,1	0,0	0,5	0,5	0,6	0,5	:	0,5

Source: Eurostat, European Commission.

3.2. Overview of projection results

Table 6 shows the projected dynamic of pension expenditure in the next decades. Pension expenditure is projected to grow from 6.4% of GDP in 2022 to 9.7% of GDP in 2070 with a peak value of 10.2% of GDP in 2059. Comparing to the AR2021, overall expenditures are higher throughout the projection period. There are some major differences:

- In AR2021, public pension expenditure for the year 2022 was projected at 7.7% of GDP. However, in the current exercise the public pension expenditures in 2022 is at the level of 6.4% of GDP. The main reason for this difference is high inflation in 2022, which boosted the increase of the nominal GDP much more than it was projected. Although the social insurance pensions were indexed almost in line with inflation, the overall growth in pension expenditure has not kept pace with nominal GDP growth.

- Some measures taken during the years 2017-2022 increased the general level of benefits:

    - extraordinary *ad-hoc* increases of pensions over the 2017-2022 period;

    - changed structure of the basic (flat) part of pension instead of the reduced one for those with shorter contribution periods;

    - introduction of the single-person benefit;

    - change of the indexation rule setting the preconditions for faster increase of the contributory part of the pension.

In comparison to the AR2021, the population projections changed significantly: in the current demographic assumptions, the number of pensioners is higher than was the case for the AR2021. Along with the more generous benefits, it increases the future expenses. As the increase of the retirement age stops in 2026 and life expectancy increases, there is no tool in the system to slow down the impact of longevity on pension expenditure'. The balance of the public pension system becomes negative in 2028 and over the projection period the deficits constantly increase, reaching the peak value (-2.4% of GDP) in 2060.

Pensions are not taxed in Lithuania; therefore, gross and net pension expenditure are the same. In comparison to the previous projection exercise, the expenditure from private individual quasi-mandatory pension scheme is higher by 0.2% GDP in 2070. The public pension revenues over the 2022-2030 period are projected the grow from 6.8% to 7.7% of GDP and remain almost at the same level of 7.8% of GDP over the whole projection period.

TABLE 6 – PROJECTED GROSS AND NET PENSION SPENDING AND CONTRIBUTIONS (%GDP)

	2022	2030	2040	2050	2060	2070	peak value	peak year	change 2022-2070
Expenditure									
Gross public pension expenditure	**6,4**	**8,1**	**9,3**	**9,8**	**10,2**	**9,7**	**10,2**	**2059**	**3,2**
Private occupational pensions	:	:	:	:	:	:	:	:	:
Private individual mandatory pensions	0,0	0,1	0,2	0,5	0,9	1,2	1,2	2070	1,2
Private individual non-mandatory pensions	:	:	:	:	:	:	:	:	:
Gross total pension expenditure	6,4	8,1	9,5	10,3	11,1	10,9	11,1	2063	4,4
Net public pension expenditure*	6,4	8,1	9,3	9,8	10,2	9,7	10,2	2059	3,2
Net total pension expenditure*	6,4	8,1	9,5	10,3	11,1	10,9	11,1	2063	4,4
Contributions									
Public pension contributions	6,8	7,7	7,8	7,8	7,8	7,6	7,8	2039	0,8
Total pension contributions	7,7	8,9	9,1	9,1	9,2	9,0	9,2	2058	1,3
Balance of the public pension system (%GDP)**	0,3%	-0,3%	-1,4%	-2,0%	-2,4%	-2,1%	-2,4%	2060	-2,4%

**Net pension expenditure excludes taxes on pensions and compulsory social security contributions paid by beneficiaries. **Public pension contributions - gross public pension expenditure (peak value/year shows most negative value).*

Source: European Commission, EPC.

Table 7 shows the breakdown of the pension expenditures for all types of pensions. The biggest expenditure growth over the projection period is for the old-age and early pensions by 2.5 p.p., peaking in 2061 at the level of 8.1% of GDP. The main reason behind the rapid expenditure growth is in the demographic ageing.

Expenditure for the flat component of the old-age pensions remains at almost the same level with a slight decrease (-0.3% of GDP) over the projection period. The amount of the flat component depends on a person's insurance record and the obligatory insurance period set by law. Over the projection period insurance periods remain almost unchanged for men and women. The obligatory period of insurance is to be increased until 2027 and it results in slightly lower pensions (see explanation in section 1) in the middle of the projection period. However, expenditure for the contributory part grow rapidly, more than doubling in 2022-2040 (from 1.7 % of GDP to 3.8% of GDP), growing more steadily thereafter. The peak value is projected in 2061 (4.7% of GDP). Low expenditure for the contributory part of pensions is related to the strong boost in GDP in 2022 due to extraordinary inflation. Also, at the start of the projection period, high indexation is applied because of the wage sum boost in previous years. With the macroeconomics assumptions returning to lower levels, pension indexation returns to standard levels as well.

Expenditure for the disability pensions is projected to almost double (from 0.9% of GDP in 2022 to 1.6% of GDP in 2070, peaking at a level of 1.7% of GDP in 2055. Expenditure for survivors' pensions

and other pensions (including the single person benefits) are to double over the projection period so it can be concluded that total public expenditure follows the demographic trend. Minimum (non-contributory) social assistance pensions cover a very small group of recipients; therefore, expenditures are marginal.

TABLE 7 – GROSS PUBLIC PENSION SPENDING BY SCHEME (%GDP)

	2022	2030	2040	2050	2060	2070	peak value	peak year	change 2022-2070
Total public pensions	6,4	8,1	9,3	9,8	10,2	9,7	10,2	2059	3,2
Old-age and early pensions	5,2	6,1	7,2	7,7	8,1	7,7	8,1	2061	2,5
Flat component	3,5	3,3	3,3	3,3	3,4	3,2	3,5	2022	-0,3
Earnings-related	1,7	2,8	3,8	4,3	4,7	4,5	4,7	2061	2,8
Minimum pensions (non-contributory)	0,0	0,0	0,0	0,1	0,1	0,0	0,1	2058	0,0
Disability pensions	0,9	1,4	1,6	1,7	1,7	1,6	1,7	2055	0,7
Survivor pensions	0,2	0,4	0,4	0,4	0,3	0,3	0,4	2029	0,1
Other pensions	0,1	0,1	0,1	0,1	0,1	0,1	0,2	2023	-0,1

Source: European Commission, EPC.

3.3. Description of main driving forces behind the projection results and their implications

This part provides more details about the development of public pension expenditure (Table 8). It uses a standard arithmetic disaggregation of the pension expenditures-to-GDP ratio into the dependency ratio, coverage ratio, benefit ratio and a labour market effect (Figure 2, first equation). Two further sub-decompositions have been agreed in the past. First, the coverage ratio can be split to look into the take-up ratios for old-age pensions and early pensions (second equation in Figure 2). Second, the labour market indicator is further disaggregated according to the third equation in Figure 2.

FIGURE 2 – DISAGGREGATION OF PUBLIC PENSION EXPENDITURE

$$\frac{pension\ \ exp enditure}{GDP} = \underset{\downarrow}{\frac{population\ \ 65+}{population\ \ 20-64}} \times \underset{\downarrow}{\frac{number\ \ of\ \ pensioners}{pop ulation\ \ 65+}} \times \underset{\downarrow}{\frac{average\ \ pension\ \ income}{\frac{GDP}{hours\ \ worked\ \ 20-74}}}} \times \underset{\downarrow}{\frac{population\ \ 20-64}{hours\ \ worked\ \ 20-74}} \quad [1]$$

dependency ratio *coverage ratio* *benefit ratio* *labour market effect*

$$\frac{number\ \ of\ \ pensioners}{pop ulation\ \ 65+} = \underset{\downarrow}{\frac{number\ \ of\ \ pensioners\ \ 65+}{pop ulation\ \ 65+}} + \left(\underset{\downarrow}{\frac{number\ \ of\ \ pensioners\ \ \leq 65}{population\ \ 50-64}} \times \underset{\downarrow}{\frac{population\ \ 50-64}{population\ \ 65+}}\right) \quad [2]$$

coverage ratio old-age *coverage ratio early-age* *cohort effect*

$$\frac{population\ \ 20-64}{hours\ \ worked\ \ 20-74} = \underset{\downarrow}{\frac{population\ \ 20-64}{employed\ \ people\ \ 20-64}} \times \underset{\downarrow}{\frac{employed\ \ people\ \ 20-64}{hours\ \ worked\ \ by\ people\ \ 20-64}}} \times \underset{\downarrow}{\frac{hours\ \ worked\ \ by\ people\ \ 20-64}{hours\ \ worked\ \ by\ peop le\ 20-74}} \quad [3]$$

1/employment rate *1/labour intensity* *1/career shift*

Source: European Commission, EPC.

The main driving force behind the increase of the public pension expenditure is the dependency ratio effect: it reflects the demographic developments (strong rise of the old-age dependency ratio, increase

in life expectancy, etc.). The reasons behind the decrease in the coverage ratio by 2030 is the ongoing increase in the legal retirement age. The cohort effect is also a strong driving force behind the coverage ratio. A higher benefit ratio increases expenditure in the first decade but after 2030, lowering it thereafter.

TABLE 8 – FACTORS BEHIND THE CHANGE IN PUBLIC PENSION EXPENDITURE BETWEEN 2019 AND 2070 (PPS OF GDP) – PENSIONERS[3]

	2022-30	2030-40	2040-50	2050-60	2060-70	2022-70
Public pensions to GDP	1,7	1,2	0,5	0,4	-0,5	3,2
Dependency ratio effect	1,7	1,7	1,4	2,2	0,2	7,1
Coverage ratio effect*	-1,1	-0,6	-0,2	-0,5	0,0	-2,4
Coverage ratio old-age	-0,5	-0,3	0,0	0,0	0,0	-0,7
Coverage ratio early-age	-0,7	-0,7	-0,3	0,6	-0,7	-1,9
Cohort effect	-1,7	-0,8	-0,7	-2,8	0,4	-5,6
Benefit ratio effect	1,1	0,1	-0,5	-1,0	-0,8	-1,0
Labour market effect	0,0	0,0	0,0	-0,2	0,1	-0,1
Employment ratio effect	0,0	0,0	0,0	-0,1	0,0	-0,1
Labour intensity effect	0,0	0,0	0,0	0,0	0,0	0,0
Career shift effect	0,0	0,0	0,0	-0,1	0,1	0,0
Residual	-0,1	-0,1	-0,1	-0,1	0,0	-0,4

** Subcomponents of the coverage ratio effect do not add up necessarily.*

Source: European Commission, EPC.

Table 9 reflects the projected benefit ratio and replacement rate over the projection period. In the first decade the public benefit ratio is expected to increase. During this period, the increase of the retirement age is still in progress. Also, the number of contributors is at its highest level over the projection period (2022-2070). Due to the favourable current demographic and economic situation, in the short term (2022-2024), the additional indexation can be applied. Also, the single person's benefit that supplements old-age pensions and the supplement for the lowest pensions is included into expenditures and raises the benefit ratio. The benefit ratio remains more or less stable in 2030-2050 and starts to decrease afterwards, returning in 2070 to the similar level as it was in 2022. The 2019 reform of the funded scheme results in a higher benefit ratio as no splitting contribution is applicable, therefore the level of the benefits is higher than in previous rounds of projections. The public benefit ratio is supplemented by the private quasi-mandatory pension scheme. At the beginning of the projection period (2022) the impact of the participation in the private quasi-mandatory scheme has no impact on the benefit ratio due to a very short average participation period, small average accumulated amounts and small numbers of participants reaching the retirement age. Over the projection period, the number of retiring participants and the accumulated accounts will increase. The benefit ratio and replacement ratio from the private quasi-mandatory pension scheme reported in AR2024 is almost the same as they were reported in AR2021: the benefit ratio from the private funded scheme in 2070 is expected to be at the level of 5%, the replacement ratio – 8%, i.e. almost 1/3rd of the newly awarded pension is expected to be paid from the funded scheme.

The replacement rate for the public scheme remains stable over the period of 2022-2030 at the level of 27% and starts to decline afterwards. The downward trend continues throughout the rest of the projection period (-8 p.p.).

[3] For the disaggregation based on the number of *pensions*, see Table A3 in the methodological annex.

The benefit ratio is higher than the replacement rate in the public scheme over the projection period, indicating that old-age pensions are supplemented by other benefits.

TABLE 9 – BENEFIT RATIO (BR), REPLACEMENT RATE AT RETIREMENT (RR) AND COVERAGE BY PENSION SCHEME (IN %)

	2022	2030	2040	2050	2060	2070	change 2022-2070 (pps)
Public scheme (BR)	24%	29%	29%	28%	25%	23%	-1%
Coverage	100%	100%	100%	100%	100%	100%	0%
Public scheme: old-age earnings related (BR)	29%	31%	31%	29%	25%	23%	-6%
Public scheme: old-age earnings related (RR)	27%	27%	24%	21%	20%	19%	-8%
Coverage	65%	70%	73%	75%	78%	79%	14%
Private occupational scheme (BR)	:	:	:	:	:	:	:
Private occupational scheme (RR)	:	:	:	:	:	:	:
Coverage	:	:	:	:	:	:	:
Private individual schemes (BR)	0%	1%	2%	3%	4%	5%	4%
Private individual schemes (RR)	0%	2%	3%	5%	7%	8%	7%
Coverage	11%	20%	39%	52%	60%	61%	51%
Total benefit ratio	24%	29%	30%	29%	27%	26%	2%
Total replacement rate (earnings-related benefits)	27%	28%	27%	26%	26%	26%	-1%

Coverage of each pension scheme is calculated as a ratio of the number of pensioners within the scheme and the total number of pensioners in the country. In case data on pensioners are not available, the calculation is based on the number of pensions.

Source: European Commission, EPC.

The number of pensioners during the projection period (2022-2070) will decrease by 63 thousand (about -7%) in 2070. In comparison to AR2021, the number of pensioners is projected to be higher over the entire projection period (AR2021: 756 thousand in 2070; AR2024: 876 thousand in 2070). Employment decreases dramatically from 1424 thousand in 2022 to 827 thousand in 2070 (AR2021: -758 thousand) because of negative migration in the first two decades (2022-2040) and the fact that no increase of retirement age is legislated after 2026 although life expectancy at retirement age increases for both sexes. This increases the pension system dependency ratio steadily, until it reaches 100% in 2060 and 110 % in 2070, with a total change of 40 p.p. over 2022-2070 period.

TABLE 10 – SYSTEM DEPENDENCY RATIO AND OLD-AGE DEPENDENCY RATIO

	2022	2030	2040	2050	2060	2070	change 2022-2070
Number of pensioners (thousand) (I)	939	921	931	930	930	876	-63
Employment (thousand) (II)	1424	1296	1159	1034	899	827	-597
Pension system dependency ratio (SDR) (I)/(II)	0,7	0,7	0,8	0,9	1,0	1,1	0,4
Number of people aged 65+ (thousand) (III)	567	650	704	722	758	716	150
Working-age population 20-64 (thousand) (IV)	1713	1565	1400	1246	1065	990	-723
Old-age dependency ratio (OADR) (III)/(IV)	0,3	0,4	0,5	0,6	0,7	0,7	0,4
System efficiency (SDR/OADR)	2,0	1,7	1,6	1,6	1,5	1,5	-0,5

Source: European Commission, EPC.

Table 11 describes an evolution of the number of pensioners by age group. This provides an opportunity to analyse the effect of the increase in the statutory retirement age. The ratio is higher than 100 in most cases due to a common practice in Lithuania to work and to get a full pension (old-age or disability) at the same time, which gives a possibility to increase pension rights for additional working years as well. Non-resident pensioners increase this ratio above 100 as well (for those who have at least the minimum insurance period in Lithuania, pensions are paid world-wide).

The ratio of pensioners to the inactive population in the age group 55-59 between 2022 and 2030 is decreasing. It is mainly affected by an increase of the statutory retirement age which postpones early retirement as well. The upward trend of the ratio as of 2030 is a result of a shrinking inactive population

as compared to the entire population of that age group, while the number of disability pensioners is calculated using a constant probability to be disabled at a specific age (this probability is thus increasing with a shifting retirement age to older cohorts).

The stable decrease of the ratio in the age group 60-64 between 2022 and 2030 is caused by the increase of the statutory retirement age. After the latter reaches 65 in 2026, the ratio becomes close to 100 with a slight increase because of rising employment is projected for this age group. The ratio of pensioners to inactive population in the age groups 65+ stays constant because the increase of retirement age has no impact on this age group and the number of pensioners is calculated as a stable ratio from the non-disabled population. A similar evolution can be seen in Table 12 for female pensioners.

TABLE 11 – PUBLIC PENSIONERS TO (INACTIVE) POPULATION BY AGE GROUP (%)

pensioners / inactive population	2022	2030	2040	2050	2060	2070
Age group -54	18,5	21,0	22,7	20,5	19,8	19,4
Age group 55-59	132,2	101,6	109,6	114,0	122,9	122,4
Age group 60-64	174,0	104,1	109,8	109,2	112,1	112,7
Age group 65-69	153,0	124,6	123,7	124,7	123,9	124,6
Age group 70-74	119,5	119,2	105,2	104,7	104,6	104,6
Age group 75+	117,6	103,1	103,0	103,1	103,0	103,1

pensioners / total population	2022	2030	2040	2050	2060	2070
Age group -54	7,2	8,0	8,1	7,4	7,3	7,1
Age group 55-59	22,1	19,8	20,5	20,9	21,2	21,0
Age group 60-64	56,3	35,5	36,9	36,4	36,5	35,9
Age group 65-69	108,3	98,4	97,4	97,0	97,5	97,3
Age group 70-74	107,3	113,7	100,8	100,4	100,3	100,3
Age group 75+	117,6	103,1	103,0	103,1	103,0	103,1

Source: European Commission, EPC.

TABLE 12 – FEMALE PENSIONERS TO (INACTIVE) POPULATION BY AGE GROUP (%)

female pensioners / inactive population	2022	2030	2040	2050	2060	2070
Age group -54	16,5	18,2	18,8	16,4	15,7	15,3
Age group 55-59	128,5	94,1	92,0	91,6	102,1	101,5
Age group 60-64	186,0	113,8	111,2	110,7	115,8	114,2
Age group 65-69	151,8	125,3	124,4	124,1	123,2	124,3
Age group 70-74	117,1	125,1	105,5	104,7	104,5	104,5
Age group 75+	118,6	108,4	103,8	102,8	102,3	102,4

female pensioners / total population	2022	2030	2040	2050	2060	2070
Age group -54	6,4	7,2	7,1	6,4	6,2	6,0
Age group 55-59	19,8	16,3	17,5	17,4	17,6	17,4
Age group 60-64	60,9	36,0	37,5	37,5	37,9	36,3
Age group 65-69	108,6	98,9	97,4	96,9	97,4	97,1
Age group 70-74	107,4	119,6	101,0	100,4	100,3	100,3
Age group 75+	118,6	108,4	103,8	102,8	102,3	102,4

Source: European Commission, EPC.

The evolution of the number of new pensioners reflects two effects: size of retiring cohorts and the increase of the retirement age. While the large retiring cohorts (with a peak in 2027) increase the number of new pensioners, the postponement of the retirement age offsets this effect slightly. After 2030, the number of new pensioners remains almost stable until 2050 and then decreases due to demographic reasons. The evolution of the projected new pension expenditure is directly affected by the evolution of

the number of new pensioners, the pension indexation coefficient, stricter eligibility conditions and the maturation of the second pillar scheme with the 2019 reform coming into effect.

New public pension expenditure for the point pension system can be checked by the factors in Table 13. This includes only the earnings-related part of the pension. The number of average pension points at retirement is affected by two factors – the increasing contributory period till 2026 as a result of the increasing statutory retirement age and decreasing accrual rate for those who contribute to the quasi-mandatory private pension scheme. The number of average pension points accumulated per year is slightly reduced in proportion to the size of the contributions transferred to a private pension fund only for the years of accumulation till 2019. After 2030, the number of total pension points at retirement remains stable as the average contributory period, standard retirement age and effective retirement age remain stable. Pension rules are the same for both sexes and so are the dynamics of pension entitlements. Differences only exist in the labour market and they cause the shorter careers at the start of the projections because of lower pension age and lower income for females.

TABLE 13 – BREAKDOWN OF NEW PUBLIC PENSION EXPENDITURE (OLD-AGE AND EARLY EARNINGS-RELATED PENSIONS)

TOTAL	2022	2030	2040	2050	2060	2070
Projected new pension expenditure (million EUR)*	37	77	100	148	178	187
I. Number of new pensions (1000)	29,5	33,8	31,7	34,2	29,8	22,7
II. Point value (EUR/month)	4,9	8,9	12,3	16,9	23,3	32,2
III. Average accrual rate (points/year) (IV/V)	1,2	1,1	1,1	1,1	1,1	1,1
IV. Total pension points at retirement	42	43	43	43	43	43
V. Average contributory period (years)	35	39	39	38	38	38
VI. Sustainability/adjustment factors	1,0	1,0	1,0	1,0	1,0	1,0
VII. Correction coefficient	1,0	1,0	1,0	1,0	1,0	1,0
VIII. Average number of months paid the first year	6,0	6,0	6,0	6,0	6,0	6,0

MEN	2022	2030	2040	2050	2060	2070
Projected new pension expenditure (million EUR)*	18	34	44	72	94	103
I. Number of new pensions (1000)	14,5	14,8	14,2	16,8	15,8	12,6
II. Point value (EUR/month)	4,9	8,9	12,3	16,9	23,3	32,2
III. Average accrual rate (points/year) (IV/V)	1,2	1,1	1,1	1,1	1,1	1,1
IV. Total pension points at retirement	42	42	42	42	42	42
V. Average contributory period (years)	36	37	37	37	37	37
VI. Sustainability/adjustment factors	1,0	1,0	1,0	1,0	1,0	1,0
VII. Correction coefficient	1,0	1,0	1,0	1,0	1,0	1,0
VIII. Average number of months paid the first year	6,0	6,0	6,0	6,0	6,0	6,0

WOMEN	2022	2030	2040	2050	2060	2070
Projected new pension expenditure (million EUR)*	19	44	56	76	84	84
I. Number of new pensions (1000)	15,0	19,0	17,5	17,3	14,0	10,1
II. Point value (EUR/month)	4,9	8,9	12,3	16,9	23,3	32,2
III. Average accrual rate (points/year) (IV/V)	1,2	1,1	1,1	1,1	1,1	1,1
IV. Total pension points at retirement	42	43	43	43	43	43
V. Average contributory period (years)	35	40	40	40	40	40
VI. Sustainability/adjustment factors	1,0	1,0	1,0	1,0	1,0	1,0
VII. Correction coefficient	1,0	1,0	1,0	1,0	1,0	1,0
VIII. Average number of months paid the first year	6,0	6,0	6,0	6,0	6,0	6,0

**New pension expenditure equals the product of I, II, IV, VI, VII & VIII.*

Source: European Commission, EPC.

3.4. Financing of the pension system

The financing of the pension system was changed in 2019. The financing of the general part of the 1st pillar pension was shifted to the State budget. This shift in financing was accompanied by a reform of the social insurance contributions and personal income tax. The burden of payment of the larger part, i.e. 28.9% of social insurance contributions paid by employers, was transferred to employees. In turn, employers were obliged to recalculate the gross wage for employees by increasing it by a factor of 1.289. The social insurance contribution and tax tariffs were recalculated using the new (higher) base. The pension insurance tariff was decreased whilst the income tax was increased. The individual pension part is financed out of employee contributions, which corresponds to 8.72% of the gross wage. Self-employed people also have an obligation to insure themselves for the social insurance pension with the contribution rate of 8.72%. There are several population groups for which contributions for the full pension calculated on the minimum wage are covered by the State budget, namely people taking care of children below the age of three or of disabled people, and individuals having the status of an artist.

The general part of pensions is financed by allocations from the State budget.

State pensions and social assistance pensions and pension supplement are financed from the State budget. There are no more transfers to the quasi-mandatory private funded pension scheme since 2019.

TABLE 14 – FINANCING OF THE PUBLIC PENSION SYSTEM

	Public employees	Private employees	Self-employed
Contribution base	Gross salary	Gross salary	Declared earrnings
Contribution rate/contribution			
Employee	8,72%	8,72%	8.72% - based on 50% of declared earnings (90% when engaged in an individual activity).
Employer	0,0%	0,0%	0,0%
*State**	Allocations to finance basic part of pensions; State social insurance contributions from mimimum wage for the categories insured by the state; State's subsidy for the participants of the quasi-mandatory scheme		
*Other revenues**			
Maximum contribution	Contributions ceiling (2022): 90 246 EUR		Contributions ceiling (2022): 64 676 EUR
Minimum contribution	Minimum wage (2022): 730 EUR		No minimum contribution

Source: European Commission, EPC.

The number of persons employed decreases during the entire projection period. The rate of contributors to employed remains stable over the projection period. The rate of contributors to employment (0.9) is below 1 due to different data sources used: for the employment labour force survey data are used and for the number of contributors' data from the social insurance fund board database.

The social insurance pension system is balanced at the start of the projections (until 2026). The Law states that the calculated pension index is applied unless it generates a pension system deficit. If this would be the case, central pension indicators – the amount of basic pension and the pension point value – are left unchanged. This is how the balancing mechanism (introduced in 2018) works in principle. Therefore, this projected gap should be covered by suspending indexation. However, what seems more likely is that the parametric reforms introducing alternative balancing measures would be implemented under such circumstances.

It was decided to depart in the projections from this stipulation in the Law and to present a baseline scenario not fully consistent with the balancing rule, as suspension of indexation would mean benefit ratios fall, requiring the government by Law to put forward counteracting, expenditure-increasing measures. Keeping both elements outside of the baseline projections thus appears a balanced approach.

TABLE 15 – REVENUE FROM CONTRIBUTIONS AND NUMBER OF CONTRIBUTORS IN THE PUBLIC SCHEME

	2022	2030	2040	2050	2060	2070	change 2022-2070 (pps)
Public pension contributions (%GDP)	6,8	7,9	7,9	7,8	8,0	7,8	1,0
Employer contributions	*0,0*	*0,0*	*0,0*	*0,0*	*0,0*	*0,0*	*0,0*
Employee contributions	*3,1*	*3,8*	*3,8*	*3,8*	*3,8*	*3,8*	*0,6*
*State contribution**	*3,6*	*4,2*	*4,1*	*4,0*	*4,2*	*4,0*	*0,4*
*Other revenues**	*0,0*	*0,0*	*0,0*	*0,0*	*0,0*	*0,0*	*0,0*
Number of contributors (I) (1000)	1414	1191	1063	948	823	757	-658
Employment (II) (1000)	1424	1296	1159	1034	899	827	-597
(I) / (II)	0,99	0,92	0,92	0,92	0,92	0,91	-0,1

**Includes only legislated contributions.*

Source: European Commission, EPC.

3.5. Pension assets and returns on assets

Since its conception in 2005, the private individual mandatory scheme accumulated assets representing 8.5% of GDP in 2022. These would grow to almost 16% of GDP in 2070, in line with the commonly-agreed long-term interest rates in 2022-2070. Pension assets are managed by 6 asset managing companies and one life assurance company. Every manager is obliged by law to have 8 pension funds: 7 life cycle target date funds and 1 assets preservation fund for those who reach the retirement age and require withdrawals from the fund. It is up to the manager to decide on the specific investment strategy of the fund but the general requirements are in the law. All investment strategies must by approved by the Bank of Lithuania.

3.6. Sensitivity analysis

Table 16 presents the scenarios in terms of deviation from the baseline.

- The *higher life expectancy at birth* scenario generates bigger public pension expenditures because of bigger number of pensioners.

- *A lower net migration* means a higher number of employed people. It increases the pension expenditure (due to higher pension index) and GDP till 2070. The expenditure until 2040 is affected less, but afterwards all those who remained in the country start to retire and pension expenditure increases. The *higher migration* scenario has similar effects, but in the opposite direction.

- The *lower fertility scenario* is quite neutral for the public scheme due to the indexation rule that reacts to a shrinking employment to the same extent as the GDP with the postponement due to the use of a 7-year average. This is the reason for a slightly higher expenditure starting from 2030, and it remains almost stable throughout the projected period. Nevertheless, it increases the pension expenditure-to-GDP ratio in the private pension scheme.

- The *higher inflation scenario* remains neutral over the whole projection period. Pensions are indexed according to wage sum growth. In the first decade (until 2030) the growth rate remains higher than the inflation rate. Over the 2032-2050 period, according to the assumptions, the inflation rate and the growth rate are the same, so it causes lower pension indexation and therefore lower pension expenditure.

- *Higher employment of older workers' scenario* increases the number of employed in older age groups and their contributions. But at the same time they accrue additional pension rights, leading to higher pension benefits. The impact of this scenario on public pension expenditure is rather neutral.

- Public pension expenditure decreases (increases) by -0.2 (+0.5) percentage points of GDP in 2070 in *the higher (lower) total factor productivity scenario* in comparison with the baseline. As pensions are calculated on the basis of the full carrier income, periods of productivity growth/decrease in new pensions are reflected with a delay in projections whereas GDP grows (declines) immediately.

- The *constant retirement age policy scenario* has a rapid effect on public pension expenditure. Under current legislation, the retirement age is gradually postponed for the biggest cohorts, although this postponement is in place only until 2026. Absent these changes in the legal retirement age, the number of pensioners would therefore increase very rapidly, pushing up the

public pension expenditure-to-GDP ratio. Staying longer in retirement increases expenditure as well.

- Under the *linking retirement age to life expectancy scenario*, public expenditure over the first two decades of the projection (2022-2040) remains unchanged from the baseline because of an already legislated increase of the retirement age until 2026. A shorter retirement period afterwards generates lower public expenditure (2060-2070). For the total expenses, a shorter retirement period at the beginning of the projection period (2030) generates higher annuities, higher replacement rates and therefore higher expenditure than in the baseline scenario; it reduces total pension expenditure afterwards.

TABLE 16 – EXPENDITURE PROJECTIONS UNDER DIFFERENT SCENARIOS (PPS DEVIATION FROM BASELINE)[4]

Public pension expenditure	2022	2030	2040	2050	2060	2070	change 2022-2070 (pps)
Baseline (%GDP)	6,4	8,1	9,3	9,8	10,2	9,7	3,2
Higher life expectancy at birth (+2y)	0,0	0,1	0,1	0,2	0,2	0,2	0,2
Higher migration (+33%)	0,0	0,0	-0,1	-0,1	-0,1	-0,2	-0,2
Lower migration (-33%)	0,0	0,2	0,2	0,3	0,4	0,3	0,3
Lower fertility (-20%)	0,0	0,1	0,1	0,1	0,1	0,2	0,2
Higher inflation scenario (2% by 2052)	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Higher employment rate of older workers (+10 pps)	0,0	0,0	0,0	0,1	0,0	0,1	0,1
Higher productivity (TFP converges to 1%)	0,0	0,0	-0,1	-0,2	-0,3	-0,2	-0,2
Lower productivity (TFP converges to 0.6%)	0,0	-0,1	-0,1	0,1	0,2	0,5	0,4
Policy scenario: link retirement age to longevity	0,0	0,0	0,0	0,0	-0,2	-0,2	-0,2
Policy scenario: constant retirement age	0,0	0,1	0,2	0,2	0,3	0,2	0,2
Policy scenario: constant benefit ratio	:	:	:	:	:	:	:

Total pension expenditure	2022	2030	2040	2050	2060	2070	change 2022-2070 (pps)
Baseline (%GDP)	6,4	8,1	9,5	10,3	11,1	10,9	4,4
Higher life expectancy at birth (+2y)	0,0	0,1	0,1	0,2	0,2	0,2	0,2
Higher migration (+33%)	0,0	0,0	-0,1	-0,1	-0,1	-0,1	-0,1
Lower migration (-33%)	0,0	0,2	0,2	0,4	0,5	0,5	0,5
Lower fertility (-20%)	0,0	0,1	0,1	0,1	0,1	0,2	0,2
Higher inflation scenario (2% by 2052)	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Higher employment rate of older workers (+10 pps)	0,0	0,0	0,0	0,1	0,0	0,1	0,1
Higher productivity (TFP converges to 1%)	0,0	0,0	-0,1	-0,2	-0,4	-0,4	-0,4
Lower productivity (TFP converges to 0.6%)	0,0	-0,1	-0,1	0,1	0,3	0,5	0,5
Policy scenario: link retirement age to longevity	0,0	0,0	0,0	-0,1	-0,3	-0,4	-0,4
Policy scenario: constant retirement age	0,0	0,1	0,2	0,2	0,2	0,2	0,2
Policy scenario: constant benefit ratio	:	:	:	:	:	:	:

Source: European Commission, EPC.

[4] For more information on the design of the sensitivity scenarios, see Chapter 5 of Part 1 in European Commission and EPC (2023), *'The 2024 Ageing Report: Underlying assumptions and projection methodologies'*, European Economy, Institutional Paper 257.

3.7. Changes in comparison with previous Ageing Report projections

Table 17 shows the evolution pension projections for AWG and Ageing Reports over the last 18 years.

Looking at the dynamic of pension expenditure, the projected upward trend was stopped in the 2015 projections because of the rising statutory pension age and a more favourable dependency ratio. However, in the current projection round, pension expenditure increases strongly again.

Before the 2018 Ageing Report the benefit ratio effect was very weak as the wage growth assumption was used for pension indexation. After the 2018 reform the benefit ratio works as the strongest offsetting factor due to a new indexation rule (using the wage sum growth). Although with the introduction of new universal benefits/measures (single person's benefit, universal flat general part without reduction), the balancing effect of the benefit ratio seems to be lower.

The labour market effect and the residual have a lower impact.

In the current projection round the dependency ratio effect increased by 1.3 p.p., the coverage ratio decreased by 0.4 p.p., the employment effect is quite similar to the previous one. However, the benefit ratio effect has increased by 2.2 p.p. This is due to the reform of the quasi-mandatory private pension scheme in 2019. Private pension accumulation contributions are no longer transferred from social insurance contributions' tariff and therefore the earnings-related individual pension part is not lowered for the years of accumulation after 2019.

TABLE 17 – DISAGGREGATION OF THE CHANGE IN THE PUBLIC PENSION EXPENDITURE-TO-GDP RATIO IN CONSECUTIVE AGEING REPORTS (PPS OF GDP)

	Public pension expenditure	*Dependency ratio effect*	*Coverage ratio effect*	*Benefit ratio effect*	*Labour market effect*	*Residual (incl. interaction effect)*
2006 Ageing Report (2004-2050)	**1,9**	*5,4*	*-2,1*	*-0,2*	*-1,0*	*-0,2*
2009 Ageing Report (2007-2060)	**4,6**	*9,6*	*-2,4*	*-1,8*	*0,0*	*-0,8*
2012 Ageing Report (2010-2060)	**3,5**	*8,2*	*-2,9*	*-0,2*	*-1,1*	*-0,5*
2015 Ageing Report (2013-2060)	**0,3**	*4,3*	*-2,2*	*-0,9*	*-0,6*	*-0,4*
2018 Ageing Report (2016-2070)	**-1,7**	*5,0*	*-1,8*	*-4,0*	*-0,3*	*-0,6*
2021 Ageing Report (2019-2070)	**0,4**	*5,9*	*-1,9*	*-2,9*	*-0,2*	*-0,5*
2024 Ageing Report (2022-2070)	**3,7**	*7,2*	*-2,4*	*-0,6*	*-0,1*	*-0,3*

- The disaggregation for 2006/2009/2012 is on the basis of the number of pensions; for the other vintages it is on the basis of pensioners.

- The projection horizon has been extended over consecutive Ageing Reports, limiting comparability over time.

Source: European Commission, EPC.

Table 18 compares the projections of the 2021 Ageing Report with actual public pension expenditure between 2019 (the previous base year) and 2022 (the new base year). In AR2021, the public pension expenditure was projected to be higher than actual expenditure over the 2019-2022 period. The differences in projected and actual first of all could be explained by a different demographic end economic situation that could not be properly reflected in the assumptions: COVID-19 and the support measures that injected huge amounts of money into the economy, increased mortality, especially among older population groups, energy price inflation, the outbreak of the war in Ukraine and refugees' flows, resulting in a different employment situation. Also, it should be mentioned that actual GDP growth over the 2020-2022 period was higher than projected in AR2021. These are the reasons behind the differences shown in the Table 18.

TABLE 18 – DISAGGREGATION OF THE DIFFERENCE BETWEEN THE 2021 PROJECTIONS AND ACTUAL PUBLIC PENSION EXPENDITURE IN 2019-2022 (%GDP)

	2019	2020	2021	2022
Ageing Report 2021 projections (%GDP)	7,1	8,2	7,8	7,8
Assumptions (pps of GDP)	-0,8	-1,2	-1,0	-1,3
Coverage of projections (pps of GDP)				
Constant policy impact (pps of GDP)				
Policy-related impact (pps of GDP)				
Actual public pension expenditure (%GDP)	6,4	7,0	6,8	6,4

Source: European Commission, EPC.

In Table 19, the impact of the changes in the projections compared to the 2021 round is reflected:

- Change in assumptions: the macroeconomic and demographic assumptions result in higher expenditure than in the previous exercise, because this round entails less favourable demographic forecasts for the older population.
- Changes in coverage/modelling: adjusted formula for the general part and updated variables for special schemes.
- Policy-related changes (see Section 1.2 include changes in structure of general part of the pension and introduction of the single person's benefit.

TABLE 19 – DISAGGREGATION OF THE DIFFERENCE BETWEEN THE 2021 AND THE NEW PUBLIC PENSION PROJECTIONS (%GDP)

	2022	2030	2040	2050	2060	2070
Ageing Report 2021 projections	7,8	7,9	8,4	8,2	8,1	7,5
Change in assumptions (pps of GDP)	0,0	0,3	1,4	2,6	3,2	3,2
Improvement in the coverage or in the modelling (pps of GDP)	-1,3	-0,5	-0,8	-1,3	-1,2	-1,6
Change in the interpretation of constant policy (pps of GDP)						
Policy-related changes (pps of GDP)	0,0	0,4	0,5	0,3	0,1	0,6
New projections	6,4	8,1	9,3	9,8	10,2	9,7

Source: European Commission, EPC.

4. Description of the pension projection model and the base data

4.1. Institutional context in which the projections are made

The Ministry of Social Security and Labour is responsible for the projection of the financial development of the statutory pension scheme.

For this projection round the same cohort model was used as for the previous projections' rounds. All pension schemes (except special state pensions): social insurance, social assistance and private quasi-mandatory funded pension schemes are modelled in one model using the same set of assumptions and are linked to each other (e.g. old-age and disability with social assistance scheme or old-age with private quasi-mandatory scheme).

The projections have been done using the cohort simulation model LSIM (Lithuanian Social Insurance Model). It was firstly developed in 2006 by the joint project of the Ministry of Social Security and Labour and Sweden's National Social Insurance Board (Riksförsäkringsverket). The model was extended and improved by the Ministry in 2011 as the outcome of the project "Using and customizing

of existing national standard models (macro and cohorts) for use in policy making" financed by European Commission under the PROGRESS program. The providers of service were Deloitte experts.

All the data (databases) used for the model was prepared in close cooperation with the institutions responsible for awarding the social security pensions and the State Data Agency).

In the preparation of the projections the conditions determined by the AWG were followed – the impact of the laws adopted before July 2022 was considered.

The projections were not submitted to review in the country.

Indicators for new pension expenditure decomposition are calculated for both genders separately. Pension replacement rates are calculated separately for different kinds of quasi-mandatory private pension scheme participants and they are calculated as a ratio of average new pension to average pre-retirement wage.

The last update of the model was done in October 2023 to reflect the changes of the general part of the pensions and include the single person's benefit.

4.2. Data used to run the model

All the data (databases) used for the model was prepared in close cooperation with the institutions responsible for awarding the social security pensions and the State Data Agency (statistics).

The most important parameters for pension expenditure calculation, e.g. average retirement age (considering early and postponed retirement), average service period of new retirees, distribution by age and sex of the number of social insurance pensioners (old-age, disability, widow(er)s and orphans), pension amounts for the base year, number of contributors and their wage distribution by age, number of contributors to quasi-mandatory private funded pension scheme as a percentage of all contributors (disaggregated by sex and cohort) and were extracted from the database of the Social Insurance Fund Board for the year 2022. For the private individual quasi-mandatory scheme, data provided by the National Bank was used.

4.3. Reforms incorporated in the model

All reforms adopted before July 2022, were incorporated in the model (see description in section 1.2).

4.4. General description of the model(s)

The Lithuanian Social Insurance Model LSIM is a standard cohort model written in VBA. In the model the population is split into several homogenous groups (cohorts) according to the sex and the year of birth. Individuals within each group are considered to be identical. Input data as well as the variables calculated within the model are in the form of cohort averages or totals or higher-level aggregates.

The model starts from current cross-sectional information and makes projection of the cohort development on the basis of sex- and age-dependent assumptions on the cohort structure (e.g. sex- and age dependent participation rates, unemployment rates, disability rates, etc.). Most important outputs comprise total revenues and expenditure of the pension system.

The Model consists of the sequence of modules each performing relatively isolated calculations for all cohorts. Input data are loaded from separate file and they often contain several alternative scenarios so that the user can choose from the predefined scenarios for which the calculations are performed.

4.5. Other features of the projection model

The number of old-age pensioners in the model is calculated on the basis of the population figures and age, gender and year specific shares of pensioners in nondisabled population estimated on the past trends with respect to the number of years before/after statutory retirement age while taking into account the legislated increase. Age-specific shares of pensioners will thus change with shifts of pension ages.

The number of new pensioners is calculated from difference between current number of pensioners in a cohort and number of pensioners in the respective cohort in the previous year with taking into consideration expected number of dead pensioners. Newly granted pensions are computed in a loop over "s" values (service years) and "k" values (average number of points accumulated per year). In each step, number of new pensioners having the respective values "s" and "k" is calculated from the conditional distributions of "s" on age of becoming pensioner and conditional distribution of "k" on "s" and corresponding newly granted pension (general and individual) is calculated for them. These pensioners are subsequently added to the distribution of newly granted pensions. After calculating newly granted pensions for all values "k" and "s" (i.e. all new pensioners are already included), new pensioners with their pensions are added to pension distributions of survival pensioners.

Cohort and year specific participation rates in quasi-mandatory private funded pension scheme are loaded from the data. They are used later for reduction of supplementary pension due to transfers to quasi-mandatory private funded pension scheme.

The model calculates the number of insured who are actually contributing by applying compliance rates to the employed and their actual wage (lower than national average in statistics) on which contributions are paid.

The replacement rates are calculated as a ratio of average newly granted old-age pension (public or private) to average pre-retirement wage. Total replacement rate (public + private old-age pension to average wage) is computed separately for participants in Pillar II and non-participants in Pillar II. Common total replacement rate (regardless to the participation in Pillar II) is calculated as well.

$$rrPublic(y) = \left(\frac{tot_{NewPensionExpenditure}(y)}{6 * tot_{NewPensioners}(y)}\right) / \left(\frac{avgWage(y)}{12}\right)$$

Disabled population at the specific age is calculated from the population (lower number of disabled in the previous year) multiplied by disability granting probability and by share of disabled in the respective disability group. Probability of surviving half a year is then applied resulting in disabled population at the specific age in the specific year and for a specific gender and disability group. Number of disabled independent of disability group is cumulated. For cohorts older than the statutory pension age, the disability granting probability is set to zero. Some of the disability pensioners switch to the old-age pension and some of them keep the disability pension. Probabilities of switching to old-age pension depend on the group of the disability and they were derived from the database of pensioners.

The orphan population is projected on the basis of fertility rates, probability distribution of age of mother at the birth of the child. New orphans by death of mother are then calculated using annual survival rates for mothers. Corresponding new orphans' benefits are calculated as 50% of the expected pension of the mother (disability or old age). New orphans by death of mother and their benefits are then summed over mother's age. New orphans by death of father are calculated similarly by using age difference between father and mother loaded from input data. Age, gender and sex specific number of new orphans and their benefits are then obtained by summing orphans and their benefits by death of mother and death of father.

New widow(er)s are calculated by applying rate of marriage and survival rates for partners on average population. Projection takes into consideration remarriages and deaths of widow(er)s. Number of different persons modelled per generation.

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Methodological annex

Economy-wide average wage at retirement

The data for economy-wide average wage at retirement was obtained from Social insurance fund board database of insured persons. The wage profile by age shows that average pre-retirement wage is slightly higher than economy-wide average wage (Table A1). It is presumed in the projection of pre-retirement wage that the wage profile shifts to the higher ages together with the increase of the retirement age.

TABLE A1 – ECONOMY-WIDE AVERAGE WAGE AT RETIREMENT (1000 EUR)

	2022	2030	2040	2050	2060	2070
Economy-wide average gross wage at retirement	21,5	35,7	55,6	82,7	119,4	167,8
Economy-wide average gross wage	19,2	31,0	48,9	73,0	106,0	148,6

Source: European Commission, EPC.

Pensioners vs pensions

Pension system model works with the number of pensioners. According to legislation it is possible to be entitled to more than one type of pension. Mainly widows and state pensions are paid together with old-age and disability pensions.

Pension taxation

Pensions are not subject to taxation.

Disability pensioners

There is no reform affecting the average amount of the disability pension.

The disability rates in the age groups are mainly affected by the changing distribution of population so as the population ages the average disability rates in older age groups are increasing. Disability rates of the younger age groups also fluctuate due to the changes in distribution of population. Not all disability pensions are transformed into old-age benefits upon retirement age. In case of disability pensions awarded prior to 2018, recipients can continue receiving of the previously awarded disability pension if old-age benefit is lower.

TABLE A2 – DISABILITY RATES BY AGE GROUPS (%)

	2022	2030	2040	2050	2060	2070
Age group -54	2,6%	2,8%	3,3%	3,1%	3,0%	3,1%
Age group 55-59	14,0%	16,1%	17,4%	17,9%	18,0%	17,8%
Age group 60-64	18,7%	22,8%	24,9%	25,6%	25,9%	25,6%
Age group 65-69	2,6%	7,2%	7,6%	6,5%	8,9%	7,7%
Age group 70-74	5,8%	2,6%	6,8%	6,9%	7,0%	7,1%
Age group 75+	5,1%	4,6%	4,2%	5,2%	5,5%	5,7%

Source: Ministry of Social Security and Labour of Lithuania.

Survivors' pensions

A detailed description of the driving forces behind the evolution of the survivor benefit is described in chapter 4.5. There are no reforms envisaged that affect the quantification of the benefit so the development of both orphan's and widow's pensions follow the demographic trend. Reforms that affect the quantification of the benefit (i.e. increasing or reducing the revolving ratio of the spouse pension).

Non-earnings-related minimum pension

The number of social assistance old-age pension beneficiaries are computed as a share in population not receiving old-age or disability pension. The shares for all categories (old- age, disability and survivors) are kept constant throughout the projection period. This share is set to 1 for cohorts older than statutory pension age. In order to get a plausible number of social assistance beneficiaries, separate projections with solely resident pensioners are produced.

Contributions

Constant contribution rate of 8.72% is assumed over the projection horizon, fully paid by the employee.

Alternative pension spending disaggregation

Table A3 is similar to Table 8 but provides a disaggregation of the change in pension expenditure based on the number of pensions as compared to the number of pensioners in Table 8.

TABLE A3 – FACTORS BEHIND THE CHANGE IN PUBLIC PENSION EXPENDITURE BETWEEN 2022 AND 2070 (PPS OF GDP) – PENSIONS

	2022-30	2030-40	2040-50	2050-60	2060-70	2022-70
Public pensions to GDP	1,9	1,0	0,6	0,7	-0,4	3,7
Dependency ratio effect	1,6	1,7	1,4	2,2	0,2	7,1
Coverage ratio effect*	-0,6	-0,6	-0,3	-0,6	-0,1	-2,3
Coverage ratio old-age	-0,4	-0,3	-0,2	-0,2	-0,1	-1,2
Coverage ratio early-age	0,2	-0,6	-0,3	0,6	-0,7	-0,9
Cohort effect	-1,6	-0,8	-0,7	-2,8	0,4	-5,5
Benefit ratio effect	0,6	-0,1	-0,4	-0,5	-0,6	-1,0
Labour market effect	0,0	0,0	0,0	-0,2	0,1	-0,1
Employment ratio effect	0,0	0,0	0,0	-0,1	0,0	-0,1
Labour intensity effect	0,0	0,0	0,0	0,0	0,0	0,0
Career shift effect	0,0	0,0	0,0	-0,1	0,1	0,0
Residual	0,2	-0,1	0,0	-0,1	0,0	0,0

Source: European Commission, EPC.