

2021 Ageing Report: Latvian Country Fiche on
Pension Projections,
November 2020

1. OVERVIEW OF THE PENSION SYSTEM

Pension System in Latvia

The Notional defined-contribution (NDC) pension scheme is functioning already since 1996, the state mandatory funded defined contribution (FDC) pension scheme was launched in July 2001, and voluntary private pension funds are operating from July 1998. The social insurance contribution rate for the state old-age pensions (NDC + FDC) is 20 per cent of the gross wage.

1.1. Description

Public pensions

Old-age pensions

The first pillar pension scheme (implemented in January 1996) is based on insurance principles, as the social insurance contributions, earmarked for old-age pensions, are recorded in notional individual accounts, with a theoretical rate of return applied until retirement so that a (notional) pension capital is accumulated, while contributions are actually used for financing current pension expenditures. Pensions are calculated by dividing the amount accumulated in the notional account by projected cohort unisex life expectancy at retirement.

Benefits can be claimed at any time starting from the minimum retirement age and it is possible to receive a full pension while continuing work after retirement. Working pensioners continue to contribute and accumulate additional notional pension capital. This newly accrued pension capital also yields a rate of return, and the benefit is recalculated not more often than once a year. The principle behind this is that it provides an opportunity and support for flexible withdrawal from the labour force.

Minimum insurance record (qualification period) for eligibility to state old-age pension was 10 years until 31 December 2013, since January 2014 it is 15 years and in January 2025 it will rise to 20 years.

Since 2017, a person who has an insurance period less than the minimum insurance record (or no insurance record) and has reached the statutory retirement age (SRA) (before 2017 – 5 years after SRA) is granted the state social security benefit, financed by the state budget. The monthly amount of the benefit is 64.03 EUR in 2019. These state social security benefits are included in the pension projections.

Legislation provides an opportunity to retire 2 years before the statutory retirement age for people whose insurance record is 30 years or more. The amount of the early retirement pension is 50% of the pension amount. The full pension is restored after reaching the statutory retirement age.

The statutory retirement age for men and women, has been increasing by three months every year since 2014 (when it was 62 years) and will reach 65 years in 2025 (SRA in 2019: 63 years and 6 months for men and women).

The average benefit is directly dependent on the actual pensioner's age, number of years worked until 1996, contributions paid since 1996 and dynamics of the contribution wage

base (growth of the contribution wage sum in Latvia), which determines the rate of return for the NDC pension capital.

Old-age pension formula:

$$P = K/G, \text{ where}$$

P - pension

K – pension capital

G – life expectancy at retirement

The contribution wage sum consists of the total base (employed and self-employed income, pension contributions transfers from the state basic budget and the state special budget) on which contributions are made.

Transitional rules as part of the Law on State Pensions are the most important implementation tool of the pension system. This covers all insured persons, retiring after 1996, who have made contributions prior to 1996. An important element of the transitional provisions is the evaluation of individual contributions before 1996, when there were no personified registrations of social insurance contributions. According to the design of the NDC scheme's transitional provisions, the insurance period until the year 1995 (inclusive) is credited with an initial capital, calculated using the average individual contribution wage¹ in 1996-1999. Retired people, whose insurance record is not shorter than 30 years, but whose income has been below the national average, are also supported financially, e.g. for starting capital calculation in relevant years (1996–1999) the average wage in Latvia is taken into account, not the individual contributions wage.

Old-age pension formula in transitional period:

$$P = (K_S + K)/G, \text{ where}$$

P - pension

K_S - pension capital until 1996, estimated by individual average wage 1996-1999

K – pension capital after 1996

G – life expectancy at retirement

Pensions granted before 1996 were not revised according to the rules of the NDC scheme.

Nevertheless the same rules for indexation are applied for both the old-law and new-law pensioners.

Within the framework of the 1996 pension reform it was also intended to introduce a 4th pension tier from the state basic budget in order to reduce the impact of the transitional period for those pensioners whose work life until 1996 forms the major part of their record. A measure somewhat similar to the 4th pension tier was introduced in 2006 from the state special insurance budget resources. Since January 2006, supplements for each insurance year up to 31 December 1995, are paid to old-age pensioners. In 2009, this supplement was defined for all old-age and disability pensions as one euro for each year worked. Since 2014, the supplement is financed from the state basic budget. In July 2018, this supplement was increased to 1.50 EUR for those who retired until 1996.

¹ The average contribution wage is the average wage on which contributions are actually based. It takes into account evasion as well as ceilings and also social transfers (for the non-contributory periods), and is usually lower than the economy-wide average wage.

Since October 2019, the standard indexation regime is also applied to this supplement of pension, increasing it annually by the actual consumer price index and 50% of the real increase in the social insurance contribution wage sum. Therefore, if before a person received €1.00 for each insurance year until 31 December 1995, then after the indexation it was €1.07, but if he/she received €1.50, then after the indexation it was €1.61 for each insurance year until 31 December 1995.

Supplements to the old-age and disability pensions for newly granted pensions have been suspended since 2012.

Disability pensions

Persons, whose insurance record is not less than three years and who have been recognised as disabled, are entitled to a disability pension, with the exception of persons whose disability has been caused by an accident at work or an occupational disease. The latter are entitled to indemnity (compensation) for the loss of the work capacity.

Disabled persons are divided into three categories (Category I being the most severe). The Health and Working Capacity Medical Expert Commission determines the category of disability as well as the cause and anticipated duration of the disability.

Disability pension formulas:

Category I

$$P = 0.45 \times V_i + (A_{Si} / A_{Sie}) \times V_i \times 0.1$$

Category II

$$P = 0.4 \times V_i + (A_{Si} / A_{Sie}) \times V_i \times 0.1, \text{ where}$$

P: pension;

V_i : reference earnings (the best earnings for 3 years in last 5 years period);

A_{Si} : individual insurance record in years;

A_{Sie} : maximum possible insurance record from the age of 15 until legal retirement age;

For disabled persons of category III: the benefit is fixed at the amount of the state social security benefit (80.00 EUR per month in 2020, before it was 64.03 EUR).

The amount of the disability pension for Groups I and II shall not be less than the amount of the state social security benefit (80.00 EUR since 2020), as the basis for calculation of the guaranteed pension amount, to which the following coefficient is applicable:

in case of Group I disability - 1.6;

in case of Group II disability - 1.4.

Disabled persons who have reached the statutory retirement age are granted the old-age pension instead of disability pension (disability pensioners, who reached the statutory retirement age before 1996 continue to receive disability pensions – until the transition period ends). If the amount of old-age pension is lower than the disability pension amount, people continue to receive the higher disability pension amount.

To provide more universal support for people with disabilities, the state social security benefit is granted to persons who are not entitled to state disability pensions (based on contributions made).

Since 2020, the amount of the state social security benefit for persons with disability in general case is 80.00 euro per month, for disabled persons since childhood – 122.69 euro per month.

Starting from January 2020 the amount of the state social security benefit granted to disabled persons (including disabled persons since childhood) above 18 years of age and not entitled to state pension is as follows:

- in the case of disability Group I – 104.00 (before 83.24) euro per month (for those disabled since childhood – 159.50 (before 138.73) euro per month);
- in the case of disability Group II – 96.00 (before 76.84) euro per month (for disabled persons since childhood – 147.23 (before 128.06) euro per month).

These state social security benefits are included in the pension projections.

Survivors' pensions

If the breadwinner has been an insured person, his/her family members are entitled to a survivor's pension irrespective of the cause of death of the breadwinner.

Family members (under the age of 18) incapable of work who have been dependent on the deceased breadwinner are entitled to the survivor's pension.

Persons are also considered incapable of work if, at the time of the death of the breadwinner or later, they are full-time students at secondary, vocational or tertiary educational establishment and are aged below 24.

There are no widows' pensions, except for "old pension system" commitments:

Widows, who have pensions according to the old pension system, continue to receive those during the transition period (paid from the state pension special budget (insurance)).

The survivor's pension is calculated taking into account the breadwinner's possible old-age pension:

- for one child - 50% of the pension;
- for two children - 75% of the pension;
- for three and more children - 90% of the pension.

The amount of survivor's pension for each child cannot be less than the minimum amount of pensions defined by the Cabinet. Since 1 April 2017, the minimum amount of survivor's pension for each child:

- up to six years (including) – 92.50 euro;
- up to six years (including) to children disabled since the childhood – 106.72 euro;
- from seven years - 111.00 euro.

Service pensions (during the transition period)

On 1 January 1999, the determination of insurance records qualifying for service pensions was terminated. Only persons, who by 1 January 1999 had worked in special qualifying occupations for not less than three fourths of the insurance period required for allocation of the service pension in accordance with special regulations, retained their entitlements. The service pension is paid from the state pension special budget. Service pensions are not included in the projections.

Persons who have been granted the service pension in accordance to the special regulations and who have reached the statutory retirement age, are granted the old-age pension instead of the service pension. It cannot be lower than the service pension received prior.

Some of service pensions cover small numbers of participants, anyhow contributions are made towards old age pensions and upon reaching SRA old age pension is granting. Sufficient data not available for earlier age groups.

The state mandatory funded pension scheme

The FDC pension scheme in Latvia was started in July 2001. It is a fully funded statutory pension scheme, with part of the total contribution rate of 20% for old-age pensions invested in financial assets.

The FDC pension scheme is one of the pillars of the Latvia's pension system. Diversification of future risks into pillars helps to ensure the long-term financial sustainability of the state pension system, to decrease state's liabilities for the future pensioners, to promote pension adequacy as well as to invest more money in the economy.

Coverage in the FDC pension scheme is mandatory for persons who were under the age of 30 on 1 July 2001, when the State Funded Pension Law came into force. Persons who were at that moment in the age group of 30 – 49 can affiliate to this scheme on a voluntary basis at any time. Participation conditions are simplified as much as possible and synchronized with the participation in the NDC PAYG pension scheme. This means that the FDC pension scheme gradually will cover almost all persons covered by the state pension insurance. However, persons who were at the age of 50 or older when the law came into force, did not have the option to participate. This scheme is expected to be fully mandatory around 2035, when all cohorts of voluntary participants have retired.

The share of contributions dedicated for saving in the FDC scheme has increased gradually, proportionally reducing the contribution rate for the 1st pillar (NDC PAYG):

Starting from 2016 the contribution rate to the funded pension scheme according to the Law on State Funded Pensions is set at 6%. As the state mandatory funded pension scheme is within the framework of state pension system, all contributions on behalf of the individual, paid by the state budget or other social insurance budgets (in case of child care, unemployment etc.) are attributed to both schemes accordingly. Since 2020 all such contributions are directed to the 1st pillar.

There are two options at retirement. Depending on the participant's choice the accumulated state funded pension capital will be:

- added to the 1st pillar pension capital for calculation of the total old-age pension, based on the NDC scheme formula, or
- transferred to the life insurance company, which subsequently will provide a whole life annuity.
- Since 1 January 2020, inheriting pension capital is possible in case the contributor dies before retirement.

Voluntary private pension scheme, not included in projections

This scheme exists since 1 July 1998. Its purpose is to accumulate and invest the voluntarily made contributions of its participants by means of private pension funds thus ensuring additional pension capital in old age. Pension plan participants may participate directly or with involvement of their employer. The pension plan participant can receive all accumulated pension capital from the age of 55 or continue participating and receive capital in parts.

Financing of the Social Security system

In 1998, several significant changes were introduced in the area of financing social insurance. Four special social insurance budgets (special budgets) were approved instead of one special insurance budget with expenditure permissible within the given budgetary frame: the state pension special budget; the employment special budget; the occupational accident special budget; the disability, maternity and sickness special budget. A differentiated rate for social insurance contributions was established. Persons were insured and made social insurance contributions against risks that could materialize.

Access to old age pensions for self-employed with relatively low income since 2018.

Taxation of pensions

Pensions are included in the annual taxable income. Pensions granted prior to 1996 are not subject to income tax.

For pensioners whose pensions were granted or recalculated since 1/1/1996, the annual non-taxable minimum was 270 EUR per month in 2019.

In accordance with the 2017 Tax reform, starting from 2018, the personal income tax has become progressive and the non-taxable minimum for pensioners was raised to EUR 300 in 2020.

Annual additional tax exemption limits for disability pensions granted or recalculated since 1/1/1996:

Group I & II: 1 848 EUR per annum

Group III: 1 440 EUR per annum

Pension (in payment) indexation

Indexation of earning-related pensions was frozen from 2009 until 2012. In 2013, an extra indexation for smaller pensions was applied. An actual consumer price index (CPI) and 25% of the real increase in the contribution wage sum were used for the pension indexation from 2014 to 2016, with a ceiling on the indexed part of the pension benefit defined. In 2014, this ceiling was 285 EUR but starting from 2015 the indexed part of the pension benefit is not higher than 50% of previous year's average contribution wage. However, pensions for persons with a Group I disability, for politically repressed persons and for liquidators of the Chernobyl nuclear disaster are indexed in full. Since 2017, pension indexation is based on actual consumer price index (CPI) and 50% of the real increase in the contribution wage sum.

As of 2018 when indexing old-age pensions with high contribution records, a higher share of the average contribution wage sum real increase is applied:

- 60%, if the contribution record is 30-39 years long, as well as for pensions for employment in hard and hazardous or extra hard and hazardous employment conditions;
- 70% if the contribution record is 40 or more years;

- from 1 October 2019 – 80% (instead of 70%), if the contribution record is 45 years or more.
- Supplements to old-age pensions are indexed from October 2019 to CPI and 50% of contribution wage sum real growth.

Table 1 – Qualifying condition for retiring

		2019	2030	2040	2050	2060	2070	
Qualifying condition for retiring with a full pension	Statutory retirement age - men	63y 6m	65	65	65	65	65	
	Statutory retirement age - women	63y 6m	65	65	65	65	65	
	Minimum requirements	Contributory period - men	15	20	20	20	20	20
		Retirement age - men	63y 6m	65	65	65	65	65
		Contributory period - women	15	20	20	20	20	20
		Retirement age - women	63y 6m	65	65	65	65	65
Qualifying condition for retirement without a full pension	Early retirement age - men	61y 6m	63	63	63	63	63	
	Early retirement age - women	61y 6m	63	63	63	63	63	
	Penalty in case of earliest retirement age	50%	50%	50%	50%	50%	50%	
	Bonus in case of late retirement	-	-	-	-	-	-	
	Minimum contributory period - men	30	30	30	30	30	30	
	Minimum contributory period - women	30	30	30	30	30	30	
	Minimum residence period - men ²	5	5	5	5	5	5	
	Minimum residence period – women ²	5	5	5	5	5	5	

Source: Latvia, Ministry of Welfare

Valorisation of pensionable earnings/old-age pension capital

The yearly nominal growth of the contribution wage sum is used for the valorisation of the NDC pension capital.

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

The new projections (compared to the 2018 Ageing Report projections) include:

- 1) From 1 October 2019, to the old-age pensions with an insurance period of 45 years or more shall be applied the actual consumer price index and 80% (instead of 70%) of percentage of the real increase in the social insurance contribution wage sum;
- 2) Since 1 October 2019, indexation is also applied to the pension supplement, considering the actual consumer price index and 50% of the real increase in the social insurance contribution wage sum (see higher);
- 3) In order to maintain the policy of reducing poverty and social exclusion, the increase of state support was directed to retirees who receive small old-age pensions and persons with disabilities - both recipients of state social security benefit (SSSB) and recipients of small disability pensions. Increasing the minimum base for Old Age pension calculation from 64.03 to 80 EUR. Increasing a minimum amount for increasing the base for calculating the SSSB for persons with disabilities from EUR 64.03 to EUR 80.00, for persons with disabilities since childhood from EUR 106.72 to EUR 122.69. Increasing the base for calculating minimum amount for disability pension, applying amount of state social security benefit for persons with disabilities – EUR 80.00, for persons with disabilities since childhood – EUR 122.69.

² To qualify for minimum pension from the State basic budget.

4) Since 1 January 2020, inheriting pension capital is possible in case the contributor dies before retirement.

In addition, Parliament accepted the budget for 2021, the budget package includes an increase in minimum benefit amounts: minimum old age insurance pension amounts (calculation basis increased from EUR 80 to EUR 136). Minimum disability pension amounts and survivors' pension amounts as well as non-contributory minimum pension amounts are also expected to be increased. These plans are not included in projections.

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

According to the current legislation, there are no indexation rules for minimum (non-contributory) pensions paid by the state budget, these are revised based on a Cabinet decision. Assumptions for minimum (non-contributory) pension indexation used in projections: until 2029 no indexing, from 2030 full wage indexation is used – in accordance with the AWG methodology since the 2018 Ageing Report (CPI was used in AR2015).

2. OVERVIEW OF THE DEMOGRAPHIC AND LABOUR FORCE PROJECTIONS

2.1 Demographic developments

Table 2 shows the development of the main demographic indicators between 2019 and 2070.

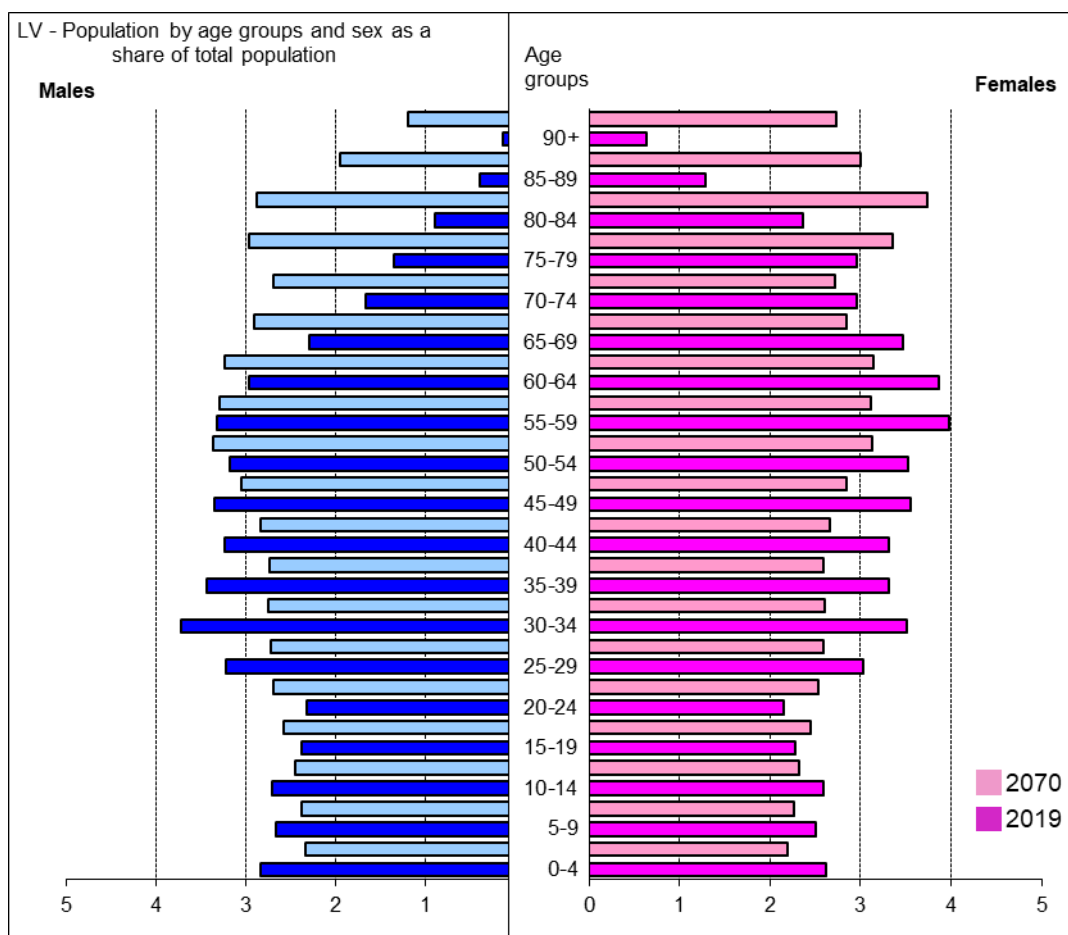
Table 2 – Main demographic variables									
	2019	2030	2040	2050	2060	2070	peak value	peak year	change 2019-2070
Population (thousand)	1 914	1 703	1 528	1 389	1 270	1 178	1 914	2019	-735
Population growth rate	-0.7	-1.1	-1.0	-0.9	-0.8	-0.7	-0.7	2070	0.0
Old-age dependency ratio (pop 65+ / pop 20-64)	34.6	45.7	53.8	62.3	69.5	63.6	69.8	2058	29.0
Old-age dependency ratio (pop 75+ / pop 20-74)	14.5	17.4	23.2	27.7	31.5	34.6	35.0	2068	20.1
Ageing of the aged (pop 80+ / pop 65+)	28.0	27.8	32.9	36.7	38.6	47.0	47.0	2070	19.0
Men - Life expectancy at birth	70.6	73.3	75.9	78.4	80.6	82.6	82.6	2070	12.0
Women - Life expectancy at birth	80.2	82.1	83.9	85.6	87.1	88.5	88.5	2070	8.3
Men - Life expectancy at 65	14.5	16.0	17.6	19.0	20.4	21.7	21.7	2070	7.2
Women - Life expectancy at 65	19.4	20.7	22.0	23.3	24.4	25.5	25.5	2070	6.1
Men - Survivor rate at 65+	69.1	75.2	79.9	83.7	86.9	89.4	89.4	2070	20.3
Women - Survivor rate at 65+	87.7	90.0	91.7	93.2	94.4	95.3	95.3	2070	7.6
Men - Survivor rate at 80+	32.7	41.9	49.9	57.3	64.1	70.0	70.0	2070	37.2
Women - Survivor rate at 80+	63.7	69.8	74.7	78.9	82.4	85.4	85.4	2070	21.8
Net migration (thousand)	-3.9	-7.3	-4.7	-2.3	-0.6	0.7	0.7	2070	4.7
Net migration over population change	0.3	0.4	0.3	0.2	0.1	-0.1	0.5	2024	-0.4

Source: EUROSTAT (EUROPOP2019) and European Commission

The Latvian population is expected to continue declining, shrinking by a third between 2019 and 2060 and by almost 40% by 2070. The total population is projected to decline in comparison with the previous projections (2017ESSPOP2015), when the population in 2060 was projected at 1 422 thousand or 152 thousand fewer people than in the new EUROPOP2019 projections.

The projected demographical changes, with a sharp increase in projected life expectancy at birth (for men at birth by 12 years; for women at birth by 8.3 years) as well as emigration, lead to a rapid increase in the old-age dependency ratio in the long run – from 14.5% in 2019 to 34.6% in 2070 or an increase by 20.1 p.p.

Figure 1 – Age pyramid, comparison between 2019 and 2070



Source: EUROSTAT and European Commission

2.2. Labour force

Table 3 shows the projected development of the main labour market indicators over the projection period. Labour force participation rates and employment rates are slightly volatile for the 55-64 age group. The participations rates for working age population (20-64) remain high over the projection horizon mostly due to demographic reasons as working age population shrinks and there is a shortage of workforce.

Table 3 – Participation rate, employment rate and share of workers for the age groups 20-64, 20-74, 55-64 and 65-74

	2019	2030	2040	2050	2060	2070	peak value	peak year	change 2019-2070
Labour force participation rate 20-64	82.9	82.0	82.0	82.2	83.6	83.0	83.6	2060	0.1
Employment rate of workers aged 20-64	77.6	74.7	75.5	76.6	77.9	77.4	77.9	2060	-0.2
Share of workers aged 20-64 in the labour force 20-64	93.6	91.1	92.1	93.1	93.2	93.2	93.6	2019	-0.4
Labour force participation	73.6	68.8	68.4	67.6	67.7	70.7	73.6	2019	-2.9

rate 20-74									
Employment rate of workers aged 20-74	69.0	62.8	63.2	63.1	63.2	66.0	69.0	2019	-3.0
Share of workers aged 20-74 in the labour force 20-74	93.8	91.3	92.3	93.3	93.4	93.3	93.8	2019	-0.4
Labour force participation rate 55-64	72.5	68.3	68.8	67.5	69.4	69.4	72.5	2019	-3.1
Employment rate of workers aged 55-64	67.7	62.1	63.3	62.8	64.6	64.7	67.7	2019	-3.0
Share of workers aged 55-64 in the labour force 55-64	93.3	91.0	92.1	93.0	93.1	93.1	93.3	2019	-0.2
Labour force participation rate 65-74	20.7	13.8	13.7	13.7	12.5	13.6	20.7	2019	-7.1
Employment rate of workers aged 65-74	20.3	13.5	13.4	13.4	12.2	13.3	20.3	2019	-7.0
Share of workers aged 65-74 in the labour force 65-74	98.1	97.6	97.8	97.9	97.9	97.9	98.1	2019	-0.2
Median age of the labour force	42.0	43.0	44.0	42.0	42.0	42.0	44.0	2034	0.0

Source: European Commission

Tables 4a and 4b show labour market exit ages, contributory period, as well as expected durations of life spent at retirement by sex. The tables show that the effective labour market exit age is slightly lower for men, while the current retirement age is almost identical. Female contributory periods are longer, with a difference expected to last in the projections.

Table 4a – Exit ages and expected duration of retirement - MEN

	2020	2030	2040	2050	2060	2070	peak value	peak year	change 2020-2070
Average effective retirement age (administrative data)*	62.8								
Average labour market exit age (CSM)**	63.2	64.3	64.3	64.3	64.3	64.3	64.3	2026	1.1
Contributory period	35.5	36.3	36.3	36.3	36.3	36.3	36.3	2025	0.7
Duration of retirement***	15.6	16.7	18.2	19.7	21.2	22.5	22.5	2070	6.9
Duration of retirement/contributory period	0.4	0.5	0.5	0.5	0.6	0.6	0.6	2070	0.2
Percentage of adult life spent in retirement****	25.6	26.5	28.2	29.8	31.4	32.7	32.7	2070	7.1
Early/late exit*****	1.2	1.2	1.2	1.1	0.8	1.0	1.2	2020	-0.2

Source: European Commission

Table 4b – Exit ages and expected duration of retirement - WOMEN

	2020	2030	2040	2050	2060	2070	peak value	peak year	change 2020-2070
Average effective retirement age (administrative data)*	62.7								
Average labour market exit age (CSM)**	63.8	64.6	64.6	64.6	64.6	64.6	64.6	2026	0.8
Contributory period	36.8	37.5	37.5	37.5	37.5	37.5	37.5	2025	0.7
Duration of retirement***	20.2	20.7	22.0	23.3	24.4	25.5	25.5	2070	5.3
Duration of retirement/contributory period	0.5	0.6	0.6	0.6	0.7	0.7	0.7	2070	0.1
Percentage of adult life spent in retirement****	30.6	30.8	32.1	33.3	34.4	35.4	35.4	2070	4.7
Early/late exit*****	1.0	0.9	0.9	0.9	0.7	0.8	1.3	2023	-0.1

Source: European Commission

* The effective retirement age shows the age at which people on average start receiving an old-age pension benefit. It is calculated on the basis of the administrative data for 2019 (see Annex Tables A4a and A4b); ** The labour market exit age as calculated based on Labour Force Survey data for the base year and estimated by the Cohort Simulation Model thereafter; *** 'Duration of retirement' is calculated as the difference between the life expectancy at the average labour market exit age and that exit age itself; **** The 'percentage of adult life spent in retirement' is calculated as the ratio between the duration of retirement and the life expectancy minus

18 years; ***** *Early/late exit is the ratio between those who retire and are below the statutory retirement age and those who retire at the statutory retirement age or above.*

3. PENSION PROJECTION RESULTS

The aim of this chapter is the presentation of the results of the pension projections for Latvia and the description of the main driving forces behind these results.

3.1. Extent of the coverage of the pension schemes in the projections

Table 5 - Eurostat (ESSPROS) vs. Ageing Working Group definition of pension expenditure (% GDP)

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	change 2009-2018
Eurostat total pension expenditure	8.3	10.1	8.6	8.2	8.2	7.9	7.7	7.6	7.5	7.4	-0.9
Eurostat public pension expenditure (A)	8.3	10.1	8.6	8.2	8.2	7.9	7.7	7.6	7.5	7.4	-0.9
Public pension expenditure (AWG: outcome) (B)	8.2	9.9	8.4	7.9	7.8	7.6	7.4	7.3	7.2	7.1	-1.0
Difference Eurostat/AWG: (A)-(B)	0.1	0.2	0.2	0.3	0.4	0.3	0.3	0.3	0.3	0.3	0.1

Source: European Commission and Latvia, Ministry of Welfare

The main factors explaining the difference between ESSPROSS and AWG data on pension expenditures are that the State pension system – Social security and private mandatory (funded) pension schemes as well as minimum (guarantee) pensions – are included in the projections, while ESSPROSS figures include also indemnities of insurance against work injury, specific public sector service pensions.

3.2. Overview of projection results

Table 6 – Projected gross and net pension spending and contributions (% GDP)

Expenditure	2019	2030	2040	2050	2060	2070	peak value	peak year	change 2019-2070
Gross public pension expenditure	7.1	6.9	6.6	6.3	6.2	5.9	8.1	2020	-1.2
Private occupational pensions	:	:	:	:	:	:	:	:	:
Private individual mandatory pensions	0.0	0.2	0.4	1.0	1.7	2.2	2.2	2070	2.2
Private individual non-mandatory pensions	:	:	:	:	:	:	:	:	:
Gross total pension expenditure	7.1	7.1	7.0	7.3	8.0	8.1	8.1	2070	1.0
Net public pension expenditure*	:	:	:	:	:	:	:	:	:
Net total pension expenditure*	:	:	:	:	:	:	:	:	:
Contributions	2019	2030	2040	2050	2060	2070	peak value	peak year	change 2019-2070
Public pension contributions	8.4	7.3	7.0	6.7	6.6	6.8	8.7	2020	-1.6
Total pension contributions	10.3	9.1	8.8	8.5	8.4	8.6	10.6	2020	-1.7

Source: Latvia, Ministry of Welfare

* *Net pension expenditure excludes taxes on pensions and compulsory social security contributions paid by beneficiaries. These are not projected in the Latvian model.*

Table 6 shows the dynamics of gross pension expenditures and contributions. Decrease of gross public pension expenditures in % of GDP during all the period of projections is mainly connected with the redistribution of pension contribution rate between NDC and FDC. Some impact also comes from increases in the retirement age and indexation rules. Gross public

pension expenditures as % of GDP decline by 1.2 p.p. during the projection period, the mandatory private pension expenditures increase by 2.2 p.p.

The public pension contributions include contributions to the state special pension budget (covering old-age pensions, survival pensions, service pensions, funeral benefits, benefit in case of deceased spouse) and contributions to disability insurance. The contribution rate to the state pension budget varies – it depends from proportions of expenditures between social insurance special budgets. The contribution rates to the state pension budget and for disability insurance were fixed in projections at the rates in 2019.

Table 7 – Projected gross public pension spending by scheme (% GDP)

Pension scheme	2019	2030	2040	2050	2060	2070	peak value	peak year	change 2019-2070
Total public pensions	7.1	6.9	6.6	6.3	6.2	5.9	8.1	2020	-1.2
Old-age and early pensions	6.4	6.3	6.0	5.8	5.7	5.3	7.3	2020	-1.1
Flat component	:	:	:	:	:	:	:	:	:
Earnings-related	6.4	6.3	6.0	5.8	5.7	5.3	7.3	2020	-1.1
Minimum pensions (non-contributory) i.e. minimum income guarantee for people above 65	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2059	0.0
Disability pensions	0.59	0.53	0.48	0.45	0.42	0.49	0.7	2020	-0.1
Survivors' pensions	0.12	0.14	0.12	0.11	0.12	0.11	0.14	2020	0.0
Other pensions	:	:	:	:	:	:	:	:	:

Source: Latvia, Ministry of Welfare

The ratio of old-age and early pensions spending is mainly connected with the redistribution of pension contribution rate between NDC and FDC. The ratio of disability and survivors pensions spending mostly follows demographic developments.

3.3. Description of main driving forces behind the projection results and their implications for main items from a pension questionnaire

This part provides more details about the development of public pension expenditures (Table 8). It uses a standard arithmetic breakdown of the pension expenditure-to-GDP ratio into the dependency ratio, coverage ratio, benefit ratio and labour market effect (see Figure 2).

Figure 2 – Disaggregation of public pension expenditure

$$\frac{\text{pension expenditure}}{\text{GDP}} = \frac{\text{population } 65+}{\text{population } 20-64} \times \frac{\text{number of pensioners}}{\text{population } 65+} \times \frac{\text{average pension income}}{\frac{\text{GDP}}{\text{hours worked } 20-74}} \times \frac{\text{population } 20-64}{\text{hours worked } 20-74} \quad [1]$$

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

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

Source: European Commission

The proposed disaggregation is calculated using both data on pensioners (Table 8) and pensions (see Table A3 in annex). The number of pensions and the average pension amount are important to understand the dynamics of pension expenditure. Projections on the number of pensioners have to be done coherently with the demographic and macroeconomic frameworks.

Table 8 – Factors behind the change in public pension expenditure between 2019 and 2070 (percentage points of GDP) – pensioners

	2019-30	2030-40	2040-50	2050-60	2060-70	2019-70
Public pensions to GDP	-0.2	-0.4	-0.2	-0.1	-0.3	-1.2
Dependency ratio effect	2.3	1.2	1.0	0.7	-0.5	4.6
Coverage ratio effect*	-0.9	-0.3	-0.2	-0.1	0.1	-1.4
Coverage ratio old-age	-0.4	0.0	0.0	0.0	0.0	-0.5
Coverage ratio early-age	-1.0	-0.5	0.5	0.3	0.0	-0.7
Cohort effect	-1.7	-0.6	-1.3	-1.2	1.1	-3.6
Benefit ratio effect	-1.6	-1.1	-0.8	-0.5	0.0	-4.1
Labour market effect	0.3	-0.1	-0.1	-0.1	0.1	0.1
Employment ratio effect	0.3	-0.1	-0.1	-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	0.0	0.0	0.1
Residual	-0.3	-0.1	-0.1	0.0	0.0	-0.5

Source: European Commission

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

The difference between number of pensioners and number of pensions reflects the difference between number of survivor pensioners (for example 3 children in one family) and number of

survivor pensions (one pension paid for the 3 children in this family). For calculating the total number of survivor pensions, the coefficient is used.

The positive dependency ratio effect reflects the impact of the current demographic situation, fertility projections and the assumed increase in life expectancy, causing the dependency ratio to rise during most of the projection period. However, as of 2060 a negative dependency ratio effect is projected - explainable by the demographic developments.

The main driving force behind the overall decrease of public pension expenditures to GDP is the benefit ratio. The constant decrease of the benefit ratio (average benefit/average wage) over the projection period (see also Table 9) is explained mainly by switching part of the public old-age scheme into private funded schemes – so public provision decreases while the private mandatory part increases. Also, indexation at rates below average wage growth plays a role.

The decrease of the coverage ratio in the first period of projection is the result of the increase in retirement age and early retirement age. The labour market effect is limited.

Table 9 –Benefit ratio (BR), Replacement rate at retirement (RR) and coverage by pension scheme (in %)

	2019	2030	2040	2050	2060	2070	change 2019-2070 (pps)
Public scheme (BR)	23%	20%	17%	15%	13%	13%	-9%
Coverage	100.0	100.0	100.0	100.0	100.0	100.0	0.0
Public scheme: old-age earnings related (BR)	26%	22%	18%	16%	14%	14%	-11%
Public scheme: old-age earnings related (RR)	55%	39%	28%	24%	21%	20%	-35%
Coverage	80.4	80.9	83.2	85.1	86.3	84.4	4.0
Private occupational scheme (BR)	:	:	:	:	:	:	:
Private occupational scheme (RR)	:	:	:	:	:	:	:
Coverage	:	:	:	:	:	:	:
Private individual schemes (BR)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Private individual schemes (RR)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Coverage	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total benefit ratio	23%	20%	18%	17%	17%	19%	-4%
Total replacement rate	56%	42%	34%	32%	31%	30%	-25%

Source: Latvia, Ministry of Welfare

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.

The gross average replacement rate at retirement is the ratio of the first average pension of those who retire in a given year over the average wage at retirement. In the Latvian projection exercise the actual average contribution wage in 2019 for contributors (excluding transfers) at the age of 63 is used (882 EUR per month). For future years, the average nominal wage growth rate was applied, as provided by the Commission.

For the calculation of old-age pensions, the insurance period until 1995 (included) is credited with an initial capital, calculated using an average contribution wage³ of individuals in 1996-

³ The average contribution wage is the average wage on which contributions are actually based. It takes into account special regimes of contributors, ceilings and also social transfers (for the non-contributory periods), and is usually lower than the economy-wide average wage.

1999. Retired people, whose insurance record is not shorter than 30 years, but whose income has been below the state average, are also supported financially, e.g. for starting capital calculation in relevant years (1996–1999) the average wage is taken into account, not the individual contribution wage. More than half of new granted pensions benefited from this privilege as well as from other privileges and advantages, which has a positive impact on old-age pension amounts in the transitional period. Year by year these privileges and their impact decrease and pure NDC rules dominate. Nominal wage growth is projected lower than in the 2018 Ageing Report.

There is a high difference between the average gross wage used in the projections and actual contribution wage from national administrative data. In 2019 the average contribution wage from administrative data was 908.89 per month and it is only 64% of wage used in projections.

The total gross replacement rate showed in Table 9 includes the public scheme of old-age earnings related pensions. Both benefit rates and replacement rates decline significantly during almost the entire projection period.

Switching part of the public old-age scheme into private funded schemes is the main driving factor behind the decrease in the replacement ratio of the social security scheme. At the same time, the replacement ratio of the private mandatory scheme should increase (not shown in the table due to lack of data).

The old-age pension capital is valorised on the basis of changes in the contribution wage sum. The negative growth of employment/socially insured persons during most of the projection period has a negative impact on the future replacement ratio of the social security pension scheme – wages increase faster than the contribution wage sum.

Old-age pension at retirement is calculated as accumulated pension capital divided by the life expectancy at retirement age, as discussed in section 1. At an unchanged retirement age, higher life expectancy thus has a negative effect on the pension calculation and on the replacement ratio at retirement.

The state social insurance scheme is mandatory with a coverage rate of 100%. The coverage rate of the private pension scheme as it started to operate in 2001 grows over the projection period. It currently covers over 80% of the population 15-74. This scheme is expected to be fully mandatory around 2035, when cohorts of voluntary participants gradually vanish.

Table 10 – System dependency ratio and Old-age dependency ratio

	2019	2030	2040	2050	2060	2070	change 2019-2070
Number of pensioners (thousand) (I)	557	538	532	514	489	441	-115
Employment (thousand) (II)	924	735	648	565	501	477	-447
Pension system dependency ratio (SDR) (I)/(II)	60.3	73.2	82.1	90.9	97.4	92.5	32.3
Number of people aged 65+ (thousand) (III)	390	427	438	435	423	374	-16
Working age population 20-64 (thousand) (IV)	1129	934	814	699	610	589	-540
Old-age dependency ratio (OADR) (III)/(IV)	34.6	45.7	53.8	62.3	69.5	63.6	29.0
System efficiency (SDR/OADR)	1.7	1.6	1.5	1.5	1.4	1.5	-0.3

Source: European Commission

The dependency ratio increases until 2060 due to increase in life expectancy, low birth rates, migration resulting in decrease in working age population. Then a decrease is expected mostly due to demographic developments. As the largest part of all pension recipients are old-age

pensioners, the decrease in the total number of pensioners from 2019 to 2030 is mainly influenced by the increase in the retirement age since 2014, reaching 65 years in 2025, leading to fewer new pensioners.

Table 11a – Pensioners (public schemes) to inactive population ratio by age group (%)

	2019	2030	2040	2050	2060	2070
Age group -54	13.4	15.6	16.2	14.4	15.9	16.5
Age group 55-59	88.5	70.2	71.2	74.5	71.1	78.8
Age group 60-64	116.6	57.3	57.7	59.3	55.7	61.5
Age group 65-69	141.9	125.2	125.5	124.2	125.5	123.5
Age group 70-74	121.4	104.7	104.9	103.6	102.9	104.4
Age group 75+	105.3	100.9	99.1	99.1	98.7	98.4

Source: European Commission

The ratio of pensioners to inactive population in age group 55-59 is higher than in age group 60-64 due to differences in participation rates. The participation rates in age group 60-64 are lower than in age group 55-59 group.

Table 11b – Pensioners (public schemes) to population ratio by age group (%)

	5.4	6.4	6.4	5.9	6.5	6.6
Age group -54	15.9	15.3	15.4	15.8	14.7	16.2
Age group 55-59	44.0	24.1	23.9	24.9	22.7	25.0
Age group 60-64	102.7	98.7	99.0	98.0	99.5	97.2
Age group 65-69	106.8	98.6	99.1	98.0	97.4	98.8
Age group 70-74	105.3	100.9	99.1	99.1	98.7	98.4
Age group 75+	5.4	6.4	6.4	5.9	6.5	6.6

Source: European Commission

Table 12a – Female pensioners (public schemes) to inactive population ratio by age group (%)

	2019	2030	2040	2050	2060	2070
Age group -54	12.0	14.5	15.3	13.8	15.4	15.7
Age group 55-59	81.9	71.5	68.4	78.4	74.1	80.9
Age group 60-64	113.4	54.3	55.3	57.5	53.2	59.9
Age group 65-69	138.7	127.5	128.3	124.6	127.1	128.0
Age group 70-74	119.9	105.7	106.5	105.6	105.1	105.5
Age group 75+	105.1	100.1	98.3	98.5	98.9	98.2

Source: European Commission

Table 12b – Female pensioners (public schemes) to population ratio by age group (%)

	2019	2030	2040	2050	2060	2070
Age group -54	5.0	6.2	6.3	5.8	6.5	6.6
Age group 55-59	14.5	15.3	16.2	16.8	15.6	17.0
Age group 60-64	43.4	23.6	24.2	25.4	22.7	25.4
Age group 65-69	102.3	98.5	98.9	96.6	98.4	98.4
Age group 70-74	106.4	98.0	99.1	98.3	97.8	98.0
Age group 75+	105.1	100.1	98.3	98.5	98.9	98.2

Source: European Commission

The ratio to population and to inactive population shows the relation between demographical, labour force and pension projections.

The number of pensioners in the first year of the projections include also pensioners living abroad, which thereafter is not considered in the Latvian pension model.

Table 13a – Disaggregation of new public pension expenditure (old-age and early earnings-related pensions) – Total

New old-age earnings-related pensions	2019	2030	2040	2050	2060	2070
Projected new pension expenditure (million EUR)*	50.9	71.5	76.2	95.4	74.1	107.8
I. Number of new pensions (1000)	19.4	22.3	20.9	20.7	12.3	13.1
II. Average contributory period (years)	36.1	37.0	37.0	37.0	37.0	37.0
III. Average accrual rate (%) (c/A)	1.05	1.01	0.81	0.70	0.63	0.59
Notional-accounts contribution rate (c)	0.2	0.2	0.2	0.1	0.1	0.1
Annuity factor (A)	18.4	18.4	19.8	21.2	22.4	23.6
IV. Monthly average pensionable earnings (1000 EUR)	1.1	1.3	1.9	2.8	4.0	5.8
V. Sustainability/adjustment factors	1.0	1.0	1.0	1.0	1.0	1.0
VI. Average number of months paid the first year	6.5	6.5	6.5	6.5	6.5	6.5
(Monthly average pensionable earnings) / (monthly economy-wide average wage)	0.7	0.5	0.5	0.5	0.5	0.5
Projected new pension expenditure (million EUR)*	50.9	71.5	76.2	95.4	74.1	107.8

Source: Latvia, Ministry of welfare

*New pension expenditure equals the product of I, II, III, IV, V & VI

The increase in the average contributory period is explainable by the gradual increase in the statutory retirement age by 3 month every year until 2025. After 2025 the legislated retirement age is constant as well as the projected contributory period.

The average notional-accounts contribution rate declines in almost all projection years, because of the periodical decrease of the NDC contribution rate (FDC contribution rate increased accordingly) from 2001 to 2019.

The annuity factor increases during the entire projection period because life expectancy is rising while the retirement age remains constant after 2025.

The decrease in average pensionable earnings as % of average wage is explainable by the contribution wage sum (not wage index), used for the valorisation of the notional capital upon retirement. In addition, the transitional period's privileges decrease, which has a negative impact on pensionable earnings over time.

Table 13b – Disaggregation of new public pension expenditure (old-age and early earnings-related pensions) – Male

New old-age earnings-related pensions	2019	2030	2040	2050	2060	2070
Projected new pension expenditure (million EUR)*	22.8	33.1	37.0	49.1	39.8	55.3
I. Number of new pensions (1000)	8.4	9.9	9.8	10.2	6.4	6.4
II. Average contributory period (years)	35.4	36.3	36.3	36.3	36.3	36.3
III. Average accrual rate (%) (c/A)	1.05	1.01	0.81	0.70	0.63	0.59
Notional-accounts contribution rate (c)	0.2	0.2	0.2	0.1	0.1	0.1
Annuity factor (A)	18.4	18.4	19.8	21.2	22.4	23.6
IV. Monthly average pensionable earnings (1000 EUR)	1.1	1.4	2.0	2.9	4.2	6.2
V. Sustainability/adjustment factors	1.0	1.0	1.0	1.0	1.0	1.0
VI. Average number of months paid the first year	6.5	6.5	6.5	6.5	6.5	6.5

(Monthly average pensionable earnings) / (monthly economy-wide average wage)	0.8	0.6	0.5	0.5	0.5	0.5
--	-----	-----	-----	-----	-----	-----

Source: Latvia, Ministry of Welfare

*New pension expenditure equals the product of I, II, III, IV, V & VI

Table 13c – Disaggregation of new public pension expenditure (old-age and early earnings-related pensions) – Female

New old-age earnings-related pensions	2019	2030	2040	2050	2060	2070
Projected new pension expenditure (million EUR)*	28.1	38.4	39.1	46.4	34.3	52.4
I. Number of new pensions (1000)	11.1	12.4	11.1	10.5	5.9	6.7
II. Average contributory period (years)	36.6	37.5	37.5	37.5	37.5	37.5
III. Average accrual rate (%) (c/A)	1.05	1.01	0.81	0.70	0.63	0.59
Notional-accounts contribution rate (c)	0.2	0.2	0.2	0.1	0.1	0.1
Annuity factor (A)	18.4	18.4	19.8	21.2	22.4	23.6
IV. Monthly average pensionable earnings (1000 EUR)	1.0	1.3	1.8	2.6	3.8	5.4
V. Sustainability/adjustment factors	1.0	1.0	1.0	1.0	1.0	1.0
VI. Average number of months paid the first year	6.5	6.5	6.5	6.5	6.5	6.5
(Monthly average pensionable earnings) / (monthly economy-wide average wage)	0.7	0.5	0.5	0.4	0.4	0.4

Source: Latvia, Ministry of Welfare

*New pension expenditure equals the product of I, II, III, IV, V & VI

The average contributory period for women is higher than for men (both in the base year and the projections), while the average pensionable earnings are higher for men.

The average accrual rate for both men and women is the same as a unisex life table is used to determine the pension benefit.

The number of new pensioners declines during the first projection years, in accordance with increases in the legal retirement age. Thereafter, it develops in line with demography.

3.4. Financing of the pension system

Public earning-related pensions are financed by state special social insurance budget, which consists of four separate budgets: the state pension special budget; the employment special budget; the occupational accident special budget; the disability, maternity and sickness special budget. The public earning-related old-age, survivors and historical service pensions are covered by the pension special budget; the disability pensions by the disability, maternity and sickness special budget. The state special social insurance budget is self-financing. In 2019, a small health care contribution was introduced (1%).

Table 14 – Financing of the public pension system

	Public employees	Private employees	Self-employed
Contribution base	Gross salary	Gross salary	Declared earnings
Contribution rate/contribution			
Employer Employee	For pension insurance (included old-age; historic service and survivor pensions) the total rate is 24.50%. For old age pension capital = 20% (of which 6% to the 2nd tier, if the person is a participant). For disability insurance the rate of 2.23% applies.		For pension insurance (included old-age; historic service and survivor pensions) the total rate is 24.50%. For old age pension capital = 20% (of which 6% to the 2nd tier, if the person is a participant). For disability insurance the rate of 1.1.77% applies.

State	State budget and special social insurance budget for old-age pensions and disability pensions insurance		
Other revenues	Additional targeted revenues from the state budget also are taken into account for the addition supplement coverage (for transition period pensioners), etc. -		
Maximum contribution	62 800 EUR per year (maximum contribution base) – in 2019		
Minimum contribution	n/a	n/a	Minimum contribution base of 50 EUR per month – in 2019. Up to minimum wage 5% from earnings go to old age pension insurance.

Source: Latvia, Ministry of Welfare

Table 15 – Revenue from contributions, number of contributors in the public scheme, total employment

	2019	2030	2040	2050	2060	2070
Public pension contributions (% GDP)	8.4	7.3	7.0	6.7	6.6	6.8
Employer contributions	7.6	6.9	6.7	6.6	6.6	6.7
Employee contributions	:	:	:	:	:	:
State contribution	0.0	0.0	0.0	0.0	0.0	0.0
Other revenues*	0.8	0.4	0.3	0.0	0.0	0.0
Number of contributors (I) (1000)	977	775	676	582	515	499
Employment (II) (1000)	924	735	648	565	501	477
(I) / (II)	1.1	1.1	1.0	1.0	1.0	1.0

Source: European Commission, Latvia Ministry of Welfare

* Additional targeted revenues from the state budget also are taken into account for the addition supplement coverage (for transition period pensioners), etc.

In 2019, the total social insurance contribution rate in Latvia was 35.09% of the gross contribution wage, where the employer pays 24.09% and the employee 11%. The largest part of the total social insurance contributions goes to pension insurance and these contributions are not divided by employer and employee contributions.

The number of contributors is higher than the number of employment for the reason that the contributions are paid also for unemployment persons, disabled persons, state budget transfers, etc.

3.6. Sensitivity analysis

Table 17 – Public and total pension expenditures under different scenarios (pps deviation from the baseline)

Public pension expenditure	2019	2030	2040	2050	2060	2070	change 2019-2070 (pps)
Baseline (% GDP)	7.1	6.9	6.6	6.3	6.2	5.9	-1.2
Higher life expectancy at birth (+2y)	0.0	0.0	0.0	0.0	0.1	0.2	0.2
Higher migration (+33%)	0.0	0.0	0.1	0.1	0.1	0.0	0.0
Lower migration (-33%)	0.0	0.0	-0.1	-0.1	-0.1	0.0	0.0
Lower fertility (-20%)	0.0	0.0	0.0	0.1	0.2	0.3	0.3
Higher employment rate of older workers (+10 pps.)	0.0	-0.2	0.0	0.0	0.1	0.1	0.1
Higher TFP growth (convergence to 1.2%)	0.0	0.0	-0.1	-0.1	-0.1	-0.1	-0.1

TFP risk scenario (convergence to 0.8%)	0.0	0.0	0.1	0.1	0.1	0.1	0.1
Policy scenario: linking retirement age to change in life expectancy	0.0	-0.1	-0.4	-0.5	-0.4	0.0	0.0
Policy scenario: unchanged retirement age	0.0	0.4	0.1	0.0	-0.1	0.0	0.0
Policy scenario: offset declining pension benefit ratio	0.0	0.3	1.6	2.7	3.5	3.3	3.3
Lagged recovery scenario	0.0	0.3	0.3	0.3	0.2	0.2	0.2
Adverse structural scenario	0.0	0.4	0.5	0.5	0.5	0.5	0.5
Total pension expenditure	2019	2030	2040	2050	2060	2070	change 2019-2070 (pps)
Baseline (% GDP)	7.1	7.1	7.0	7.3	8.0	8.1	1.0
Higher life expectancy at birth (+2y)	0.0	0.0	0.0	0.0	0.1	0.2	0.2
Higher migration (+33%)	0.0	0.0	0.1	0.2	0.2	0.1	0.1
Lower migration (-33%)	0.0	0.0	-0.1	-0.1	-0.2	-0.1	-0.1
Lower fertility (-20%)	0.0	0.0	0.0	0.1	0.4	0.8	0.8
Higher employment rate of older workers (+10 pps.)	0.0	-0.2	0.0	0.0	0.1	0.2	0.2
Higher TFP growth (convergence to 1.2%)	0.0	0.0	-0.1	-0.2	-0.3	-0.3	-0.3
TFP risk scenario (convergence to 0.8%)	0.0	0.0	0.1	0.1	0.2	0.3	0.3
Policy scenario: linking retirement age to change in life expectancy	0.0	-0.1	-0.5	-0.7	-0.7	0.0	0.0
Policy scenario: unchanged retirement age	0.0	0.4	0.1	0.1	-0.1	0.0	0.0
Policy scenario: offset declining pension benefit ratio	0.0	0.3	1.6	2.7	3.5	3.3	3.3
Lagged recovery scenario	0.0	0.3	0.3	0.3	0.2	0.2	0.2
Adverse structural scenario	0.0	0.4	0.5	0.6	0.7	0.8	0.8

Source: Latvia, Ministry of Welfare

Amounts of newly granted pension at retirement are calculated by dividing the amount of contributions accumulated in the notional account by projected life expectancy at retirement for the individual's birth cohort. *Higher life expectancy scenario* increases the number of pensioners, but that is partly offset by smaller average pension amount.

In the *higher/ lower labour productivity scenarios* due to the indexation regime (CPI + part of real wage sum growth is used for indexation of pensions; wage sum growth is used for valorisation of NDC pension capital), the ratio of total pension expenditures to GDP is smaller/higher in comparison to the baseline scenario.

Higher employment of older workers scenario not only leads to higher GDP but also results in a larger accumulated pension capital and thus higher average pensions.

Higher/lower migration scenarios decrease/increase the number of contributors as well as number of pensioners.

Lower fertility – Lower fertility rate leads to fewer contributors in future. To some extent also GDP decreases and pension expenditure ratio increases.

Policy scenario (linking the retirement age to the increase in life expectancy): increases the number of contributors, decreases the number of pensioners and makes larger accumulated pension capital and higher average pension. *During the initial period there is a positive impact, which is later neutralized by higher life expectancy and higher benefits.*

Policy scenario (offset declining pension benefit ratio): this scenario, which keeps the earnings-related public benefit ratio constant from the moment it falls to 90% of the base year level, leads to substantially higher pension expenditure. This reflects the steep decline of adequacy indicators under the baseline scenario (see Table 9). Offsetting this projection decline bears a considerable budgetary cost.

Policy scenario (unchanged retirement age): produces additional expenditure in the initial stages but later on the effect is neutralized by lower benefits, which might not be socially sustainable.

Lagged recovery adverse scenario (temporary) produces negative effect, pension expenditure increases as share of GDP .

3.7. Description of the changes in comparison with the 2006, 2009, 2012, 2015 and 2018 projections

Table 18 – Change in the public pension expenditure-to-GDP ratio and disaggregation for consecutive projection exercises (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)	-0.9	3.4	-1.3	-2.3	-0.7	0.0
2009 Ageing Report (2007-2060)	-0.4	5.7	-1.6	-3.9	-0.2	-0.4
2012 Ageing Report (2010-2060)	-3.7	6.7	-2.1	-6.2	-1.4	-0.8
2015 Ageing Report (2013-2060)	-3.1	3.8	-1.4	-4.5	-0.8	-0.3
2018 Ageing Report (2016-2070)	-2.6	4.4	-1.4	-4.7	-0.5	-0.5
2021 Ageing Report (2019-2070)	-1.2	4.6	-1.4	-4.1	0.1	-0.5

- The disaggregation for 2006/2009/2012 is on the basis of pensions; for 2015/2018/2021 it is on the basis of pensioners.
 - The projection horizon has been extended over consecutive Ageing Reports, limiting comparability over time.

Source: European Commission

There are some changes in comparison with the previous AWG projections, with the upward revision compared to the previous exercise primarily due to higher benefit ratio and labour market effects.

The impact of the *benefit ratio* on expenditure is slightly lower than in the AR 2018 due to the changes in the macroeconomic and demographic assumptions (in particular, lower wage growth in AR 2021).

Changes in the demographic projections lead to a small difference *in the dependency ratio*.

The *coverage ratio effect* is unchanged from previous cycles.

Difference in *labour market effect* reflects changes in demography and employment rates.

Table 19A – Disaggregation of the difference between the 2018 projections and actual public pension expenditure in 2016-2019 (% GDP)

	2016	2017	2018	2019
Ageing Report 2018 projections	7.4	7.3	7.4	7.1
Assumptions (pps of GDP)	-0,1	-0,1	-0,3	
Coverage of projections (pps of GDP)				
Constant policy impact (pps of GDP)				
Policy-related impact (pps of GDP)				
Actual public pension expenditure	7.3	7.2	7.1	7.1

Source: Latvia, Ministry of Welfare

The changes in assumptions include the changes in macro, labour force and demographic assumptions.

Table 19B – Disaggregation of the difference between the 2018 and the new public pension projections (% GDP)

	2019	2030	2040	2050	2060	2070
Ageing Report 2018 projections	7.1	6.2	6.3	6.1	5.6	4.7
Change in assumptions (pps of GDP)		0,7	0,3	0,2	0,6	1,2
Improvement in the coverage or in the modelling (pps of GDP)						
Change in the interpretation of constant policy (pps of GDP)						
Policy-related changes (pps of GDP)						
New projections	7.1	6.9	6.6	6.3	6.2	5.9

Source: Latvia, Ministry of Welfare

4. DESCRIPTION OF THE PENSION PROJECTION MODEL AND ITS BASE DATA

4.1. Institutional context in which the projections are made

The Ministry of Welfare is responsible for pension projections in Latvia. The Latvian Social Insurance Budget/Pension Model was built by World Bank consultants and ministry's experts.

4.2. Assumptions and methodologies applied

Most of the key assumptions needed to run the model can be varied over the projection period. For example, birth, mortality, migration, unemployment, disability, average wage, and interest rates can develop in various ways specified by the user. Some scenarios are specified by a vector, such as the rate of growth or rate(s). Others are specified as changing age-gender distributions, e.g. survival rates, the distribution of income, unemployment risks. This is done by specifying a set of possible scenarios in the Data Module and then choosing the desired development of parameters and the desired combination of scenarios in the Control panel that steers a run.

The model produces projections on an annual basis through the year 2070, although the projection period can be abridged and in some cases elongated. The year 2070 is presently the limit for the old-age pension projections. It is possible to run the demographic and population status sub-models longer.

There are four old-age pension modules. These produce projections of average benefits and costs for:

- The pre-reform defined-benefit system
- The defined-contribution, notional account pay-as-you-go (PAYG) system
- The defined-contribution funded (2nd Tier) funded system
- The defined-contribution funded (2nd Tier) funded system with refunding into the PAYG reserve

The disability model keeps track of the flow of new recipients and the total stock of beneficiaries. The model contains the following features:

- User specified age-gender recovering probabilities specific for the disabled
- User specified age-gender granting probabilities specific for the disabled
- User specified groups with the separate benefit rules
- User specified indexation of benefits

Disabled persons who have reached retirement age are granted the old-age pension instead of disability pension (disability pensioners, who reached retirement age before 1996 continue to receive disability pension – until the end of transition period)

The model presently calculates survivor pensioners until age 24, using initial data and factor to specify the average number of survivors per deceased.

Assumptions and methodology used in the calculation of main variables

Underlying assumptions agreed by the AWG that have been used in the model(s):

- demographical assumptions (fertility, mortality, migration);
- macroeconomic assumptions:
 - wage growth;
 - GDP growth
 - participation rates;
 - unemployment rates;
 - employment rates,
 - interest rates, etc.

Additional assumptions and methodology used to estimate:

- the number of pensioners, including estimates of the average number of newly retired pensioners
Average age of retirement of a birth cohort, for men and women separately (according to law, considering early retirement) has been used in the projections (all cohort of gender take retirement in the same year, except those who retired earlier)
- pension accrual
Pension capital for old age pensions (NDC) has been calculated by age and gender in the model. Accumulated capital until year 2016 distributed by age and gender has been put in input data as base. Growth of the social insurance wage base is used for capital indexation until retirement.
- Pension capital for old age pensions (FDC) has been calculated by age and gender in the model.
Accumulated capital until year 2016 distributed by age and gender has been put in input data as base. AWG defined interest rate used for FDC capital indexation.
An actual data about participation in FDC pension scheme by age and genders as well as projected demographical cohorts by age and genders distributed by mandatory and voluntary cohorts (in accordance with legislation) with assumptions for projected participation rates in FDC are used for projections of FDC contributions, capital and pensions.

The legislated FDC rates (for all projection period) are used for projection the FDC contributions and AWG defined interest rate is used in accumulation an FDC capital.

For calculation of FDC pension at retirement the FDC capital at retirement is divided by projected life expectancy at retirement.

A legislated retirement age is used for FDC and NDC.

As the financing of the FDC pension scheme is in the framework of public pension scheme, all subsidies for the individual, paid by the state budget or other social insurance budgets (in case of child care, unemployment etc.) are respectively attributed for both schemes.

Total contribution rate to pension capital (NDC + FDC) = 20%.

Contribution rate to the state funded pension scheme:

2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
2%	2%	2%	2%	2%	2%	4%	8%	2%	2%	2%

2% in 2012, 4% in 2013 and 2014, 5% in 2015, 6% - from 2016.

FDC pensions in model are indexed by AWG defined interest rate.

- average pensions
NDC and funded pension amounts depend on accumulated NDC and FDC capital, life expectancy at the retirement age and pension indexation.
For calculations of different types of pensions model is making calculations according to the law.
- number of years receiving a pension
Number of years receiving a pension depends on estimation of life expectancy.

Calculation of old-age pensions

Overview

In principle, the model can be used to compute any defined-benefit or defined contribution pension scheme. The model combines demographic and economic scenarios with user defined rule systems to compute benefits. One of the major uses of the model is to examine the financial development and cohort-benefit profiles of old-age pension benefits over time given different user-specified demographic and economic scenarios. The model is presently programmed to produce calculations to the year 2070, but can be modified to produce calculations over longer time spans.

The model population is specified in terms of birth cohorts and gender. Since the model also contains a function specifying the distribution of income for men and women by age, by first specifying an age and gender distribution, it is possible to use the model to compute benefit schemes taking into account typical age-earning income profiles.

Together with survival rates, the pension age is instrumental in determining the size of individual benefits and total costs for the pension system(s). The user specifies the average pension age to be employed in the calculations. Since the average pension age may change by either gender or birth cohort or both, do either to legislative or behavioural reasons, the user is responsible for specifying a desired scenario. The effect of this choice on the outcome can be studied in alternative scenarios.

Benefits are calculated according to benefit formulas specified by the user. They reflect assumptions made about the growth and distribution of individual earnings and contributions and the form of benefit indexation. Where appropriate, the user can make assumptions about what happens with survivor's capital, as well as the development of the real rate of return on funded capital.

The output of the model is summarized in a financial accounting structure. The model keeps track of the development of benefits and the number of recipients by birth cohort and gender. This makes it possible to compare and examine the effects of alternative rule systems by gender and birth cohort. The model aggregates cohort and gender data to aggregate annual data on revenues and expenditures, stocks and flows of assets and liabilities, and numbers of beneficiaries and contributors. There are predefined tables and charts, but a user familiar with EXCEL can create his own output tables.

The Retirement Age in the Model

Legislation and behaviour determine the retirement age. Within the scope of the model the user determines the average age of retirement of a birth cohort, for men and women separately. With decreasing death risks and the resultant increase longevity for persons reaching a certain (minimum, mandatory etc.) pension age the average age of retirement may increase, either through legislation or behaviour.

The disability model keeps track of the flow of new recipients and the total stock of beneficiaries. The model contains the following features:

- User specified age-gender survival rates specific for the disabled
- User specified groups with separate benefit rules
- User specified indexation of benefits

In addition, account is taken to the fact that different rules apply to persons granted benefits in different years in Latvia (pre-1996, 1996 and post-1996).

The Indexation of Benefits

All calculations in the model are performed in real values. This means that price indexation of benefits is assumed as the default option.

Wage sum indexation involves indexing the real-valued benefits with a real-wage sum index. This can be set equal to varying degrees of full indexation, from zero to full indexation.

4.3. Data used to run the model

Basic data required to run the model(s)

Initial data are prepared by the State Social Insurance Agency and Central Statistical Bureau, like labour force and wage profiles, contributors, contributions, pensioners and pension profiles, etc.

4.4. Reforms incorporated in the model

The model incorporates the pension reforms.

4.5. General description of the model(s)

The model is a micro simulation model and generates long-term projections of expenditures and revenues of the total social insurance budget. The model rests on five pillars:

- A Demographic Model
- A Population Status and Labour-force Participation Model
- An Income Model
- Pension Model
- Benefit Models

The model is presently designed to produce projections for old age, disability, short-term sickness, work injury, unemployment, maternity, survivor, funeral benefits and other important outlays. The most elaborate modules are those that generate disability and old-age pension projections.

For a specified set of rules for the calculation of benefits, the user steers the projections by choosing parameters that determine scenarios for the development of the population, participation in the labour force, the unemployment rate, the average wage and the degree of participation in the formal economy.

4.6. Additional features of the projection model

Methodological annex

Economy-wide average wage at retirement

In the Latvian projections, the economy-wide average wage at retirement in 2019 equals the average contribution wage for contributors (excluding transfers) at the age of 63. Thereafter, the average wage at retirement evolves in line with the average yearly gross wage (as provided by the Commission), i.e. constant at 51.9% of the average yearly gross wage.

Table A1 – Economy wide average wage at retirement (1000 EUR)

	2019	2030	2040	2050	2060	2070	% change 2019-2070
Economy-wide average gross wage at retirement	8.8	15.2	23.9	36.0	52.9	75.9	760.6
Economy-wide average gross wage	17.0	29.4	46.1	69.3	102.0	146.4	760.6

Source: European Commission

Pensioners vs Pensions

Only number of pensioners are used and produced in pension projection model. The difference between number of pensioners and number of pensions depend only on difference between number of survivor pensioners (for example - number of children) and number of survivor pensions (for example one pension is paid for 3 children in family). For calculation the total number of survivor pensions, the coefficient is used.

Pension taxation

The pension projection model not include and not produce the taxation of pensions.

Disability pension

No new reforms introduced in connection with disability pensioners.

Table A2 – Disability rates by age groups (%)

	2019	2030	2040	2050	2060	2070
Age group -54	4	4	5	4	5	5
Age group 55-59	15	15	15	16	15	16
Age group 60-64	14	14	14	15	14	15
Age group 65-69	0	0	0	0	0	0
Age group 70-74	0	0	0	0	0	0
Age group 75+	1	0	0	0	0	0

Source: Latvia, Ministry of Welfare

Survivor pensions

Family members (under the age of 18) incapable of work who have been dependent on the deceased breadwinner are entitled to the survivor's pension.

Persons are also considered incapable of work, if at the time of the death of the breadwinner or later they are day department (full-time) students at secondary, vocational or tertiary educational establishment and are under the age of 24.

Widows, who have pensions according to the old pension system, continue to receive those during the transition period.

Non-earnings related minimum pension

According to the legislation, no indexation rules for minimum (non-contributory) pensions paid by state budget (in case of old age, disability and survivors), these are revised based on a Cabinet decision. Assumptions for minimum pension's indexation used in projections: until 2029 no indexing, from 2030 – full wage indexation is used – in accordance with AWG methodology.

Contribution

Implicit contribution rate is assumed to be constant over the projection horizon.

Alternative pension spending disaggregation

Differences between numbers of pensions and pensions are due to survivors' pensions as there can be several children benefiting from orphans pensions.

Table A3 – Factors behind the change in public pension expenditure between 2019 and 2070 (percentage points of GDP) – pensions

	2019-30	2030-40	2040-50	2050-60	2060-70	2019-70
Public pensions to GDP	-0.2	-0.4	-0.2	-0.1	-0.3	-1.2
Dependency ratio effect	2.3	1.7	1.7	1.5	-1.2	6.0
Coverage ratio effect*	-0.8	-0.2	-0.2	-0.1	0.1	-1.2
Coverage ratio old-age	-0.4	0.0	0.0	0.0	0.0	-0.5
Coverage ratio early-age	-0.9	-0.5	0.4	0.3	0.0	-0.7
Cohort effect	-1.5	-0.5	-1.0	-0.7	0.6	-3.1
Benefit ratio effect	-1.4	-0.9	-0.6	-0.3	0.0	-3.3
Labour market effect	0.3	-0.1	-0.1	-0.1	0.1	0.1
Employment ratio effect	0.3	-0.1	-0.1	-0.1	0.0	0.0
Labour intensity effect	0.0	0.0	0.0	0.0	0.0	0.0
Career shift effect	0.0	0.0	0.0	0.0	0.1	0.1
Residual	-0.5	-0.8	-1.1	-1.0	0.7	-2.8

Source: European Commission

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

Administrative data on new pensioners

Table A4a – Number of new pensioners by age group in 2019 (administrative data) – men

Age group	All	Old-age	Disability	Survivor	Other (including minimum)
15 - 49	1908	0	1513	395	0
50 - 54	689	0	686	3	0
55 - 59	1338	170	1096	1	71
60 - 64	8746	8020	715	0	11
65 - 69	167	167	0	0	0
70 - 74	17	17	0	0	0
75+	12	12	0	0	0

Source: European Commission

Table A4b – Number of new pensioners by age group in 2019 (administrative data) – women

Age group	All	Old-age	Disability	Survivor	Other (including minimum)
15 - 49	1801	0	1372	429	0
50 - 54	708	0	701	3	4
55 - 59	1208	290	914	3	1
60 - 64	11097	10511	583	1	2
65 - 69	217	217	0	0	0
70 - 74	23	23	0	0	0
75+	10	10	0	0	0

Source: European Commission

Table A4c – Number of new pensioners by age group in 2019 (administrative data) – Total

Age group	All	Old-age	Disability	Survivor	Other (including minimum)
15 - 49	3709	0	2885	824	0
50 - 54	1397	0	1387	6	4
55 - 59	2546	460	2010	4	72
60 - 64	19843	18531	1298	1	13
65 - 69	384	384	0	0	0
70 - 74	40	40	0	0	0
75+	22	22	0	0	0

Source: European Commission