ACCRUED-TO-DATE PENSION ENTITLEMENTS IN SOCIAL INSURANCE: FACT SHEET

Estonia

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1. Table 29 column A: Defined contribution schemes (funded, non-general government)

1. General description of the scheme and the calculation model

a. Coverage of the scheme

Estonian pension system is based on the three-pillar approach, where the first pillar consists of the state pension scheme. The second pillar is voluntary privately funded pension scheme and the third pillar is supplementary voluntary pension scheme. Note that the first pillar is included in general government accounts, but second and third pillar are not. Due to changes in the second pillar (became voluntary) the column A in table 29 is not calculated.

The second pillar became voluntary on 1 January 2021 after the second pillar reform came into force. The main second pillar rules were enacted by the Funded Pension Act and subsequent of the government and the Minister of Finance. The second pillar addresses only the risk of old-age and does not provide pensions for the risks of invalidity and survivorship. Participation in second pillar was compulsory for new entrants to the labour force beginning in 2002, while being voluntary for those workers, who are already in the labour market before 2002. After the reform came into force people could decide if they want to participate in such scheme, suspend their funds or withdraw funds. The young people are automatically joined the second pillar but them as well will have the ability to choose if they want to stay in that scheme. For a person to be eligible for a second pillar pension, he or she must have reached pensionable age and must have been granted a first pillar pension.

In Estonia the 33% of social tax is divided between health insurance (13%) and pension insurance (20%) of which 4% is transferred to an individually chosen pension fund by the state (4% is deducted from one's first pillar pension payments later). The overall contribution rate to the second pillar is 6% of gross salary - the exact percentages are defined by the laws (State Pension Insurance Act, Funded Pensions Act and Social Tax Act). To be specific the employee pays 2% and the state adds an additional 4% of the employee's gross salary to the second pillar scheme. Note that the state pension insurance component (first pillar) is reduced by the percentage paid to the second pillar scheme if the person has subscribed to the scheme. Person, who decides not to participate in the second pillar, will acquire rights only from the reformed first pillar.

The Estonian pension system covers only defined contribution schemes under non-general government in core national accounts. The nature of the stock of pension entitlements and the transactions in column A in table 29 are listed as follows:

- Pension entitlements (row 1 in table 29) the opening stock of pension entitlements is exactly equivalent to the closing stock of the previous accounting period. In the case of the column A the claims are calculated based on the market value of the shares of the pension funds;
- Increase in pension entitlements due to social contributions (row 2) item is equal to employer actual social contribution plus employer imputed social contributions plus household actual social contributions plus household social contribution supplements less pension scheme service charges;
- Employer actual social contributions (row 2.1) in the Estonian case it is the recorded part of the social tax collected by government and transferred to the second pillar pension funds;
- Employer imputed social contributions (row 2.2) this item is not applicable in column A as according to the defined contribution schemes no actuarial calculations are implemented;
- Household actual social contributions (row 2.3) this item records employee's actual social contributions. In the Estonian case 2% of the social tax paid from an employee's gross salary by an employer to the second pillar pension fund. The exact percentages are defined by the laws;
- Household social contributions supplements (row 2.4) it is calculated based on the statistics from the Bank of Estonia and contains interest and dividend revenues earned from the investments of the fund assets;
- Pension scheme service charges (row 2.5) item is computed based on the statistics from the Bank of Estonia and contains the service charges collected by pension funds;
- Other (actuarial) change of pension entitlements in social security pension schemes (row 3) not applicable in column A;

- Reduction in pension entitlements due to payment of pension benefits (row 4) it is calculated based on the statistics from the Estonian Central Register of Securities. All payments from the second pillar pension funds during the accounting period are recorded;
- Changes in pension entitlements due to social contributions and pension benefits (row 5) item is calculated based on the statistics from the Bank of Estonia;
- Transfers of pension entitlements between schemes (row 6) these transfers have not occurred in Estonia yet and are therefore not recorded in table 29;
- Change in entitlements due to negotiated changes in scheme structure (row 7) in 2015 there have not been any changes in the scheme structure of the second pillar pension scheme in column A, therefore it is not recorded;
- Changes in entitlements due to revaluations (row 8) for column A no actuarial estimation is involved;
- Changes in entitlements due to other changes in volume (row 9) when the demographic assumptions used in the actuarial calculations are changed, they are recorded as other changes in the volume of assets, so no item is computed in row 9 column A in Table 29;
- Pension entitlements (row 10) the closing stock of pension entitlements at the end of the accounting period.

Above provided short descriptions are specific to Estonian pension system and transactions are adjusted to the Estonian case. More detailed interpretations of the rows in Table 29 can be found in ESA 2010 and Eurostat Technical Compilation Guide for Pension Data in National Accounts.

b. Institutional set-up	
Data sources/ suppliers	The data needed for the compilation of the table 29 column A is received from the existing core national accounts, the Bank of Estonia and the Estonian Central Register of Securities.
Which institution is running/managing the calculations?	The calculations are carried out by the Bank of Estonia and the Statistics Estonia.
2. Any other comments	

The Estonian third pillar pension scheme is not included in the Table 29 as the third pillar is not subject to arising pension entitlements in terms of the definition set forth in ESA 2010.

2. Table 29 column B: Defined benefit schemes and other non-defined contribution schemes (funded, non-general government)

1. General description of the scheme and the calculation model

a. Coverage of the scheme

[Please outline all the schemes recorded under column B, differentiating between mandatory and voluntary schemes, indicating % of the workforce covered. If there are many schemes, they could be meaningfully grouped.]

[I there are any difficulties to separate pensions schemes from other types of social insurance or other borderline cases, please also mention it here]

In the Estonian pension system no pension schemes exists which are recorded in Table 29 column B.

b. Institutional set-up	
Data sources/ suppliers	
Which institution is running/managing the	
calculations?	
c. Major formulas: Benefit formula; Indexation of benefits	
Benefit formula	

Indexation of benefits	
d. Type and structure of the calculation model	
2. Assumptions and methodologies applied	
a. Discount rate	
b. Wage growth	
c. Valuation method: ABO/PBO	
3. Data used to run the model	
a. Mortality tables	
b. Entitlement statistics; other relevant statistics	
[Please list other relevant data inputs used]	
4. Reforms incorporated in the model	
5. Specific assumptions	
a. How are careers modelled?	
b. How are survivor pensions calculated?	
c. How is the retirement age modelled over time?	
d. Other specific features of the model	
6. Any other comments	

3. Table 29 column D: Defined contribution schemes (funded, general government)

1. General description of the scheme and the calculation model
a. Coverage of the scheme
[Please outline all the schemes recorded under column D, differentiating between mandatory and voluntary schemes, indicating % of the workforce covered. If there are many schemes, they could be meaningfully grouped.] [I there are any difficulties to separate pensions schemes from other types of social insurance or other borderline cases, please also mention it here]
In the Estonian pension system no pension schemes exists which are recorded in Table 29 column D.
b. Institutional set-up
Data sources/ suppliers
Which institution is running/managing the calculations?
2. Any other comments

4. Table 29 column E: Defined benefit schemes (funded, for general government employees, classified in financial corporations)

1. General description of the scheme and the calculation model
a. Coverage of the scheme
[Please outline all the schemes recorded under column E, differentiating between mandatory and voluntary schemes, indicating % of the workforce covered. If there are many schemes, they could be meaningfully grouped.] [I there are any difficulties to separate pensions schemes from other types of social insurance or other borderline cases, please also mention it here]
In the Estonian pension system no pension schemes exists which are recorded in Table 29 column E.
b. Institutional set-up
Data sources/ suppliers
Which institution is
running/managing the
calculations?
c. Major formulas: Benefit formula; Indexation of benefits
Benefit formula
Indexation of benefits
d. Type and structure of the calculation model
2. Assumptions and methodologies applied
a. Discount rate
b. Wage growth
c. Valuation method: ABO/PBO

3. Data used to run the model
a. Mortality tables
b. Entitlement statistics; other relevant statistics
[Please list other relevant data inputs used]
4. Reforms incorporated in the model
5. Specific assumptions
a. How are careers modelled?
b. How are survivor pensions calculated?
c. How is the retirement age modelled over time?
d. Other specific features of the model
6. Any other comments

5. Table 29 column F: Defined benefit schemes (funded, for general government employees, classified in general government)

1. General description of the scheme and the calculation model	
a. Coverage of the scheme	
[Please outline all the schemes recorded under column F, differentiating between mandatory and voluntary	
schemes, indicating % of the workforce covered. If there are many schemes, they could be meaningfully	
grouped.]	
[I there are any difficulties to separate pensions schemes from other types of social insurance or other	
borderline cases, please also mention it here]	
In the Estonian pension system no pension schemes exists which are recorded in Table 29 column F.	
b. Institutional set-up	
Data sources/ suppliers	
Which institution is	
running/managing the	
calculations?	
c. Major formulas: Benefit formula; Indexation of benefits	
Benefit formula	
Indexation of benefits	
d. Type and structure of the calculation model	
2. Assumptions and methodologies applied	
a. Discount rate	
b. Wage growth	
c. Valuation method: ABO/PBO	
3. Data used to run the model	
a. Mortality tables	

b. Entitlement statistics; other relevant statistics
[Please list other relevant data inputs used]
4. Reforms incorporated in the model
5. Specific assumptions
a. How are careers modelled?
b. How are survivor pensions calculated?
c. How is the retirement age modelled over time?
d. Other specific features of the model
6. Any other comments

6. Table 29 column G: Defined benefit schemes (unfunded, for general government employees, classified in general government)

1. General description of	f the scheme and the calculation model	
a. Coverage of the scheme		
	resent granted to the following professions: police officers and officials, prosecutors, fice officials, the Chancellor of Justice, defence forces personnel, rescue personnel,	
p		
b. Institutional set-up		
Data sources/ suppliers	The data needed for the compilation of the table 29 column G is received from financial information provided by State Shared Services Centre.	
Which institution is running/managing the	Special pension obligations are calculated by State Shared Service Centre in accordance with IPSAS guidelines. Special pensions are divided into two groups in	
calculations?	their dataset: current and possible future special pensioners.	
	Statistics Estonia is applying the nominal discount rate of 4% (same as for column G)	
	to these results.	
c. Major formulas: Benefi	it formula; Indexation of benefits	
Benefit formula		
Indexation of benefits		
d. Type and structure of the calculation model		
2. Assumptions and met	hodologies applied	
a. Discount rate		
Nominal discount rate 4% is used in the compilation.		
b. Wage growth		
c. Valuation method: ABC	D/PBO	
Projected benefit obligations (PBO) method is used in calculation model.		
3. Data used to run the model		

The mortality rates from the Eurostat long-term population forecast are used to calculate every persons' year

a. Mortality tables

of death.

b. Entitlement statistics; other relevant statistics	
[Please list other relevant data inputs used]	
4. Reforms incorporated in the model	
5. Specific assumptions	
a. How are careers modelled?	
b. How are survivor pensions calculated?	
c. How is the retirement age modelled over time?	
d. Other specific features of the model	
6. Any other comments	

7. Table 29 column H: Social security pension schemes (unfunded)

1. General description of the scheme and the calculation model

a. Coverage of the scheme

Social security pension schemes, which are not in the core national accounts, include the first pillar of the Estonian pension scheme. The first pillar is the state pension based on pay-as-you-go financing and covers social risk as old age, permanent incapacity for work and loss of a provider. Types of state pensions include:

- Old-age pension (including early-retirement and deferred old-age pension) to receive an old-age pension in Estonia the person applying for old-age pension must have reached retirement age which is gradually increasing, reaching 65 years of age by 2026 and the pension qualifying period of the person has to be at least 15 years. The qualifying period is divided into two groups: the years of pensionable service, which are calculated until 31 December 1998 and the accumulation period, which is calculated as of 1 January 1999. Since 1999, old-age pension rights are acquired only on basis of social tax paid and before that date the rights were determined on the basis of the length of service.;
- Survivor's pension upon the death of a provider, family members, who were maintained by him or her have the right to receive a survivor's pension;
- National pension- this type of pension is ensured for all the residents of Estonia, who have lived in Estonia at least five years. In the terms of ESA 2010 this is a social assistance type of benefit and therefore is not recorded in Table 29;
- Old-age pension under favourable conditions persons, who have worked in fields that are particularly hazardous to health;
- Superannuated pension this type of pension is granted for employees and specialist, who perform a kind of work that is accompanied by loss or decrease of professional capacity for work before reaching old-age pension age.
- Flexible pension persons, who want to retire earlier or later from their normal retirement age. It can be taken up to five years before or after the normal retirement age. This type came into effect in 2021, replacing the early and deferred old-age pension.
- Early old age pension persons, who want to retire earlier than their normal retirement age. For this type the following conditions have to be met the person do not work nor receive any income and have three or fewer years left until retirement age. This type of pension is gradually disappearing from 2021 until 2025.

The pensions are funded from the pension insurance part of the social tax (20%), a payroll tax.

The pensions are funded from the pension insurance part of the social tax (20%), a payron tax.	
b. Institutional set-up	
Data sources/ suppliers	The data needed for the compilation of the table 29 column H was received from the existing government finance statistics from Statistics Estonia and National Social Insurance Board statistics.
Which institution is running/managing the calculations?	The calculations are computed by the Statistics Estonia.
c. Major formulas: Benefit formula; Indexation of benefits	
Benefit formula	Old-age pensions (P) are comprised of four components: the flat rate base amount (B), the pensionable length of service component (s_1), covering periods up to 1998, the insurance component that is based on individual social tax payments to the state pension scheme (A), covering periods from 1999 to 2020, and compound insurance and solidarity component (s_2). Each year individual social tax payments are converted into points (A) using comparison with the average payment of the pension insurance part of the social tax. The compound insurance and solidarity component (s_2) is added to points and divided to two, after what is added to points and pensionable length of service component. The sum of all previous are multiplied by the cash value (V). The formula is: $P = B + V \times \sum \left(s_1 + A + \frac{A + s_2}{2} \right)$

Indexation of benefits

Both the base amount (B) and the cash value (V) of one year of pensionable service and the pension insurance coefficient are indexed annually. The pension index (PI) is a weighted average of past consumer price indices (CPI) and past growth of social tax revenues (STR) to the pension insurance system (in a 20-80 proportion since 2008):

 $PI = 0.2 \times CPI + 0.8 \times STR$.

d. Type and structure of the calculation model

The structure of the calculation model consists of two parts due to the fact that future pensions are imputed differently for pensioners and not pensioners. People, who are already pensioner and their age are over the retirement age, then the type of pensions is kept the same and future pensions are computed based on that. Note that the type of pension can change if the person is pensioner, but younger than 63 year of age, for example disability pensioner can be in the future old-age pensioner. The model takes into account the mortality rates and the year of death is simulated for all the people. The future pensions for pensioners are computed as follows: the existing pension is decomposed, future pensions are calculated taking into account the mortality rates and finally the last steps of the model are aggregating pensions in yearly base and discount those. For the people, who are not pensioners at the moment, special datasets are needed, for example fertility rates, educations and children data for calculating the future pensions. The logical scheme for workers is: future wages are calculated, service years before 1999 are computed, the number of future children is simulated to know how many years before retirement age people can retire, the pension type is calculated, the future pension are imputed and lastly the model aggregates the pensions in yearly bases and discounts those.

2. Assumptions and methodologies applied

a. Discount rate

Nominal discount rate 4% is used in the compilation.

b. Wage growth

Accrued to date pension entitlements should not take into account future entitlements, but based on future entitlements the kind of pension type person can have is evaluated-is it old-age pension or not. To be entitled for old-age pension a person must have at least 15 years of pension qualifying period. This is calculated through the minimum wage. Note that the minimum wage is set by the government. Simulations of future wages is made in two steps: person working or not working - probit regression model is used; and if person works, then the relative wage is calculated using linear regression model.

c. Valuation method: ABO/PBO

Projected benefit obligations (PBO) method is used in calculation model.

3. Data used to run the model

a. Mortality tables

Mortality rates from the Eurostat long-term population forecast are used to impute every persons' year of death.

b. Entitlement statistics; other relevant statistics

Social Insurance Board microdata is used as the data on what accrued to date pension entitlements are calculated. Macroeconomic background information from the Ministry of Finance is used to simulate future amount of workers and wages. Fertility rates are used to simulate future child(ren) for exogenous variable and to know the exact retirement age. Education data is one component for simulating probability to work and the size of future relative wage.

4. Reforms incorporated in the model

There are several reforms, which are taken into law before 2015, but will come into force in future time. One of them is situated with retirement age. Firstly, the retirement age is equalized between men and women for the year 2016 (63). Afterward the retirement age is gradually increased for men and women to 65 for the year 2026. Second pension reform is situated with the disability pensions. The year 2016 is the year, when last assessments can be done by Social Insurance Board, afterward it is done by Estonian Unemployment Insurance Fund. Incapacity for work can be assessed for maximum five years. Therefore, all disability pensions must be out of the pension system in 2022. The other reform which is going to be taken into law from 2027 is the pension age will be linked to life expectancy. Due to these reforms, future pension costs intend to be smaller.

5. Specific assumptions

a. How are careers modelled?

There are no specific assumptions made for modelling the careers.

b. How are survivor pensions calculated?

The survivor's pension is calculated in two steps: current survivor's pension and future survivor's pension based on death and children information.

c. How is the retirement age modelled over time?

The exact retirement age is modelled over the time by using children's data.

d. Other specific features of the model

Assumption is made that children are born for woman and all rights are decided to assign to women. It is assumed by knowledge that 95% of entitlements for the children are used by women. If the mother dies before the father, then the father has the opportunity to use pension entitlements for the child.

6. Any other comments

8. Table 29 column K: Entitlements of non-resident households

[to be completed only if data are transmitted for column K]

1. General description and the calculation model		
a. Coverage of the scheme		
[Please name all the schemes with non-resident participation and share of non-residents entitlements. If there		
are many schemes, they could be meaningfully grouped.]		
[I there are any difficulties to separate pensions schemes from other types of social insurance or other		
borderline cases, please also mention it here]		
b. Institutional set-up		
Data		
sources/methods		
Which institution is		
running/managing		
the calculations?		
2. Any other comments		

9. Links to (national) publications providing further information on the pension schemes

Pension projection for 2021 Ageing report country fiche Estonia

https://economy-finance.ec.europa.eu/system/files/2021-05/ee - ar 2021 final pension fiche.pdf

Pension Center

https://www.pensionikeskus.ee/en/i-pillar/state-pension/old-age-pension/

The Social Insurance Board

https://www.sotsiaalkindlustusamet.ee/en/pension-and-benefits/types-pensions#Old-Aqe%20Pension