Ageing Working Group
Country fiche on 2021 pension projections of the Slovak Republic

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1. OVERVIEW OF THE PENSION SYSTEM

1.1. Description of pension system

The Slovak pension system consists of the:

- **Universal pension system -** covers almost all pensioners in Slovakia (regular employees, self-employed, etc.)
- **Pension system of armed forces** - covers police officers, soldiers, intelligence service, etc.
- **Voluntary fully funded "third pillar"** – no restriction on participation.

Add. Table 1 - Overview of the Slovak pension system

Universal pension system	Pension system of armed forces
I. pillar – PAYG, mandatory, defined-benefit (point system – earning related), **public**	**Armed forces scheme** – PAYG, mandatory, defined-benefit, **public**
II. pillar – fully-funded, voluntary, defined-contribution, **private**	
Voluntary fully-funded "third pillar"	
III. pillar – voluntary, DC, **private**	
Social assistance	
0.pillar – universal benefit, means-tested, **public**	

The next table shows the approximate number of pensioners in the universal scheme and in the armed forces scheme. Compared to the universal system, the system of armed forces is currently about 40-times smaller. It is important to note that one pensioner can receive multiple pensions. The most common combination of pensions is a widow and old age pension.

Add. Table 2 - Number of pensioners (2019)

Universal system	old-age	1 047 690
	disability	238 101
	survivor	352 649
Armed forces	pensioners	39 394
Population	inhabitants	5 430 637

Source: MFSR

1.1.1. Universal pension system

Currently, **the first pillar** is the main source of income for the elderly. It includes old-age, early old-age, and disability and survivor benefits. It is a public, mandatory, pay-as-you-go (PAYG), defined benefit and earnings-related pension scheme (point system). The minimum period of participation to become entitled to pension benefits from the first pillar is 15 years.

The second pillar is a fully funded, defined contribution, private pension scheme[1] operational from beginning of 2005. During its existence, the participation in the second pillar for newcomers to the labour market has been changed several times. It started from mandatory (with no possibility to opt out) and was changed to voluntary (with the default participation only in the first pillar) in 2008. Then in 2012 back to mandatory (but with the possibility to

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[1] Private pension companies managing pension savings of individuals.

opt out of the system within 2 years). From January 2013, entry into second pillar is again voluntary with the possibility to defer entry until the age of 35. Currently, about 30 % of new labour market entrants opt for the second pillar.

Figure 1 – Number of participants and average savings in the second pillar (end of 2017)
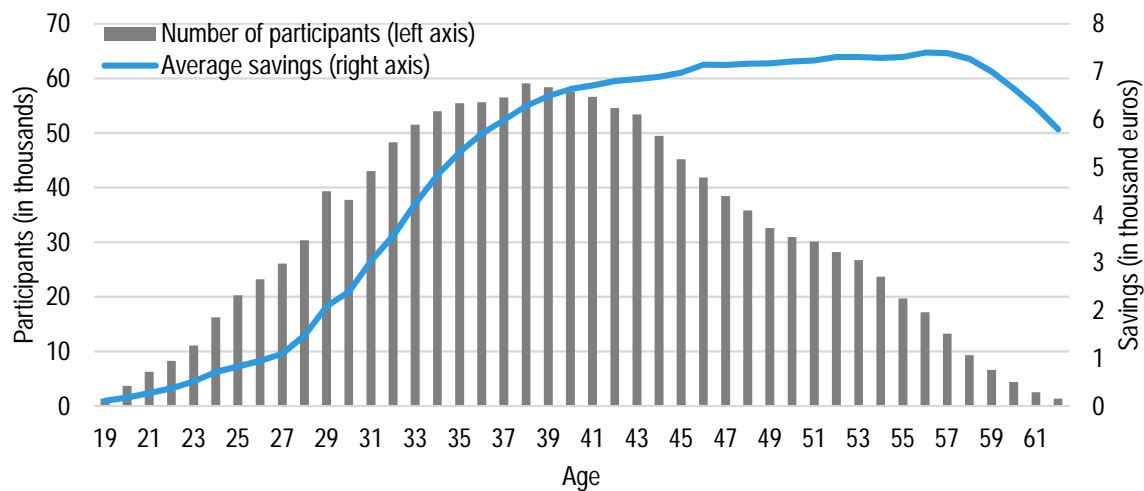
Source: MFSR

Pension contributions

Pension (social security) contributions (SSC) are levied as a percentage of the assessment base, which is the gross wage, and are paid by both employee and employer. The system is earnings-related; however, contributions paid from earnings above the level of seven times the average wage are not taken into account in the calculation of awarded pension.

Pension contributions are tax-exempt, as Slovakia does not tax pension contributions nor pension benefits to/from the first and second pillar. The sum of individual's pension contributions (paid by employee) is the same regardless of whether he/she participates in **the mixed system** (in both the first and second pillar) or **only in the first pillar**. The introduction of the second pillar in 2005 only split the employer's contribution (14%) into a part that goes to the first pillar and a part that goes to second pillar, if one participates. If not, all employers' contributions are paid into the first pillar.

Add. Table 3 - Pension contributions (% of assessment base)

	public scheme only (first pillar)	mixed pension scheme (before 2012 reform)	mixed pension scheme (2013-2016)	mixed pension scheme (after 2024)
Paid by employer	**21.75**	**21.75**	**21.75**	**21.75**
Pension insurance	17.00	17.00	17.00	17.00
- old-age insurance[1]	14.00	5.00 to the first pillar 9.00 to the second pillar	10.00 to the first pillar 4.00 to the second pillar	8.00 to the first pillar 6.00 to the second pillar
- disability insurance	3.00	3.00	3.00	3.00
Reserve fund of solidarity	4.75	4.75	4.75	4.75
Paid by employee	**7.00**	**7.00**	**7.00**	**7.00**
Pension insurance	7.00	7.00	7.00	7.00
- old-age insurance[1]	4.00	4.00	4.00	4.00
- disability insurance	3.00	3.00	3.00	3.00
Total	**28.75**	**28.75**	**28.75**	**28.75**

[1] For those who participate in both pillars, employer was required to pay 5% to the first pillar and the remaining 9% to the second pillar before the 2012 reform. Between 2013 and 2016, contribution rate to the second pillar has been decreased to 4% with positive impact on GG revenues. As of 2017, contributions to the second pillar gradually rise by 0.25 p.p. per year until the final level of 6 percent in 2024.

Figure 2- II. pillar contributions
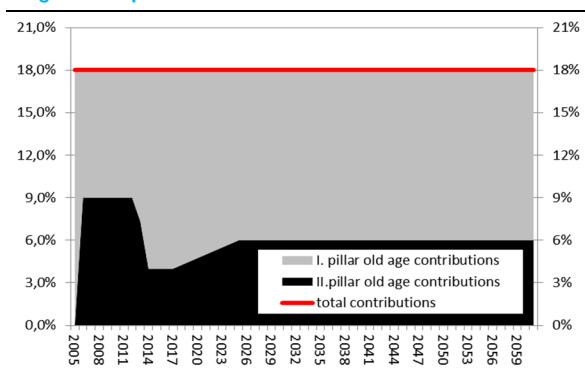
Source: MFSR

Add. Table 4 – Old-age insurance rates – I. and II. pillar

Period	II. pillar contributions (% of assessment base)
2005-8/2012	9.00%
09/2012–2016	4.00%
2017	4.25%
2018	4.50%
2019	4.75%
2020	5.00%
2021	5.25%
2022	5.50%
2023	5.75%
2024+	**6.00%**

Source: MFSR

Participants in the **second pillar** can choose to invest their accumulated savings (from SSC) in at least two funds – **guaranteed** bond fund and **non-guaranteed** equity fund according to their preference. These two are offered mandatorily by pension fund management companies. Decisions about creating an arbitrary number of other pension funds (including or excluding guarantees) have been left up to private pension companies. Before reaching the pension age, the savings in non-guaranteed funds will be moved automatically into a guaranteed fund such that the share of savings in the guaranteed fund will gradually increase by 10 p.p. a year up to 100%. The assessment period for providing guarantees in a bond-based guaranteed fund is 10 years. The whole system is strongly regulated (more restrictions compared to, e.g., mutual funds) and the supervision is carried out by the National Bank of Slovakia.

Statutory retirement age and early retirement

The retirement age is defined on a cohort basis. The general retirement age[2] is set to increase by two months for each subsequent cohort, until it reaches 64 years in 2030. As of September 2020, the 1958 cohort can retire at age of 62 years and 8 months. The retirement age for mothers is decreased based on the number of children. The constitution currently guarantees that the retirement age for mothers is lowered by at least 6 months for each child, up to three children[3]. If the mother is unable to benefit from such early retirement possibility, the right is transferred to the father[4]. The retirement age is defined by tables in the annex (Add. Table 16 and Add. Table 17) The cap on retirement age subsequently prolongs the share of adult life spent in retirement from 28 % in 2019 to 35 % in 2070 for men and 34 % in 2019 to 39 % in 2070 for women (Table 4 and Table 5).

Figure 3 – Projected statutory and effective retirement age[5]
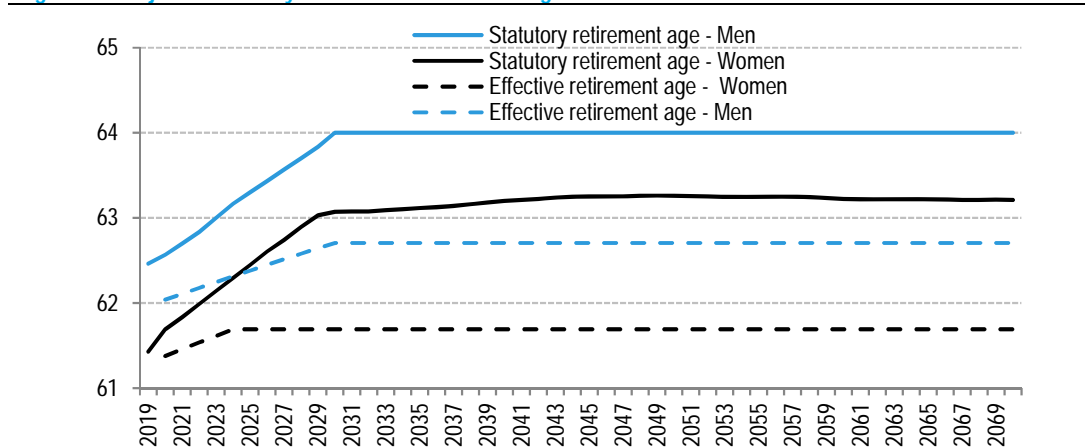
Source: MFSR

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[2] The general retirement age is the retirement age for males and females with no children.

[3] The retirement age cap, and its related lower retirement possibilities for mothers, were introduced through amendments to the constitution.

[4] E.g. in case the mother died prior to reaching retirement age.

[5] For women, average statutory retirement age is calculated as the retirement age depends on number of children

Pensioners are allowed to retire two years before reaching the statutory retirement age. In that case, their old-age pension is reduced by approximately 6.5% per year or 12.5% per two years[6]. On the other hand, the pension is increased by 6% per year for every additional working year[7] above the retirement age.

Pension entitlement – if one participates in first pillar only and not in the second pillar

The calculation of the awarded pension benefit in the first pillar is based on a point system, i.e. earnings-related principle. Three variables determine the amount of pension benefit – **contributory period**, **average pension point** and **current pension point value.**

The **average pension point** is roughly an individual's average lifetime position relatively to the average wage in the economy (according to law it cannot exceed the value of 3[8]). In order to ensure solidarity, the calculated pension point is adjusted based on a solidarity formula. Pension point below value 1 is increased and pension point above 1.25 is reduced as shown in Figure 4.

Figure 4 - Pension point - solidarity adjustment (earnings-related old-age pension)

Source: MFSR
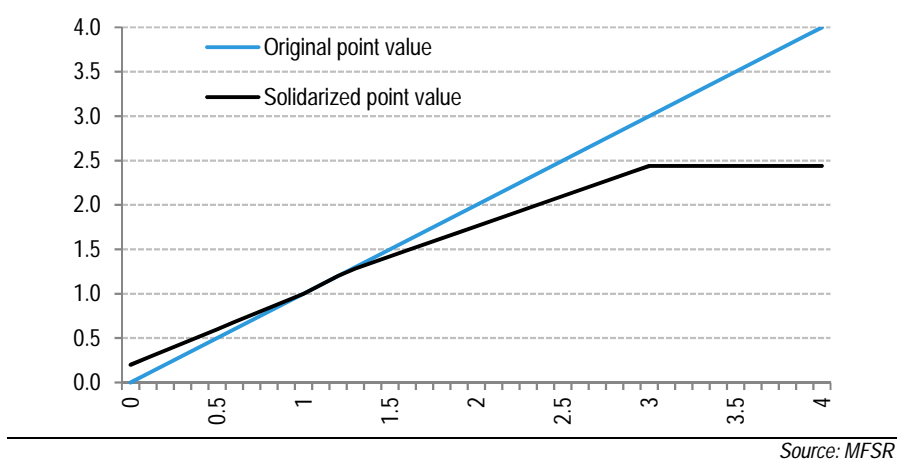
Since 2004, the current point value is calculated as a residual so that a person with 40 years of service and average personal wage point equal to 1 (person earning average wage for the whole career) receives pension benefit amounting to circa 50% gross replacement rate. In order to keep the replacement rate stable for all new pensioners, the **current point value is annually indexed to the average wage.** More details about the pension formulas are provided in the annex.

Old-age pensions are calculated as the product of the contributory period, average pension point and current pension point value.

Early old-age pensions are calculated as old-age pensions; however, the early old-age pension is reduced by 0.5% for every started 30-day period below the retirement age. Moreover early old-age pension must be higher than the minimum subsistence level[9] by at least 20%.

Disability pensions are calculated as old-age pension; however, the disability pension is affected by the loss of work capability. One qualifies for the disability pension only if her ability to work decreased by more than 40 %, in which case, the pension is reduced according to decrease in ability to work. The full disability pension is granted if

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[6] More specifically, in the law the „malus" is defined as 0.5% for every started 30 day period below the retirement age (i.e. if one retires 61 days before reaching the statutory retirement age, his/her pension is lower by 1.5%)

[7] More specifically, in the law the „bonus" is defined as 0.5% for every whole 30 day period above the retirement age (i.e. if one retires 59 days after reaching the statutory retirement age, his/her pension is higher by 0.5%)

[8] This originally reflected that the assessment base ceiling was 3 times the average wage. Increase of the ceiling to 4 times the average wage in 2008, 5 times the average wage in 2013 and 7 times the average wage in 2017 did not lead to any change in the limit on average personal wage point.

[9] See also https://www.employment.gov.sk/sk/rodina-socialna-pomoc/hmotna-nudza/zivotne-minimum/

the ability to work decreased by more than 70 %. Moreover, for the calculation of the disability pensioner full career length until legal retirement age is always assumed in the benefit calculation.

Widow and widower benefits - the entitlement for a widow/widower arises if her/his deceased spouse was a recipient or entitled to old-age pension, early old-age pension or disability pension or dies because of an occupational disease or accident. The entitlement lasts for 1 year thereafter, unless the recipient takes care of a dependent child, is disabled (more than 70% loss of working capacity), reaches the retirement age, has raised more than 3 children or reaches 52 years and has raised 2 children. The entitlement also expires if widow/widower remarries. The benefit amounts to 60% of the old-age pension, early old-age pension or disability pension of the deceased. If the widow or widower was a pensioner already, he/she will receive the higher pension in full amount and the lower pension in 50%.

Orphan's pensions - the entitlement arises for a dependent child whose parent (or custodian) has died. The entitlement arises only if the parent was an old-age pension, early old-age pension or disability pension recipient (or entitled person). Dependent child in foster care cannot receive the pension. The benefit amounts to 40% of the old-age pension, early old-age pension or disability pension of the deceased parent.

Minimum pension

Old-age pensioners and disability pensioners after reaching retirement age are entitled to a minimum pension, if the sum of their pension benefits is lower than a predefined level and they have paid social insurance for at least 30 years. The level of the minimum pension is calculated based on number of years an individual has worked and paid pension insurance. In 2020, the minimum pension for individuals with 30 years of pension insurance contributions is 33 % of the average wage from two years ago. For each extra year, pensioners receive 2 p.p. of the subsistence level up to 39 years of career and 3 p.p. thereafter.

As of 2021[10], the mechanism determining the minimum pension is dropped, and their value is at the level of 2020 (Add. Table 15). Additionally, from 2021, only those years with contributions from a contributory base above 24.1 % of the average wage are taken into account to determine the minimum pension value.

There is currently no minimum pension benefit legislated for people without 30 years of pension insurance. However, individuals may apply for means-tested social assistance, which is provided at the minimum subsistence level (less than 60% of the minimum wage). Minimum subsistence level is, according to law, indexed to inflation (measured on low-income households' basket of goods and services).

Table 1 (1) - Qualifying conditions for retirement

			2019	2030	2040	2050	2060	2070
Qualifying condition for retiring with a full pension	Statutory retirement age - men		62.5	64	64	64	64	64
	Statutory retirement age - women		61.5	63.1	63.2	63.3	63.2	63.2
	Minimum requirements	Contributory period - men	15.0	15.0	15.0	15.0	15.0	15.0
		Retirement age - men	62.5	64	64	64	64	64
		Contributory period - women	15.0	15.0	15.0	15.0	15.0	15.0
		Retirement age - women	61.5	63.1	63.2	63.3	63.2	63.2
Qualifying condition for retirement *without* a full pension	Early retirement age - men		60.5	62	62	62	62	66.1
	Early retirement age - women		59.5	61.1	61.2	61.3	61.2	61.2
	Penalty in case of earliest retirement age		12.5%	12.5%	12.5%	12.5%	12.5%	12.5%
	Bonus in case of late retirement		6%*	6%*	6%*	6%*	6%*	6%*
	Minimum contributory period - men		15	15	15	15	15	15
	Minimum contributory period - women		15	15	15	15	15	15
	Minimum residence period - men		:	:	:	:	:	:
	Minimum residence period - women		:	:	:	:	:	:

Source: MFSR

*6% per year for every additional working year above the retirement age If the start of drawing the pension is postponed at the same time

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[10] This is due to a recent legislative change in Act No. 461/2003 on Social Insurance passed in October 2020 and valid from January 2021.

Pension benefits in the mixed system - if one participates in both the first and the second pillar

In the mixed system, the **pension benefit awarded from the first pillar is reduced by a percentage of social security contributions (SSC) paid (redirected) to the private pension funds for the years of participation in the mixed system**. The reduction calculation considers contributions to old-age insurance (18 % of gross wage) as well as the contribution to reserve fund of solidarity (4.75 % of gross wage), which is used to pay out I. pillar pensions. If, one contributes 22.75 % of his gross wage towards his old-age insurance and 6 % are redirected to the II. pillar, his I. pillar pension for this year of contribution is reduced by 26.4 % (i.e. 6 % / 22.75 %).

The second pillar savings can be paid out to savers in several ways.
- The basic option is to conclude a contract with an insurance company for a **lifetime annuity**.
- Receiving a **temporary annuity** (concluding a contract with an insurance company number of years) or a **programmed withdrawal** (withdrawing the savings without concluding an insurance contract) requires that the pensioner's income from the two-pillar system is higher than the average old-age pension attributed after the 2004 reform. This was legislated in 2017 as a response to many people who did not buy any annuity.
- The pension fund management company will allow programmed withdrawal also in case that no insurance company is willing to conclude a contract with a pensioner because his/her savings are not sufficient.

Pension indexation

As from 2018, pensions are indexed by pensioner's inflation and a further temporary minimum indexation criterion is applied. By default, individual pensions increase by pensioner's inflation. Government adopted a temporary minimum indexation for 2018-2021. Individual pensions are to increase by at least 2% of average pension. This will mostly affect lower pensions in years when inflation is also low as the percentage calculated by default will be lower than 2% of an average pension. From 2022 on, all pensions are to be indexed solely by pensioner's inflation.

1.1.2. Pension system of armed forces

Pension system of armed forces applies to professional soldiers, members of the Police Corps, Fire and Rescue Brigades, Mountain Rescue Service, Slovak Information Service, National Security Authority, Corps of Prison, Court Guards and Railway Police and customs officers. This system exists along with the universal mandatory scheme, which covers the predominant part of the population of the Slovak Republic. It is a closed PAYG, mandatory, defined benefit pension system. There has been a major reform of the system in 2013 to ensure its sustainability. Only the systems of police and professional soldiers is covered by the projections, however these are the most significant categories (more than 80% of total armed forces pension expenditure).

Pension contributions

Pension contributions are levied as a percentage of the individual's gross wage. Compared to the first pillar of the universal system no ceiling is applied. The contribution rates are higher, as they were increased by the 2013 reform.

Add. Table 5 - Pension contributions to the system of armed forces (% of assessment base)

	employee	employer	TOTAL
Old-age contributions	7.0	20.0	27.0
Temporary pension contribution	1.0	1.0	2.0
Disability contributions	3.0	3.0	6.0
TOTAL	**11.0**	**24.0**	**35.0**

Source: IFP

Pension entitlement

The system is similar to the universal first pillar (although it is not a point system). A member of armed forces is entitled to a pension upon his/her termination of employment and it is not conditioned on reaching a specific retirement age.

Before the 2013 reform, the minimum contributory period for a new member to acquire pension rights was 15 years. Since the reform, the minimum contributory period increases until 2032, when it will be 25 years. For 25 years of service, the pension is calculated as 37.5% of his/her average monthly wage in the past 10 years prior to the termination of service employment. The replacement rate increases depending on the length of career up to 65%.

Add. Table 6 - Contributory period and replacement rates for the pension system of the armed forces (including the impact of the 2013 reform)

	Minimum contributory period	Replacement rate	
		Contributory period	Replacement rate
Old legislation (before 2013)	15 years	15	30%
		16 - 20	Raised by 2 p.p. per each year
		21 - 25	Raised by 3 p.p. per each year
		26 - 30	Raised by 1 p.p. per each year (maximum 60%)
New legislation (2032+)	25 years	25	37.5%
		26 - 30	Raised by 2 p.p. per each year
		31 - 35	Raised by 3 p.p. per each year
		> 36	Raised by 0.5 p.p. per each year (maximum 65%)

Source: MFSR

There is a temporary pension that can be received if the contributory period is not sufficient for retirement pension entitlement. It is received for 1 – 3 years and the amount is 1% of the assessment base for each year of service.

Add. Table 7- Temporary pension of the armed forces (including the impact of the 2013 reform)

	Length of service	Period of receiving	Amount
Old legislation	5 – 9 years	1 – 3 years	2% of assessment base for each year
Transition period	Increases from 5 years by one every year until reaching 10 years	1 – 3 years	2% of assessment base for each year before 1.5.2013, then 1% of assessment base for each year (maximum 28%)
New legislation	10 – 17 years	1 year	1% of assessment base for each year (maximum 28%)
	17 – 22 years	2 years	
	22 – 25 years	3 years	

Source: MFSR

Pension indexation

Based on the 2013 reform, the indexation was supposed to be unified with the general pension system as from July 2018. Until then, the existing pensions were indexed by the fixed amount calculated in the same way as in the universal system adjusted by a coefficient taking into account the length of contributory period. The unification with the universal system in pension indexation was twice postponed with ad-hoc changes. Currently, the unification is planned for year 2022.

Add. Table 8 - Indexation mechanism for pensions of armed forces

Period	Indexation mechanism	Indexation formula
2013 – 30.6.2018	Fixed amount + adjustment	(fixed amount / 30 * (1 + (contributory period above 15 years)/2))
1.7.2018-30.6.2019	Fixed amount + adjustment	(0.6 €)*(contributory period)
1.7.2019-31.12.2021	Fixed amount + adjustment	((2 % of average old-age pension in universal system)/15)*(contributory period)
1.1.2022 - 2070	Percentage indexation	CPI pensioners (as in the universal system)

Source: MFSR

1.1.3. Voluntary fully funded "third pillar"

The third pillar was introduced in 1996 as a supplementary part of the pension system. It is a voluntary, fully funded, contribution defined, privately managed pension scheme. As of 2014, a tax allowance for supplementary pension insurance has been reintroduced. Supplementary pension contributions are tax-deductible up to the maximum limit of 180 EUR per year. The tax allowance is however applicable only to new third pillar participants or older participants who accepted stricter regulations of the payoff phase (e.g. higher minimum payoff age). As of December 2019, number of participants reached 833 596 with the overall assets of 2 288 million euros.

1.1.4. Christmas bonus/Thirteenth pension

A thirteenth pension is a benefit paid once a year, in December. All pensioners are eligible for the benefit, though its value decreases with higher pensions (Figure 5). If an individual's benefit is below the value of the subsistence level (215 euros in 2020), he/she is eligible to a thirteenth pension of maximum 300 euros. The minimum benefit is set to be 50 euros.

Figure 5- The value of the thirteenth pension based on regular pension (2020, in euros)
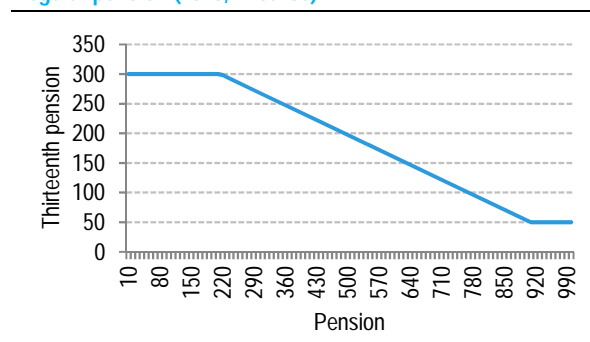
Source: MFSR

Add. Table 9 – Calculation of the thirteenth pension based on the regular pension (2020, in euros)

Pension	Thirteenth pension (euros)
Up to 215 euros (100 % of SL)	300
215 euros to 910 euros	300 - 0.36*(Pension - SL)
910 euros and more	50

Source: MFSR

1.1.5. Interactions between different types of pensions

<u>Concurrent pensions</u>

It is possible to receive pensions from both the universal and armed forces system if necessary conditions for the entitlement have been fulfilled. If receiving pensions from both systems, the benefit is calculated as follows:
- The pension from the system of armed forces will be calculated only from contributory period and salaries received during the service in armed forces.
- The old-age pension from the universal system is calculated as the theoretical amount of old-age pension in the universal system using the full contributory period and salaries (received in both systems) minus the theoretical amount of old-age pension using the contributory period and salaries in the system of armed forces.

A **widow/er's** pension can be received on top of the old-age or disability pensions. However, only the higher of the two will be received in the full amount. The pensioner will receive 50% of the amount of the lower one.

As for the **third pillar**, it is open for anyone to participate however, it is mandatory for some occupations, that are considered risky. Around one third of the labour force is currently participating in the 3rd pillar.

Social assistance is available for everyone that passes the means and property test. However, income of pensioners in the system of armed forces usually exceeds the minimum subsistence level; therefore, their share in the social assistance scheme is negligible.

Reclassification of existing pensions

When reaching the statutory retirement age, disability pensioners can claim an old-age pension. They will be entitled to the higher of the two benefits and the entitlement to the smallest pension will be cancelled. In case the two benefits are of the same amount, the pensioner has the right to choose which pension will be paid out.

1.2. Recently adopted reforms

1.2.1 Legislative changes since January 2020

The following measures have been adopted since the previous Peer Review of Slovakia in Februrary 2020. The effect of the following three legistaltive changes is described in section 3.6.

1.2.1.1 Freezing the value of minimum pension

In 2019, minimum pensions were calculated as 136 % of subsistence minimum, with an additional increase based on career length. In view of this, minimum pensions increased roughly according to inflation. As of 2020, due to a legislative change[11], the base level increased by approximately 50 euros to 33 % of average wage, which also changed the indexation of minimum pensions. The basic minimum pension (for 30 years of contributions) was set to increase in line with average wage. The bonus for extra years of contributions remained indexed to inflation.

The current legislative change freezes the minimum pensions at the value of 2020.This implies that the mechanism used to determine the value of minimum pensions is dropped. However, a note in the explanatory report attached to the legislation proposal , provides for the possibility that minimum pensions may increase again, once the level of minimum pensions from 2019 would reach the level of minimum pensions set in 2020. Additionally, a new condition is introduced, that the contribution year is used in the calculation of minimum pension, if one contributed from at least 24.1 % of yearly average wage.

This legislative change is a part of the consolidation package, implemented as a response to the increased deficit of public finances in 2020. Under the new setting, the level of minimum pensions would remain at the 2020 level. The measure is set to come in effect in 2021 and is permanent.

1.2.1.2 Decreasing the value of the thirteenth pension

A thirteenth pension measure replaced the Christmas bonus in February 2020[12]. The new thirteenth pension granted each pensioner an average pension of the given type, i.e. every old-age pensioner receives an average old-age pension and so on. If one receives more than one pension benefit (for example old-age and survivor pension), one is only entitled to the higher of the two average pensions. Formerly, only pensioners with their pension lower than 65% of the average wage were eligible to receive the benefit. In the new setting, all pensioners are eligible. Pension expenditures will increase significantly due to this measure.

Figure 6 – Comparison of thirteenth pension and the maximum Christmas bonus (euros)
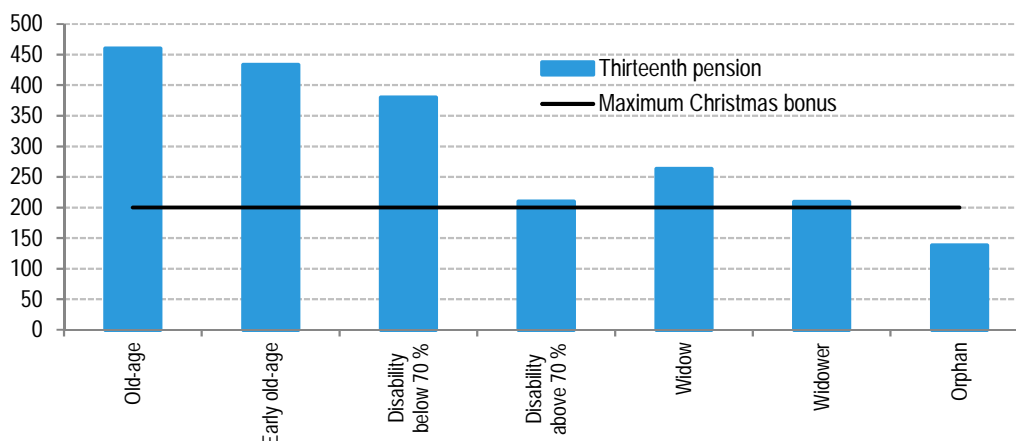
Source: MFSR

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[11] The legislative change was made in Act No. 461/2003 on Social Insurance.

[12] This was done after the pension projections update approved by AWG in February 2020. This means, that this measure was not a part of the previous projections.

Whereas in the former measure (Christmas bonus) the maximum benefit was 200 euros and decreased with higher pension, this is not true in case of the thirteenth pensions. The old-age pensioners which benefited the least from the Christmas bonus (as their pensions are highest) would receive receive the highest benefit. On the other hand, the level of the benefit might decrease for recipients of orphan's pensions.

In light of the expected drop in public revenues due to the COVID-19 pandemic, a change to the thirteenth pensions measure was adopted in October 2020, aiming to decrease the expected pension expenditures. This meant that the thirteenth pension legislated in February 2020 was never paid out, as this benefit is paid out once a year in December. In the new setting from October 2020, the thirteenth pension benefit will again decrease as one's pension increases, as was the case with the Christmas bonus, which was abolished earlier in 2020. The maximum benefit is set to 300 euros and the minimum benefit is 50 euros.

Figure 7 – Comparison of thirteenth pension paid in 2020 and Christmas bonus paid in 2019 (euros)
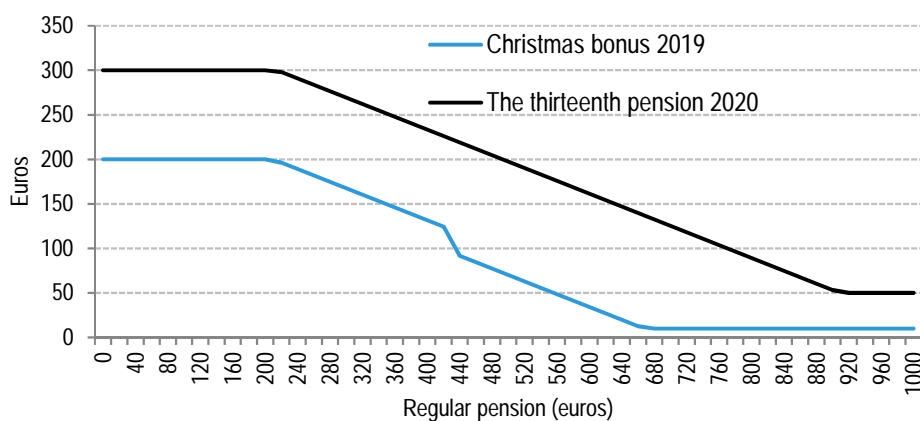
Source: MFSR

Even though the update of the measure from October 2020 decreases expenditure compared to the setting adopted in February 2020, the pension expenditures will increase between 2019 and 2020. The change is in effect from 2020 and is permanent.

1.2.1.3 Lowering retirement age for mothers

In March 2019, Slovakia adopted a constitutional law guaranteeing mothers a lower retirement age, compared to that of men's, by 6 months for each child up to three children. This was however supposed to be valid only once the retirement age would reach the cap of 64 years for men. In years leading to the retirement age cap (up to 2030), the retirement age for mothers was set to be often lowered by less than 6 months for each child up to three children.

The new measure further decreases retirement age for mothers so that already at the present, the retirement age would be lowered by 6 months for every child, up to three children. This leads to slight decrease in average retirement age for women in the upcoming years. The change is permanent and valid from 2021. However, the change is also retrospective, meaning, that the women that went into retirement in the past two years will receive an extra bonus, as their retirement age is recalculated.

Figure 8 – Average retirement age for women

Source: MFSR
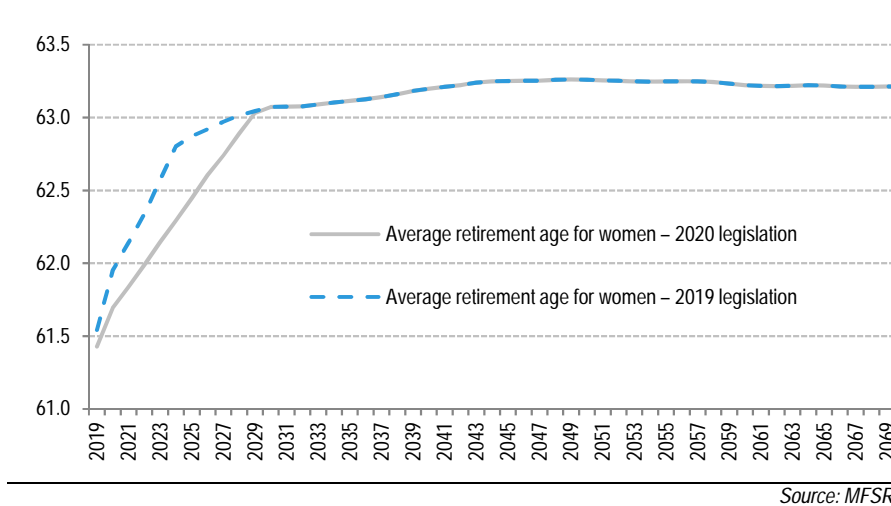
1.2.2 Legislative changes before January 2020

1.2.2.1 Change in retirement age

Until 2003, the retirement age was 60 years for men and 53-57 years for women (depending on the number of children raised). Since 2004, the retirement age was gradually converging to 62 for both men and women. Based on the 2012 pension reform, effective as from 2017, the retirement age was automatically annually increased by the y-o-y difference of 5-year moving average of the unisex life expectancy according to formula

$$Retage_t = Retage_{t-1} + (ALE_{t-7.t-3} - ALE_{t-8.t-4})$$

where

$Retage_t$ is the retirement age at time t, $ALE_{t-7.t-3}$ is the average life expectancy (unisex) between years t-7 and t-3 at the age of round down $(Retage_{t-1})$.

Due to increase in life expectancy, the general retirement age was prolonged by 76 days in 2017 and by 63 days in 2018. Subsequently, since 2019, the increments in retirement age were to be rounded to whole months. The general retirement age was therefore increased to 62 years and 6 months. In March 2019, a constitutional law defining a retirement age cap was passed (Add. Table 10). This meant that the retirement age cannot exceed 64 years. For women with children, the maximum retirement age is further decreased by 6 months for each child up to three children. If the mother is unable to benefit from such early retirement possibility, the right is transferred to the father[13]. Subsequently, the link between life expectancy and retirement age was abolished. To define the retirement age increases up to retirement age cap, a table specifying retirement age based on age, cohort, sex and number of raised children was defined (Add. Table 16 and Add. Table 17 in the Annex).

Add. Table 10- Former and new average statutory retirement age by sex

	2016	2020	2030	2040	2050	2060	2070
Statutory retirement age 2018 AR – men	62.0	62.9	64.5	65.8	67.0	68.1	68.8
Statutory retirement age 2018 AR – women	60.5	62.3	64.5	65.8	67.0	68.1	68.8
Statutory retirement age 2021 AR – men	62.0	62.6	64	64	64	64	64
Statutory retirement age 2021 AR – women	60.5	62	63.1	63.2	63.3	63.2	63.2

Source: MFSR

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[13] E.g. In case the mother died prior to reaching retirement age.

1.2.2.2 Change in minimum pension calculation

Minimum pension was introduced in 2015 aiming to protect pensioners from receiving further social assistance. If a pensioner worked for 30 years, he would receive a minimum pension equal to 136 % of the subsistence level (SL). This level would increase by two p.p. of the SL up to 39 years of career, and three p.p. thereafter. Minimum pensions were therefore purely indexed to the SL, which, in turn, is roughly indexed to CPI.

As described above, in the new setting, the level of minimum pension for workers with at least 30 years of qualified pension insurance is 33 % of the average wage (AW) from two years ago. This means that, to calculate level of minimum pensions in 2020, the economy-wide average wage for 2018 is used. The increase in minimum pension due to longer careers will remain the same, i.e. for each extra year, pensioners receive 2 p.p. of the SL up to 39 years of career and 3 p.p. thereafter. All levels are shown in the table (Add. Table 11) below.

Hence, whereas under former legislation the minimum pensions were indexed to SL, the new legislation increases the basic level of minimum pensions (minimum pensions for 30 years of service) in line with the average wage. The additional benefit for extra years of service remains being indexed to inflation. On top of that, under the new legislation, any year of paid pension insurance will automatically count as qualified. This means, the requirement to pay pension insurance from at least 24.1 % of the average wage in the economy was abolished.

Add. Table 11 – Change in minimum pension calculation

Career length in years	Former legislation level of minimum pension	Former legislation level of minimum pension (2020, euro)	New legislation level of minimum pension	New legislation level of minimum pension (2020, euro)
30	136 % SL	285.9	33 % AW	334.3
31	138 % SL	290.1	33 % AW + 2 % SL	338.5
32	140 % SL	294.3	33 % AW + 4 % SL	342.7
33	142 % SL	298.5	33 % AW + 6 % SL	347
34	144 % SL	302.7	33 % AW + 8 % SL	351.2
35	146 % SL	306.9	33 % AW + 10 % SL	355.4
36	148 % SL	311.1	33 % AW + 12 % SL	359.6
37	150 % SL	315.3	33 % AW + 14 % SL	363.8
38	152 % SL	319.6	33 % AW + 16 % SL	368
39	154 % SL	323.8	33 % AW + 18 % SL	372.2
40	157 % SL	330.1	33 % AW + 21 % SL	378.5
41	160 % SL	336.4	33 % AW + 24 % SL	384.8
42	163 % SL	342.7	33 % AW + 27 % SL	391.1
43	166 % SL	349	33 % AW + 30 % SL	397.4
44	169 % SL	355.3	33 % AW + 33 % SL	403.7
45*	172 % SL	361.6	33 % AW + 36 % SL	410

*The calculation only shows results for career length up to 45 years. In reality, the career could be longer and the level of minimum pension will increase by 3 p. p. without upper ceiling.

Source: MFSR

1.2.2.3 Change in Christmas bonus calculation

The changes introduced in 2019 to the Christmas bonus consist in doubling the amount of the bonus and extending the range of entitled pensioners. Formerly, the maximum bonus was 100 euros. This was paid to pensioners, whose pension was below the subsistence level (SL). For those with pensions between 100 % and 200 % of the subsistence level, the Christmas bonus was reduced by 18 cents for each additional euro of pension. Above the amount of 200 % of the subsistence level, the bonus decreased in the same way, however the pensioner was no

longer entitled to the additional 12.74 euros. Only the pensioners with pensions up to 60 % of average wage (AW) were eligible to receive Christmas bonus.

Add. Table 12– Former and new Christmas bonus formulas

Pension	Former formula (euros)	New formula (euros)
Up to 100 % of SL	100	200
100 % to 200 % of SL	100 - 0.18*(Pension - SL)	200 - 0.36*(Pension - SL)
200 % of SL to 60 % of AW	87.26 - 0.18*(Pension - SL)	max {174.52 – 0.36*(Pension - SL); 10}
60 % to 65 % of AW	0	max {174.52 – 0.36*(Pension - SL); 10}

Source: MFSR

The new formula doubles the amount of Christmas bonus for people with pension below 60 % of average wage. It additionally grants Christmas bonus to people, whose pension is between 60 % and 65 % of average wage. As the average wage is likely to increase faster than subsistence level, extra condition is added to the formula: the Christmas bonus cannot be lower than 10 euros. The measure is in effect since 2019 and is permanent. The setting was revised in February 2020 and is likely to change again until the end of 2020 (see section 1.1.4).

Figure 9– The increase in the Christmas bonus in 2019
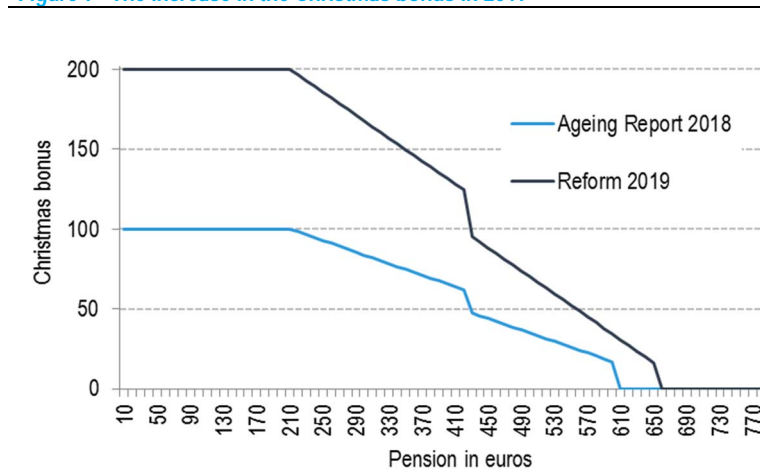
Source: MFSR

1.2.2.4 Change in benefit calculation for the second pillar participants

The first pillar benefit is reduced, if one participates in the second pillar. The extent of reduction is based on the overall pension contribution rate and the second pillar rate. As shown in (Add. Table 3) the old-age pension insurance rate is set to 18 %. Part of this contribution is sent to person's individual pension account in the second pillar, if one chose to participate in it.

Due to participation in the second pillar, the first pillar benefit is reduced by the share of old-age insurance sent to the second pillar and the duration spent in the second pillar. The formerly used formula to calculate reduction for each year of individual's career is based on the contribution rates to respective pillars:

$$Reduction_t = \frac{Second\ pillar\ contribution\ rate_t}{Old\ age\ insurance\ rate_t}$$

If, for example, in the year 2018 the second pillar contribution rate was 4.5 % and old-age insurance (sum of the first and the second pillar contribution rate) was 18 %, the reduction in first pillar benefit for given year was 25 %.

The calculation was changed in 2019. This was because insurance is also paid to the so-called "reserve fund of solidarity" (contribution rate of 4.75 %). The resources from this fund are subsequently used to finance the first pillar pensions. The formula therefore changed to account for such contribution to:

$$Reduction_t = \frac{Second\ pillar\ contribution\ rate_t}{Old\ age\ insurance\ rate_t + Reserve\ fund\ of\ solidarity\ rate_t}$$

Add. Table 13 – Change in reduction of first pillar benefit due to participation in the second pillar

Period	First pillar contributions	Second pillar contributions	Reserve fund of solidarity contribution	Former reduction	New reduction
2005-8/2012	9.00%	9.00%	4.75%	50%	40%
09/2012–2016	14.00%	4.00%	4.75%	22%	18%
2017	13.75%	4.25%	4.75%	24%	19%
2018	13.50%	4.50%	4.75%	25%	20%
2019	13.25%	4.75%	4.75%	26%	21%
2020	13.00%	5.00%	4.75%	28%	22%
2021	12.75%	5.25%	4.75%	29%	23%
2022	12.50%	5.50%	4.75%	31%	24%
2023	12.25%	5.75%	4.75%	32%	25%
2024+	12.00%	6.00%	4.75%	33%	26%

Source: MFSR

1.2.2.5 Pension indexation

Until 2013, first pillar pensions were indexed by the "Swiss formula", i.e. 50 percent of inflation growth (measured by CPI) and 50 percent of nominal wage growth. Between 2014 and 2017, the weight of inflation indexation grew by 10 percentage points a year and weight of nominal wage decreased by 10 percentage points a year. However, during this period, pensions were temporarily increased by a fixed amount, rather than percentage of individual pension benefit. This amount is calculated as the percentage applied to the average pension by type of pension benefit. For each type of pension (old age, disabled, orphan, widow, etc.) separate fixed (nominal) amount was calculated, in order to avoid redistribution among different types of pensions.

In 2017, the legislated indexation would have reached 0.37%, as inflation was low in the previous year. Instead, in 2016 the government adopted a one-off change in the indexation mechanism for 2017 where each pension was increased by a fixed amount of 2% by type of pension. From 2018, pensions are indexed by the pensioners' inflation, however each pension must increase by at least 2 % of the average pension of the given type. Pensions are going to be indexed exclusively to pensioners' inflation from 2022.

Add. Table 14- Indexation mechanism from Swiss method to inflation indexation

Period	Indexation mechanism	Indexation – weights		
		Nominal average wages growth	CPI	CPI pensioners*
2012	Percentage indexation	50%	50%	-
2013	**Fixed amount**	**50%**	**50%**	**-**
2014	Fixed amount	40%	60%	-
2015	Fixed amount	30%	70%	-
2016	Fixed amount	20%	80%	-
2017	Fixed amount (2% of AP)			-
2018-2021	**Percentage indexation****	**-**	**-**	**100%**
2022+	**Percentage indexation**	**-**	**-**	**100%**

CPI measured in the households of pensioners – consumption basket of pensioners
*** At least by 2% of average pension of the same type*

Source: MFSR

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

Universal system

The full set of demographic and macroeconomic assumptions as supplied by Eurostat and the Commission are used in the projections.

The **indexation** assumed in the projections is the following:
* First pillar pensions are indexed according to previous legislation (i.e. pensioners' CPI, which is estimated as CPI+ the difference between CPI and pensioner's' CPI in the last 10 years. For the period 2006 – 2016, it was 0.11 p.p. In previous round of projection, we have assumed the pensioner's' CPI to be 0.3 p.p. higher than CPI as this reflected the difference at the time of the 2012 reform.).
* Non-contributory minimum pensions are indexed to average wage. This is due to the assumption, that the level of subsistence level compared to average wage should not decrease over time.
* The earnings-related minimum pensions are frozen from 2020 until 2025 and then indexed to average wage. This reflects current legislation, based on which, the earnings-related minimum pensions are to be frozen indefinitely. However, a note in the explanatory report attached to the legislation proposal to freeze minimum pensions, provides for the possibility that minimum pensions may increase again, once the level of minimum pensions from 2019 would reach the level of minimum pensions set in 2020. Consequently, we rely on the latter assumption, when modelling minimum pension expenditures.

The model assumes that in the long run approximately 37% of contributors will be in the second pillar. That implies a 30% **voluntary entry rate** to the **second pillar** (30% of population compared to 37% of contributors).

System of armed forces

In the projections, the demographic and macroeconomic assumptions as supplied by Eurostat and the Commission are fully taken into account.

The average **contributory period** reflects the legislated minimum contributory period and is based on assumptions on how employees will leave the system in view of the changes foreseen by the 2013 reform[14]. The number of **contributors** (active members) of the system of armed forces are estimated as weighted average of two scenarios: status quo and constant number of active members per capita of the whole population.

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[14] In this respect, the main change consists in increasing the number of years needed to receive a pension. Whereas in 2013, the necessary contributory period was only 15 years, this increases up to 25 years in 2032.

2. OVERVIEW OF THE DEMOGRAPHIC AND LABOUR FORCE PROJECTIONS

2.1. Demographic development

Table 2 (2) - Main demographic variables

	2019	2030	2040	2050	2060	2070	peak value	peak year	change 2019-2070
Population (thousand)	5 454	5 436	5 305	5 138	4 943	4 712	5 469	2023	-742
Population growth rate	0.1	-0.2	-0.3	-0.3	-0.4	-0.5	0.1	2019	-0.6
Old-age dependency ratio (pop 65+ / pop 20-64)	25.9	35.9	43.1	56.5	66.3	63.1	66.4	2061	37.2
Old-age dependency ratio (pop 75+ / pop 20-74)	8.5	13.8	18.2	22.1	30.2	34.0	34.1	2069	25.5
Ageing of the aged (pop 80+ / pop 65+)	20.4	23.5	31.4	30.4	37.4	46.1	46.1	2070	25.7
Men - Life expectancy at birth	74.4	76.5	78.6	80.6	82.4	84.1	84.1	2070	9.7
Women - Life expectancy at birth	81.2	82.9	84.6	86.2	87.6	89.0	89.0	2070	7.8
Men - Life expectancy at 65	15.6	17.0	18.4	19.7	21.0	22.1	22.1	2070	6.5
Women - Life expectancy at 65	19.6	20.8	22.1	23.4	24.6	25.7	25.7	2070	6.1
Men - Survivor rate at 65+	78.2	82.3	85.4	88.0	90.1	91.9	91.9	2070	13.7
Women - Survivor rate at 65+	90.2	91.9	93.3	94.4	95.3	96.0	96.0	2070	5.9
Men - Survivor rate at 80+	42.1	50.2	57.1	63.3	68.9	73.7	73.7	2070	31.6
Women - Survivor rate at 80+	65.8	71.6	76.1	80.0	83.3	86.1	86.1	2070	20.4
Net migration (thousand)	3.4	4.5	5.0	5.4	6.3	7.4	7.4	2070	3.9
Net migration over population change	0.5	-0.5	-0.3	-0.3	-0.3	-0.3	3.3	2023	-0.8

Source: Eurostat

Table 2 shows an overview of the demographic development in Slovakia until 2070 according to Eurostat projection. The population size will start to decrease from 2023 and the growth will be negative until the end of the projection. One of the drivers of population decrease is low level of the total fertility rate, which will change from 1.56 in 2015 to 1.67 in 2070. The increase in fertility is lower than in the previous projections (fertility rate of 1.8 in 2070). Combined with nearly unchanged life expectancy and migration projections compared to previous projection, the population size at the projection horizon is expected to be lower than in the previous round.

Life expectancy is expected to increase substantially until 2070. Migration in Slovakia has a minor effect on the population size based on data from Eurostat, however it will increase throughout the entire projection. These effects result in rapid increase in old-age dependency ratio, which will increase by 37 p.p. between 2019 and 2070. The old-age dependency ratio-covering people above 65 years is set to increase up to year 2061 and slightly decrease. On the other hand, the old-age dependency ratio-covering people above 75 years is set to increase until year 2069.

Figure 10 depicts the age pyramid comparison between years 2019 and 2070. Today's population consists of smaller cohorts older than 65 years and larger cohorts aged 30 to 50 years. Cohorts under 25 years are relatively small due to fall in fertility after 1990. As the strong cohorts age and the life expectancy increases, the share of people above 65 years to the entire population will increase substantially. Because the fertility rate is not expected to increase significantly, cohorts aged 65-84 years will be larger than those under 20 years by 2070.

Figure 10 - Age pyramid comparison: 2019 vs. 2070

SK - Population by age groups and sex as a share of total population

Source: Eurostat
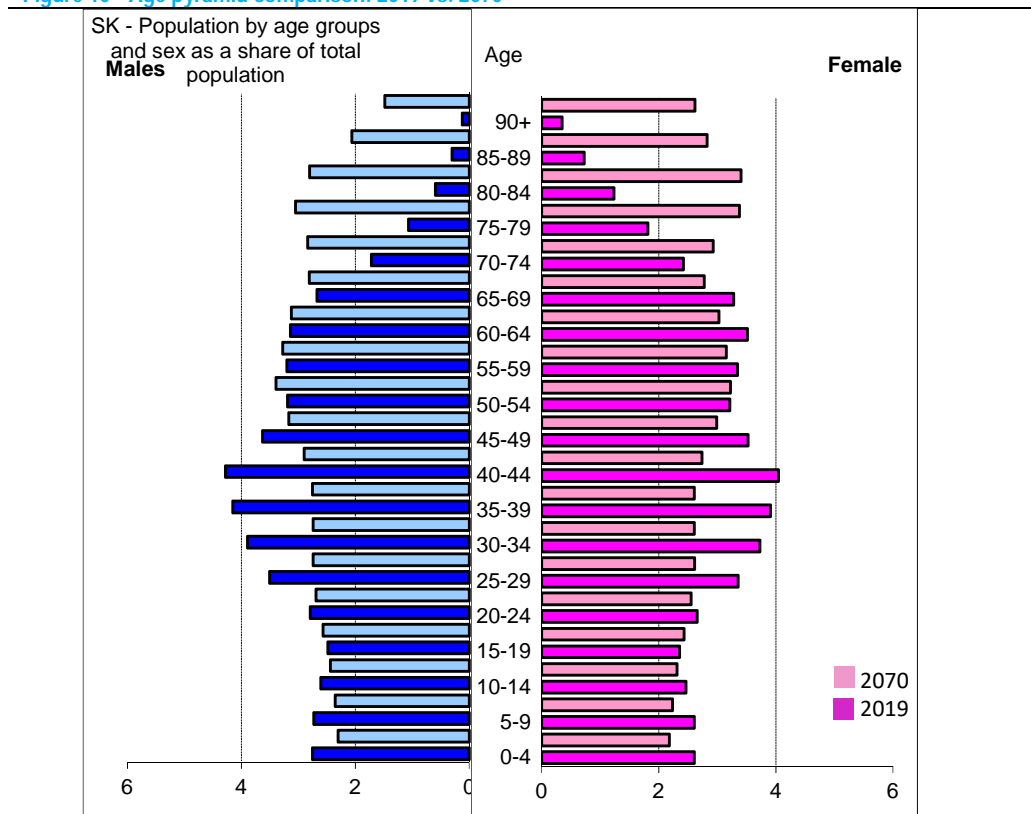
2.2. Labour force

Table 3 provides an overview of the projection of labour force developments. The labour force participation for workers between 20-64 years old remains above 75 % during the entire projection. Participation of workers aged 55-64 will increase up to year 2031 due to increasing retirement age. As the retirement age cap will be fully effective by 2030, further increase in labour force for this age group is not assumed. This is also true for the participation of cohorts aged 65-74, which remains below 10 %.

Table 3 (3) - Participation rate, employment rate and share of workers

	2019	2030	2040	2050	2060	2070	peak value	peak year	change 2019-2070
Labour force participation rate 20-64	78.0	77.8	75.1	75.3	76.8	76.4	78.2	2023	-1.6
Employment rate of workers aged 20-64	73.6	71.8	69.7	70.3	71.6	71.3	73.6	2019	-2.3
Share of workers aged 20-64 in the labour force 20-64	94.4	92.2	92.7	93.3	93.3	93.3	94.4	2019	-1.1
Labour force participation rate 20-74	68.2	66.1	63.2	60.0	61.3	63.8	68.2	2019	-4.4
Employment rate of workers aged 20-74	64.4	61.0	58.7	56.1	57.3	59.6	64.4	2019	-4.8
Share of workers aged 20-74 in the labour force 20-74	94.5	92.3	92.9	93.4	93.5	93.4	94.5	2019	-1.1
Labour force participation rate 55-64	60.5	62.4	58.5	57.6	58.3	59.6	62.7	2031	-0.9
Employment rate of workers aged 55-64	57.7	58.2	55.1	54.4	55.1	56.4	58.5	2031	-1.3
Share of workers aged 55-64 in the labour force 55-64	95.3	93.3	94.1	94.6	94.6	94.5	95.3	2019	-0.7
Labour force participation rate 65-74	7.0	5.6	6.5	5.9	5.6	5.8	7.0	2019	-1.2
Employment rate of workers aged 65-74	7.0	5.6	6.5	5.8	5.6	5.8	7.0	2019	-1.2
Share of workers aged 65-74 in the labour force 65-74	99.8	99.7	99.7	99.8	99.8	99.7	99.8	2019	-0.1
Median age of the labour force	41.0	43.0	44.0	42.0	42.0	42.0	44.0	2033	1.0

Source: MFSR

The average labour market exit is assumed to increase in the upcoming years, although at a slower pace compared to increase in statutory retirement age. This is true for both men and women. After 2030, i. e. after the retirement age cap will be in full effect, the labour market exit age remains constant.

Table 4 (4a) - Labour market effective exit age and expected duration of life spent at retirement - MEN

	2020	2030	2040	2050	2060	2070	peak value	peak year	change 2020-2070
Average effective retirement age (administrative data)*	62.5								
Average labour market exit age (CSM)**	62.0	62.7	62.7	62.7	62.7	62.7	62.7	2029	0.7
Contributory period	39.5	39.4	39.4	39.5	39.5	39.5	39.5	2020	0.0
Duration of retirement***	17.5	18.4	19.9	21.3	22.6	23.9	23.9	2070	6.4
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****	28.4	29.2	30.8	32.3	33.6	34.8	34.8	2070	6.4
Early/late exit*****	1.4	1.5	1.4	1.2	1.1	1.2	1.9	2027	-0.2

* 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.

Source: MFSR, Eurostat, EC

Table 5 (4b) - Labour market effective exit age and expected duration of life spent at retirement - WOMEN

	2020	2030	2040	2050	2060	2070	peak value	peak year	change 2020-2070
Average effective retirement age (administrative data)*	61.8								
Average labour market exit age (CSM)**	61.4	61.7	61.7	61.7	61.7	61.7	61.7	2035	0.3
Contributory period	40.8	40.4	40.0	39.8	39.8	39.8	40.8	2020	-1.0
Duration of retirement***	22.8	23.4	24.8	26.1	27.3	28.4	28.4	2070	5.6
Duration of retirement/contributory period	0.6	0.6	0.6	0.7	0.7	0.7	0.7	2070	0.2
Percentage of adult life spent in retirement****	34.5	34.9	36.2	37.4	38.5	39.4	39.4	2070	4.9
Early/late exit*****	2.4	3.1	3.4	3.0	2.6	3.1	3.8	2036	0.6

* 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.

Source: MFSR, Eurostat, EC

3. PENSION PROJECTION RESULTS

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

The long-term pension projections cover the majority of pension expenditures in Slovakia, i.e. old-age and early old-age pensions, disability and survivor pensions from the first pillar of the universal pension system. The second pillar pension expenditure is not fully covered due to data issues; however, some information on the private scheme has been implemented in the projection. The third pillar is not included in the projection because of data unavailability. The thirteenth pension is covered.

Table 6 compares past pension expenditures according to ESSPROS and AWG. As we only have satisfactory data about armed forces expenditures form 2013, we report armed forces separately, even though they are included in the AWG definition. As one can see, the AWG and ESPROSS both report same values from 2013.

Table 6 (5) - Eurostat (ESSPROS) vs. Ageing Working Group definition of pension expenditure (% GDP)

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	change 2009-2019
Eurostat total pension expenditure	8.3	8.2	8.0	8.2	8.4	8.7	8.5	8.5	8.5	:	:
Eurostat public pension expenditure (A)	8.3	8.2	8.0	8.2	8.4	8.7	8.5	8.5	8.5	:	:
Public pension expenditure (AWG: outcome) (B)*	8.0	7.8	7.7	7.6	8.0	8.3	8.1	8.1	8.1	8.0	0.0
Difference Eurostat/AWG: (A)-(B)	0.3	0.4	0.3	0.6	0.4	0.4	0.4	0.4	0.4	:	:
*Expenditure categories not considered in the AWG definition**											
- armed forces	:	:	:	:	0.4	0.4	0.4	0.4	0.4	:	:

*Values are reported only for the universal pension scheme. Data for armed forces are reported separately, due to unavailability of satisfactory historical data. Armed forces are however included in the AWG definition.

Source: Eurostat, MFSR

3.2. Overview of projection results

Table 7 presents the new projections results. The comparison to the previous round are shown in the subsequent section. Gross public pension expenditure is projected to increase from 8.3 % of GDP in 2019 to 14.2 % GDP in 2070. Gross public pension contributions are expected to remain relatively stable between 7 % GDP and 7.5 % of GDP.

Table 7 (6) - Projected gross and net pension spending and contributions (% of GDP)

Expenditure	2019	2030	2040	2050	2060	2070	peak value	peak year	change 2019-2070
Gross public pension expenditure	8.3	10.2	11.6	13.4	14.5	14.2	14.5	2060	5.9
Private occupational pensions	:	:	:	:	:	:	:	:	:
Private individual mandatory pensions	:	:	:	:	:	:	:	:	:
Private individual non-mandatory pensions	:	:	:	:	:	:	:	:	:
Gross total pension expenditure	8.3	10.2	11.6	13.4	14.5	14.2	14.5	2060	5.9
Net public pension expenditure*	8.3	10.2	11.6	13.4	14.5	14.2	14.5	2060	5.9
Net total pension expenditure*	8.3	10.2	11.6	13.4	14.5	14.2	14.5	2060	5.9
Contributions	2019	2030	2040	2050	2060	2070	peak value	peak year	change 2019-2070
Public pension contributions	7.4	7.0	7.2	7.4	7.5	7.5	7.6	2020	0.0
Total pension contributions	8.2	8.0	8.1	8.1	8.1	8.1	8.5	2020	-0.1

Source: MFSR

Gross public pension expenditure equals net public pension expenditure, as Slovak pensions are not subject to taxation. The gross pension expenditure is projected to increase sharply from 8.3 % GDP to 9.5 % GDP between

years 2019 and 2020. The first reason is a sharp decrease in GDP, due to COVID-19 pandemic. The second reason is the introduction of the thirteenth pension. The new measure legislated in 2020 increases public pension expenditure by approximately 0.2 % GDP in 2020.

The pension expenditure remains stable until 2025, when it begins to increase again. This increase will happen partly because mothers will begin to hit the retirement age after 2025. As of 2030, all new pensioners will retire at the same retirement age of 64 years, i.e. the retirement age cap will be fully in effect. After this point, and due to strong cohorts retiring after 2035, the public pension expenditure is set to increase up to 14.5 % of GDP in year 2060 and slightly decrease thereafter (Figure 11).

Figure 11 – Decomposition of pension expenditure projection by pension type
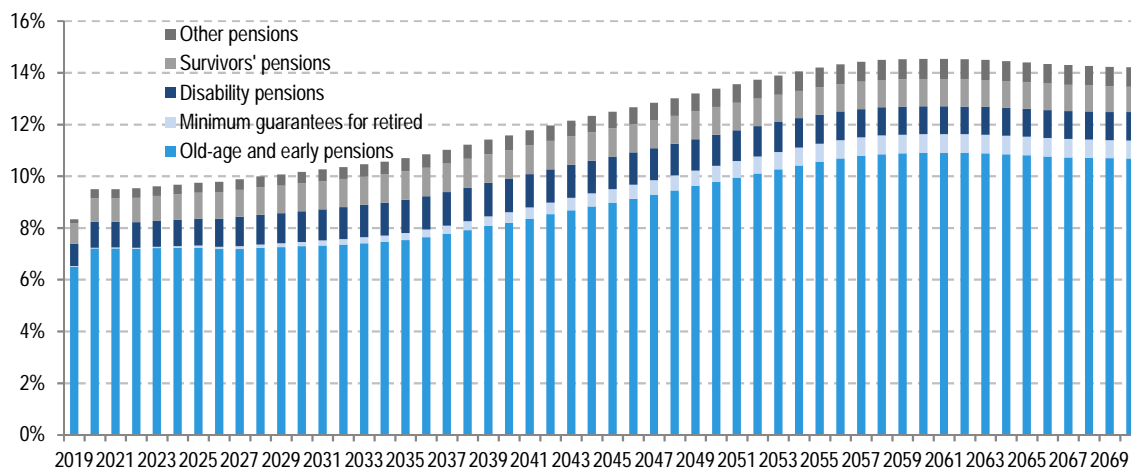
Source: MFSR

Earnings-related old-age and early pensions account for bulk of pension expenditures (Table 8). Differently from the previous projection round, earnings-related minimum pensions are included in the projections as old-age and early pensions, as this benefit also depends on career length. The projected expenditure to GDP is expected to increase from 6.5 % GDP in 2019 to 10.7 % GDP in 2070. Old-age pensions are the main driver of the public pension expenditure increase between 2030 and 2060, as strong cohorts retiring after 2035 will spend more and more time in retirement due to the retirement age cap. Just as the overall pension expenditure, the old-age expenditure will stabilize after 2060.

Earnings-related disability pension expenditure is projected to increase from approximately 0.9 % of GDP in 2019 to 1.3 % of GDP in 2038 and subsequently decrease to 1.1 % GDP in 2070 (Table 8). There are two main causes explaining the expenditure trajectory. First, up to 2040, large cohorts move into pre-retirement age. Because the probability of becoming disabled is the highest at the pre-retirement age, this will increase the number of disability pensioners (Figure 13). On the other hand, we assume that the probability of becoming disabled for given age decreases as life expectancy increases[15]. We additionally assume that, upon reaching retirement age, the disability pension benefit is transformed into old-age pension. Therefore as the large cohorts retire into old-age pension, the number of disability pensioners will decrease due to smaller cohorts in the pre-retirment age and due to smaller probability of becoming disabled.

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[15] In the previous round, we assumed that the probability of becoming disabled moved 100 % with increase in life expectancy. For example, suppose that the probability of becoming disabled at 55 in year 2020 is 2 %. Life expectancy increases by 4 years until 2060. Then, the probability of becoming disabled at 59 in year 2060 is 2 %. This assumption was changed in the current projection excercise, so that the probability of becoming disabled moves only 50 % with respect to the increase in life expectancy. This means that the current probability of becoming disabled is 2 % for a 57 years-old, rather than a 59 years-old, as in the previous round. The decision to change the parameter was made following consultations with Council for Budget Responsibility, which is using the same assumption. The effect is shown in Figure 26.

Figure 12 - Number of new old-age pensioners in the universal scheme (in thousands)
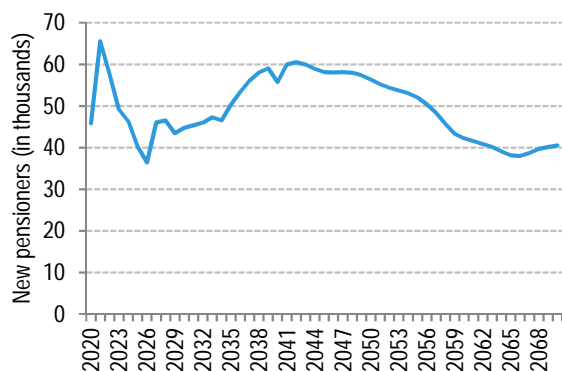
Source: MFSR

Figure 13 - Number of disability pensioners in the universal system (in thousands)
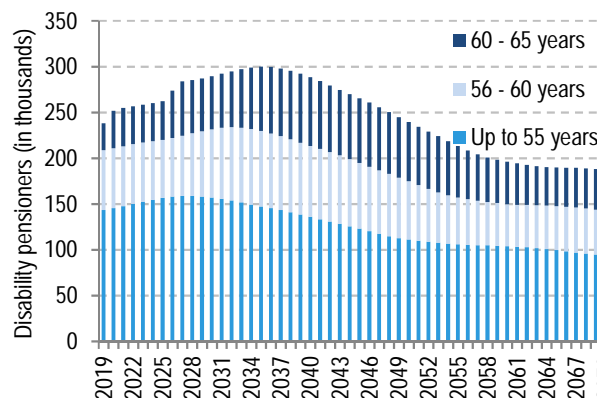
Source: MFSR

Earnings-related survivors' pension expenditure is projected to increase steadily from 0.8% GDP in 2019 to 1.1% GDP in 2039 and then decrease to 1.0 % GDP in 2070 (Table 8). This is mostly driven by increase in life expectancy of men, as they live longer they tend to withdraw widower's pension for longer time. There is also an opposite effect, as men live longer, take-up of widows' pensions decreases. Another reason for increase in expenditures is simply higher number of pensioners and therefore higher number of survivor pensioners in the future.

Minimum guarantees for retired[16] expenditures are projected to increase from 0.02 % GDP in 2019 to 0.7 % GDP in 2070 (Table 8). This expenditure is a safety net guaranteeing the minimum income at the level of subsistence level. These minimum guarantees are used only by the persons who do not qualify for the earnings-related minimum pension, i.e. do not have at least 30 years of paid pension insurance contributions. In the model, we suppose that the level of subsistence minimum relative to average pension will not change, i.e. the level of subsistence level will increase by average wage growth. The expenditures therefore increase over time.

Other pensions include the Christmas bonus in 2019 (which transferred into the new thirteenth pension legislated in 2020) and temporary benefits provided to armed forces, if one did not reach the minimum contributory period. The expenditures for these pensions will increase from 0.2 % of GDP in 2019 to 0.7 % of GDP in 2020, due to the change from Christmas bonus to the thirteenth pension (Table 8). Subsequently, as the number of pensioners grow, the thirteenth pension expenditures will increase as well, peaking at 0.8 % in 2060, and only slightly decreasing thereafter.

Table 8 (7) - Projected gross public pension spending by scheme (% of GDP)

Pension scheme	2019	2030	2040	2050	2060	2070	peak value	peak year	change 2019-2070
Total public pensions	8.3	10.2	11.6	13.4	14.5	14.2	14.5	2060	5.9
Old-age and early pensions	6.5	7.5	8.6	10.4	11.6	11.4	11.6	2061	4.9
Flat component	:	:	:	:	:	:	:	:	:
Earnings-related	6.5	7.3	8.2	9.8	10.9	10.7	10.9	2061	4.2
Minimum pensions (non-contributory) i.e. minimum income guarantee for people above 65	0.0	0.2	0.4	0.6	0.7	0.7	0.7	2061	0.7
Disability pensions	0.85	1.19	1.30	1.20	1.08	1.09	1.3	2038	0.2
Survivors' pensions	0.79	1.07	1.11	1.07	1.05	0.99	1.11	2039	0.2
Other pensions	0.16	0.44	0.57	0.71	0.78	0.75	0.78	2060	0.6

Source: MFSR

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[16] In the previous round, the earnings-related minimum pensions were reported with minimum income guarantees as minimum pensions. In this round, the earnings-related minimum pensions are reported with old-age pension expenditures.

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

Public pension expenditure to GDP is decomposed into four major driving forces - dependency ratio, coverage ratio, benefit ratio and a labour market indicator according to formula [1] below. The coverage ratio effect and the labour market effect are further decomposed according to formulas [2] and [3].

$$
\frac{pension\ expenditure}{GDP} = \overbrace{\frac{population\ 65+}{population\ 20-64}}^{dependency\ ratio} \times \overbrace{\frac{number\ of\ pensioners}{population\ 65+}}^{coverage\ ratio} \times \overbrace{\frac{average\ pension\ income}{\frac{GDP}{hours\ worked\ 20-74}}}^{benefit\ ratio} \times \overbrace{\frac{population\ 20-64}{hours\ worked\ 20-74}}^{labour\ market\ effect} \quad [1]
$$

$$
\frac{number\ of\ pensioners}{population\ 65+} = \overbrace{\frac{number\ of\ pensioners\ 65+}{population\ 65+}}^{coverage\ ratio\ old\text{-}age} + \left(\overbrace{\frac{number\ of\ pensioners\ \leq65}{population\ 50-64}}^{coverage\ ratio\ early\text{-}age} \times \overbrace{\frac{population\ 50-64}{population\ 65+}}^{cohort\ effect} \right) \quad [2]
$$

$$
\frac{population\ 20-64}{hours\ worked\ 20-74} = \overbrace{\frac{population\ 20-64}{employed\ people\ 20-64}}^{1/employment\ rate} \times \overbrace{\frac{employed\ people\ 20-64}{hours\ worked\ by\ people\ 20-64}}^{1/labour\ intensity} \times \overbrace{\frac{hours\ worked\ by\ people\ 20-64}{hours\ worked\ by\ people\ 20-74}}^{1/career\ shift} \quad [3]
$$

Over the projection horizon 2019-2070, the public pension expenditure is projected to increase by 5.9 p.p. of GDP (Table 9). The main driving force behind the increase is the unfavourable development of the dependency ratio, which is projected to contribute by 10.4 GDP p.p. to the overall change. The coverage ratio will contribute by -2.6 GDP p.p., the benefit ratio will also have a mitigating effect of -1.6 GDP p.p. and the effect of labour market indicator will be 0.2 GDP p.p. This suggests that the main factor behind pension expenditure increase will be population ageing.

The increase in the **dependency ratio** reflects longer expected lives of the population as well as low fertility rates. The ratio of elder people (65+) to the population 20-64 is projected to increase from 25.9 % in 2019 to 63.1 % in 2070 (Table 2). The mitigating effect of the **coverage ratio** is significant up to 2030, as retirement age keeps increasing up to this date (due to the retirement age cap). The effect of coverage ratio is also significant between 2040 and 2060. Large cohorts begin to retire from the year 2035, causing decrease in population aged 50-64 years and on the other hand increase in population above 65 years. This will cause a decrease in cohort effect as shown in formula [2] above. The **benefit ratio** is set to decrease up to 2050, which shows in the benefit ratio effect. In the past, pensions were indexed to wages and prices. In the future however, pensions are set to be indexed to pensioner's inflation hence their value relative to average wage will decrease. The effect of minimum pensions will however have an opposite effect, rendering the effect of benefit ratio smaller. The **labour market** effect is minor.

Table 9 (8) - Factors behind the change in public pension expenditures between 2019 and 2070 (in percentage points of GDP) – pensioners

	2019-30	2030-40	2040-50	2050-60	2060-70	2019-70
Public pensions to GDP	1.8	1.4	1.8	1.2	-0.3	5.9
Dependency ratio effect	3.3	2.0	3.5	2.3	-0.7	10.4
Coverage ratio effect*	-0.8	-0.2	-0.9	-0.7	0.1	-2.6
Coverage ratio old-age	0.3	0.1	0.0	0.0	0.0	0.4
Coverage ratio early-age	-1.5	-0.4	0.4	-0.2	-1.4	-3.0
Cohort effect	-1.6	-0.7	-3.8	-3.3	1.8	-7.6
Benefit ratio effect	-0.7	-0.6	-0.5	-0.1	0.2	-1.6
Labour market effect	0.2	0.3	-0.2	-0.2	0.1	0.2
Employment ratio effect	0.2	0.3	-0.1	-0.3	0.1	0.2
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	0.0
Residual	-0.2	-0.1	-0.2	-0.1	0.0	-0.6

Source: MFSR, EC

Table 10 (9) - Replacement rate at retirement (RR), benefit ratio (BR) and coverage by pension scheme (in %)[17]

	2019	2030	2040	2050	2060	2070	change 2019-2070 (pps)
Public scheme (BR)	37%	35%	33%	32%	32%	32%	-5%
Coverage	100.0	100.0	100.0	100.0	100.0	100.0	0.0
Public scheme: old-age earnings related (BR)	37%	33%	31%	29%	29%	30%	-8%
Public scheme: old-age earnings related (RR)	42%	44%	44%	43%	43%	43%	2%
Coverage	77.7	75.8	76.8	80.5	82.4	82.3	4.6
Private occupational scheme (BR)	:	:	:	:	:	:	:
Private occupational scheme (RR)	:	:	:	:	:	:	:
Coverage	:	:	:	:	:	:	:
Private individual schemes (BR)	:	:	:	:	:	:	:
Private individual schemes (RR)	:	:	:	:	:	:	:
Coverage	0.0	9.4	25.0	37.1	38.0	32.2	32.2
Total benefit ratio[18]	37%	35%	33%	32%	32%	32%	-5%
Total replacement rate[19]	42%	41%	39%	39%	41%	42%	1%

Source: MFSR

As stated above, the decrease in the **benefit ratio** is caused by the change in the indexation of pensions following the 2012 reform (indexation of the existing pensions is based on pensioners' inflation instead of the Swiss formula). The benefit ratio will also be affected by pensions paid out from the second pillar. This is apparent from the fact that the old-age earnings related benefit ratio decreases by 8 p.p. until 2070, and the public scheme benefit ratio decreases by 5 p.p. As the share of pensioners with income from both the first and the second pillar is expected to rise, the replacement rate from the first pillar and thus the benefit ratio will decline. This effect will be mitigated later by the low voluntary entry rate to the second pillar. The old-age earnings related benefit ratio will decline more substantially due to the fact, that the minimum non-contributory pensions are only accounted for in the overall benefit ratio and not in the earnings related benefit ratio.

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[17] The indicators are not reported relative to the average wage but the income provided by the Commission.
[18] The total benefit ratio is not reported due to lack of default payout stage in the second pillar. Pensioners today tend to opt for a lump sum withdrawal, however annuity is also often chosen. Therefore it is difficult to report the value of future pensions from the second pillar.
[19] Reports replacement rate from both pillars. In the payout phase, we assume that one is able to buy an annuity, which is indexed to CPI, and is actuarially fair. This is currently not the case, as many people opt for programmed withdrawal and the payout phase is likely to be a subject in the upcoming reform.

The **public scheme replacement rate** will first slightly increase with longer career due to increase of retirement age up to the retirement age cap. The indicator shows the replacement rate for the retirees, which did not participate in the second pillar. The average replacement rate of all retirees from the public scheme would decline in time due to the fact, that public pension for retirees from both pillars would be supplemented by the second pillar pension. **The total replacement rate** shows the replacement rate of a person in both first and second pillar. It decreases up to 2040 as current second pillar participants have their saving invested in rather conservative funds. This is not true for younger savers, as they opt for funds that are more aggressive. Therefore, at the projection horizon, the replacement rate from both pillars equals the one today, which is solely from the first pillar (we assume that the payout phase begins in 2020).

Table 11 (10) - System dependency ratio and old-age dependency ratio

	2019	2030	2040	2050	2060	2070	change 2019-2070
Number of pensioners (thousand) (I)	1390	1637	1825	1974	1980	1844	455
Employment (thousand) (II)	2581	2332	2156	1940	1783	1725	-857
Pension system dependency ratio (SDR) (I)/(II)	53.8	70.2	84.6	101.8	111.0	106.9	53.1
Number of people aged 65+ (thousand) (III)	889	1147	1305	1520	1610	1493	604
Working age population 20-64 (thousand) (IV)	3441	3193	3025	2688	2427	2367	-1073
Old-age dependency ratio (OADR) (III)/(IV)	25.9	35.9	43.1	56.5	66.3	63.1	37.2
System efficiency (SDR/OADR)	2.1	2.0	2.0	1.8	1.7	1.7	-0.4

Source: MFSR

The pension system dependency ratio (number of pensioners relative to number of workers) nearly doubles between 2019 and 2070 from 53.8 % to 106.9 % (Table 11). This means that, whereas today there are two employed persons relative to one pensioner, in 2070, the ratio will change to one employed to one pensioner. This figure includes all type of pensioners in all age groups. The trend is caused by old-age pensioners, as the population above 64 years increases from 889.4 thousand in 2019 to 1493.2 thousand in 2070.

Table 12 (11a) - Pensioners (public scheme) to inactive population ratio by age group (%)

	2019	2030	2040	2050	2060	2070
Age group -54	11.9	13.3	12.7	11.2	10.9	10.5
Age group 55-59	129.1	110.8	87.8	84.8	83.7	78.5
Age group 60-64	114.7	101.9	95.6	92.8	93.0	90.5
Age group 65-69	106.3	111.4	113.7	112.2	111.9	113.0
Age group 70-74	101.8	103.5	104.9	104.9	104.1	104.7
Age group 75+	97.9	99.7	101.3	102.2	102.1	101.7

Source: MFSR

Table 13 (11b) - Pensioners (public scheme) to total population ratio by age group (%)

	2019	2030	2040	2050	2060	2070
Age group -54	4.9	5.6	5.5	4.9	4.8	4.6
Age group 55-59	23.4	23.1	21.4	20.2	19.5	18.4
Age group 60-64	69.4	58.9	55.9	55.2	54.9	52.6
Age group 65-69	96.2	101.8	102.7	101.9	101.7	102.4
Age group 70-74	98.3	101.1	102.3	102.3	101.7	102.2
Age group 75+	97.9	99.7	101.3	102.2	102.1	101.7

Source: MFSR

Table 14 (12a) - Female pensioners (public scheme) to inactive population ratio by age group (%)

	2019	2030	2040	2050	2060	2070
Age group -54	10.6	11.7	11.1	9.7	9.5	9.2
Age group 55-59	131.4	99.0	76.3	73.3	70.2	66.2

Age group 60-64	117.1	101.5	91.6	89.4	88.4	85.7
Age group 65-69	104.7	108.6	108.9	108.0	107.7	107.9
Age group 70-74	101.8	102.0	102.6	102.5	102.2	102.1
Age group 75+	98.2	99.9	100.8	101.0	100.8	100.6

Source: MFSR

Table 15 (12b) - Female pensioners (public scheme) to total population ratio by age group (%)

	2019	2030	2040	2050	2060	2070
Age group -54	4.9	5.6	5.4	4.8	4.7	4.6
Age group 55-59	25.4	23.0	21.5	20.6	19.5	18.5
Age group 60-64	75.1	64.3	59.6	59.3	58.5	55.9
Age group 65-69	97.0	100.5	100.5	100.3	100.2	100.1
Age group 70-74	99.0	100.0	100.7	100.6	100.4	100.3
Age group 75+	98.2	99.9	100.8	101.0	100.8	100.6

Source: MFSR

In the cohorts **up to 54 years** of age, the percentage of pensioners to inactive population and overall population is rather small, consisting of disability and survivor pensioners. The share increases up to 2030, as large cohorts approach pre-retirement age and therefore the number of disability pensioners increases. Ratio of pensioners **between 55 and 59 years old** to inactive population is currently above 100 %. This indicates, that there are pensioners in these cohorts, which are working while withdrawing, pension. This is often the case for survivor and disability pensioners. Ratio of these pensioners to inactive and overall population is however set to decline significantly in time.

The share of pensioners on overall population for cohorts **between 60 and 64 years old** is set to decline up to 2030 as retirement age increases, thereafter it remains stable. The level however remains higher for female pensioners, due to their lower retirement age. For relatively younger cohorts, share of pensioners to inactive population might be still above 100 % due to prolonging career during while already withdrawing pension. Also the share of pensioners to overall population might be slightly above 100 % due to concurrent withdrawal of universal pension and armed forces pension.

The number of **new pensioners** increases as large cohorts retire between 2035 and 2055. The number of new pensioners in 2019 does not distinguish between new pensioners switching from disability to old-age pensions and pensioners retiring straight to old-age pension. This is the reason why the value is higher in 2019 compared to other values. **The point value** represents a value of monthly pension for one point earned and is indexed to average wage.

The **average contributory period** remains stable throughout the projection, as people entered the labour market later due to prolonged education, on the other hand the retirement age increased. These effects are however stable in the future. The average number of points earned per year (**average accrual rate**) decreases significantly up to 2040 and increases thereafter. This is due to the fact, that the reported indicators only consider accrued pension in the public system. Therefore as more people retire with supplementary pensions from the second pillar, their first pillar pension is reduced, and this shows in the decreasing average accrual rate.

Table 16 (13a) - Projected and disaggregated new public pension expenditure (old-age and early earnings-related pensions)[20]

New old-age earnings-related pensions	2019	2030	2040	2050	2060	2070
Projected new pension expenditure (million EUR)*	197.5	196.4	336.0	519.1	602.9	851.5
I. Number of new pensions (1000) [21]	58.5	44.8	55.7	56.3	42.2	40.5

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[20] The projected new pension projection considers only universal scheme pensions, because the benefit calculation for armed forces differs from the universal scheme.

[21] The number of new pensioners only considers people who were not disability pensioners before retiring. The number of overall new pensioners is therefore higher. For the year 2019 administrative data are reported, which also consider people switching from disability to old-age pension as a new pensioner. Therefore, there is a sharp decrease in number of new pensioners between 2019 and 2020. The number of new pensioners is also lower compared to the previous projection round from 2030 on. This is due to change in assumption on number of disability pensioners. As in this projection round, there are more disability pensioners than in the previous one, less people will retire straight into an old-age pension compared to the previous projection. Because the number

II. Point value (EUR/month)	12.7	20.2	31.0	46.7	68.9	99.2
III. Average accrual rate (points/year) (IV/V)	1.13	0.91	0.82	0.83	0.87	0.89
IV. Total pension points at retirement	44.5	36.2	32.4	32.9	34.6	35.3
V. Average contributory period (years)	39.3	39.9	39.7	39.6	39.6	39.6
VI. Sustainability/adjustment factors	1.0	1.0	1.0	1.0	1.0	1.0
VII. Correction coefficient	1.0	1.0	1.0	1.0	1.0	1.0
VIII. Average number of months paid the first year	6.0	6.0	6.0	6.0	6.0	6.0

Source: MFSR

Table 17 (13b) - Disaggregated new public pension expenditure (old-age and early earnings-related pensions) - MEN[22]

New old-age earnings-related pensions	2019	2030	2040	2050	2060	2070
Projected new pension expenditure (million EUR)*	105.6	95.4	184.6	268.4	314.4	443.9
I. Number of new pensions (1000)	27.1	21.2	29.7	28.4	21.5	20.6
II. Point value (EUR/month)	12.7	20.2	31.0	46.7	68.9	99.2
III. Average accrual rate (points/year) (IV/V)	1.22	0.94	0.85	0.86	0.89	0.92
IV. Total pension points at retirement	51.3	37.2	33.4	33.8	35.3	36.2
V. Average contributory period (years)	42.0	39.4	39.4	39.5	39.5	39.5
VI. Sustainability/adjustment factors	1.0	1.0	1.0	1.0	1.0	1.0
VII. Correction coefficient	1.0	1.0	1.0	1.0	1.0	1.0
VIII. Average number of months paid the first year	6.0	6.0	6.0	6.0	6.0	6.0

Source: MFSR

Table 18 (13c) - Disaggregated new public pension expenditure (old-age and early earnings-related pensions) – WOMEN[23]

New old-age earnings-related pensions	2019	2030	2040	2050	2060	2070
Projected new pension expenditure (million EUR)*	91.9	101.0	151.4	250.7	288.4	407.6
I. Number of new pensions (1000)	31.4	23.6	26.0	28.0	20.7	19.9
II. Point value (EUR/month)	12.7	20.2	31.0	46.7	68.9	99.2
III. Average accrual rate (points/year) (IV/V)	0.92	0.87	0.78	0.80	0.85	0.87
IV. Total pension points at retirement	38.6	35.3	31.3	32.0	33.8	34.5
V. Average contributory period (years)	42.0	40.4	40.0	39.8	39.8	39.8
VI. Sustainability/adjustment factors	1.0	1.0	1.0	1.0	1.0	1.0
VII. Correction coefficient	1.0	1.0	1.0	1.0	1.0	1.0
VIII. Average number of months paid the first year	6.0	6.0	6.0	6.0	6.0	6.0

Source: MFSR

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of people switching from disability to old-age pensions are not counted as new pensioners, the number of new pensioners decreased between projection rounds.

[22] The projected new pension projection considers only universal scheme pensions, because the benefit calculation for armed forces differs from the universal scheme.

[23] The projected new pension projection considers only universal scheme pensions, because the benefit calculation for armed forces differs from the universal scheme.

3.4. Financing of the pension system

The pension system is financed by contributions of employees and self-employed. The public pension scheme contributions projections also include social insurance contributions of armed forces. Besides the contributions from the economically active population, there are also legislated contributions made by the state. The first of these contributions is because of persons insured by the state. This includes for example mothers on maternity leave. Transfers from the state budget are also used to finance the expenditures on minimum pensions, Christmas bonus (thirteenth pension from 2020) and expenditures on disability pensioners from young age[24]. These additional contributions are not considered in the projections as it is considered equivalent to a state budget transfer. Therefore, only contributions of economically active population are considered in the following section.

Table 19 (14) – Financing of pension system

	Public employees	Private employees	Self-employed
Contribution base	Gross wage (=Total labour cost/1.352)	Gross wage (=Total labour cost/1.352)	(Revenue-costs)/1.486
Contribution rate/contribution			
Employer	Old-age insurance: 14 % (if employee is in the second pillar, the contribution is split between the two pillars), Disability insurance 3 %, Reserve fund of solidarity: 4.75 %	Old-age insurance: 14 % (if employee is in the second pillar, the contribution is split between the two pillars), Disability insurance 3 %, Reserve fund of solidarity: 4.75 %	Old-age insurance: 18 % (if self-employed is in the second pillar, the contribution is split between the two pillars), Disability insurance 6 %, Reserve fund of solidarity: 4.75 %
Employee	Old-age insurance: 4 %, Disability insurance 3 %	Old-age insurance: 4 %, Disability insurance 3 %	-
*State**	-	-	-
*Other revenues**	-	-	-
Maximum contribution	700 % of average wage from 2 years ago	700 % of average wage from 2 years ago	700 % of average wage from 2 years ago
Minimum contribution	-	-	50 % of the average wage from 2 years ago, if yearly income exceeds 6 078 euros.

Source: MFSR

If the sum of contributions for old-age insurance, disability insurance and reserve fund of solidarity is not sufficient to cover first pillar expenditures, the deficit is covered by surplus from other social security funds (e.g. from unemployment fund). If the balance remains negative, a transfer from the state budget covers the deficit. The maximum contribution base is 700 % of average wage from two years ago.

Table 20 (15) - Revenue from contribution (%GDP) number of contributors in the public scheme (in 1000), total employment (in 1000) and related ratios (%)

	2019	2030	2040	2050	2060	2070	change 2019-2070 (pps)
Public pension contributions (% GDP)	7.4	7.0	7.2	7.4	7.5	7.5	0.0
Employer contributions	5.6	5.3	5.4	5.6	5.6	5.6	0.0
Employee contributions	1.8	1.7	1.8	1.8	1.8	1.8	0.0
*State contribution**	0.0	0.0	0.0	0.0	0.0	0.0	0.0
*Other revenues**	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Number of contributors (I) (1000)	2367	2143	1982	1786	1645	1591	-777
Employment (II) (1000)	2581	2332	2156	1940	1783	1725	-857
(I) / (II)	0.9	0.9	0.9	0.9	0.9	0.9	0.0

Source: MFSR

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[24] If a person becomes disabled while under 18 or up to 26 and studying, he/she receives so called disability pension from young age.

Figure 14 displays the comparison between public, private and overall pension contributions. Following the sharp increase in 2020 due to decreasing GDP, overall contributions will decrease from 8.2 % GDP in 2019 to 8 % GDP in 2023, remaining relatively stable throughout the rest of the projection. This is because a decreasing number of contributors will be offset by increasing labour productivity. Public system contributions will decrease in the upcoming years from 7.4 % in 2019 to 7 % GDP in 2024. This is due to increasing share of contributions sent to the private second pillar from 4.75 % of the gross wage in 2019 to 6 % in 2024. After this point, the contributions to public system will remain low and then slowly increase to 7.5 % GDP at the projection horizon. Contributions into the second pillar will behave reversely, increasing from present 0.7 % GDP to 1 % GDP in 2024 and subsequently decreasing to 0.6 % GDP.

Figure 14 – Public, private and overall pension system contributions (% of GDP)
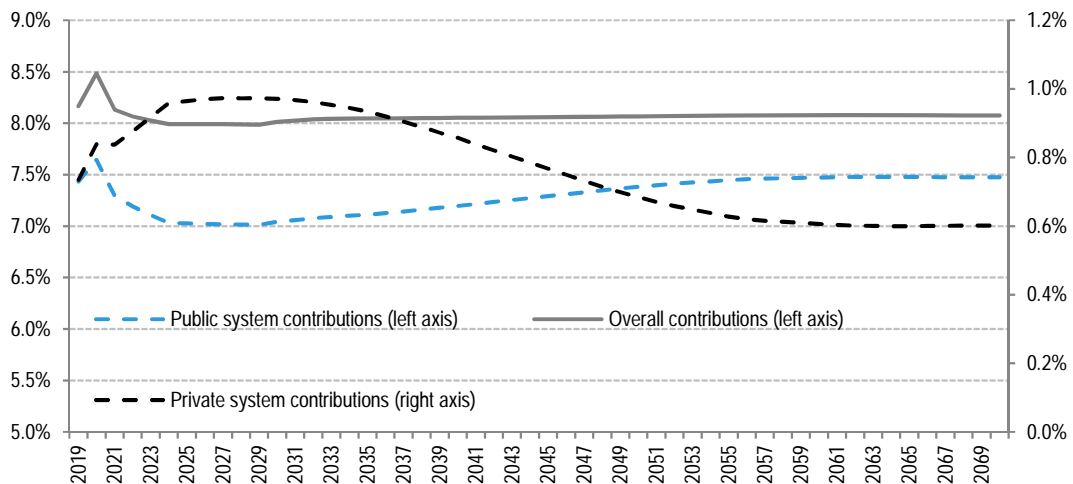
Source: MFSR

The pension system deficit was less than 1 % GDP in 2019. This will change in 2020 due to effects of the pandemic. The deficit will increase to 1.8 % GDP in 2020. As the contributions will remain stable and expenditures will increase, the pension system deficit is set to increase until 2060, when it will reach 7 % GDP. As the contributions will only amount to 7.5 % GDP, the public pension expenditures will be almost double, compared to the contributions (Figure 15).

Figure 15 - Gross public expenditure. revenue and balance (% of GDP)

Source: MFSR

34
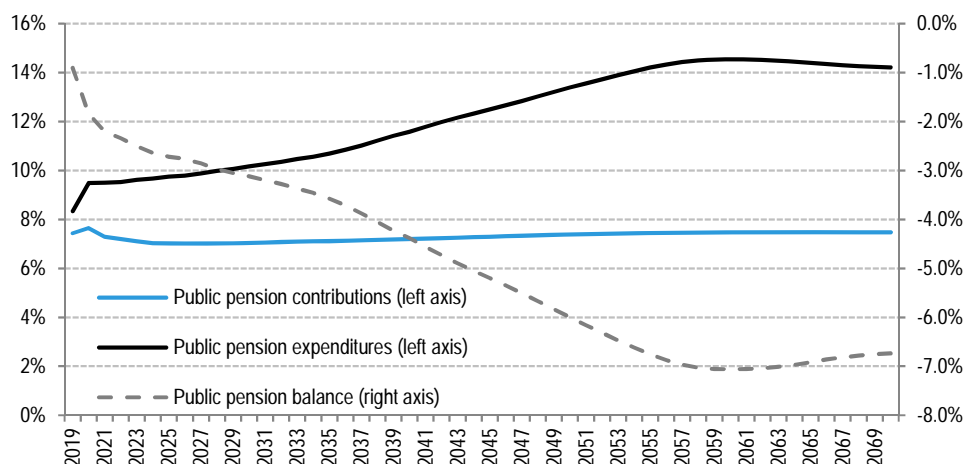
3.5. Sensitivity analysis

Table 21 (17) - Public pension expenditure under different scenarios (p.p. deviation from the baseline)

| Public pension expenditure	2019	2030	2040	2050	2060	2070	change 2019-2070 (pps)
Baseline (% GDP)	8.3	10.2	11.6	13.4	14.5	14.2	5.9
Higher life expectancy at birth (+2y)	0.0	0.0	0.1	0.3	0.5	0.6	0.6
Higher migration (+33%)	0.0	0.0	0.0	-0.1	-0.2	-0.2	-0.2
Lower migration (-33%)	0.0	0.0	0.0	0.1	0.2	0.2	0.2
Lower fertility (-20%)	0.0	0.0	0.0	0.5	1.3	2.1	2.1
Higher employment rate of older workers (+10 pps.)	0.0	-0.3	-0.6	-0.9	-0.8	-0.4	-0.4
Higher TFP growth (convergence to 1.2%)	0.0	0.1	-0.1	-0.3	-0.4	-0.5	-0.5
TFP risk scenario (convergence to 0.8%)	0.0	0.1	0.2	0.2	0.2	0.3	0.3
Policy scenario: linking retirement age to change in life expectancy	0.0	-0.2	-1.1	-1.9	-2.1	-2.3	-2.3
Policy scenario: unchanged retirement age	0.0	0.5	0.8	0.8	0.6	0.6	0.6
Policy scenario: offset declining pension benefit ratio	0.0	0.0	0.8	1.4	1.6	1.3	1.3
Lagged recovery scenario	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Adverse structural scenario	0.0	0.3	0.5	0.8	0.9	1.0	1.0

Source: MFSR

In the **higher life expectancy** scenario, pension expenditures start increasing after 2030. This is due to the retirement age cap. As people live longer but retire at the same age, the length of retirement will stretch and cause an increase in expenditures. This would increase pension expenditures by 0.6 p.p. of GDP by 2070. Due to low overall rates of migration, the assumption of a **higher/lower migration** would only result in an additional decrease of/increase of 0.2 p.p. of GDP over 2019-2070, compared to baseline. The most negative effect, across sensitivity scenarios, would materialize under the **lower fertility** scenario. Lower fertility would have a substantial effect on the level of GDP as the population shrinks faster. Additionally, the smaller cohorts would not retire until the end of the projection. The decrease in fertility will therefore only show in the number of disability and survivor pensions. This results in a potential increase in pension expenditures by 2.1 p.p. of GDP in 2070, compared to the baseline.

**Figure 16 - Comparison of pension expenditure under sensitivity scenarios and the baseline**
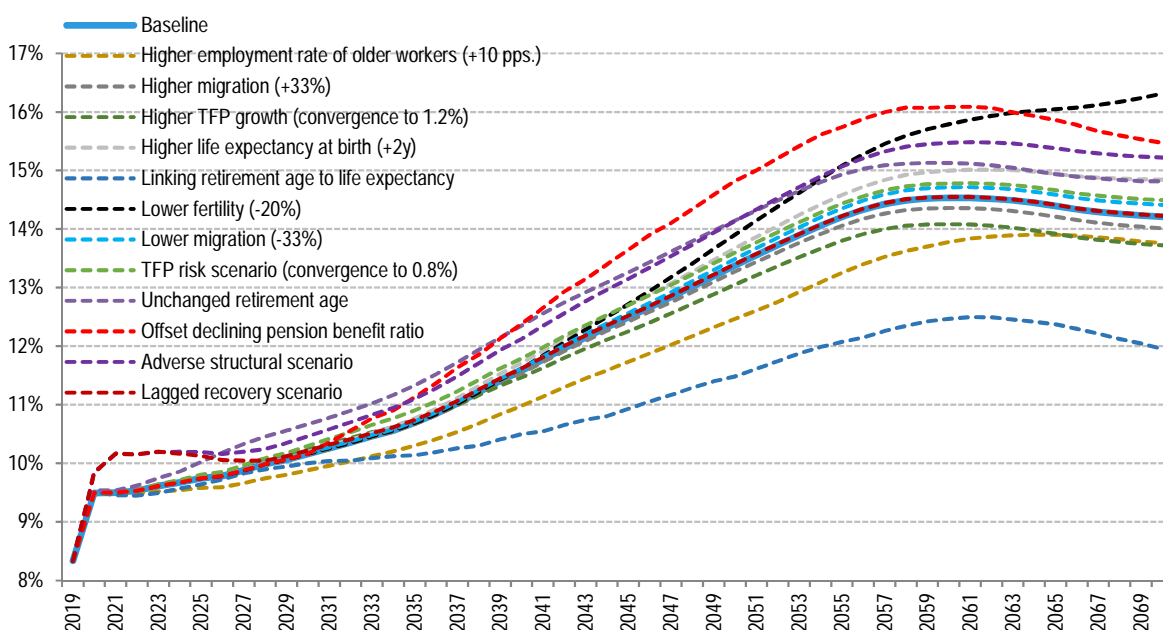
Source: MFSR

In case of **higher employment rate of older workers**, the public expenditures would decrease by 0.4 p.p. of GDP in 2070. **Higher TFP growth** (-0.5 GDP p.p. compared to baseline) and **TFP risk scenario** (+0.3 GDP p.p. compared to baseline) show the effect of higher/smaller productivity growth.

Figure 17 displays the evolution of retirement age according to the two policy scenarios concerning retirement age. In the scenario linking retirement age to changes in life expectancy, the expenditures compared to baseline would decline significantly after 2030, i.e. the year the retirement age will hit the cap. Linking retirement age to life expectancy can decrease public pension expenditures by up to 2.3 p.p. of GDP in 2070, compared to the baseline. On the other hand, if retirement age remains unchanged to the one in 2019, public pension expenditures would increase by 0.5 p.p. of GDP until 2030. As after this point the retirement age would no longer increase, the increase in expenditures compared to baseline in 2040 and 2050 above 0.5 p.p. would be caused by larger cohorts in retirement. The effect of the scenario over the projection horizon would be 0.6 p.p. of GDP higher, compared to the baseline,

Figure 17 – Retirement age for men in sensitivity scenarios
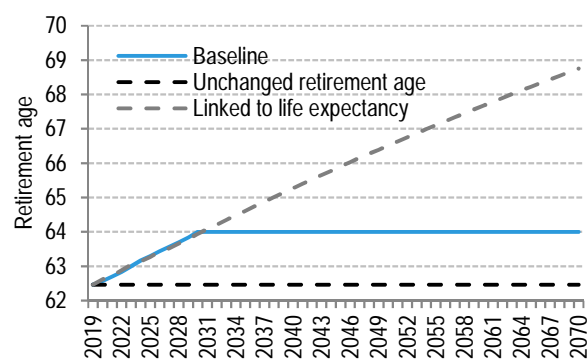
Source: MFSR

Figure 18– Earnings-related benefit ratio only from Ist pillar
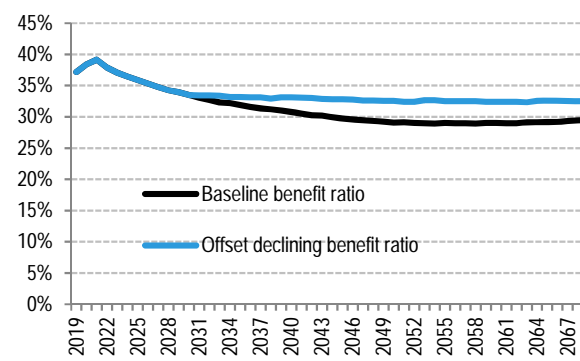
Source: MFSR

The scenario that offsets declining benefit ratio assumes that earnings-related benefit ratio cannot decrease by more than 10 % compared to year 2019[25]. The earnings-related benefit ratio is depicted in Figure 18. The benefit ratio is expected to decrease by more than 10 % already by 2030. The effect of such scenario in 2070 is an increase in expenditures by 1.3 p.p. of GDP in 2070, compared to the baseline.

The sensitivity scenario that offsets declining benefit ratio does not consider private pensions. This means, that the benefit ratio is in reality going to be higher due to additional private pensions. Since we do not explicitly model private pensions[26], we assume the second pillar does not exist to calculate the benefit ratio that considers second pillar benefit[27]. We then use the same approach as in the original sensitivity scenario- the benefit ratio can not decrease by more than 10 %. The impact on expenditures is significantly smaller and amounts to only 0.1 p.p. of GDP in 2070 (Figure 19).

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[25] This scenario takes into account only the first pillar earnings-related pensions. In the future, large part of pensioners will receive part of their pensions form a private pillar. These private pensions are not considered in this scenario.

[26] This is due to lacking default payout phase, as some pensioners opt for lifetime annuity and some for programmed withdrawal.

[27] In the model, we calculate full pension for all new old-age pensioners and subsequently reduce the pensions based on the period spent in the second pillar. Since we do not have the future second pillar pensions, we use this former calculation as a proxy of a pension equivalent from both pillars. Such proxy assumes that the combined pension from the first and second pillar will be the same as the one from the first pillar. This is not necessarily true, however it is a close approximation to the reality.

Figure 19 – Increase in pension expenditure due to offsetting decreasing benefit ratio accounting for II. pillar (% GDP)
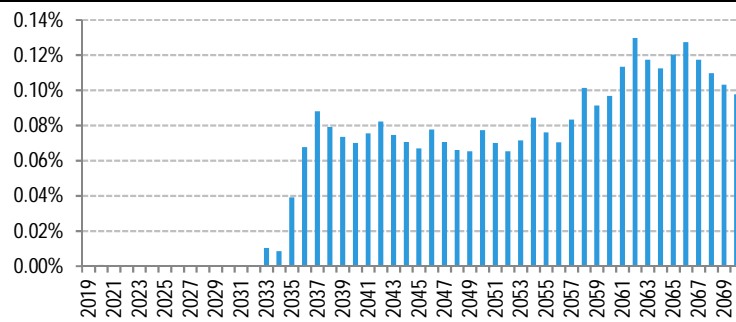
Source: MFSR

Two additional sensitivity scenarios showing a possible effect of bigger macroeconomic shock due to the COVID-19 pandemic are calculated in this projection round. In both scenarios, the expenditure to GDP ratio increases more rapidly due to the macroeconomic shock from 8.3 % GDP in 2019 to 9.8 % GDP in 2020. In the scenario assuming a permanent shock, the pension expenditures remain higher than under the baseline during the entire projection, with an additional effect of 1.0 p.p GDP in 2070. In the scenario assuming a temporary shock, the effect of a larger shock diminishes over time, having a limited effect after 2030, and no effect by 2070.

3.6. Description of the changes in comparison with the 2006, 2009, 2012, 2015, 2018 and 2021 projections

Similar to the previous projection round, the dependency ratio is the main driving force of the pension expenditure increase. Compared to the previous projection, the coverage ratio in this round of projections has a smaller mitigating effect, due to a higher number of disability pensioners. On the other hand, the benefit ratio has a larger effect, because of smaller minimum pensions expenditures (Table 22).

Table 22 (18) - Overall change in public pension expenditure to GDP under the 2006, 2009, 2012 and 2015 projection exercises

	Public pension expenditure	Dependency ratio effect	Coverage ratio effect	Benefit ratio effect	Labour market effect	Residual (incl. interaction effect)
2006 Ageing Report (2004-2050)	**1.51**	*9.03*	*-2.48*	*-3.13*	*-1.27*	*-0.64*
2009 Ageing Report (2007-2060)	**3.43**	*11.70*	*-3.91*	*-2.45*	*-0.56*	*-1.35*
2012 Ageing Report (2010-2060)	**2.66**	*11.61*	*-4.46*	*-2.03*	*-0.97*	*-1.50*
2015 Ageing Report (2013-2060)	**2.11**	*11.27*	*-4.23*	*-2.63*	*-1.33*	*-0.98*
2018 Ageing Report (2016-2070)	**1.20**	*8.82*	*-4.14*	*-1.48*	*-1.21*	*-0.78*
2018 Ageing Report Update (2016-2070)	**5.21**	*10.25*	*-3.52*	*-0.57*	*-0.75*	*-0.63*
2021 Ageing Report (2019-2070)	**5.87**	10.39	-2.60	-1.55	0.21	-0.57

Source: MFSR

Between 2016 and 2019, pension expenditures turned out to be slightly lower than what was expected in the previous round (i.e. 2018 Ageing Report). This was due to more favourable macroeconomic developments, mainly related to faster GDP growth. Another reason is smaller than expected expenditures on disability and survivor pensions (Table 23).

Table 23 (19a) - Breakdown of the difference between the 2018 projections and outturn figures (% of GDP)

	2016	2017	2018	2019
Ageing Report 2018 projections*	8.6	8.7	8.6	8.6
Assumptions (pps of GDP)	-0.1	-0.2	-0.2	-0.3
Coverage of projections (pps of GDP)	:	:	:	:
Constant policy impact (pps of GDP)	:	:	:	:
Policy-related impact (pps of GDP)	:	:	:	:
Actual public pension expenditure**	8.5	8.5	8.4	8.3
Universal system	*8.1*	*8.1*	*8.0*	*8.0*
Armed forces	*0.4*	*0.4*	*0.4*	*0.4*

* Ageing Report 2018 projections in this table refer to the projections of the Feb 2020 update

** Historical data are reported only for universal system expenditures in the questionnaire, due to insufficient history of armed forces expenditures data

Source: MFSR

Compared to the previous 2018 Ageing Report projections, the public pension expenditures are higher in the new round. According to the the previous projections, pension expenditure was expected to to be 8.6 % GDP in 2019. However, the actual expenditure-to-GDP ratio amounted to 8.3 %. Furthermore, while, in the previous round pension expenditures were projected to start increasing after 2030, in this round there is a sharp increase in year 2020 and then slow further increase after 2021. The largest difference between projection rounds is reached in 2033, and it amounts to 1.7 p.p. GDP. The public pension expenditures in 2070 will increase from 13.8 % of GDP projected in the previous round, to 14.2 % GDP projected in the current round (Figure 20).

Figure 20 – Pension expenditures comparison between AR 2021 and AR 2018 (% GDP)
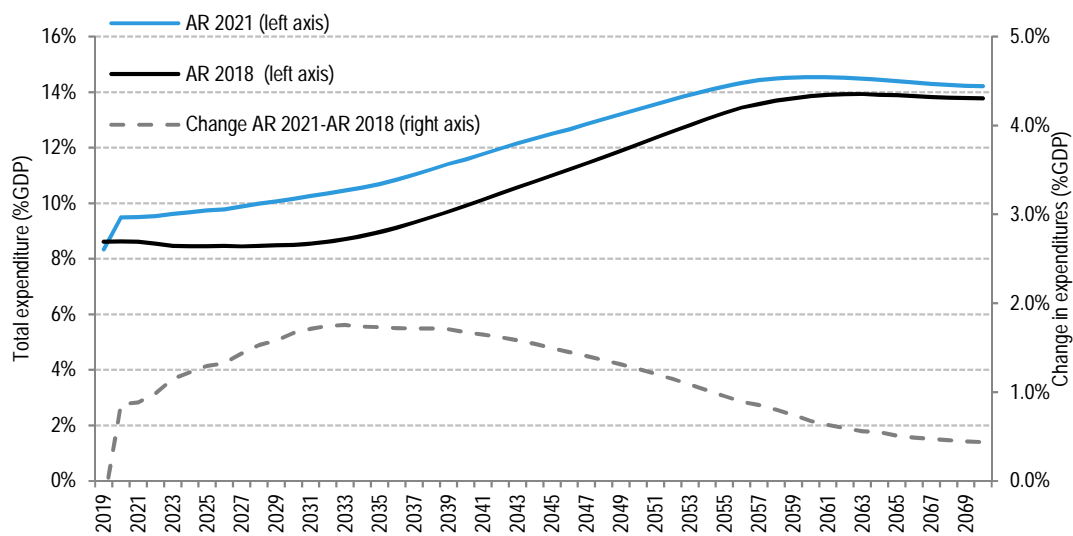
Source: MFSR

An important driver of the change in pension expenditure between projection rounds is the update of macroeconomic assumptions. The GDP in year 2019 was 2.2 p.p., higher than expected in the previous round and the average wage was higher by 7.8 p.p. In 2020, GDP is set to decrease by 4.7 %, whereas the average wage will increase by 2.8 %. By 2020, the GDP is lower by 6.6 p.p. compared to the previous projection round, whereas the average wage is 5.5 p.p. higher. Subsequently, both GDP and the average wage will decrease compared to the previous projection up to year 2041 and partly recover thereafter (Figure 22). This decrease of GDP and average wage up to 2041 is due to significantly decreased assumption on TFP (Figure 21).

Figure 21 - Comarison of the TFP growth between projection rounds
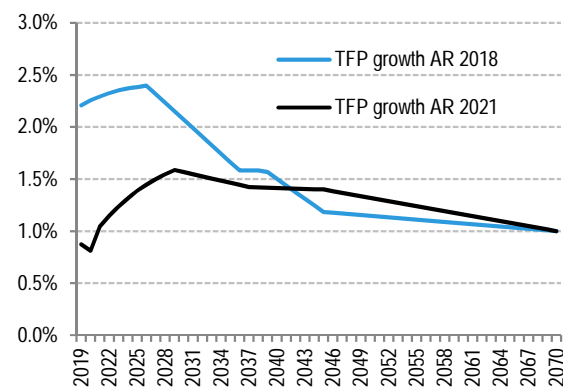
Source: MFSR

Figure 22– Comparison of GDP and average wage change (% change between AR 2021 and AR 2018)
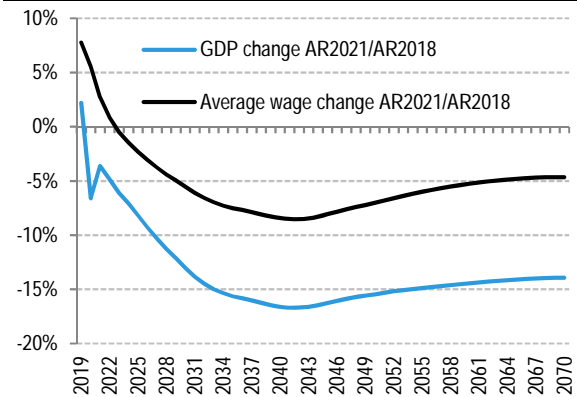
Source: MFSR

The new macroeconomic assumptions have significant impact on the new projections. The sharp decrease of GDP in 2020 will cause pension expenditures relative to GDP to increase by 0.8 p.p. Because the average wage decreases relatively less than GDP and pension benefits are based on the level of average wage, the pension expenditure relative to GDP will increase in time. This will cause an additional increase in pension expenditures up to year 2041, when the effect of new macroeconomic assumptions will reach 1.2 p.p. and remain stable until the end of projections (Figure 23).

Figure 23 – Decomposition of the difference in pension expenditures between projection rounds (in % GDP)
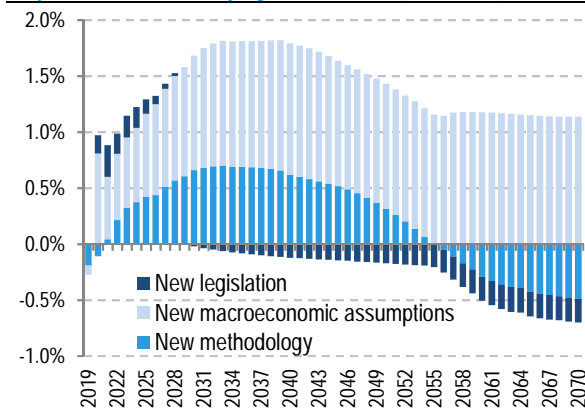
Source: MFSR

Figure 24– Decomposition of the difference in pension expenditures due to new methodlogy (in % GDP)
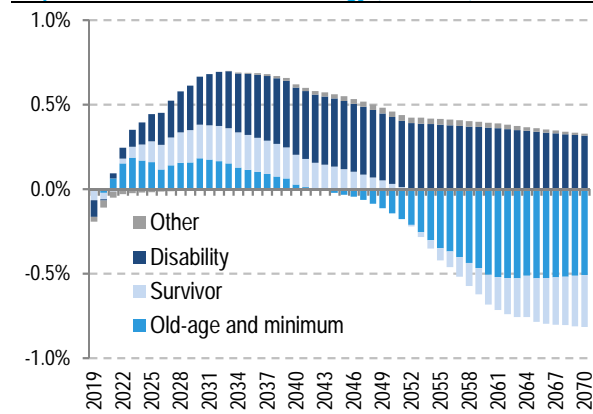
Source: MFSR

The pension expenditure projections differ from the previous round also due to a methodological update (Figure 24). In the previous round, we assumed that the probability of becoming disabled increases proportional to the increasing life expectancy. In this round, we assume that the probability of becoming disabled shifts only by 50 % of the increase in life expectancy (see Section 3.2). This increases disability pensions expenditure between projections rounds (Figure 26). A methodological change for survivor pensions was included as well. The survivor pension expenditure now also consider demographic effects[28], which increases expenditures up to 2050 and decreases them thereafter. The old-age pension expenditures changed very little between the projection rounds, however there was a significant effect due to change in minimum pensions[29], which is is significant after 2050 (Figure 27).

Figure 25 – Decomposition of legislative changes between AR 2021 and AR 2018 (% GDP)
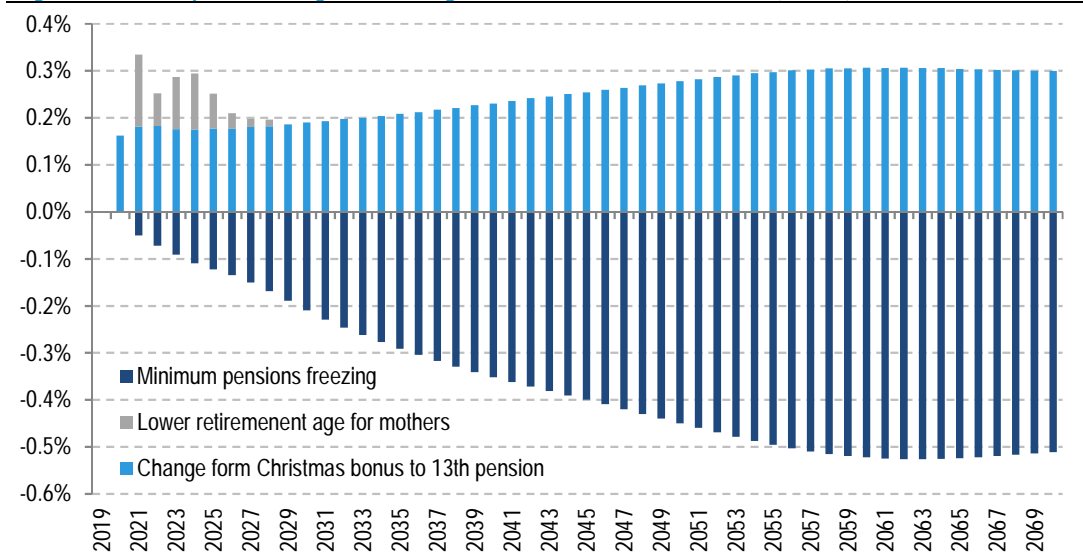

Source: MFSR

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[28] In the previous projection round, the probability of becoming a widow/ widower did not change in time. In this round the probability is period specific, i.e. it considers the increasing life expectancy. As people live longer, the probability of becoming a widow/ widower decreases for younger cohorts and this has a mitigating effect on pension expenditures, especially in the second part of the projections.

[29] The change in minimum pension projections is due to to methodological improvement. As the minimum pension is based on career length, we added this parameter as an endogenous variable in the model in this projection round. In the previous projection round, we assumed the career length to be based on the pension income based on the administrative data. In the model, the pension income is assumed to increase based on the indexation rule, however, the new pensioners had higher income relative to the old ones and therefore we assumed that they had longer careers. This led to an overestimation of minimum pension expenditure in the second half of the projections.

The impact of the recent legislative changes (i.e. legislated since January 2020) is shown in Figure 25. Lowering the retirement age for mothers only has a small (temporary) expenditure effect, as there are no further changes after 2030 (i.e. when the retirement age cap is reached). The change from the Christmas bonus to the thirteenth pension exerts an expenditure-increasing effect throughout the projection horizon. The effect of this change increases from 0.2 p.p. of GDP in 2019 to 0.3 p.p. of GDP in 2070. Lastly, the expenditure-decreasing impact of the minimum pension freezing measure increases over time, as the minimum pensions expenditure is set to increase significantly throughout the projection (Figure 27).

Figure 26- Comparison of disability pension expenditures between projection rounds (% GDP)
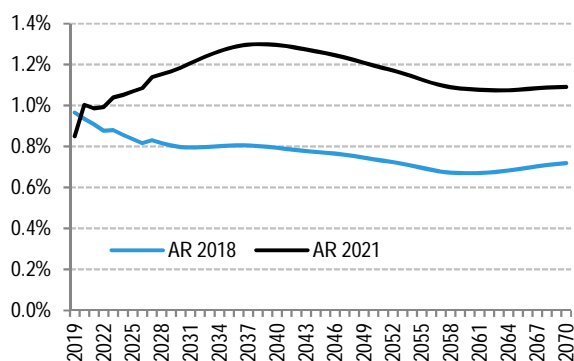
Source: MFSR

Figure 27– Comparison of minimum pension expenditures between projection rounds (% GDP)[30]
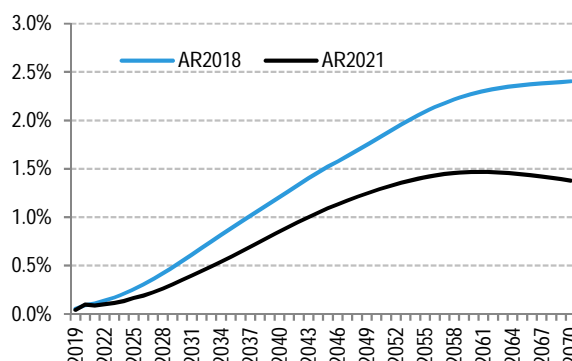
Source: MFSR

Table 24 (19b) - Breakdown of the difference between the 2018 and the new public pension projection (% of GDP)

	2019	2030	2040	2050	2060	2070
Ageing Report 2018 projections*	8.6	8.5	9.9	12.1	13.9	13.8
Change in assumptions (pps of GDP)	-0.1	1	1.2	1.1	1.2	1.1
Improvement in the coverage or in the modelling (pps of GDP)	-0.2	0.7	0.6	0.3	-0.3	-0.5
Change in the interpretation of constant policy (pps of GDP)	:	:	:	:	:	:
Policy-related changes (pps of GDP)	0	0	-0.1	-0.2	-0.2	-0.2
New projections	8.3	10.2	11.6	13.4	14.5	14.2

*Ageing Report 2018 projections in this table refer to the projections of the Feb 2020 update

Source: MFSR

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[30] Both earnings-related minimum pensions and social assistance are considered here.

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

4.1.   Institutional context

The model of the Slovak pension system (**SLOPEM)** was developed by Mr. Ludovit Odor and is further being developed by the Slovak Council for Budget responsibility (CBR) and Institute for Financial Policy. In addition, there are two models for the system of armed forces, one for the **police** and one for the **army**. They were developed by Mr. Ludovit Odor and the Council for Budget Responsibility (an independent body for monitoring and evaluating the fiscal performance of the Slovak Republic). The projections are run by the Ministry of Finance. The models were developed in order to run long-term projections and to simulate the impact of changes in relevant parameters of the current system.

4.2.   Assumptions and methodologies applied

SLOPEM
- The model takes fully into account AWG assumptions as supplied by Eurostat and the Commission.
- Pension benefits are divided into 4 schemes by gender (old-age pensions, disability pensions, widow/er pensions, and orphans pension). Additionally, the minimum pension benefits and the Christmas bonus/thirteenth pension benefits are calculated.
- Model does not work with age specific earnings profile – average wage is used for all age cohorts.
- The first pillar pensions are indexed according to law (i.e. pensioners' CPI estimated as CPI+0.0011, that is ten year average difference between CPI and pensioners' CPI), while minimum pensions (social assistance) and Christmas bonus are fully indexed to wages.
- Contributory period estimated from empirical data is assumed to converge towards the CSM output calculated by the Commission.
- The model works on a cohort level, as people retire, the cohort-specific contributory period and income distributions are calculated. Based on these assumptions, the pension level is calculated.

ARMED FORCES
- The models takes into account all of the AWG assumptions that are applicable to the system.
- Pension benefits are divided into 5 schemes not differentiated by gender (retirement pensions, temporary pensions, disability pensions and widow/er and orphans' pension).
- Models do not work with age specific earnings profile – average wage is used for all age cohorts.
- The average contributory period reflects the legislated minimum contributory period and makes assumption on how the employees will leave the system after changes in the law.
- The number of contributors (active members) of the system of armed forces are estimated as weighted average of two scenarios: status quo and constant number of active members per capita of the whole population.

4.3.   Data used to run the models

SLOPEM
The data used in the model have been provided by the Social Insurance Agency, which collects contributions and pays out all first pillar benefits. The model uses the following data:
- The number of pensions disaggregated by type of pension, age, gender and income bracket.
- The number of new pensions by type of pension, age, gender and income bracket.
- The number of contributors by gender and income bracket.
- The number of the second pillar participants by age.
- Assumptions about the macroeconomic framework and population projection are those of the AWG.

ARMED FORCES

The data used in the models have been provided by the Ministry of Interior for the police and the Ministry of Defense for the army. The model uses the following data:

- The number of pensions disaggregated by type of pension, age and income bracket.
- The number of new pensions by type of pension, age, gender and income bracket.
- The number of contributors by income bracket.
- Assumptions about the macroeconomic framework and population projection are those of the AWG.

4.4. General description of the models

Both models are cohort-based simulation models written in MATLAB. The SLOPEM model covers the first pillar of the universal pension system but calculates partly also the second pillar. At the same time, it calculates also social assistance to those with pension below minimum subsistence level and the Christmas bonus. The models for the armed forces cover majority (cca 85%) of the pension system of the armed forces.

5.   ANNEX

5.1.   Pension formulas

Old-age pension formula

$$OP = APPV \times T \times CPPV$$

OP = old-age pension benefit (monthly).
APPV = Average pension point is the lifetime average of pensioner's wages (in each year of the career) relative to average wage in the economy in that year, e.g. if someone's wage was equal to average wage over the entire career, the APPV will be 1. Maximum value of the APPV is 3. APP is subject to solidarity adjustment.
T = number of years of the working career.
CPPV = current pension point value is a value in terms of money for one APP

$$APPV = \frac{1}{t} \sum_{1}^{t} \frac{individual's\ wage_t}{average\ age\ in\ economy_t}$$

Deferred old-age pension in the first pillar

After reaching the retirement age, the economic activity affects the amount of pension.

$$OP' = (OP + OP_1) \times (1 + \%)$$
$$OP_1 = PP \times CPPV$$

OP´ = total sum of the pension.
OP = the amount of pension acquired at the date of reaching the retirement age.
OP_1 = the amount of pension acquired by the economic activity at the date of reaching the retirement age.
% = 0.5% for every 30 days of the economic activity after reaching the retirement age i.e. 6% per year.

Early old-age pension in the first pillar

The entitlement for early old-age pension arises to an insured person who:
- Has been old-age insured for at least 15 years
- Has less than 2 years missing until reaching statutory retirement age
- Becomes eligible for early old-age pension that is higher than 1.2 x minimum level of subsistence for one adult
- As of January 2011, it is not possible to receive early old-age pension and work at the same time.

$$EOP = OP \times (1 - \%)$$

EOP – early old-age pension.
OP = the amount of pension acquired at the date of reaching the retirement age.
% = 0.5% for every 30 days of the economic activity before reaching the retirement age i.e. 6% per year.

Disability pension in the first pillar

Calculation of the disability pension for a person with a 41%-70% decline of work capability:

$$DP = [APPV \text{ x } (T + T_1) \text{ x } CPPV] \text{ x } M$$

45

Calculation of the disability pension for a person with <u>more than 70% decline of work capability:</u>

$$DP = APPV \text{ x } (T + T_1) \text{ x } CPPV$$

<u>DP</u> = disability pension.
<u>APPV</u> = average pension point value.
<u>T</u> = number of years of insurance as of the date of the rise of disability.
<u>T_1</u> = number of years of insurance from the rise of disability until reaching the retirement age.
<u>CPPV</u> = current pension point value.
<u>M</u> = percentage rate of reduction in the capacity to carry out gainful activity.

Initial determination of the current pension point value in 2004

$$PP\,2004 \;=\; \frac{RR\% \;\cdot\; AW\,2003}{Years} \;\ldots\ldots\ldots\ldots\ldots 4{,}72 \;=\; \frac{50\% \;\cdot\; 377{,}75}{40} \; in\ EUR$$

<u>PP2004</u> – current pension point value in 2004
<u>RR%</u> - replacement rate (gross pension over gross average wage)- set at 50%
<u>AW2003</u> - Average wage in the economy (estimated at the time of writing law)
<u>Years</u> – years of service
1 EUR = 38.879 SKK

5.2. Calculation of the second pillar benefit

Currently, there is no default strategy on the payout phase set in the second pillar. Participants can choose between various payout options. The preferred options at the moment are programmed withdrawal and lifetime annuity. When calculating the replacement rate for the second pillar, we assume that participants choose lifetime annuity. The pension benefit is therefore determined as a fair annuity- the amount of savings at retirement are divided by the number of months individual is expected to live[31]. The technical reserves are further expected to yield a return of 2 % per year, which is used to increase the value of the benefit. In other words, the benefit is indexed to inflation.

The value of savings in retirement is calculated using assumptions on the share of savings invested in equity and assumption on gross returns on invrestment in the second pillar. For the share of savings in equity, we assume distribution based on the data reported in 2017 for base year (Figure 28). We further assume, that each cohort keeps the ratio constant until retirement, i.e. if share of savings in equity for 30-year olds is 29 % in 2019, we expect this cohort to have the same ratio in equity in all subsequent years of saving. For the new cohorts, the ratio remains unchanged after 25 years of age at 50 %. For cohorts in pre-retirement age, the distribution decreases according to legislation[32]. We assume there are only two asset classes - equity and bonds. The gross return on bonds is assumed to be 8 % throughout the projection. This is roughly equal to the historical performance of equity funds in the second pillar. The return on bonds is expected to increase from 2 %, which is close to what was observed in 2019 to 4 % in 2050 and remain at 4 % until the end of the projection.

Figure 28- Share of savings invested in equity (%, 2017)
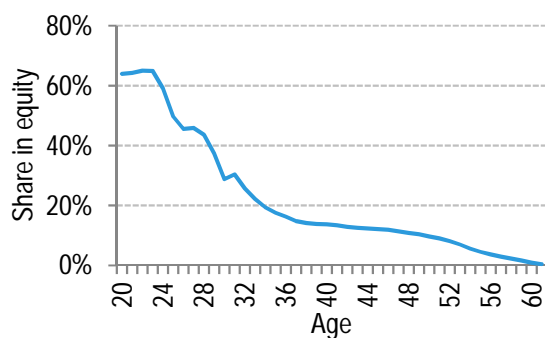
Source: MFSR

Figure 29– Assumption on gross returns on equity and bonds (% p.a.)
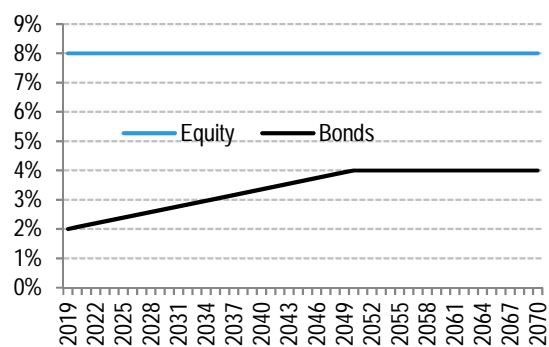
Source: MFSR

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[31] We do not use the life tables for single year but we make use of the expected mortality rates to calulate the expected lifetime at retirement.
[32] Based on legislation, at the age of 52, one must have at least 10 % of is savings in a bond fund. With every additional year, the share of savings in bonds must increase by 10 p. p.

5.3. Additional tables

Table 25 (A1) - Economy wide average wage (1000 EUR)

	2019	2030	2040	2050	2060	2070	% change 2019-2070
Economy-wide average gross wage at retirement	15.2	23.6	36.2	54.7	80.6	115.8	659.5
Economy-wide average gross wage	15.2	23.6	36.2	54.7	80.6	115.8	659.5

Source: MFSR

Table 26 (A2) - Disability rates by age groups for the universal system

	2019	2030	2040	2050	2060	2070
Age group -54	4%	4%	4%	4%	4%	4%
Age group 55-59	18%	19%	19%	18%	17%	17%
Age group 60-64	8%	18%	18%	17%	17%	16%
Age group 65-69	0%	0%	0%	0%	0%	0%
Age group 70-74	0%	0%	0%	0%	0%	0%
Age group 75+	0%	0%	0%	0%	0%	0%

Source: MFSR

Table 27 (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	1.8	1.4	1.8	1.2	-0.3	5.9
Dependency ratio effect	3.3	2.0	3.5	2.3	-0.7	10.4
Coverage ratio effect*	0.1	0.1	-0.9	-0.7	0.0	-1.4
Coverage ratio old-age	1.2	0.5	-0.2	-0.1	-0.1	1.4
Coverage ratio early-age	-1.3	-0.3	0.5	-0.3	-1.4	-2.8
Cohort effect	-1.6	-0.7	-3.8	-3.3	1.8	-7.6
Benefit ratio effect	-1.6	-0.9	-0.5	-0.1	0.3	-2.7
Labour market effect	0.2	0.3	-0.2	-0.2	0.1	0.2
Employment ratio effect	0.2	0.3	-0.1	-0.3	0.1	0.2
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	0.0
Residual	-0.2	-0.1	-0.2	-0.1	0.0	-0.6

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

Source: MFSR

Table 28 (A4a) - Administrative data on new pensioners (2019) - men

Age group	All	Old age	Disability	Survivor	Other (including minimum)
15 - 49	5377	0	4068	1309	0
50 - 54	1949	4	1767	178	0
55 - 59	3660	562	2743	355	0
60 - 64	28177	25864	1546	767	0
65 - 69	1382	563	1	818	0
70 - 74	974	95	2	877	0
75+	2309	26	0	2283	0

Source: MFSR

Table 29 (A4b) Administrative data on new pensioners (2019) - women

Age group	All	Old age	Disability	Survivor	Other (including minimum)
15 - 49	6396	0	4262	2134	0
50 - 54	2626	0	1881	745	0
55 - 59	4063	69	2728	1266	0
60 - 64	34188	30904	998	2286	0

65 - 69	3089	285	0	2804	0
70 - 74	2723	49	0	2674	0
75+	4652	49	0	4603	0

Source: MFSR

Table 30 (A4c) - Administrative data on new pensioners (2019) - total

Age group	All	Old age	Disability	Survivor	Other (including minimum)
15 - 49	11773	0	8330	3443	0
50 - 54	4575	4	3648	923	0
55 - 59	7723	631	5471	1621	0
60 - 64	62365	56768	2544	3053	0
65 - 69	4471	848	1	3622	0
70 - 74	3697	144	2	3551	0
75+	6961	75	0	6886	0

Source: MFSR

Add. Table 15 – Minimum pension level from 2021 (in euros)

Years of contributions	Minimum pension	Years of contributions	Minimum pension
30	334.3	56	479.4
31	338.5	57	485.7
32	342.7	58	492.0
33	347.0	59	498.3
34	351.2	60	504.6
35	355.4	61	510.9
36	359.6	62	517.2
37	363.8	63	523.5
38	368.0	64	529.8
39	372.2	65	536.1
40	378.5	66	542.4
41	384.8	67	548.7
42	391.1	68	555.0
43	397.4	69	561.4
44	403.7	70	567.7
45	410.0	71	574.0
46	416.3	72	580.3
47	422.6	73	586.6
48	428.9	74	592.9
49	435.2	75	599.2
50	441.5	76	605.5
51	447.8	77	611.8
52	454.2	78	618.1
53	460.5	79	624.4
54	466.8	80 and more	630.7
55	473.1		

Source: MFSR

Add. Table 16 - Retirement age valid as of January 2021

Year of birth	Male	Female	Female who raised one child	Female who raised two children	Female who raised three of four children	Female who raised five or more children
1943 and less	60y	57y	56y	55y	54y	53y
1944	60y 9m	57y	56y	55y	54y	53y
1945	61y 6m	57y	56y	55y	54y	53y
1946	62y	57y	56y	55y	54y	53y
1947	62y	57y 9m	56y	55y	54y	53y
1948	62y	58y 6m	56y 9m	55y	54y	53y
1949	62y	59y 3m	57y 6m	55y 9m	54y	53y
1950	62y	60y	58y 3m	56y 6m	54y 9m	53y
1951	62y	60y 9m	59y	57y 3m	55y 6m	53y 9m
1952	62y	61y 6m	59y 9m	58y	56y 3m	54y 6m
1953	62y	62y	60y 6m	58y 9m	57y	55y 3m
1954	62y	62y	61y 3m	59y 6m	57y 9m	56y
1955	62y 76d	62y 76d	62y 76d	60y 3m	58y 6m	56y 9m
1956	62y 139d	62y 139d	62y 139d	61y	59y 3m	57y 6m
1957	62y 6m	62y 6m	62y	61y 6m	60y	58y 3m
1958	62y 8m	62y 8m	62y 2m	61y 8m	60y 9m	59y
1959	62y 10m	62y 10m	62y 4m	61y 10m	61y 4m	59y 9m
1960	63y	63y	62y 6m	62y	61y 6m	60y 6m
1961	63y 2m	63y 2m	62y 8m	62y 2m	61y 8m	61y 3m
1962	63y 4m	63y 4m	62y 10m	62y 4m	61y 10m	61y 7m
1963	63y 6m	63y 6m	63y m	62y 6m	62y	61y 11m
1964	63y 8m	63y 8m	63y 2m	62y 8m	62y 2m	62y 2m
1965	63y 10m	63y 10m	63y 4m	62y 10m	62y 4m	62y 4m
1966 and more	64y	64y	63y 6m	63y	62y 6m	62y 6m

Abbreviations used: y-year, m-month, d-day

Source: MFSR

Add. Table 17- Retirement age as of January 2021 for men (with children)

Year of birth	Male who raised one child	Male who raised two children	Male who raised three or more children
1957	62y	61y 6m	61y
1958	62y 2m	61y 8m	61y 2m
1959	62y 4m	61y 10m	61y 4m
1960	62y 6m	62y	61y 6m
1961	62y 8m	62y 2m	61y 8m
1962	62y 10m	62y 4m	61y 10m
1963	63y	62y 6m	62y
1964	63y 2m	62y 8m	62y 2m
1965	63y 4m	62y 10m	62y 4m
1966 or more	63y 6m	63y	62y 6m

Abbreviations used: y-year, m-month, d-day

Source: MFSR