

Ageing Working Group
**Country fiche on 2018 pension projections of
the Slovak Republic**

2020 Update

January 2020



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1. OVERVIEW OF THE PENSION SYSTEM

The first section of this chapter describes the pension system at of the end of 2018. In 2019, four measures were adopted with significant effect on long-term pension expenditures. These changes are closely described in the following section.

1.1. Description of pension system before 2019 reforms

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 is a widow and old-age pension received at the same time.

Add. Table 2- Number of pensioners (2016)

universal system	old-age	1 071 569
	disability	237 861
	widow/widower's	303 719
	orphan's	20 235
armed forces system	retirement	32 143
	temporary	554
	disability	458
	widow/widower's	5 609
	orphan's	58
population		5 430 637

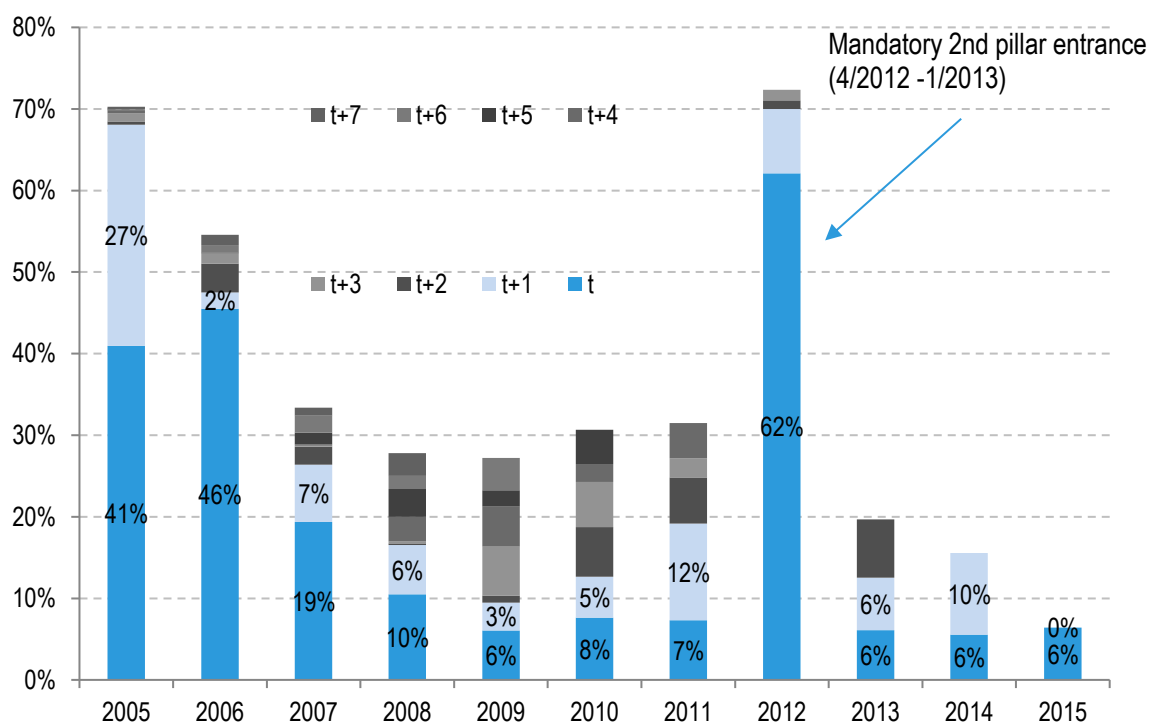
Source: MFSR

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, 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. In 2016 the average contributory period for new pensioners was 42 years for men and 41 for women.

The second pillar is a fully funded, defined contribution, private pension scheme¹ 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 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.

Figure 1 - New entrants in Pillar II as a percentage of all new entrants in the labour market, by year of labour market entry [1]



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 three 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

¹ Private pension companies managing pension savings of individuals.

[1] t- Entered 2nd pillar in the same calendar year as they entered labour market, t+1- Entered 2nd pillar one calendar year after they entered labour market etc.

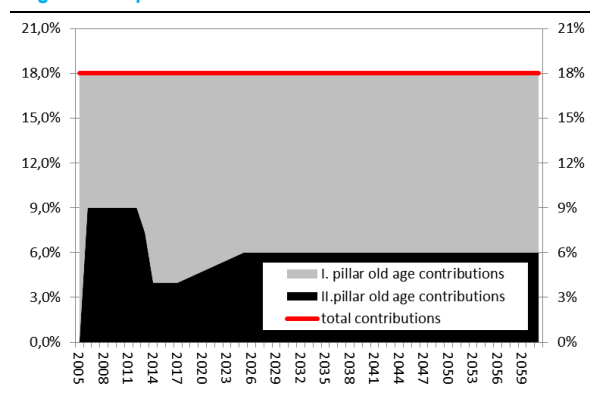
first pillar and a part that goes to second pillar, if one participates. If not, all employers' contributions are paid into the first pillar.

Add. Table 3 - Pension contributions (% of assessment base) according to participation in pension pillars

	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 <u>first</u> pillar 9.00 to the <u>second</u> pillar	10.00 to the <u>first</u> pillar 4.00 to the <u>second</u> pillar	8.00 to the <u>first</u> pillar 6.00 to the <u>second</u> 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 in the guaranteed fund will gradually increase by 10% 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

Until 2003, the retirement age was 60 years for men and 53-57 years for women (depending on the number of children raised). As from 2004, the retirement age is 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 rounddown ($Retage_{t-1}$).

Due to the existing legislation, the retirement age was prolonged by 76 days in 2017 and by 63 days in 2018.

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 years². On the other hand, the pension is increased by 6% per year for every additional working year³ above the retirement age.⁴

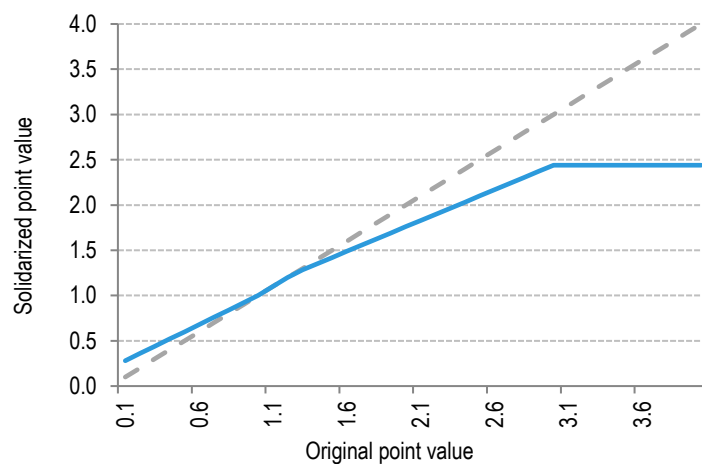
The retirement age calculation slightly changed in 2018. Formerly, the retirement age was determined only for one year ahead, giving people very little opportunity to plan their exit from labour market. To avoid such problem, retirement age was to be determined five years in advance and is rounded to whole months. This measure did not therefore break link to life expectancy, only changed retirement age projections due to rounding the increase in retirement age to whole months.

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

Calculation of 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 3⁵). 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.

Figure 3 - 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

² 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%)

³ 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%)

⁴ If the start of drawing the pension is postponed at the same time. Person is entitled to pension increase also if he/she continues to work past his/her retirement age and is drawing his/her pension at the same time, however, the increase is significantly smaller in this case.

⁵ 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.



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 level⁶ by at least 20%.

Disability pensions are calculated as old-age pension; however the disability pension is affected by the loss of work capability. 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 as a result 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 becomes married. 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

A new minimum pension scheme was introduced in 2015, effective from July 2015. Pensioners with at least 30 qualified years of pension insurance are entitled to a minimum pension (MP) calculated as follows:

$MP = \text{subsistence minimum} * \text{coefficient}$

Where coefficient is equal to 1.36 for 30 qualified years of pension insurance and increases by 0.02 for every additional career year until 39 years and increases by 0.03 for every additional year thereafter.

In 2016, the scheme covered 5% of old-age pensioners, with average pension benefit of recipients higher by 10% and annual costs 20 mil. EUR. An increase in low pensions brought some savings on material need benefit, as some MP recipients no longer qualify for other social benefits (2 mil. EUR).

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).

⁶ See also <https://www.employment.gov.sk/sk/rodina-socialna-pomoc/hmotna-nudza/zivotne-minimum/>



Table 1 (1) - Statutory retirement age, earliest retirement age and penalties for early retirement (prior the 2019 reform⁷)

			2016	2020	2030	2040	2050	2060	2070
Qualifying condition for retiring with a full pension	Minimum requirements	Contributory period - men	15	15	15	15	15	15	15
		Retirement age - men	62.0	62.9	64.5	65.8	67.0	68.1	68.8
		Contributory period - women	15.0	15.0	15.0	15.0	15.0	15.0	15.0
		Retirement age - women	60.5	62.3	64.5	65.8	67.0	68.1	68.8
	Statutory retirement age - men		62.0	62.9	64.5	65.8	67.0	68.1	68.8
	Statutory retirement age - women		60.5	62.3	64.5	65.8	67.0	68.1	68.8
Qualifying condition for retirement WITHOUT a full pension	Early retirement age - men		60.0	60.9	62.5	63.8	65.0	66.1	66.8
	Early retirement age - women		58.5	60.3	62.5	63.8	65.0	66.1	66.8
	Penalty in case of earliest retirement age		12.5%	12.5%	12.5%	12.5%	12.5%	12.5%	12.5%
	Bonus in case of late retirement		6%*	6%*	6%*	6%*	6%*	6%*	6%*
	Minimum contributory period - men		15	15	15	15	15	15	15
	Minimum contributory period - women		15	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

Table 2 (2a) - Number of new pensioners by age group - administrative data (MEN, 2016)

Age group	All	Old-age	Disability	Survivor	Other (including minimum)
15 - 49	4 501	0	3 520	981	0
50 - 54	2 286	17	2 067	202	0
55 - 59	3 852	359	3 118	375	0
60 - 64	26 279	25 083	577	619	0
65 - 69	831	127	0	704	0
70 - 74	665	5	0	660	0

Table 3 (2b) - Number of new pensioners by age group - administrative data (WOMEN, 2016)

Age group	All	Old-age	Disability	Survivor	Other (including minimum)
15 - 49	5 310	0	3 934	1 376	0
50 - 54	3 088	0	2 259	829	0
55 - 59	12 863	9 094	2 383	1 386	0
60 - 64	12 797	10 678	68	2 051	0
65 - 69	2 359	15	0	2 344	0
70 - 74	2 335	10	0	2 325	0

Table 4 (2c) - Number of new pensioners by age group - administrative data (TOTAL, 2016)

Age group	All	Old-age	Disability	Survivor	Other (including minimum)
15 - 49	9 811	0	7 454	2 357	0
50 - 54	5 374	17	4 326	1 031	0
55 - 59	16 715	9 453	5 501	1 761	0
60 - 64	39 076	35 761	645	2 670	0
65 - 69	3 190	142	0	3 048	0
70 - 74	3 000	15	0	2 985	0

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

In the mixed system, awarded pension benefit from the first pillar is reduced by a percentage of pension contributions (SSC) paid (redirected) to the private pension funds for the years of participation in the mixed

⁷ The retirement age is a subject to 2019 reform. Values in table one are valid as of end of 2018.



system⁸. If, for example, a worker participates during his whole career in both pillars and contributes 4.5%⁹ (i.e. 25% of all old-age SSC contributions) to the second pillar, his accrued rights from the first pillar will be reduced by 25%. If one participates for only half of his career, the reduction in awarded pension benefit would be 12.5%. The reduction calculation however considered only contributions to old-age insurance (18 % of gross wage) and did not consider the contribution to reserve fund of solidarity (4.75 % of gross wage), which is used to pay out I. pillar pensions.

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 for certain 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

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 grows by 10 percentage points a year and weight of nominal wage decreases by 10 percentage points a year. However, during this period pensions are 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 will be 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 period. 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.

As from 2018, pensions will be 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 have to increase by at least 2% of average pension by the same type of 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.

Add. Table 5- 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

⁸ Until September 2012, the ratio between pension contributions paid to the first and second pillar (9%) was 50:50. As of September 2012, just 22% of pension contributions (4%) are paid to the second pillar and the rest is paid to the first pillar. Between 2017 and 2024, the percentage of contributions paid to the second pillar will grow to 33% (6%).

⁹ Describes situation before 2012 pension reform



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 6- 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.

The minimum contributory period for a new member to acquire pension rights is 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 7 - 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%)
Transition period (2013 - 2028)	Increases from 15 years by one every year until reaching 25 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
		> 31	Raised by 0.5 p.p. per each year (maximum 65%)
New legislation (2028+)	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 8- 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 1.7.2018. 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 9 - Indexation mechanism for pensions of armed forces

Period	Indexation mechanism	Indexation formula
2013 – 30.6.2018	Fixed amount + adjustment	$(\text{fixed amount} / 30 * (1 + (\text{contributory period above 15 years})/2))$
1.7.2018-30.6.2019	Fixed amount + adjustment	$(0.6 \text{ €}) * (\text{contributory period})$
1.7.2019-31.12.2021	Fixed amount + adjustment	$((2 \% \text{ of average old-age pension in universal system})/15) * (\text{contributory period})$
1.1.2022 - 2060	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).

1.1.4. Christmas bonus

The so-called Christmas bonus is a non-contributory benefit, means-tested, not being a part of the pension system. It was first introduced in year 2006 as a temporary measure to increase solidarity in the first pillar. The benefit is paid once a year in December. Only pensioners are eligible for the benefit. The benefit in 2018 amounted to EUR 87.26 (circa 10% of the average gross monthly wage in Slovakia) and is gradually falling for pensioners with higher pension income. Pensioners whose pension was above 60% of average wage in the economy were not entitled to the Christmas bonus. There is no stable indexation mechanism for the Christmas benefit and it is raised irregularly by changing the law. Since 2014, it was also increased by 12.74 EUR for people with pensions up to twice the amount of subsistence level, in order to offer maximum Christmas bonus amounting to 100 EUR for people with lowest pension income.



1.1.5. Interactions between different types of pensions

Concurrent pensions

It is possible to receive pensions from **both** of 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 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 smaller 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. The changes in pension system since 2018

There have been four main changes to the universal pension system in 2019. Three of those changes are purely on the expenditure side and do not affect employment. The only change which has an effect on employment and, hence, on the GDP and contribution side is the introduction of a retirement age ceiling. All four of these changes increase pension expenditures in the short as well as the long term. Additionally, a temporary measure in the system for armed forces was introduced. The latter has no significant effect on pension expenditure and, therefore, is not modelled in this update.

1.2.1 Change in retirement age

The most important change to retirement age is the introduction of a retirement age cap. Formerly, retirement age was set to increase in line with life expectancy. Under the new legislation, the retirement age will continue to increase, but only up to 64 years of age (Add. Table 10). For women with children, the maximum retirement age is further decreased by 6 months for each child up to 3 children¹⁰. If the mother is unable to benefit from such early retirement possibility, the right is transferred to the father¹¹.

The new law also defines the conditions to be met in order to be eligible for lower retirement age (i.e. what exactly means to raise a child). The condition is taken as satisfied, if the parent or the adoptive parent took care of the child:

1. For at least 10 years,
2. For at least 5 years, if the parent started caring for the child after it was at least 8 years old,
3. Since the child was born until its death, provided that the child has lived at least for 6 months,
4. At least the last three years before reaching the retirement age.

Additionally, if the child was in alternate care, the condition for raising the child is fulfilled for both parents.

Add. Table 10 - Former and new average statutory retirement age by sex^{12, 13}

	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 2020 update – men	62.0	62.6	64	64	64	64	64
Statutory retirement age 2020 update – women	60.5	62	63.1	63.1	63.1	63.1	63.1

Source: MFSR

Further changes to retirement age (not only in regard to retirement age capping) were introduced. Since the retirement age ceiling is expected to be hit by 2030 and retirement age was defined up to 2024¹⁴, **the automatic adjustment of retirement age to life expectancy was abolished**. To define the retirement age increases up to retirement age ceiling, a table specifying retirement age based on age, cohort, sex and number of raised children was defined (Add. Table 17 and Add. Table 18 in the Annex). The change in the average retirement age is displayed in Figure 4. Cap on retirement age subsequently prolongs share of adult life spent in retirement from 31 % in 2016 to 37 % in 2070 (Figure 5).

¹⁰ The retirement age cap, and its related lower retirement possibilities for mothers, were introduced through amendments to the constitution.

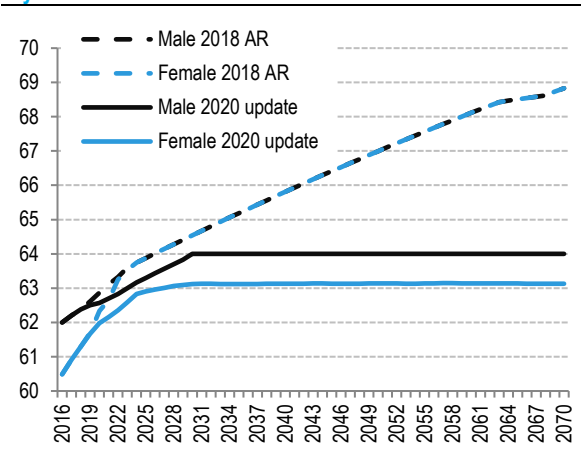
¹¹ e.g. In case the mother died prior to reaching retirement age.

¹² The 2018 AR Statutory Retirement Age reported in the table is different than that reported in the 2018 Ageing Report (where values had not been correctly updated).

¹³ The retirement age for women after the reform is assumed to be stable throughout the projection horizon. In reality, the retirement age might slightly increase as mothers with fewer children retire in the future. This effect should not be significant and the average retirement age should never increase above 63.3 years. Hence, the effect on pension expenditures would be insignificant. Additionally, if the women is not able to use the benefit, the father is entitled to it, justifying the use of this conservative approach.

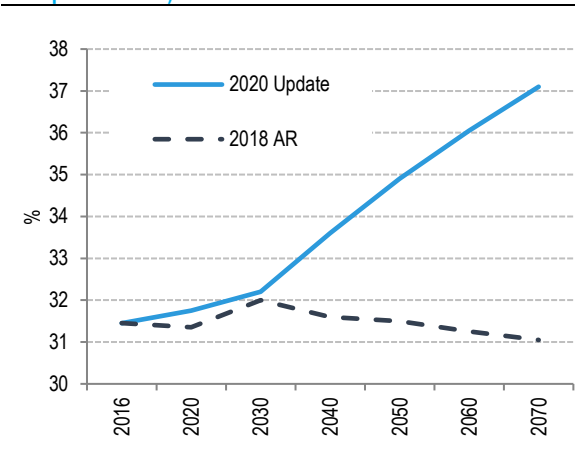
¹⁴ Retirement age was formerly linked to life expectancy and defined five years ahead to give opportunity to plan one's retirement. Therefore, the retirement age was defined up to year 2024 before the 2019 reform.

Figure 4– Former and new average statutory retirement age by sex



Source: MFSR

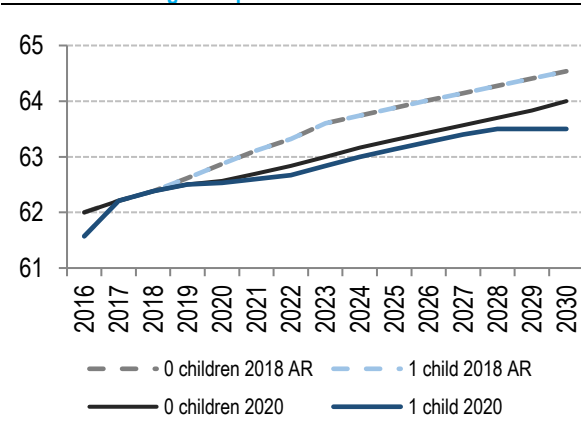
Figure 5- Percentage of adult life spent in retirement (pre- and post-reform)



Source: MFSR

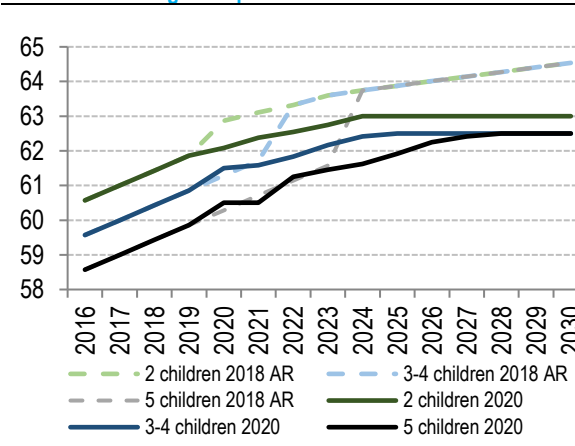
The new law defining retirement age also alters the convergence of retirement age for women with children to the general retirement age. Formerly, the retirement age for mothers was set to increase faster in order to catch up to the general retirement age by 2024. Under new legislation however, the retirement age for mothers will never converge to the general one, so the formerly expected increases were lowered. The new law came into effect in 2020 and is permanent.

Figure 6- Retirement age projection from the 2018 AR and new retirement age comparison for women



Source: MFSR

Figure 7- Retirement age projection from the 2018 AR and new retirement age comparison for women



Source: MFSR

1.2.2 Change in minimum pension calculation

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. The level of the minimum pension is calculated based on number of years an individual has worked and paid pension insurance. Under former legislation, only pensioners with at least 30 years of qualified pension insurance were entitled to minimum pension¹⁵. If a pensioner worked for 30 years, he would receive a minimum pension equal to 136 % of the subsistence level (SL). This level

¹⁵ To obtain a minimum pension, not every year of paid pension insurance counted as a qualified year. Several conditions were in place – the most important being that years of paid pension insurance would count as qualified only if insurance in given year was paid from a base equal or higher than 24.1 % of the average wage in the economy.



would increase by 2 p.p. of the SL up to 39 years of career, and 3 p.p. thereafter. Minimum pensions were therefore purely indexed to the SL which, in turn, is roughly indexed to CPI.

Under the new legislation, 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. The change came into effect in 2020 and is permanent.

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

This change is likely to have an impact on contributions to the pension system. People will receive the minimum pension if they work at least 30 years, regardless of the amount contributed. This may motivate individuals to optimize their social security contributions, for instance, by switching to self-employment¹⁶. Another reason for a potential further impact is that people will be motivated to take up early pension, if after retiring they will still receive a minimum pension. These effects are not quantified in this update.

¹⁶ As the legislation for social contributions under self-employment is different from that of employees, it is possible to lower the social contribution base in case of the self-employed. This can be done, for example, by using flat-rate expenditures. Alternatively, one may switch to a one-person Limited Liability Company (LLC), arbitrarily pay small social contributions, and yet receive minimum pension after 30 years.

1.2.3 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 benefit 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.

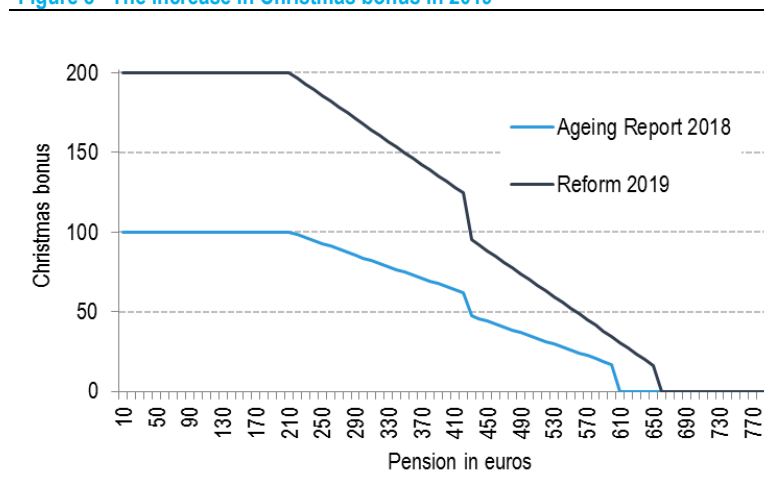
Add. Table 12– Former and new Christmas bonus formulas

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

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.

Figure 8– The increase in Christmas bonus in 2019



Source: MFSR

1.2.4 Change in benefit calculation for the second pillar participants

The first pillar benefits are 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. The share of contribution sent to the second pillar varied in the past (see Add. Table 4). In 2020, if one participates in the second pillar, 13 % of his/her gross wage is contributed to the first pillar and 5 % goes to his/her second pillar account. The share of contribution sent to the second pillar will gradually increase by 0.25 p.p. till it reaches 6% in 2024, while the share sent to the first one adequately decreases.

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 formula used 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 due to the fact that 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:

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

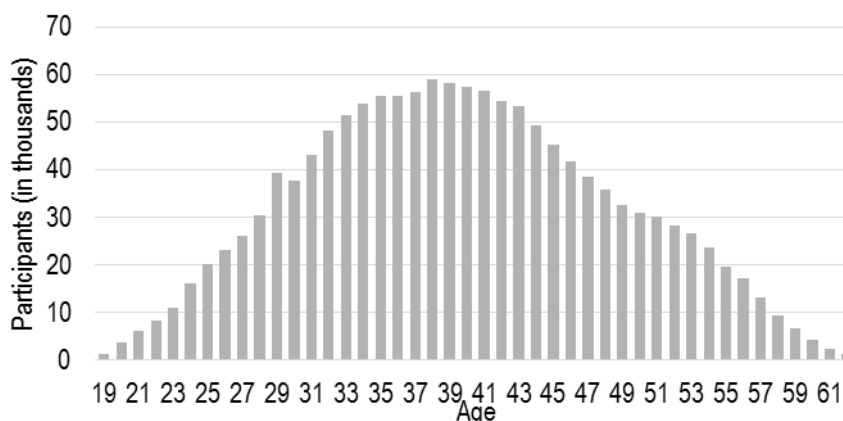
Add. Table 13 – Change in reduction of first pillar benefit due to participation in the second pillar

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

The result of this change will be a smaller reduction of the benefits from the first pillar and, hence, higher pension expenditure. The increase in expenditure will mostly happen after 2030, as number of the second pillar pensioners will remain low in the upcoming years. The change came into effect in 2020 and is permanent.

Figure 9 – Number of second pillar participants by cohort (2017, in thousands)



Source: MFSR



1.2.5 Temporary change in armed forces pension indexation

The indexation of pensions in armed forces was supposed to be unified with the one in universal system starting from 1.7.2018. However, there have been two ad-hoc changes made to the indexation rules. The temporary indexation formulas are defined in (Add. Table 9). The yearly impact of the different indexation is minor. In particular, it is lower than 0.001 % of GDP. Consequently, we do not model this change.

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:

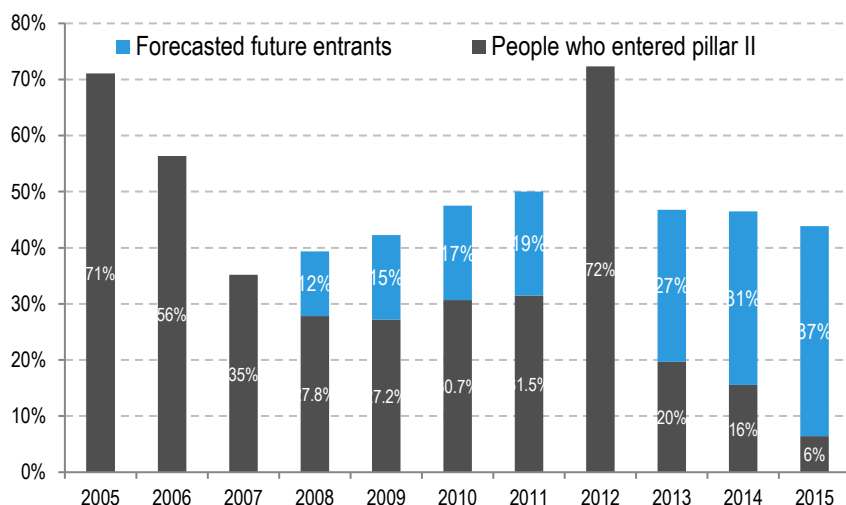
- First pillar pensions are indexed according to previous legislation (i.e. pensioners' CPI, which is estimated as CPI+ the difference between CPI and pensioner's' CPI in the last 10 years. For the period 2006 – 2016, it was 0.11 p.p. In previous round of projection, we have assumed the pensioner's' CPI to be 0.3 p.p. higher than CPI as this reflected the difference at the time of the 2012 reform.).
- Minimum pensions are fully indexed to wages. Minimum pension indexation was subject to change in 2019. Formerly, all values of minimum pensions were indexed roughly by CPI. This changed in 2019, as the basic level (minimum pension if one worked for 30 years) indexation increases according to average wage. The extra bonus for additional years of service however remains indexed to CPI. For consistency across projection rounds, we keep the assumption that all values of minimum pensions (i.e. basic level and extra bonus) are indexed to average wage.
- The Christmas bonus is indexed to wages, although no legal indexation mechanism is foreseen. The maximum value of the Christmas bonus remained unchanged since 2014 at 100 euros. This was changed in 2019, when the value of maximum Christmas bonus doubled. We therefore keep the assumption that the value is 100 euros in 2016 and it increases due to indexation. In 2019 the value sharply increases to 200 euros and is then indexed to average wage as before.

The model assumes that in the long run approximately 45% of contributors will be in the second pillar. That implies a 31% **voluntary entry rate** to the **second pillar** (31% of population compared to 45% of contributors).¹⁷

The model also assumes that 95% of employed persons pay **contributions** to pensions in the universal system. It is assumed that the **Christmas bonus** is a permanent part of the system and will not be cancelled throughout the projection period.

¹⁷ This was revised based on a recent analysis available online at: <http://www.finance.gov.sk/Default.aspx?CatID=44>

Figure 10 - % of people entering pillar II (observed and forecasted) out of new LM entrants, by the year of labour market entry, when the pillar II was voluntary (2008-2011 and 2013-2015)



Source: MFSR

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 reform¹⁸. 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.

¹⁸ 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 5 (3) - Main demographic variables evolution

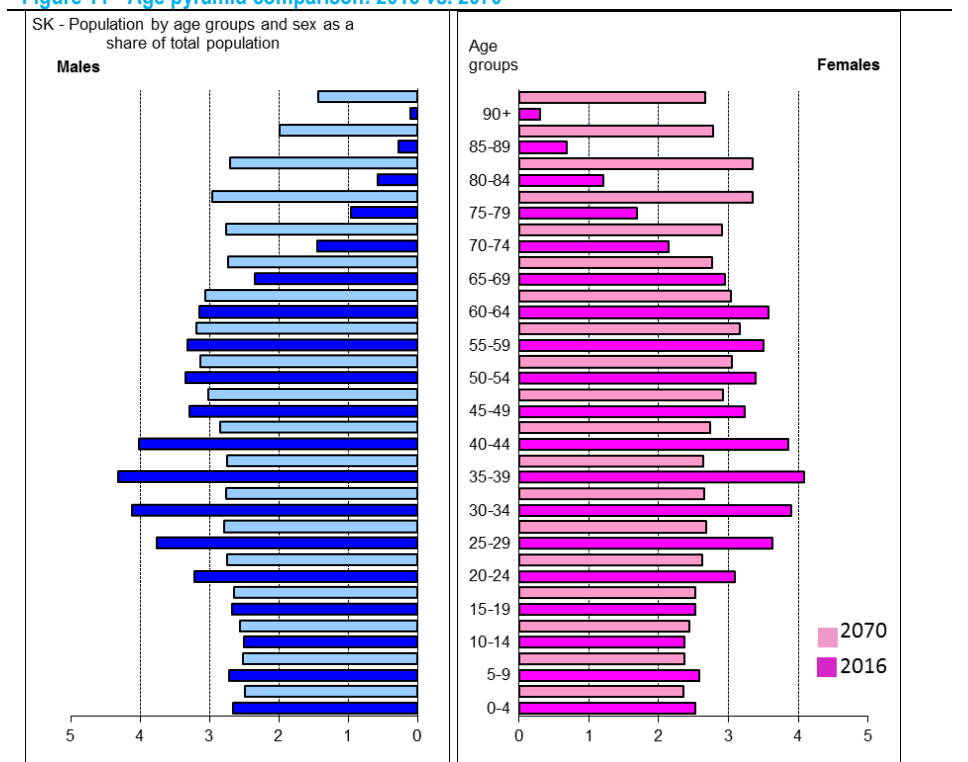
	2016	2020	2030	2040	2050	2060	2070	Peak year
Population (thousand)	5 431	5 462	5 461	5 368	5 255	5 105	4 898	2025
Population growth rate	0.1	0.1	-0.1	-0.2	-0.2	-0.4	-0.4	2017
Old-age dependency ratio (pop65/pop15-64)	21.0	24.9	32.9	39.7	51.5	59.4	56.8	2061
Ageing of the aged (pop80+/pop65+)	21.5	20.2	23.7	31.7	30.6	37.5	46.1	2070
Men - Life expectancy at birth	73.7	74.6	76.8	78.9	80.8	82.6	84.2	2070
Men - Life expectancy at 65	15.3	15.8	17.2	18.5	19.8	21.0	22.1	2070
Women - Life expectancy at birth	80.7	81.4	83.2	84.8	86.3	87.8	89.1	2070
Women - Life expectancy at 65	19.1	19.7	21.0	22.2	23.4	24.6	25.6	2070
Men - Survivor rate at 65+	76.9	78.6	82.3	85.4	88.0	90.1	91.9	2070
Men - Survivor rate at 80+	39.8	42.9	50.2	57.1	63.3	68.9	73.7	2070
Women - Survivor rate at 65+	89.6	90.3	91.9	93.3	94.4	95.3	96.0	2070
Women - Survivor rate at 80+	64.0	66.3	71.6	76.1	80.0	83.3	86.1	2070
Net migration	6.0	5.9	5.0	6.8	6.5	3.8	3.2	2044
Net migration over population change	0.9	0.9	-0.9	-0.7	-0.5	-0.2	-0.1	2025

Source: MFSR

Table 5 shows an overview of the demographic development in Slovakia until 2070 according to Eurostat projection. The population size will start falling from 2025 and the growth will be negative until the end of the projection period. The total fertility rate will change from 1.4 in 2015 to 1.8 in 2070. In relative terms, it will converge from a value well below the EU average in 2015 to a value above the EU average in 2070. Compared with the last round of population projections, it has had the second biggest increase. Life expectancy will increase substantially. Migration in Slovakia has a minor effect on the population size based on data from Eurostat and National statistical office. Alternative administrative data source looking at number of health-insured persons suggests that migration flows have been more substantial than suggested by permanent residence data. If the outflow of population persists, the demographic projection would overestimate the population size.

The old-age dependency ratio will increase by 36 p.p. between 2016 and 2070. This change is projected to be the second least favorable in the EU. Based on dependency ratio Slovakia will change from the youngest country in the EU in 2016 to the 8th oldest by 2070.

Figure 11 - Age pyramid comparison: 2016 vs. 2070



Source: Espop2015

2.2. Labour forces

Table 6 (4) - Participation rate, employment rate and share of workers for the age groups 55-64 and 65-74

	2016	2020	2030	2040	2050	2060	2070	Peak year
Labour force participation rate 55-64	54.4	55.7	61.4	58.5	58.4	58.7	60.0	2032
Employment rate for workers aged 55-64	49.6	51.3	56.2	54.1	54.3	54.6	55.9	2032
Share of workers aged 55-64 on the labour force 55-64	91.1	92.2	91.5	92.4	93.0	93.0	93.0	2054
Labour force participation rate 65-74	4.3	4.8	5.2	6.4	5.9	5.7	5.8	2041
Employment rate for workers aged 65-74	4.2	4.7	5.2	6.3	5.8	5.6	5.8	2041
Share of workers aged 65-74 on the labour force 65-74	98.2	98.8	98.7	98.7	98.9	98.9	98.9	2021
Median age of the labour force	39.0	40.0	43.0	44.0	43.0	43.0	44.0	2035

Source: MFSR

Table 6 provides an overview of the projection of labour force developments. Participation of workers aged 55-64 will increase up to year 2032 due to increasing retirement age. As 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.

Table 7 (5a) - Labour market entry age, exit age and expected duration of life spent at retirement - MEN

	2017	2020	2030	2040	2050	2060	2070	Peak year
Average effective exit age (CSM) (II)	61.9	62.0	62.7	62.7	62.7	62.7	62.7	2036
Contributory period	42.0	41.8	41.9	41.8	41.8	41.8	41.8	2017
Duration of retirement	17.4	17.9	18.6	20.0	21.4	22.6	23.9	2070
Duration of retirement/contributory period	0.4	0.4	0.4	0.5	0.5	0.5	0.6	2070
Percentage of adult life spent at retirement	28.4	28.9	29.4	30.9	32.4	33.6	34.8	2070
Early/late exit	1.0	1.6	1.5	3.3	5.7	6.2	15.2	2066

Source: MFSR



Table 8 (5b) - Labour market entry age, exit age and expected duration of life spent at retirement - WOMEN

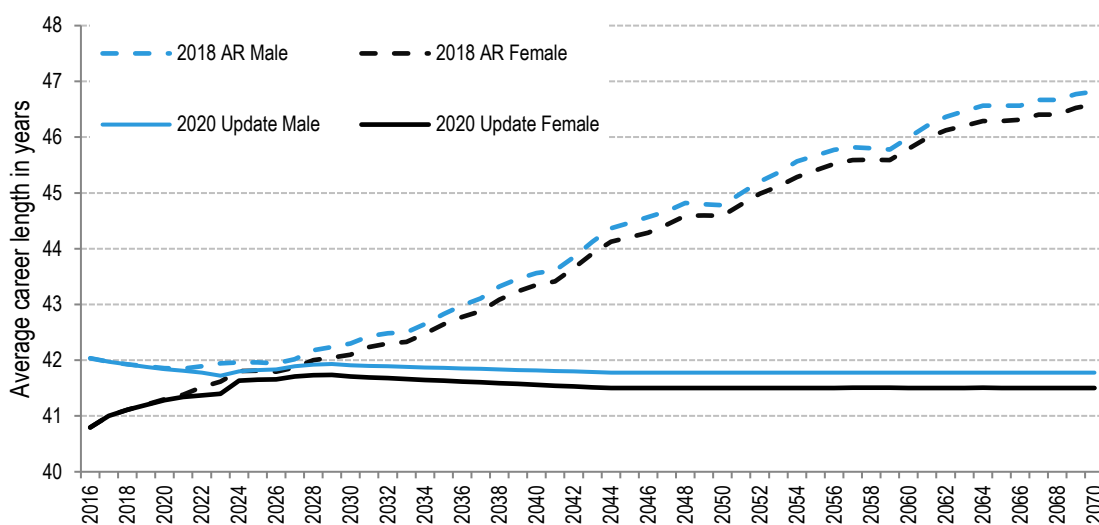
	2017	2020	2030	2040	2050	2060	2070	Peak year
Average effective exit age (CSM) (II)	61.0	61.4	61.7	61.7	61.7	61.7	61.7	2043
Contributory period	41.0	41.3	41.7	41.6	41.5	41.5	41.5	2029
Duration of retirement	22.6	23.0	23.5	24.9	26.1	27.3	28.4	2070
Duration of retirement/contributory period	0.6	0.6	0.6	0.6	0.6	0.7	0.7	2070
Percentage of adult life spent at retirement	34.5	34.6	35.0	36.3	37.4	38.5	39.4	2070
Early/late exit	1.2	2.8	3.3	5.0	8.2	8.9	16.7	2065

Source: MFSR

Compared to the previous projection round, the contributory period for both men and women was altered due to the retirement age cap. The average **contributory period** in the base year, estimated from administrative data for current population of pensioners, is 42 years for men and 40.9 years for women. The contributory period is set to increase as long as the retirement age keeps rising.

Recent data suggest that men and women have similar working careers. However, from 2020, the increase in contributory period will be small and we assume that, after reaching the retirement age cap, the contributory period will not further increase.

Figure 12 - Contributory period used in projections compared with 2018 AR, years



Source: MFSR

Add. Table 14- Observed difference in the average contributory period

	2014	2015	2016
Males (1)	43.1	43.2	43.2
Females (2)	40.2	41	41.2
Females, without children (3)	41.8	42.9	43.1
Difference (1)-(2)	2.9	2.3	2
Difference (1)-(3)	1.3	0.3	0.1

Source: MFSR



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. Social assistance expenditure, that represents non-earnings related pensions in Slovakia, have not been included in the current projection¹⁹. 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 Christmas pension bonus is also covered.

Moreover, the current projections explicitly quantify pension expenditure of the armed forces in all the sensitivity scenarios. Given that the pension scheme of armed forces is a closed system parallel to the universal scheme, it is treated in the model such that the two schemes do not interact. However, the outcomes are integrated wherever possible.

Table 9 (6) - Eurostat (ESSPROS) vs. Ageing Working Group definition of pension expenditure (% GDP)

	2007	2008	2009	2010	2011	2012	2013	2014
1 Eurostat total pension expenditure	7.1	7.0	8.3	8.2	8.1	8.3	8.4	8.7
2 Eurostat public pension expenditure	7.0	7.0	8.3	8.2	8.1	8.2	8.4	8.7
3 Public pension expenditure (AWG)	7.0	6.8	8.0	8.0	8.0	8.0	8.3	8.7
4 Difference (2) - (3)	0.0	0.2	0.3	0.2	0.1	0.2	0.1	0.0
5 Expenditure categories not considered in the AWG definition, please specify:	:	:	:	:	:	:	:	:
5.1 Armed forces	:	:	:	:	:	:	:	0.4

Source: Eurostat, MFSR

In contrast to the ESSPROS data, the AWG public pension expenditure did not include pensions of armed forces before 2014. On the other hand, the AWG public pension expenditure include social assistance for old-age pensioners and the Christmas bonus.

3.2. Overview of projection results

Table 10 shows the new projections results. The comparison to the previous round are shown in the subsequent section. Gross public pension expenditure (including the expenditure on the pension system of armed forces) is projected to increase from 8.6% of GDP in 2016 to 13.8 % GDP in 2070. Gross public pension contributions are expected to remain stable below 7 % of GDP.

Table 10 (7) - Projected gross and net pension spending and contributions (% of GDP) **

Expenditure	2016	2020	2030	2040	2050	2060	2070	Peak year
Gross public pension expenditure	8.6	8.6	8.5	9.9	12.1	13.9	13.8	2063
Private occupational pensions	:	:	:	:	:	:	:	:
Private individual pensions	:	:	:	:	:	:	:	:
Mandatory private	:	:	:	:	:	:	:	:
Non-mandatory private	:	:	:	:	:	:	:	:
Gross total pension expenditure	8.6	8.6	8.5	9.9	12.1	13.9	13.8	2063
Net public pension expenditure	8.6	8.6	8.5	9.9	12.1	13.9	13.8	2063
Net total pension expenditure	:	:	:	:	:	:	:	:
Contributions	2016	2020	2030	2040	2050	2060	2070	Peak year
Public pension contributions	6.9	6.8	6.6	6.7	6.9	6.9	6.8	2016
Total pension contributions ²⁰	7.5	7.5	7.5	7.5	7.5	7.5	7.5	2067

Source: MFSR

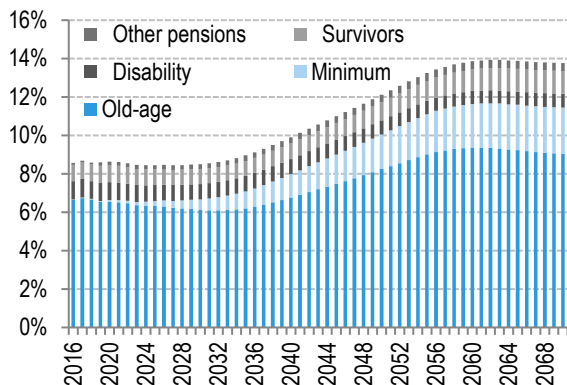
¹⁹ Social assistance was modelled in the 2018 AR exercise, together with minimum pension expenditures. As the methodology on minimum pension expenditures changed within this projection round (see section 3.7, increase in 2070 by 1.1 p. p. of GDP) and the social assistance only accounted for a small part of r expenditures (0.02 p. p. GDP in 2070), the latter was dropped in this projection round.

²⁰ Including second pillar contributions

Gross public pension expenditure equals net public pension expenditure, as Slovak pensions are not subject to taxation. The overall expenditure consists of earnings related pensions (old-age and early pension benefits, disability and survivors pensions), non-earnings related pensions and pension benefits of the armed forces.

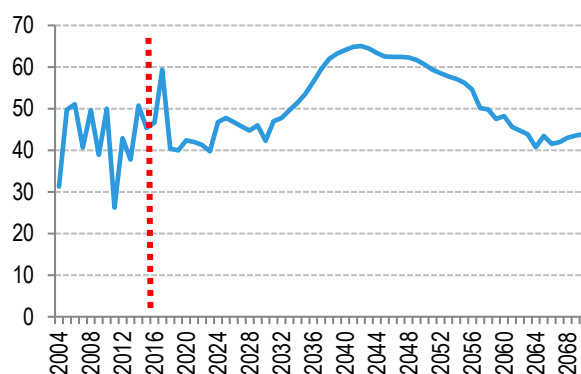
The gross pension expenditure is projected to remain stable relative to GDP during the next decade. From approximately 2030 onwards, an increasing number of pension recipients will drive expenditures up to nearly 14 % of GDP, where it remains until the projections' horizon.

Figure 13 - Projected gross public pension expenditure (% GDP)



Source: MFSR

Figure 14 - Number of new old-age pensions (thousands)

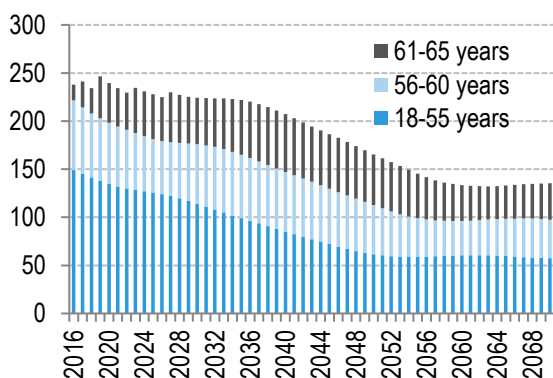


Source: MFSR

Earnings-related old-age and early pensions account for bulk of pension expenditures. The share of old-age pensions on pension expenditures will decrease from 78 % in 2016 to 66 % in 2070. This decrease is caused by an increasing share of minimum pensions expenditures on overall pension expenditures. The projected expenditure to GDP is expected to increase from 6.6% GDP in 2016 to 9 % in 2070. Similarly to overall pension expenditures, old-age pensions expenditures will be relatively stable up to 2030 and then increase significantly until 2060.

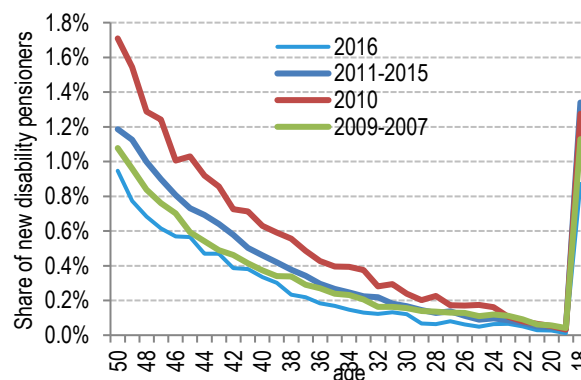
Earnings-related disability pension expenditure is projected to decrease from approximately 1 % of GDP in 2016 to 0.7 % of GDP in 2070. In the model, we assume that upon reaching retirement age, the disability pension benefit is transformed into old-age pension. The share of disability pensioners younger than 55 declines during the whole projection period due to declining inflow of new disability pensioners observed in last years. While the number of disability pensioners below 55 years decreases, the number of disability pensioners above 65 remains zero, due to capped retirement age. This causes significant decrease in number of disability pensioners within the projection. Additionally, there is a spike in the age group of 18 year olds due to accumulation of disabled people from younger ages. It is not legally possible to receive disability pensions before turning 18 years old.

Figure 15 - Number of disability pensioners (in thousands)



Source: MFSR

Figure 16 - New disability pensioners as a share of population by age



Source: MFSR



Earnings-related survivors pension expenditure is projected to increase steadily from 0.8% GDP in 2016 to 1.2% in 2070. This is mostly driven by higher number of survivor pensions as well as the assumption on percentage of pension being reduced due to concurrent pensions (i.e. when there are people who receive multiple pension, that is old-age and widow pension, one of them is cut to half and the other is fully received).

Minimum pension expenditures are projected to increase from 0.03% GDP in 2016 to 2.4% GDP in 2070. This is partly due to indexing them fully to wages, even though in reality, only the basic amount (minimum pension for 30 years of service) is indexed to average wage. The significant increase is also caused by the retirement age cap. People retire with lower pensions and spend more time in retirement, causing more pensioners to be entitled to minimum pension.

Other pensions include the Christmas bonus. The expenditures for these pensions will increase from 0.1 % of GDP in 2016 to 0.4 % of GDP in 2070. Part of the increase is caused by the 2019 ad-hoc increase in the Christmas bonus amount. Another reason is linked to modelling assumptions, as the Christmas bonus is indexed to wages; although no legal indexation mechanism is actually foreseen.

Table 11 (8) - Projected gross public pension spending by scheme (% of GDP)

Pension scheme	2016	2020	2030	2040	2050	2060	2070	Peak year *
Total public pensions	8.6	8.6	8.5	9.9	12.1	13.9	13.8	2063
of which								
Old-age and early pensions:	6.7	6.6	6.7	8.0	10.1	11.6	11.4	2062
Flat component	:	:	:	:	:	:	:	:
Earnings related	6.6	6.5	6.1	6.8	8.2	9.4	9.0	2060
Minimum pensions (non-contributory) i.e. minimum income guarantee for people above 65	0.0	0.1	0.5	1.2	1.8	2.3	2.4	2070
Disability pensions	0.95	0.93	0.80	0.79	0.74	0.67	0.72	2019
Survivor pensions	0.84	0.88	0.77	0.81	0.94	1.13	1.19	2069
Other pensions	0.10	0.19	0.26	0.32	0.39	0.42	0.41	2061
of which								
country-specific scheme 1	:	:	:	:	:	:	:	:

Source: MFSR

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, as follows:

$$\frac{\text{Pension Exp}}{\text{GDP}} = \frac{\overbrace{\text{Population 65+}}^{\text{DependencyRatio}}}{\text{Population 20-64}} \times \frac{\overbrace{\text{Number of Pensioners (Pensions)}}^{\text{CoverageRatio}}}{\text{Population 65+}} \times \frac{\overbrace{\text{Average income from pensions (Average Pension)}}^{\text{Benefit Ratio}}}{\text{GDP}} \times \frac{\overbrace{\text{Population 20-64}}^{\text{Labour Market / LabourIntensity}}}{\text{Hours Worked 20-74}} \times \frac{\text{Hours Worked 20-74}}{\text{Hours Worked 20-74}} \quad [1]$$

The coverage ratio is further split as follows:

$$\frac{\overbrace{\text{Number of Pensioners}}^{\text{CoverageRatio}}}{\text{Population 65+}} = \frac{\overbrace{\text{Number of Pensioners 65+}}^{\text{CoverageRatio Old-Age}}}{\text{Population 65+}} + \left(\frac{\overbrace{\text{Number of Pensioners } \leq 65}^{\text{CoverageRatio Early-Age}}}{\text{Population 50-64}} \times \frac{\overbrace{\text{Population 50-64}}^{\text{Cohorteffect}}}{\text{Population 65+}} \right) \quad [2]$$

The labour market indicator is further decomposed as follows:

$$\frac{\overbrace{\text{Population 20-64}}^{\text{Labour Market / LabourIntensity}}}{\text{Hours Worked 20-74}} = \frac{\overbrace{\text{Population 20-64}}^{1 / \text{Employment Rate}}}{\text{Working People 20-64}} \times \frac{\overbrace{\text{Working People 20-64}}^{1 / \text{Labourintensity}}}{\text{Hours Worked 20-64}} \times \frac{\overbrace{\text{Hours Worked 20-64}}^{1 / \text{Career shift}}}{\text{Hours Worked 20-74}} \quad [3]$$

Over the projection horizon 2016-2070, the public pension expenditure is projected to increase by 5.2 percentage points of GDP (Table 9a). The main driving force behind the increase is the unfavorable development of the dependency ratio, which is projected to contribute by 10.2 GDP p.p. to the overall change. The remaining three drivers are expected to have a mitigating effect. The coverage ratio will contribute by -3.5 GDP p.p., the benefit ratio by -0.6 GDP p.p. and the labour market indicator by -0.3 GDP p.p. The decomposition using the number of pensions (Table 9a) might not be quite appropriate for Slovakia, as there are pensioners receiving multiple pension benefits at the same time. In 2016, there were 1 785 thousand pensions, but only 1 364 thousand pensioners.

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 21% in 2016 to 56.8% in 2070. 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). Hence, the number of pensioners to population 65+ decreases. After reaching the retirement age cap, the coverage ratio still slightly decreases, mainly due to a declining number of disability



pensioners. As shown in Figure 15, the number of disability pensioners decreases due to a declining inflow of new disability pensioners observed in last years of the projections.

The **benefit ratio** is projected to decrease until 2040. This is due to the difference in the dynamics of average wage and pension indexation (pensioners' CPI). This changes after 2040 partly due to slower GDP growth and partly to higher level of minimum pensions compared to average pension. The **labour market indicator** only has small impact on expenditures projection.

Table 12 (9a) - Factors behind the change in public pension expenditures between 2016 and 2070 using pension data (in percentage points of GDP) - pensions

	2016-20	2020-30	2030-40	2040-50	2050-60	2060-70	2016-70	Average annual change
Public pensions to GDP	0.1	-0.1	1.4	2.2	1.7	-0.1	5.2	9.6%
Dependency ratio effect	1.6	2.7	1.7	2.9	2.0	-0.6	10.2	18.4%
Coverage ratio effect	-0.5	0.2	0.2	-0.7	-0.3	0.3	-1.0	-1.9%
Coverage ratio old-age*	0.2	1.6	0.4	-0.3	0.1	0.2	2.2	3.9%
Coverage ratio early-age*	-0.5	-2.4	0.0	0.3	-0.5	-0.6	-3.8	-7.5%
Cohort effect*	-1.4	-1.2	-0.6	-3.2	-2.9	1.4	-7.9	-16.2%
Benefit ratio effect	-0.6	-2.6	-0.6	0.2	0.3	0.1	-3.0	-5.9%
Labour Market/Labour intensity effect	-0.2	0.0	0.1	-0.1	-0.2	0.1	-0.3	-0.6%
Employment ratio effect	-0.2	0.0	0.2	-0.1	-0.2	0.1	-0.3	-0.5%
Labour intensity effect	0.0	0.0	-0.2	-0.2	0.0	-0.1	-0.5	-0.9%
Career shift effect	0.0	0.0	0.2	0.1	0.0	0.1	0.4	0.8%
Residual	-0.2	-0.4	0.0	-0.1	0.0	0.0	-0.8	-0.3%

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

Source: MFSR

Table 13 (9b) - Factors behind the change in public pension expenditures between 2016 and 2070 using pensioners data (in percentage points of GDP) - pensioners

	2016-20	2020-30	2030-40	2040-50	2050-60	2060-70	2016-70	Average annual change
Public pensions to GDP	0.1	-0.1	1.4	2.2	1.7	-0.1	5.2	9.6%
Dependency ratio effect	1.6	2.7	1.7	2.9	2.0	-0.6	10.2	18.4%
Coverage ratio effect	-0.9	-1.3	-0.2	-0.6	-0.6	0.1	-3.5	-6.8%
Coverage ratio old-age*	0.0	0.0	0.0	0.0	0.0	0.0	-0.1	-0.2%
Coverage ratio early-age*	-0.7	-3.0	-0.3	0.3	-0.5	-0.6	-4.7	-9.3%
Cohort effect*	-1.4	-1.2	-0.6	-3.2	-2.9	1.4	-7.9	-16.2%
Benefit ratio effect	-0.2	-1.2	-0.2	0.1	0.5	0.3	-0.6	-1.1%
Labour Market/Labour intensity effect	-0.2	0.0	0.1	-0.1	-0.2	0.1	-0.3	-0.6%
Employment ratio effect	-0.2	0.0	0.2	-0.1	-0.2	0.1	-0.3	-0.5%
Labour intensity effect	0.0	0.0	-0.2	-0.2	0.0	-0.1	-0.5	-0.9%
Career shift effect	0.0	0.0	0.2	0.1	0.0	0.1	0.4	0.8%
Residual	-0.2	-0.3	0.0	-0.1	0.0	0.0	-0.6	-0.3%

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

Source: MFSR

Table 14 (10) - Replacement rate at retirement (RR), benefit ratio (BR) and coverage by pension scheme (in %)

	2016	2020	2030	2040	2050	2060	2070
Public scheme (BR)	46%	46%	40%	40%	40%	42%	43%
Public scheme (RR)	49%	51%	48%	44%	45%	48%	47%
Coverage	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Public scheme old-age earnings related (BR)	45%	42%	34%	31%	30%	30%	30%



Public scheme old-age earnings related (RR)	49%	51%	48%	44%	45%	48%	47%
Coverage	:	:	:	:	:	:	:
Private occupational scheme (BR)	:	:	:	:	:	:	:
Private occupational scheme (RR)	:	:	:	:	:	:	:
Coverage	:	:	:	:	:	:	:
Private individual scheme (BR)	:	:	:	:	:	:	:
Private individual scheme (RR)	:	6%	8%	11%	12%	13%	14%
Coverage	:	0.9	10.0	26.7	37.9	34.3	29.3
Total (BR) ²¹	:	:	:	:	:	:	:
Total (RR)	49%	52%	52%	51%	51%	52%	52%

Source: MFSR

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 as from 2015. As the share of pensioners with income from both first and second pillar is rising, the replacement rate from the first pillar and thus the benefit ratio in the public system will be declining. This effect will be mitigated later by the low voluntary entry rate to the second pillar and lower contribution rates. Consequently, the reduction in awarded first pillar pension will be smaller.

The **public scheme replacement rate** will first slightly increase with longer careers. The replacement rate only considers benefits from the first pillar. If the number of pensioners with pensions from the second pillar increases, the replacement rate decreases, as second pillar pensions are not considered. This is true for period between 2020 and 2040, where the replacement rate of public pensions is expected to decrease gradually due to the growing amount of pensions paid out from the second pillar. After 2040, however, the replacement rate will increase slightly again.

The **total replacement rate** considers replacement rate from both pillars. As the pension rights at retirement are indexed to average wage and contributory period does not change within the projection horizon, the total replacement rate is set to remain stable at approximately 50 %.

Table 15 (11) - Pension system dependency ratio and old-age dependency ratio

	2016	2020	2030	2040	2050	2060	2070
Number of pensioners (thousand) (I)	1364.4	1417.4	1523.2	1685.9	1845.6	1873.5	1758.0
Employment (thousand) (II)	2495.1	2507.2	2369.8	2209.3	2004.6	1856.5	1794.9
Pension System Dependency Ratio (SDR) (I)/(II)	54.7	56.5	64.3	76.3	92.1	100.9	97.9
Number of people aged 65+ (thousand) (III)	798.6	921.9	1158.9	1319.1	1537.4	1633.2	1524.0
Working age population 15 - 64 (thousand) (IV)	3799.1	3696.1	3520.9	3324.8	2983.0	2750.0	2681.1
Old-age Dependency Ratio (ODR) (III)/(IV)	21.0	24.9	32.9	39.7	51.5	59.4	56.8
System efficiency (SDR/ODR)	2.6	2.3	2.0	1.9	1.8	1.7	1.7

Source: MFSR

The **pension system dependency ratio** (number of pensioners relative to number of workers) reaches 98% in 2070. That means there will be almost one pensioner for each employed person. This figure, however, includes all type of pensioners in all age groups. For old-age pensioners, the pension system dependency ratio is also considerably high, being the main driver of the pension expenditure.

²¹ Total benefit ratio is not reported, as the pay-out phase for the second pillar is not covered by the model. Given that 60 % of savers currently retiring from the second pillar opt for lump sum payment (80 % of all withdrawn savings) it is not possible to accurately model the benefit ratio for the second pillar.



Table 16 (12a) - Pensioners (public scheme) to inactive population ratio by age group (%)

	2016	2020	2030	2040	2050	2060	2070
Age group -54	11.5	11.1	10.1	8.6	6.9	6.9	6.9
Age group 55-59	113.2	89.5	75.3	63.6	65.0	60.0	59.8
Age group 60-64	117.8	111.4	85.9	82.6	83.4	81.7	80.4
Age group 65-69	106.7	106.9	108.9	109.9	109.4	109.7	109.5
Age group 70-74	100.9	102.0	101.9	101.9	101.9	101.9	102.0
Age group 75+	98.9	97.9	98.3	98.3	97.9	98.0	97.8

Source: MFSR

Table 17 (12b) - Pensioners (public scheme) to total population ratio by age group (%)

	2016	2020	2030	2040	2050	2060	2070
Age group -54	4.6	4.4	4.1	3.6	3.0	3.0	3.0
Age group 55-59	24.1	19.7	16.5	15.3	14.9	13.6	13.6
Age group 60-64	82.6	74.3	50.5	48.5	49.1	48.1	46.5
Age group 65-69	100.6	99.6	99.8	99.3	99.3	99.7	99.2
Age group 70-74	98.8	100.0	99.9	99.4	99.5	99.5	99.6
Age group 75+	98.9	97.9	98.3	98.3	97.9	98.0	97.8

Source: MFSR

Table 18 (13a) - Female pensioners (public scheme) to inactive population ratio by age group (%)

	2016	2020	2030	2040	2050	2060	2070
Age group -54	10.5	10.0	9.2	7.9	6.4	6.4	6.4
Age group 55-59	104.9	84.0	70.2	58.0	59.9	56.0	55.8
Age group 60-64	116.0	108.0	85.8	82.1	83.0	81.2	80.2
Age group 65-69	105.9	104.9	107.4	106.8	106.3	107.1	106.4
Age group 70-74	100.7	101.5	101.6	101.0	100.9	100.9	101.0
Age group 75+	99.4	98.7	98.9	98.7	98.0	97.9	97.8

Source: MFSR

Table 19 (13b) - Female pensioners (public scheme) to total population ratio by age group (%)

	2016	2020	2030	2040	2050	2060	2070
Age group -54	4.7	4.5	4.1	3.6	3.0	3.1	3.1
Age group 55-59	25.6	20.7	17.0	15.6	15.1	13.9	14.0
Age group 60-64	90.5	76.3	54.9	53.3	53.8	52.7	51.2
Age group 65-69	101.0	99.4	99.5	98.7	98.6	99.3	98.4
Age group 70-74	99.0	100.1	100.0	99.1	99.1	99.1	99.2
Age group 75+	99.4	98.7	98.9	98.7	98.0	97.9	97.8

Source: MFSR

Due to the increase in the statutory retirement age up to retirement age cap, the **coverage ratio** (share of pensioners on the population in particular age cohort) is falling up to year 2030. Thereafter, the coverage ratio remains relatively stable as retirement age and contributory period are expected to be constant. In the cohort below 54 years, changes are relatively small since there are almost no pensioners. There can be more pensioners than inactive population due to **concurrent work and pension** (i.e. person is receiving pension benefit but he/she is not counted as inactive since he/she is still working).

The total pension points at retirement as well as average accrual rate²² are influenced by pillar II as they fall while there are many pensions drawn from the second pillar and then grow again, when the share of second pillar participants declines.

²² The average replacement rate accrued per year of pension insurance.



Table 20 (14a) - Projected and disaggregated new public pension expenditure (old-age and early earnings-related pensions)

New pension	2016	2020	2030	2040	2050	2060	2070
I Projected new pension expenditure (millions EUR)	256.7	251.9	413.7	943.9	1360.1	1638.2	2082.7
II Number of new pensions (in 1000)	46.7	42.4	42.3	64.0	60.6	48.2	43.9
Total pension points at retirement	41.7	39.3	38.5	36.5	37.3	39.0	38.2
III Average pension points accumulated per year or average contributory period	41.6	41.6	41.8	41.7	41.6	41.6	41.6
IV Average accrual rate (=V/K)	117.6	122.9	114.1	105.4	109.2	114.6	112.4
Point value (V)	11.0	12.6	21.2	33.7	50.2	72.6	103.7
Point cost (K)	9.3	10.3	18.6	32.0	45.9	63.3	92.3
V Sustainability/adjustment factors	:	:	:	:	:	:	:
VI Average number of months paid the first year	12.0	12.0	12.0	12.0	12.0	12.0	12.0
Monthly average pensionable earnings / Monthly economy-wide average wage	43%	39%	37%	36%	37%	39%	38%

Source: MFSR

Table 21 (14b) - Disaggregated new public pension expenditure (old-age and early earnings-related pensions) - MEN

New pension	2016	2020	2030	2040	2050	2060	2070
I Projected new pension expenditure (millions EUR)	185.6	132.0	177.0	483.1	698.6	811.7	1080.4
II Number of new pensions (in 1000)	31.6	21.7	17.4	31.5	30.1	23.0	22.0
Total pension points at retirement	44.5	40.2	40.0	37.9	38.6	40.5	39.5
III Average pension points accumulated per year or average contributory period	42.0	41.8	41.9	41.8	41.8	41.8	41.8
IV Average accrual rate (=V/K)	123.6	122.6	113.9	105.6	109.0	115.4	112.5
Point value (V)	11.0	12.6	21.2	33.7	50.2	72.6	103.7
Point cost (K)	8.9	10.3	18.6	31.9	46.0	62.9	92.2
V Sustainability/adjustment factors	:	:	:	:	:	:	:
VI Average number of months paid the first year	12.0	12.0	12.0	12.0	12.0	12.0	12.0
Monthly average pensionable earnings / Monthly economy-wide average wage	46%	40%	39%	37%	38%	40%	39%

Source: MFSR

Table 22 (14c) - Disaggregated new public pension expenditure (old-age and early earnings-related pensions) - WOMEN

New pension	2016	2020	2030	2040	2050	2060	2070
I Projected new pension expenditure (millions EUR)	71.2	119.9	236.7	460.8	661.5	826.5	1002.2
II Number of new pensions (in 1000)	15.1	20.7	24.9	32.5	30.5	25.2	21.9
Total pension points at retirement	35.8	38.3	37.4	35.1	36.0	37.6	36.8
III Average pension points accumulated per year or average contributory period	40.8	41.3	41.7	41.6	41.5	41.5	41.5
IV Average accrual rate (=V/K)	124.5	123.2	114.2	105.2	109.4	113.9	112.3
Point value (V)	11.0	12.6	21.2	33.7	50.2	72.6	103.7
Point cost (K)	8.8	10.2	18.5	32.0	45.9	63.7	92.4
V Sustainability/adjustment factors	:	:	:	:	:	:	:
VI Average number of months paid the first year	12.0	12.0	12.0	12.0	12.0	12.0	12.0
Monthly average pensionable earnings / Monthly economy-wide average wage	37%	38%	36%	34%	36%	37%	37%

Source: MFSR

The average **accrual rate** declines between 2020 and 2040 because of starting payout of pensions from the second pillar (lower rights accrued in the first pillar). After 2040, the average accrual rate in the first pillar will begin to increase. This dynamics is caused by the increase in the contributory period and the voluntary character of the second pillar as well as the demographic structure of the population.



The number of **new old-age pensions** will remain stable as long as the retirement age increases. After hitting the retirement age cap, number of new pensioners will sharply increase. After 2050, the number of pensioners will start decreasing, following the demographic developments.



3.4. Financing of the pension system

The pension system is financed by contributions of employees and self-employed. If the sum of contributions for old-age insurance, disability insurance and reserve fund of solidarity are not sufficient to cover first pillar expenditures, the deficit is covered by surplus from other social security funds. If the balance remains negative, the state covers the deficit. The maximum contribution base is 700 % of average wage from two years ago.

Table 23 (15) – 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	Deficits covered by surpluses in other social security funds or the state budget	Deficits covered by surpluses in other social security funds or the state budget	Deficits covered by surpluses in other social security funds or the state budget
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	-	-	-

Source: MFSR

Table 24 (16) - Revenue from contribution (Millions), number of contributors in the public scheme (in 1000), total employment (in 1000) and related ratios (%)

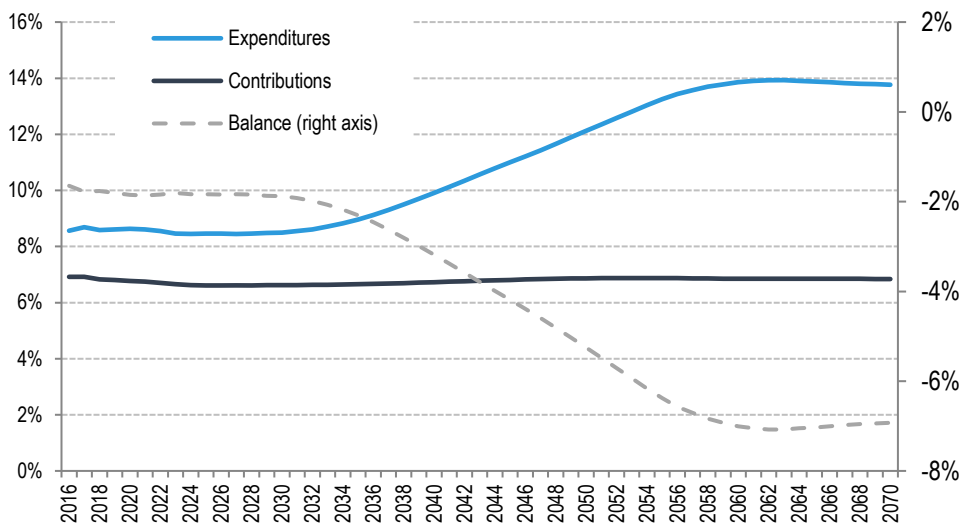
	2016	2020	2030	2040	2050	2060	2070
Public contribution	5601.2	6515.3	10262.7	15360.0	20987.3	28059.3	38679.4
Employer contribution	4237.4	4928.9	7763.9	11620.2	15877.3	21227.5	29261.8
Employee contribution	1363.8	1586.3	2498.7	3739.8	5109.9	6831.8	9417.6
State contribution	0.0	0.0	0.0	0.0	0.0	0.0	:
Other revenues	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Number of contributors (I)	2175.6	2200.9	2109.5	1964.9	1770.2	1639.6	1585.6
Employment (II)	2495.1	2507.2	2369.8	2209.3	2004.6	1856.5	1794.9

Source: MFSR

The pension system **revenue** (contributions received) is projected to remain stable throughout the whole projection period. It first decreases slightly, as the contribution rates to the second pillar started to increase from 4% to 6%. Since the number of contributors to the second pillar will fall, the revenues will gradually increase again. The revenues will reach 6.8 % of GDP in 2070, meaning that the expenditures will be more than twice as high as the contributions. The system's deficit is going to increase sharply as pension expenditures will start to increase. This will cause the deficit to rise from 1.6 % of GDP in 2016 to 6.9 % of GDP in 2070.



Figure 17 - Gross public expenditure, revenue and balance (% of GDP)



Source: MFSR



3.5. Sensitivity analysis

Table 25 (17) - Public pension expenditure under different scenarios (p.p. deviation from the baseline)

Public Pension Expenditure	2016	2020	2030	2040	2050	2060	2070
Baseline	8.6	8.6	8.5	9.9	12.1	13.9	13.8
Higher life expectancy (2 extra years)	0.0	0.0	0.1	0.2	0.4	0.6	0.8
Higher Total Factor Productivity Growth (+0.4 pp.)	0.0	0.0	0.0	-0.2	-0.4	-0.5	-0.6
Lower Total Factor Productivity Growth (-0.4 pp.)	0.0	0.0	0.0	0.1	0.4	0.6	0.7
Higher emp. rate (+2 pp.)	0.0	0.0	-0.1	-0.1	-0.1	-0.1	-0.1
Lower emp. rate (-2 pp.)	0.0	0.0	0.1	0.1	0.1	0.1	0.1
Higher emp. of older workers (+10 pp.)	0.0	-0.1	-0.5	-0.7	-0.9	-1.0	-0.9
Higher migration (+33%)	0.0	0.0	-0.1	-0.1	-0.2	-0.3	-0.3
Lower migration (-33%)	0.0	0.0	0.1	0.1	0.2	0.3	0.3
Lower fertility (-20 %)	0.0	0.0	0.0	0.1	0.7	1.6	2.6
Risk scenario	0.0	0.1	0.4	0.4	0.3	0.3	0.3
Policy scenario: linking retirement age to increases in life expectancy	:	:	:	:	:	:	:

Source: MFSR

In the **higher life expectancy** scenario, pension expenditure starts increasing after year 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. These results therefore vary significantly from the previous round of projections, where the retirement age was linked to life expectancy.

The public pension expenditure ratio is rather sensitive to the assumption about TFP growth. This regards two sensitivity scenarios. **Higher TFP growth** (-0.6 GDP p.p. compared to baseline) and **lower TFP growth** (+0.7 GDP p.p. compared to baseline). On the one hand, higher TFP growth implies boost to the GDP growth. On the other hand, it increases the pension benefits through higher wages. Pension benefits are indexed by CPI; therefore, the overall impact of higher TFP growth is favorable, owing to the productivity-GDP model channel. In the lower labour productivity scenario, this mechanism works in opposite way.

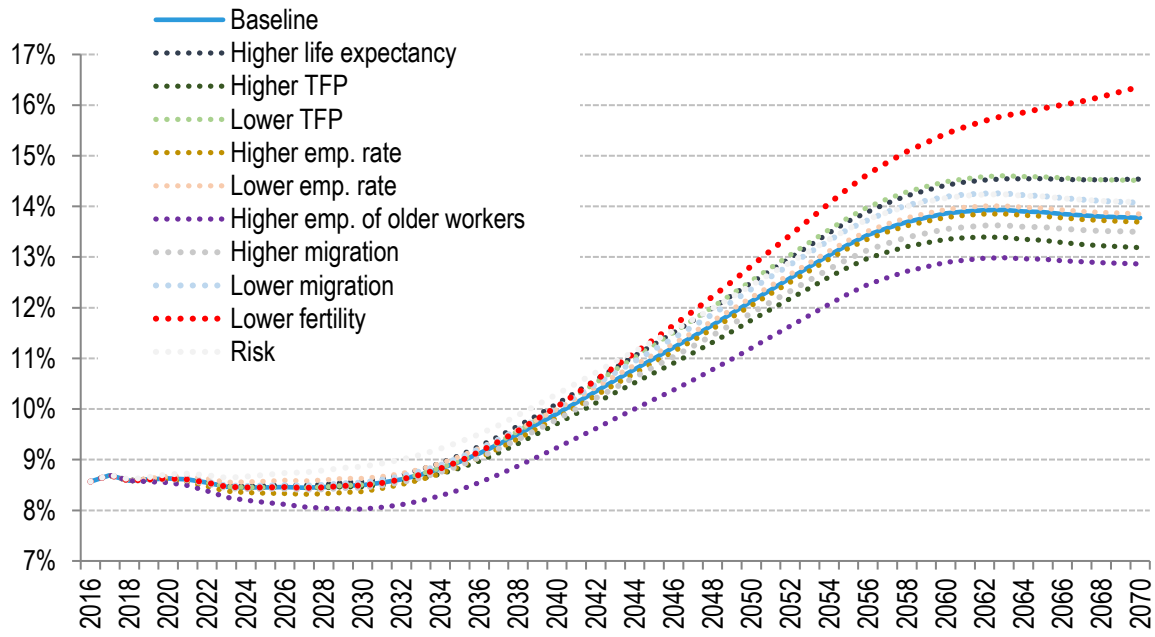
In the **higher employment scenario**, the overall increase of the public pension expenditure between 2016 and 2070 is lower by only 0.1 GDP p.p. compared to the baseline scenario. Higher employment is contributing to higher GDP, which is the denominator in the expenditure ratio without a concurrent impact on the pension expenditure. In the **higher employment rate of older workers** scenario (-0.9 GDP p.p.), this effect on GDP is strengthened further by comparatively less people being entitled to an old-age pension. However, one should be prudent while interpreting these results, as this scenario did not incorporate higher benefits in the future, accumulated due to longer careers, due to modelling issues.

Due to low overall rates of migration, the assumption of a **lower/higher migration** would only result in an additional increase of +/-0.3 GDP p. p. over 2016-2070 compared to baseline. In the **lower fertility** scenario, the increase in pensions expenditures is most substantial. Lower fertility will begin to have an effect after year 2030, but the difference with baseline will increase sharply and pension expenditures will reach 16.4 % of GDP by 2070.

Finally, a **risk scenario assuming lower TFP growth** (i.e. causing lower GDP growth) has been performed. The lower TFP growth would be reflected in an additional increase in pension expenditure of 0.3 GDP p.p. in 2070, compared to baseline.



Figure 18 - Comparison of pension expenditure under sensitivity scenarios and the baseline



Source: MFSR

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

This section describes the main drivers behind changes in the projection results across the current and the previous projection rounds.

Table 26 (18) - Overall change in public pension expenditure to GDP under the 2006, 2009, 2012, 2015 and 2018 projection exercises

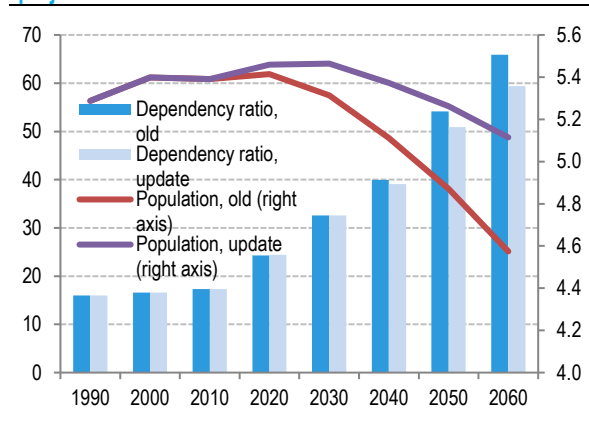
	Public pensions to GDP	Dependency ratio	Coverage ratio	Employment effect	Benefit ratio	Labour intensity	Residual (incl. Interaction effect)
2006 *	1.51	9.03	-2.48	-1.27	-3.13	:	-0.64
2009 **	3.43	11.70	-3.91	-0.56	-2.45	:	-1.35
2012 ***	2.66	11.61	-4.46	-0.97	-2.03	0.00	-1.50
2015****	2.11	11.27	-3.31	-0.79	-3.53	0.00	-1.53
2018*****	1.20	8.82	-2.28	-0.65	-3.20	0.02	-1.51
2018***** (Update 2020)	5.21	10.25	-0.96	-0.28	-3.01	-0.47	-0.32

* 2004-2050; ** 2007-2060; *** 2010-2060; **** 2013-2060, ***** 2016-2070

Source: MFSR

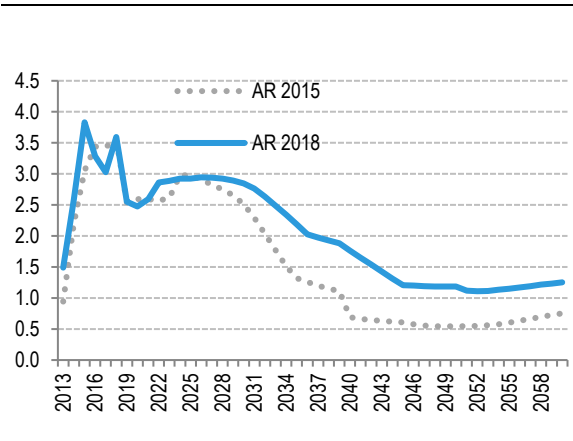
As in the previous projection round, the dependency ratio is the main driving force of the pension expenditure increase. Compared to the Ageing Report 2018, the coverage ratio in this round of projections has a significantly smaller mitigating effect, due to the retirement age cap. The effect of the benefit ratio remains very similar to that of previous round.

Figure 19 - Dependency ratio and total Slovak population (in millions) according to europop2015 and esspop2017 projection



Source: MFSR

Figure 20 - Real GDP growth – comparison (%)



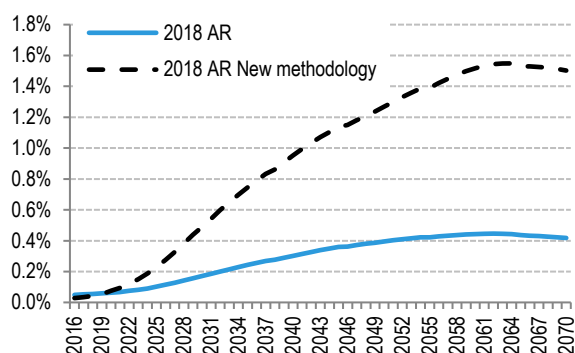
Source: MFSR

3.7. Description of the changes in comparison with 2018 projections

Two changes were made to the projections methodology between the 2018 Ageing Report (AR) projections and this update. The main change concerned minimum pensions modelling. Minimum pensions were introduced in 2015 as a measure to prevent old-age pensioners to be entitled to further social protection. The individual value of the minimum pension depends on the number of years of service (Add. Table 11). If a pensioner's old-age benefit is lower than the value of the minimum pension, he/she then receives a top-up as minimum pension, in order to compensate for the difference.

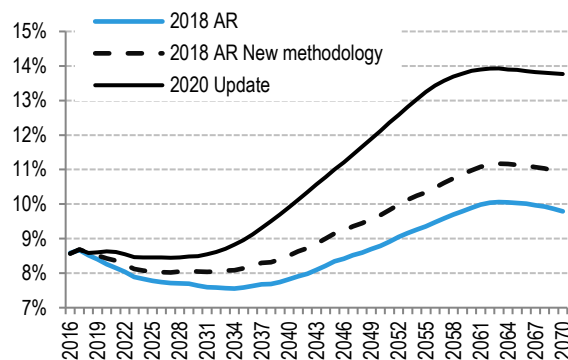
In 2016, minimum pensions expenditures amounted to 0.03 % of GDP²³. The model used in the 2018 AR projections only considered the lowest value of minimum pensions (i.e. for 30 years of service). This drastically underestimated the future expenditures on minimum pensions. In this exercise, also minimum pensions values depending on the extra number of years of service are added. Consequently, correct minimum pensions expenditures can be calculated. This causes a significant change in pension expenditures projection. In Figure 20, we report a comparison between the 2018 AR baseline and the "2018 AR New methodology" baseline (i.e. the 2018 AR baseline adjusted to take account of the new methodology on minimum pensions). As we can see, minimum pensions increase by 1.1 p.p of GDP in 2070. A comparison between the 2018 AR (adjusted and non-adjusted baseline) and the 2020 update is reported in Figure 21.

Figure 21 - Comparison of minimum pension expenditure (% of GDP)



Source: MFSR

Figure 22 – Comparison of overall pension expenditures between projection rounds (% of GDP)



Source: MFSR

The second, minor, change concerns the indexation of pensions. From 2017 to 2021, a temporary measure is in place, which indexes pensions to pensioners' inflation or 2 % of average pension, whichever is higher. In the 2018 projections, this was modelled by setting indexation to 2 % for all pensioners. This is altered in this update to further increase accuracy of projections. The change in expenditures, however, is insignificant.

Table 27 (19) - Decomposition of the difference between the 2018 Ageing Report and the new public pension projection (% of GDP)

	2016	2020	2030	2040	2050	2060	2070
Ageing report 2018	8.6%	8.3%	7.6%	7.8%	8.8%	9.9%	9.8%
Change in assumptions	:	:	:	:	:	:	:
Improvement in the coverage or in the modelling	0.0%	0.2%	0.4%	0.7%	0.9%	1.1%	1.1%
Change in the interpretation of constant policy	:	:	:	:	:	:	:
Policy related changes	0.0%	0.2%	0.5%	1.4%	2.4%	2.9%	2.9%
New projection – 2020 Update	8.6%	8.6%	8.5%	9.9%	12.1%	13.9%	13.8%

Source: MFSR

²³ This value is based on the "2018 AR New Methodology baseline" described in this section. As specified below, the latter is used as benchmark to compare the changes introduced by the 2019 reform.

In what follows, we use the “2018 AR New Methodology” projections, as described above, as benchmark to compare new results (2019 reform) to the previous ones.

The most significant impact on the increase in pension expenditures is caused by the introduction of a **retirement age cap**. The latter leads pensioners to retire sooner, therefore receiving lower benefits. However, as their retirement will now last longer, this will cause an increase in expenditure. Introducing a retirement age ceiling also lowers GDP, thus increasing the expenditure-to-GDP ratio. Additionally, as old-age pensions are lower, paid out for longer time, and indexed to inflation, more people will become eligible for minimum pensions, which are indexed to average wage. These effects, as shown in Add. Table 15 add up to an increase of 2.2 % of GDP in 2070.

Add. Table 15 - Decomposition of the impact of pension system changes on pension expenditure projection (% of GDP)

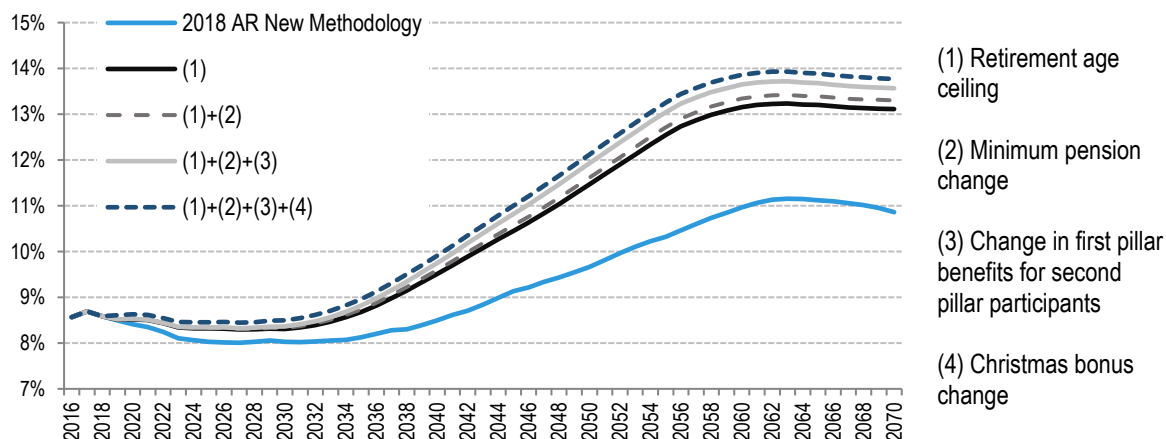
	2016	2020	2030	2040	2050	2060	2070
2018 AR New Methodology baseline	8.6%	8.4%	8.0%	8.5%	9.7%	11.0%	10.9%
Effect of retirement age cap	0.0%	0.1%	0.3%	1.0%	1.8%	2.2%	2.2%
Additional effect of minimum pensions change	0.0%	0.0%	0.0%	0.1%	0.1%	0.2%	0.2%
Additional effect of change in first pillar benefits for second pillar participants	0.0%	0.0%	0.0%	0.2%	0.3%	0.3%	0.3%
Additional effect of Christmas bonus change	0.0%	0.1%	0.1%	0.2%	0.2%	0.2%	0.2%

Source: MFSR

The 2019 legislative change to **minimum pensions** has a seemingly small impact on pension expenditures. The change consists in increasing benefits and increasing indexation of basic minimum pension (for 30 years of service) from inflation to average wage. The indexation of minimum pensions to average wage was already assumed in the previous round of projections. Hence the difference between subsequent projection rounds of 0.2 % of GDP in 2070 is only due to the increase in the level of minimum pensions, in line with the 2019 reform. There is a potential risk associated with this projection, as it does not assume an effect on the contributions or the GDP. One reason is that people will not be motivated to contribute the full amount to an old-age insurance, as they will be entitled to a minimum pension either way. Another reason is that higher indexation might make early retirement more attractive, as people will be entitled to minimum pension sooner (or already at retirement).

The **change to first pillar benefits calculation for second pillar participants** will cause increase in expenditures by 0.3 % of GDP in 2070. The impact increases significantly after 2030, when large cohorts in the second pillar begin to retire. The final increase is due to doubling Christmas bonus and assumption of its indexation to average wage, causing an increase of 0.2 % of GDP in 2070.

Figure 23 – Decomposition of the increase in pension expenditures



Source: MFSR



Total pension expenditures will increase by 14 % in 2070 (Add. Table 16). The increase is due to the change in legislation, as all four adopted measures increase pension expenditures. This effect is seemingly smaller than depicted in the Figure 23. The reason behind it is that the overall effect is calculated relative to GDP. With introduction of retirement age ceiling, GDP decreases and, hence, expenditure to GDP ratio increases more significantly than expenditures alone.

Average pension will be higher than projected in previous round (Add. Table 16). Even though the retirement age cap causes pensions to be lower, minimum pensions will counter this effect as more people become eligible. Another reason for higher average pension is the change to first pillar benefit calculation for second pillar participants and a higher Christmas bonus.

The number of pensioners will also increase by 14 % by 2070 (Add. Table 16). The only change which impacts the number of pensioners is the retirement age cap. Due to increasing life expectancy, the rise in number of pensioners will increase during the entire projection. However, the number of **contributors** decreases, as more people retire sooner.

Add. Table 16 - Impact of pension reform on chosen indicators

		2016	2020	2030	2040	2050	2060	2070
Total Pension expenditure (mil. €)	Before (1)	6935	8104	12519	20070	31679	49204	68307
	After (2)	6935	8297	13172	22621	37049	56743	77829
	% (2)/(1)	0%	2%	5%	13%	17%	15%	14%
Average pension (€)	Before (1)	415	474	697	1064	1594	2422	3587
	After (2)	415	481	716	1123	1700	2542	3669
	% (2)/(1)	0%	1%	3%	6%	7%	5%	2%
Number of pensioners (thousands)	Before (1)	1364	1401	1480	1558	1653	1673	1546
	After (2)	1364	1417	1523	1686	1846	1873	1758
	% (2)/(1)	0%	1%	3%	8%	12%	12%	14%
Contributors (thousands)	Before (1)	2176	2201	2122	2036	1902	1800	1767
	After (2)	2176	2201	2110	1965	1770	1640	1586
	% (2)/(1)	0%	0%	-1%	-3%	-7%	-9%	-10%

Note: *Before* stands for the "2018 AR New Methodology" projections. *After* stands for the 2020 Update projections.

Source: MFSR

BOX: Comparison of Pension Legislation Projections (Before and After 2019 Reform)

In this box, we compare the results of the impact on pension expenditure of the exact provisions foreseen by pension legislations before and after the 2019 reform.

The motivation behind this scenario is that, within the framework of the Ageing Report modelling assumptions, not all the legislative changes necessarily have an impact on pension expenditure projections. For example, if a new legislation on minimum pensions introduced a different indexation mechanism (e.g. from CPI to wages), this would not have an impact on pension expenditure projections modelled on the basis of the agreed assumptions by the AWG used in the Ageing Report, as wage indexation for minimum pensions is already assumed.

This should not serve as a realistic scenario, but rather as a complement to the Ageing Report baseline projections.

Up until 2018, the pension legislation foresaw three main provisions: i) a link of retirement age to life expectancy; ii) indexation of minimum pensions to a subsistence level (i.e. roughly indexed to CPI); iii) the maximum value of the Christmas bonus was 100 euros (without any indexation)²⁴.

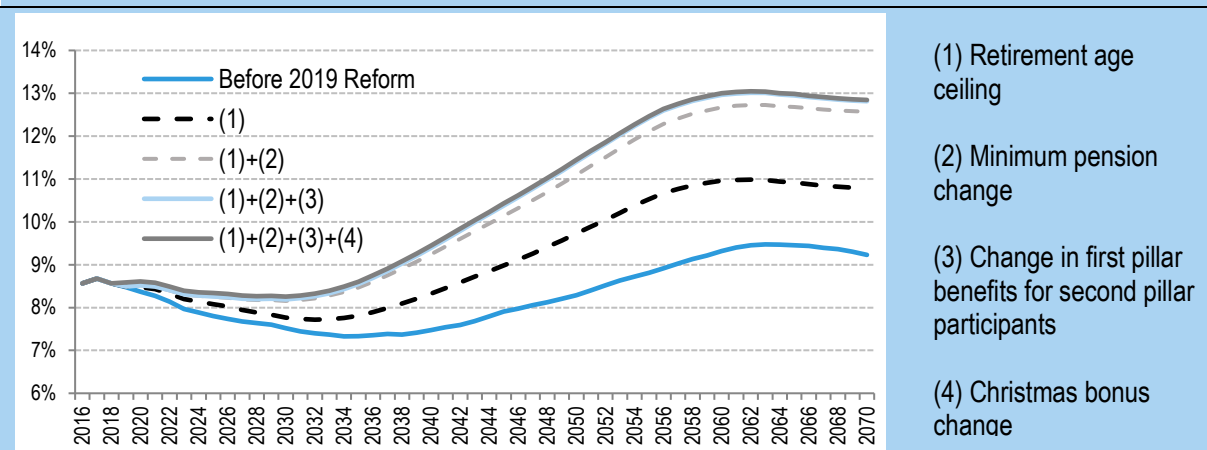
²⁴ For a thorough discussion, see Section 1.1.

Following the 2019 legislation, the link between retirement age and life expectancy was removed, and replaced by a retirement age cap. In addition, the new provisions foresee that only the basic value of minimum pensions (i.e. for 30 years of service) should be indexed to average wage; whereas the extra bonus for each additional years of service should remain indexed to CPI. Concerning the Christmas bonus, current legislation does not specify any indexation mechanism. However, the nominal value of the bonus has been increased in 2019 (i.e. at a maximum value of 200 euros)²⁵.

In the Ageing Report (and in the 2020 update) projections, minimum pensions and the Christmas bonus have been assumed as entirely indexed to the average wage.

In Figure 23, we show a decomposition of the impact of each exact change to the pension system foreseen by the 2019 reform, and compare it with the pre-reform (up to 2018) pension legislation provisions (i.e. the “Before 2019 Reform” curve). In particular, we separately illustrate the impact of: i) the retirement age cap; ii) the change to the minimum pension system (both wage and CPI indexation); iii) the change in the first-pillar benefits for second-pillar participants; iv) the change to the Christmas bonus system (i.e. its value increases as legislated according to the 2019 reform, and then remains unchanged until 2070, without any indexation).

Figure 24 - Comparison between Pension Legislation Projections (Before and after 2019 Reform) (% of GDP)



Source: MFSR

As we can see, the retirement age cap has a much lower impact than in 2020 Update projections (1.6 % of GDP vs. 2.2 % of GDP in 2070). Indeed, as minimum pensions are no longer fully indexed to average wage (i.e. the basic level is indexed to average wage, while the extra bonus is indexed to CPI), their level is much lower. Therefore, not as many people qualify for minimum pension as in the 2020 Update baseline scenario. The result is that **if we relax the assumption that minimum pensions are indexed to average wage, the effect of the retirement age cap becomes smaller**²⁶.

However, the change to minimum pensions calculations now drives the most significant pension expenditure increase (1.8 % of GDP in 2070). This is due to the fact that indexation of minimum pension changes from pure CPI indexation to one where the basic level is indexed to average wage (extra bonus remains indexed to CPI). This change will significantly increase the level of minimum pensions. Since the difference between old-age pension and minimum pension increases and, consequently, more people qualify for minimum pensions, the minimum pensions expenditure increases.

Changing the first pillar benefit calculation for participants in the second pillar has a similar effect as in baseline scenario (0.2 % of GDP in 2070), as the assumption change does not impact this expenditure. Finally, in the “Before 2019 Reform” scenario, the Christmas bonus expenditure-to-GDP ratio decreases over time, as the nominal value of the bonus does not change. The 2019 reform doubles the value of the Christmas bonus but, similar to previous legislation, leaves its value unindexed. Hence, the Christmas bonus-expenditure-to-GDP ratio shows a decreasing trend also in the post-reform setting. The impact of this change in 2070 is then insignificant.

²⁵ For a thorough discussion, see Section 1.2.

²⁶ In line with the top-up mechanism between old-age pension and minimum pension, as described in Section 3.7.



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 budgetary 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).
- Model does not work with age specific earnings profile – average wage is used for all age cohorts.
- The average contributory period reflects the increase in the retirement age.
- 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.
- Model assumes 31% voluntary entry rate to the second pillar based on the empirical evidence.

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

$$APPV = \frac{1}{t} \sum_{1}^{t} \frac{\text{individual's wage}_t}{\text{average wage in economy}_t}$$

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.

OP₁ = 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:

$$DP = [APPV \times (T + T_1) \times CPPV] \times M$$



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

$$DP = APPV \times (T + T_1) \times CPPV$$

DP = disability pension.

APPV = average pension point value.

T = number of years of insurance as of the date of the rise of disability.

T₁ = number of years of insurance from the rise of disability until reaching the retirement age.

CPPV = current pension point value.

M = percentage rate of reduction in the capacity to carry out gainful activity.

Initial determination of the current pension point value in 2004

$$PP_{2004} = \frac{RR\% \times AW_{2003}}{Years} \dots\dots\dots 4,72 = \frac{50\% \times 377,75}{40} \text{ in EUR}$$

PP₂₀₀₄ – current pension point value in 2004

RR% - replacement rate (gross pension over gross average wage)- set at 50%

AW₂₀₀₃ - Average wage in the economy (estimated at the time of writing law)

Years – years of service

1 EUR = 38.879 SKK



5.2. Additional tables

Table 28 (A1) - Factors behind the change in public pension expenditures between 2016 and 2070 using pension data (in percentage points of GDP) - pensions

	2016-20	2020-30	2030-40	2040-50	2050-60	2060-70	2016-70
Public pensions to GDP	0.1	-0.1	1.4	2.2	1.7	-0.1	5.2
Dependency ratio effect	1.6	3.4	2.7	4.9	3.5	-1.1	15.0
Coverage ratio effect	-0.5	0.2	0.2	-0.6	-0.2	0.1	-0.8
Coverage ratio old-age*	0.2	1.7	0.4	-0.3	0.1	0.2	2.3
Coverage ratio early-age*	-0.5	-2.1	0.0	0.1	-0.2	-0.3	-3.0
Cohort effect*	-1.4	-0.9	-0.4	-1.6	-0.9	0.3	-5.0
Benefit ratio effect	-0.6	-2.2	-0.4	0.1	0.1	0.1	-2.8
Labour Market/Labour intensity effect	-0.2	0.0	0.1	-0.1	-0.1	0.1	-0.3
Employment ratio effect	-0.2	0.0	0.2	-0.1	-0.1	0.0	-0.2
Labour intensity effect	0.0	0.0	-0.2	-0.1	0.0	0.0	-0.4
Career shift effect	0.0	0.0	0.1	0.1	0.0	0.1	0.4
Residual	-0.2	-1.5	-1.3	-2.1	-1.5	0.7	-5.9

Table 29 (A2) - Factors behind the change in public pension expenditures between 2016 and 2070 using pensioners data (in percentage points of GDP) - pensioners

	2016-20	2020-30	2030-40	2040-50	2050-60	2060-70	2016-70
Public pensions to GDP	0.1	-0.1	1.4	2.2	1.7	-0.1	5.2
Dependency ratio effect	1.6	3.4	2.7	4.9	3.5	-1.1	15.0
Coverage ratio effect	-0.9	-1.1	-0.2	-0.4	-0.3	0.0	-2.8
Coverage ratio old-age*	0.0	0.0	0.0	0.0	0.0	0.0	-0.1
Coverage ratio early-age*	-0.7	-2.5	-0.2	0.2	-0.2	-0.2	-3.7
Cohort effect*	-1.4	-0.9	-0.4	-1.6	-0.9	0.3	-5.0
Benefit ratio effect	-0.2	-1.1	-0.1	0.1	0.3	0.2	-0.9
Labour Market/Labour intensity effect	-0.2	0.0	0.1	-0.1	-0.1	0.1	-0.3
Employment ratio effect	-0.2	0.0	0.2	-0.1	-0.1	0.0	-0.2
Labour intensity effect	0.0	0.0	-0.2	-0.1	0.0	0.0	-0.4
Career shift effect	0.0	0.0	0.1	0.1	0.0	0.1	0.4
Residual	-0.2	-1.3	-1.1	-2.3	-1.7	0.7	-5.8

Table 30 (18b) - Overall change in public pension expenditure to GDP under the 2006, 2009, 2012, 2015, and 2018 projection exercises-pensioners

	Public pensions to GDP	Dependency ratio	Coverage ratio	Employment effect	Benefit ratio	Labour intensity	Residual (incl. Interaction effect)
2006 *	1.51	9.03	-2.48	-1.27	-3.13	:	-0.64
2009 **	3.43	11.70	-3.91	-0.56	-2.45	:	-1.35
2012 ***	2.66	11.61	-4.46	-0.97	-2.03	0.00	-1.50
2015****	2.11	11.27	-4.23	-0.79	-2.63	0.00	-1.51
2018*****	1.20	8.82	-4.14	-0.65	-1.48	0.02	-1.37
2018***** (Update 2020)	5.21	10.25	-3.52	-0.28	-0.57	-0.47	-0.20

* 2004-2050; ** 2007-2060; *** 2010-2060; **** 2013-2060; ***** 2016-2070

Source: MFSR



Add. Table 17- Retirement age as specified in 2019 reform for women

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	61 y	59y 3m	57y 6m
1957	62y 6m	62y 6m	62y 6m	61y 9m	60 y	58y 3m
1958	62y 8m	62y 8m	62y 7m	62y 1m	60y 9m	59y
1959	62y 10m	62y 10m	62y 8m	62y 5m	61y 6m	59y 9m
1960	63y	63y	62y 10m	62y 9m	61y 10m	60y 6m
1961	63y 2m	63y 2m	63y	63 y	62y 2m	61y 3m
1962	63y 4m	63y 4m	63y 2m	63 y	62y 6m	61y 7m
1963	63y 6m	63y 6m	63y 4m	63 y	62y 6m	61y 11m
1964	63y 8m	63y 8m	63y 6m	63 y	62y 6m	62y 3m
1965	63y 10m	63y 10m	63y 6m	63 y	62y 6m	62y 6m
1966 and more	64y	64y	63y 6m	63 y	62y 6m	62y 6m

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

Source: MFSR

Add. Table 18- Retirement age as specified in 2019 reform for men

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

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

Source: MFSR