



REPUBLIC OF SLOVENIA
MINISTRY OF FINANCE

**Country fiche on pension for the Republic of Slovenia – the
2018 round of projections for the Ageing Working Group,
November 2017**

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1. Overview of the pension system

1.1. Description

Pension and disability insurance system in Republic of Slovenia (1. pillar) is based on inter-generational contract and is therefore a pay-as-you-go system. The system is uniform and mandatory for all employed persons and other persons generating certain income from employment or other gainful activity, while inactive persons can join the system voluntarily. They are all included in the compulsory insurance scheme under the same act, i.e. the Pension and Disability Insurance Act (ZPIZ-2), and covered by the same insurance provider - the Institute of Pension and Disability Insurance of Slovenia (ZPIZ).

Pension system in general includes, besides 1. pillar, also occupational pension scheme and second non mandatory private scheme.

Compulsory insurance – first pillar

The compulsory insurance scheme includes old age and early pensions, disability pensions, survivors', widow/ers' and partial pensions. The system covers also the disability insurance rights¹, rights on assistance and attendance allowance, part of a widow/ers' pension and other rights (annual grant). Outside the compulsory insurance the system covers also special rights for farmers and military pensions, part of the military widow/ers' pension, advance pension payment and other pensions and rights under special acts. The structure of pensioners according to the type of pensions is changing, with increasing share of old age and early pensioners (from 69.3% in 2013 to 70.9% in 2016) and decreasing share of disabled pensions (from 14.6% in 2013 to 13.7% in 2016).

The last major reform of pension system was introduced in 2013. The right to an old-age pension depends on two parameters which must be met cumulatively; the age of the insured person and the pension qualifying period. The retirement age was raised to 65 for both genders. The conditions for acquiring an old-age pension will be after transition period until 2020² equalized for men and women³ (the table below). In exceptional circumstances the retirement age could be lower due to child care, compulsory military service or inclusion in the insurance scheme before the age of 18⁴.

Actual retirement age⁵ has started raising notably after the last reform and in December 2016 reached 59 years and 11 months for women and 61 years and 6 months for men.

1 The disability insurance include occupational rehabilitation, reassignment work on a part-time basis for no less than four hours daily or twenty hours weekly, reimbursement of travel expenses and benefits from disability insurance: for the duration of occupational rehabilitation, temporary benefit, right to disability benefit and right to partial benefit.

² Different transitional periods take into consideration various pensions qualifying periods.

³ This is reasonable due to the longer lifespan of women and consequently longer pension receipt span, as well as the necessity to equalise the genders formally. The different conditions for retirement in the past contributed to lower pensions for women due to the shorter pension qualifying period.

⁴ See Country Fiche on Pension Projections, Slovenia, 2013.

⁵ The retirement age for entering the old age pension without other pensions and rights under special acts.

Table 1 – Transitional periods for different pension qualifying periods

Transitional periods	The transitional period to reach 65 retirement age and 15 year contribution period		The transitional period to 65 retirement age with at least 20 years of contribution*		The transitional period to 60 retirement age to 40 years of contribution ⁶		
	Men	Women	Men	Women	Men	Women	Contribution period, women
2013	65Y	63 Y 6M	63Y 6	61Y 6M	58Y 4M	58Y	38Y 4M
2014		64Y	64Y	62Y	58Y 8M	58Y 4M	38Y 8M
2015		64 Y 6M	64Y 6	62Y 6M	59Y	59Y 8M	39Y
2016			65Y	63Y	59Y 4M	59Y	39Y 4M
2017				63Y 6M	59Y 8M	59Y 4M	39Y 8M
2018				64Y		59Y 8M	
2019				64Y 6M			

Source: Pension and Disability Insurance Act (ZPIZ-2)

* When reaching the retirement age 65 for both sexes in 2020, this provision will be abolished.

Table 2 – Qualifying condition for retiring

			2016	2020	2030	2040	2050	2060	2070
Qualifying condition for retiring with a full pension	Minimum requirements	Contributory period - men	40 y	40 y	40 y	40 y	40 y	40 y	40 y
		Retirement age - men	59 y 4 m	60 y	60 y	60 y	60 y	60 y	60 y
		Contributory period - women	39 y 4 m	40 y	40 y	40 y	40 y	40 y	40 y
		Retirement age - women	59 y	60 y	60 y	60 y	60 y	60 y	60 y
	Statutory retirement age - men		65 y	65 y	65 y	65 y	65 y	65 y	65 y
	Statutory retirement age - women		65 y	65 y	65 y	65 y	65 y	65 y	65 y
Qualifying condition for retirement WITHOUT a full pension	Early retirement age - men*		59 y 4 m	60 y	60 y	60 y	60 y	60 y	60 y
	Early retirement age - women*		59 y	60 y	60 y	60 y	60 y	60 y	60 y
	Penalty in case of earliest retirement age		18 % (early pension)	18%	18%	18%	18%	18%	18%
	Bonus in case of late retirement		12 % (old age pension)	12%	12%	12%	12%	12%	12%
	Minimum contributory period - men		15 y	15 y	15 y	15 y	15 y	15 y	15 y
	Minimum contributory period - women		15 y	15 y	15 y	15 y	15 y	15 y	15 y
	Minimum residence period - men		n.e.	n.e.	n.e.	n.e.	n.e.	n.e.	n.e.
	Minimum residence period - women		n.e.	n.e.	n.e.	n.e.	n.e.	n.e.	n.e.

Source: Commission services

Note: *the same age as Statutory but different pension age required

The time spent in pension is increasing. In 2000, the average time spent in retirement for women was 17 years and 1 month, while in the year 2013 it was 22 years and 8 months and in the year 2016 it was 24 years and 1 month. Similarly, in 2000 average time spent in retirement for men was 14 years and 9 months, while in 2013 it was 16 years and 8 months and in the year 2016 it was 17 years and 7 months. Particularly by women, the time spent in pension increased twice as much as increase of the retirement age.

⁶ Particularly for persons who began to work early in life – the effect of the structural changes in the economy in the long run.

The impact of the reform is evident also in gradually increasing contributory periods. In 2016, the average contributory period of new pensioners increased in comparison with 2013 – the increase for women was one year (and for men it did not change).

The ratio of insured persons to pensioners decreased from 1.8 in year 2000 to 1.38 in year 2013. In 2016 the ratio again increased and reached 1.45 due to labour market recovery (the number of insured persons increased from 2013 to 2016 for 3.8% - eg. student work) and lower inflow of new pensioners.

The pension base for an old-age pension or an early pension takes into account the period of 24 most favourable consecutive years of insurance from 1 January 1970 onwards. The transition period started 2013 with the 19 years and will last until 2019 with annual one year increase.

The lowest pension base is set by 76.5% of the gross wages reduced by average rate of paid taxes and contributions. The maximum pension base is limited to 4 times of the minimum pension base. On October 1, 2017, an amended Pension and Disability Insurance Act (ZPIZ-C), which provides a minimum pension amount to all those who contributed to the pension system (1st pillar) for the time required to obtain a full pension, came into force. This amount may not be less than 500 EUR. According to the data, the pension amount slightly increased to just under 52,622 retirees.

Accrual rate is set to 1.25% for each year after contributory period of 15 years (for the first 15 years the accrual rate is 26% for men and 29% for women) and reaches for 40 contributory years 57.25% of the pension base for men and 60.25% of the pension base for women. There is a special transition period for women until 2022⁷.

An insured person may acquire the right to early retirement already at age 60, if he or she attains at least 40 years of the pension qualifying period. However, it must be emphasized that due to the renewed system of permanent deductions (in transition period fixed to 5 years), early retirement will affect the amount of pension received. A pension, with regard to the pension qualifying period achieved will be lowered by 0.3% (maximum 18%) for each month of retirement before the age of 65. Since the statutory age will be raised gradually to 65, and that the pension qualifying period for early retirement will also be raised gradually (for women from 38 years to 40), deductions are determined correspondingly.

The positive stimulation for staying active longer time is provided with bonuses. The pensioner can accrue additional 1% for each three months of work after fulfilment of 60 years of age and completion of 40 years of pensionable service without purchasing years (including transitional periods), i.e. additional 4 per year against the normal yearly accrual rate of 1.25%. This bonus is available for maximum of 3 years, which means that a person prolonging his career for 3 years can accrue additional 12%. In addition, an insured person who meets the conditions for an early or old-age pension and remains insured will receive monthly payments of 20% of the early or old-age pension, but only if insured persons remains insured 40 hours per week (this condition was added in 2016).

Pensions are indexed to 60% of the increase in the average gross salary and to 40% of the average increase in the cost of living. The pension indexation should not fall below half of the

⁷ See Country Fiche on Pension Projections, Slovenia, 2013.

increase of the cost of living. In the year 2016 the pensions were indexed twice, by 0.7% and 0.4% and in the year 2017 by 1.15%.

The total contribution rate for pension and disability insurance is 24.35% of gross wage without ceiling. The employee's contribution rate is 15.50% and the employer's contribution rate is 8.85%.

In overall, the positive economic developments in last years and the impact of last pension reform have reduced the share of pension expenditures in GDP.

Survivor and widow(er)'s

The pension and disability insurance shall also cover the rights arising in the event of death of the insured person. Those pensions are received by the widow or widower, his children, stepchildren and other children without parents of the insured person who died.

The rules for survivor pensions: if the partner dies the base for survivor pension is his/her pension or if he/she was employed (and has fulfilled the conditions for disability pension), the pension is calculated with the same assumptions as it would become disabled (1st category). If survivor partner is already retired and already receives his/her own pension (or exceeds the age of 55 years and 6 months, or is completely incapable for work or has to take care of children), this pension is compared with the 70% pension of the deceased partner and if it is lower he/she can get 70% of the pension of the deceased partner. If it is higher, he/she can get a partial survivor pension – 15% of survivor pension – in addition to his/her pension (with two limitations: a) this partial pension should not exceed 11.7% of the minimum pension assessment base (from 1st January 2017 this limitation is set to 92.21 EUR), and b) the sum of both pensions (his/her own + the partial survivor pension) should not exceed old age pension of a man, calculated from the highest pension assessment base and 40 years of pensionable period (1,804.75 EUR from 1st January 2017).

If there are children left, for one child family pension is 70% of pension of deceased father/mother, for two children it is 80%, for three children it is 90%, and for 4 and more children it is 100%. The widow(er) counts the same as one child (mother + one child = 80%).

Occupational insurance

More precisely this system should be called "mandatory" supplementary pension system as its purpose was and still is to replace the old 'insurance period with increase (bonus)' and is intended for people working in demanding jobs and professions where due to the specifics of their work they cannot be expected to work until their full retirement age. This system provides certain categories of workers with a right to early retirement and so-called bridging over pension.

Occupational insurance covers the compulsory admission to the occupational retirement provision, and the rights and obligations arising from the insurance in the event of old-age and death determined on the basis of the contributions paid there into.

The basis for the payment of contributions for the occupational retirement provision is the insured person's salary or salary compensation. Occupational insurance pension plan determines uniform occupational insurance contribution in amount of 9.25% of an insured person's salary from 1.1.2019 onwards (between 1.1.2017 and 1.1.2019 it is 8.00%).

The occupational insurance guarantees the right to an occupational pension. Occupational pension is a benefit which ensures an individual a certain income from the moment he/she leaves the labour market until he/she meets the conditions for retirement under the compulsory pension and disability insurance. The amount of occupational pension depends on the amount of funds deposited on a person's personal account, and of the expected length of the period of receiving the occupational pension. The occupational pension may not fall below the old-age pension which the insured person would have received under a compulsory pension and disability insurance.

The occupational pension is paid out to the beneficiary in monthly amounts from the time of the acquisition of the occupational pension until the fulfilment of conditions for the acquisition of an early retirement benefit or an old-age pension under the compulsory insurance, depending on the beneficiary's choice.

Conditions that an insured person can acquire the right to an occupational pension are:

- when their years of pensionable service together with the added pensionable service amount to 42 years and 6 months in accordance with the provisions, and if the funds collected on their personal account suffice for the pay-out of the occupational pension or
- when their years of pensionable service together with the added pensionable service amount to no less than 40 years and when, depending on the level of the job they attain certain age (52 to 55).

An insured person who fulfilled the conditions for the entitlement to an old-age pension, an early retirement benefit, widow(er)'s pension or disability pension prior to enforcing the right to an occupational pension have the right to the pay-out of the surrender value or may request that the funds are transferred free-of-charge to the supplementary insurance where the insured person shall acquire the right to a supplementary pension.

In December 2016 there were 46,150 insured persons in occupational insurance and there were 220 occupational pensions' beneficiaries. The amount of collected resources in the occupational insurance fund in the end of 2016 was 0.65 billion EUR.

However, before the new legislation the employees on the jobs with difficult conditions (arduous & hazardous) and security and defence forces had the same formal status as other old age pensioners within the pillar 1. The only difference was that they could retire earlier and with shorter contributory period. In 2016 there were 94,183 such pensioners (63,123 old age, 11,620 disability and 19,048 survivor and widow(er)'s pensions) that corresponds to 1.75% of GDP.

Supplementary insurance

Voluntary supplementary pension insurance represents collecting of funds on personal accounts of persons insured under this form of insurance with the purpose of providing them,

upon attaining certain age or in other cases, defined by the pension scheme, with supplementary pensions or other rights stipulated by Pension and Invalidity Insurance Act.

Supplementary insurance represents the depositing of funds on the personal account of a member of such form of insurance with the aim of ensuring additional income for the person when he/she acquires the rights under the compulsory pension and disability insurance (early retirement benefit or old-age pension, disability pension, widow/widower's pension or occupational pension). Only an insured person or beneficiary of the rights arising from the compulsory pension insurance may join the supplementary insurance.

This form of insurance may be established as collective insurance with an employer, who partially or completely funds the insurance for all his employees, or by entering an individual insurance retirement plan under which every member pays his/her own premium and may join it independently.

Pension scheme (plan) must be approved by the minister, responsible for labour. Only then the payer of the supplementary insurance premium is entitled to tax relief for the premiums paid.

The two rights ensured by this form of insurance are as follows:

- the right to supplementary old-age pension and
- the right to early supplementary old-age pension.

Insured person may also (under certain conditions) demand the withdrawal of all the funds on his/her personal account in one payment (if the funds do not exceed EUR 5,000) .

A pension fund may be established and managed by a pension company, an insurance company and banks.

The pension fund's management company shall manage the collected funds:

- in compliance with the life-cycle investment policy of a Member or
- in compliance with the investment policy ensuring guaranteed return on net contributions.

To ensure adequate level of pensions, the participation in supplementary pensions should be increased in the future. In December 2016 there were 517,864 persons participating in the insurance (similar level as in 2013). In 2016 the share of persons in supplementary pensions was 58.3% of the total number of persons in the compulsory system. In the end of 2016 the amount of resources in the supplementary funds was around 2.1 billion EUR (slightly above 1.8 billion EUR in 2013). The average premium paid into supplementary pension insurance was 63.88 EUR by pension company and 52.85 EUR by insurance companies.

If the voluntary supplementary pension insurance remains unchanged in the next decades, only a small share (4.3% of all employed person) will be receiving the pension rent higher than 10% of their old age pensions form the 1st pillar. Beside the relatively low share of insured persons, the main problem are the low shares of insured persons in younger cohorts and thus the short period of premium payments. An introduction of the mandatory 2nd pillar for all employed persons would have an important positive impact on the increase in the net replacement rates, but the assumed premiums amounting to 4% of gross salaries would, in some scenarios, increase the labour costs. Consequently, it is very unlikely that such a scenario would obtain a green light.

Mandatory collective supplementary pensions for public employees, non-mandatory collective supplementary pensions (private sector) - based on collective agreements and private non-mandatory individual supplementary pensions (private and public sector) are not included in the projections because of the lack of data.

Social assistance

National means tested pension rights used to be national (state) pensions in the past. In 2012 this type of pension was redefined and moved from the pension system to the social assistance legislation. As such they do not represent pension related expenditures and are excluded from the projections.

Inflow of new pensioners

The positive impact of the economic growth and the previous reform is that in the last years the inflow of new pensioners (according to the administrative data) decreased from 29,914 new old-age pensioners in 2012 to 15,894 in 2016.

Table 3a – Number of new pensioners by age group - administrative data (year 2016) - MEN

Age group	All	Old age	Disability	Survivor	Other (including minimum)
15 - 49	944	0	179	765	0
50 - 54	428	199	208	21	0
55 - 59	4,143	3,619	491	33	0
60 - 64	4,492	4,203	243	46	0
65 - 69	1,713	1,681	8	24	0
70 - 74	96	74	0	22	0

Source: Commission services

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

Age group	All	Old age	Disability	Survivor	Other (including minimum)
15 - 49	1,075	0	173	902	0
50 - 54	549	35	238	276	0
55 - 59	4,258	3,654	188	416	0
60 - 64	2,550	2,009	52	489	0
65 - 69	844	280	2	562	0
70 - 74	558	38	0	520	0

Source: Commission services

Table 3c – Number of new pensioners by age group - administrative data (year 2016) - TOTAL

Age group	All	Old age	Disability	Survivor	Other (including minimum)
15 - 49	2,019	0	352	1,667	0
50 - 54	977	234	446	297	0
55 - 59	8,401	7,273	679	449	0
60 - 64	7,042	6,212	295	535	0
65 - 69	2,557	1,961	10	586	0
70 - 74	654	112	0	542	0

Source: Commission services

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

The changes of the reform 2013 were incorporated already in the previous projections. There was no major reform implemented since the last projections. However some changes were introduced in the pension legislation. In particular, after the adoption of the new legislation, the voluntary pension contributions for old-age pensions were taken into account differently in process of the assessment of the retirement conditions (reduction of pension). In our calculations this decision is already included since we never excluded those expenditures from the calculations. Including or excluding voluntary has negligible effect on the total public pension expenditures for pensions, therefore we did not exclude them in the Ageing report 2015.

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

Not particular constant policy assumptions have been implemented.

2. Overview of the Demographic and labour forces projections

2.1. Demographic development

According to 2015 population projections, the population is going to rise slowly until 2024 due to higher net migration and higher life expectancy and then fall by 6% until 2070. Until 2070 the age structure is going to change substantially. While the number of children (0–14 years) will remain almost unchanged (-5.2%), the share of older people will rise, there will be 46.9 % more people in old-age (above 65) in 2070 compared to 2016 and 19.6 % less people in the active age (15-64 years old). The increase in the number of older is due to the larger generations born after the 2nd World War till 1980 and increased life expectancy. The old age dependency ratio will almost double.

The age-dependency ratio has been rising rapidly in recent years owing to the declining number of working-age people and a rising number of older people. This situation emerged in 2012 not only because a large post-war generation exited from the labour force and joined the ranks of the older population, but, indeed mainly, as at the same time smaller cohorts of people born in the early 1990s started to enter the group of the working-age population. While in 2011 the number of 20-year-olds (who joined the working-age population that year according to the definition) was still 7,000 higher than the number of 65-year olds (who joined the ranks of the older population), the opposite was the case in 2016: the number of 65-year-old people was 7,000 higher than the number of 20-year-olds. The number of older people is also rising on account of higher life expectancy. In 2016 there were 23.9 young and 29.6 older people (together 53.5) per 100 working-age people in Slovenia. Projections show that the number of older people will continue to increase for three decades, when the generations born up to the beginning of the 1980s (when around 30,000 children were born per year, after which almost 10,000 fewer) will be transitioning into old age. In 2016 there were already almost a quarter more older people than children in Slovenia.

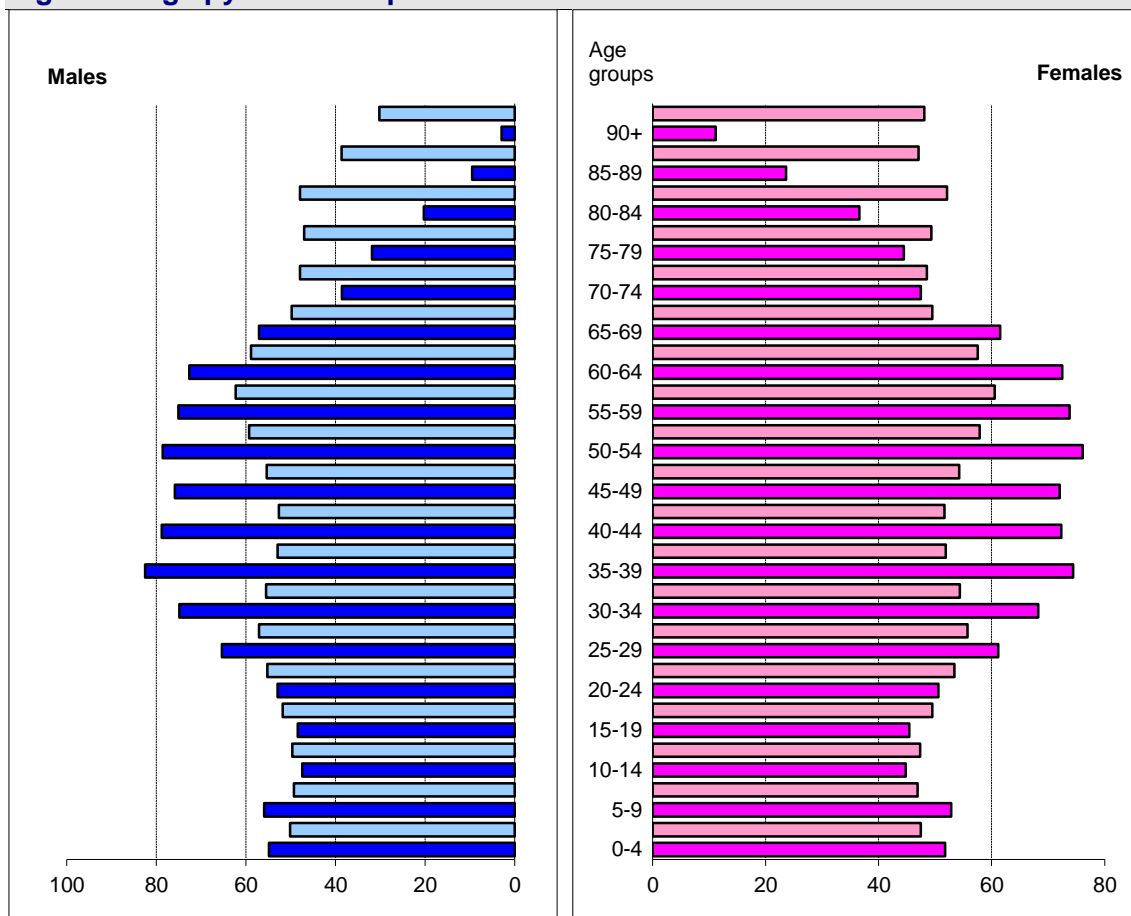
The main changes in the new demographic projections are related to the higher share of people aged 65+ and lower share of people in active age. The reason is lower assumption of migration (yearly on average in the period 2016-2070 1,000 less). Also the assumption of life expectancy is higher.

Table 4 – Main demographic variables evolution

	2016	2020	2030	2040	2050	2060	2070	Peak year*
Population (thousand)	2,065	2,077	2,080	2,065	2,043	1,998	1,955	2025
Population growth rate	0.1	0.1	-0.1	-0.1	-0.2	-0.2	-0.2	2018
Old-age dependency ratio (pop65/pop15-64)	28.1	32.3	41.3	48.6	55.9	55.0	50.2	2054
Ageing of the aged (pop80+/pop65+)	27.0	26.9	27.6	34.6	37.3	42.6	47.5	2070
Men - Life expectancy at birth	78.2	78.9	80.4	81.9	83.3	84.6	85.8	2070
Men - Life expectancy at 65	17.7	18.1	19.2	20.3	21.3	22.2	23.1	2070
Women - Life expectancy at birth	83.8	84.4	85.7	86.9	88.0	89.1	90.1	2070
Women - Life expectancy at 65	21.4	21.8	22.8	23.8	24.7	25.6	26.4	2070
Men - Survivor rate at 65+	85.4	86.3	88.4	90.1	91.6	92.8	93.9	2070
Men - Survivor rate at 80+	55.1	57.4	62.7	67.5	71.8	75.6	79.0	2070
Women - Survivor rate at 65+	92.9	93.4	94.3	95.1	95.8	96.3	96.8	2070
Women - Survivor rate at 80+	74.4	76.0	79.3	82.3	84.8	87.1	89.0	2070
Net migration	0.2	4.2	4.1	4.3	3.8	2.8	2.5	2041
Net migration over population change	0.1	1.4	-3.8	-3.1	-1.1	-0.6	-0.7	2025

Source: EUROSTAT and Commission Services

Figure 1: Age pyramid comparison: 2016 vs 2070



Source: EUROSTAT and Commission Services

2.2. Labour force

Table 5 summarises the developments of participation and employment rates of elderly workers in the period 2016-2070. The participation and employment rates for elderly are low, particularly at the beginning of the observed period. In 2016 the participation and employment rates for the age group 55 – 64 are 41.1% and 38.5% respectively. The projected rates will increase until 2034 and be almost stable until the end of projected period when they will reach 60.9% and 58.2%. In comparison to previous projections the estimated rates are in the end of the projected period lower. Participation rates and employment rates for the age group 65-74 are particularly low and are also more than twice lower in comparison to previous projections.

Table 5 – 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	41.1	50.7	60.8	60.1	58.8	60.1	60.9	2034
Employment rate for workers aged 55-64	38.5	48.0	58.0	57.4	56.2	57.4	58.2	2034
Share of workers aged 55-64 on the labour force 55-64	93.6	94.5	95.4	95.6	95.6	95.5	95.6	2070
Labour force participation rate 65-74	4.8	4.2	6.7	7.7	7.6	7.4	7.6	2044
Employment rate for workers aged 65-74	4.8	4.2	6.7	7.7	7.6	7.4	7.6	2044
Share of workers aged 65-74 on the labour force 65-74	100.0	100.0	100.0	100.0	100.0	100.0	100.0	2034
Median age of the labour force	40.0	41.0	43.0	42.0	40.0	41.0	41.0	2026

Source: Commission Services

Tables 6a and 6b show the dynamic of the careers lengths and duration of retirement for men and women. The average effective age of retirement increases by 1.8 years for men and 2.3 years women.

Table 6a – 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)	60.9	62.7	62.7	62.7	62.7	62.7	62.7	2023
Contributory period	38.4	39.1	39.0	39.0	38.8	38.9	38.9	2020
Duration of retirement	20.8	19.6	20.8	21.9	22.9	23.9	24.9	2070
Duration of retirement/contributory period	0.5	0.5	0.5	0.6	0.6	0.6	0.6	2070
Percentage of adult life spent at retirement	32.7	30.5	31.8	32.9	33.9	34.9	35.8	2070
Early/late exit	6.9	3.9	2.9	2.6	2.2	2.2	1.9	2017

Source: Commission Services

Table 6b – 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)	60.2	62.5	62.5	62.5	62.5	62.5	62.5	2021
Contributory period	37.9	38.9	38.7	38.7	38.4	38.5	38.5	2020
Duration of retirement	25.9	23.6	24.6	25.6	26.5	27.4	28.3	2070
Duration of retirement/contributory period	0.7	0.6	0.6	0.7	0.7	0.7	0.7	2070
Percentage of adult life spent at retirement	38.0	34.6	35.6	36.5	37.3	38.1	38.9	2070
Early/late exit	4.1	3.7	3.3	2.7	2.4	2.4	2.0	2022

Source: Commission Services

The contributory period is increasing in the beginning of the period due to the gradually increasing required retirement age and contributory period for women and due to the abolished “added period (years of study and obligatory military services for the man citizens in the past)”.

In Slovenia the average effective exit age is low whereas the longevity is relatively high, therefore duration of retirement is high. This is a key driver of high pension expenditures relative to GDP under no-policy change scenario.

3. Pension projection results

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

In the model are included old age pension, disability pension, survival pensions, widower pensions and others that include former schemes for farmers' and military pensions. In the expenditures is also included annual allowances for pensioners as social security type of expenditure.

In the model are also included special compulsory (occupational) pensions for workers in high risk occupations, private and public sectors.

Both Eurostat and AWG public pension expenditure include the same expenditure; the minor difference between the two data sets is explained by the different accounting principles used (cash flow principle in case of AWG data and ESA principle in case of Eurostat data).

Table 7 - Eurostat (ESSPROS) vs. Ageing Working Group definition of pension expenditure (% GDP)

	2007	2008	2009	2010	2011	2012	2013	2014
1 Eurostat total pension expenditure	9.6	9.5	10.7	11.0	11.2	11.4	11.7	11.2
2 Eurostat public pension expenditure	9.6	9.5	10.7	11	11.2	11.4	11.7	11.2
3 Public pension expenditure (AWG)	9.6	9.7	10.7	11	11.2	11.5	11.8	11.5
4 Difference (2) - (3)	-0.1	-0.2	0	0	0	-0.2	-0.2	-0.2
5 Expenditure categories not considered in the AWG definition, please specify:	:	:	:	:	:	:	:	:
5.1 ...	:	:	:	:	:	:	:	:
5.2 ...	:	:	:	:	:	:	:	:
5.3 ...	:	:	:	:	:	:	:	:

Source: EUROSTAT and Member States

3.2. Overview of projection results

The total gross public pension expenditure rises from 10.9%⁸ of GDP in 2016 to 15.6% in 2053 and slightly decreases to 14.9% in 2070. A strong increase till 2053 is driven by demographic development. In particular, baby-boom generations will be pensioners whereas young cohorts born during the low fertility in last several decades will be on the labour market. In the last two decades of the projection period the demographic pressure will decrease. Compared to the 2015 projections the pension expenditure as % of GDP are lower because:

- different starting point and the impact of the frozen indexation of pensions in the period between 2018 projections and 2015 projections,

⁸ In 2016 was total public expenditure for pensions 10.7% of GDP when we use the actual (revised) data about the GDP. In the underlying assumption was namely used data from spring 2017.

- macroeconomic assumptions (higher productivity growth),
- the difference in year 2060 is because the technical improvement of the model (corrected equations after 2025).

The difference between gross and net pension in Slovenia is insignificant because small percentage of pensions are eligible for personal income tax (in 2017 pensions above 1,095.15 EUR).

Table 8 - Projected gross and net pension spending and contributions (% of GDP)

Expenditure	2016	2020	2030	2040	2050	2060	2070	Peak year*
Gross public pension expenditure	10.9	11.0	12.0	14.2	15.6	15.2	14.9	2053
Private occupational pensions	:	:	:	:	:	:	:	:
Private individual pensions	:	:	:	:	:	:	:	:
<i>Mandatory private</i>	:	:	:	:	:	:	:	:
<i>Non-mandatory private</i>	:	:	:	:	:	:	:	:
Gross total pension expenditure	10.9	11.0	12.0	14.2	15.6	15.2	14.9	2053
Net public pension expenditure	10.9	10.9	12.0	14.1	15.5	15.1	14.8	2053
Net total pension expenditure	10.9	10.9	12.0	14.1	15.5	15.1	14.8	2053
Contributions	2016	2020	2030	2040	2050	2060	:	Peak year*
Public pension contributions	9.1	8.9	8.8	8.7	8.6	8.7	8.7	2016
Total pension contributions	9.1	8.9	8.8	8.7	8.6	8.7	8.7	2016

Source: Commission Services

Total public pension spending on old age and early pensions rises from 8.3% of GDP in 2016 to 12.3 % in a peak year 2052 and in 2070 reaches 11.9% of GDP (what is 0.9 p.p. lower in 2060 than in previous projection).

The expenditures in % of GDP rise steeply when larger generations (born before 1980) fulfil pension conditions. Pension expenditures as % of GDP are now partly higher due to lower migrations assumption than in EUROPOP2013.

GDP is going to be higher than in the previous projections. Consequently the ratio of pension expenditure to GDP will decrease also due to this effect.

Disability pension expenditures in % of GDP is first increasing because the number of persons with disability pensions increases due to demographic development – i.e. increasing number of individuals in higher age groups. Eventually, around 2050, the number of disability pensioners start to decrease again because of the declining number of elderly people. In the model it is assumed that probabilities of being disability pensioner slightly decreases over time. The rationale behind this assumption are a better health and safety at work, structure of the job types and stricter use of the eligibility criteria for disability pensions and as a consequence less people can use this “exit” path to (invalidity) retirement. From 2003 the criteria for disability retirement is the individual’s occupation instead of his or her concrete job. Therefore, attempts are made to find an adequate job within the individual’s occupation instead of granting the person the disability pension because he or she can’t work on the previous job any more. From 2006 the criteria for disability pensions are strived to be synchronized across all disability commissions in Slovenia. Furthermore, often a part-time

employment is used instead of granting disability pension immediately. All those measures, together with increasing safety at work and improving medicine, have contributed to the continuously falling number of disability pensions in Slovenia in the past, despite the population ageing. Therefore we assume that also in the future probabilities of being disability pensioner slightly decrease over time. Still, the demographic impact prevails and drives the results, so in total the number of disability pensioners is increasing until 2050's and then it starts to decline.

For survivor and widowers pensions the similar approach has been used as for the disability pensions. We slightly reduce the probability of survivors/widowers pensions by arguing that individuals (particularly women because of higher employment rates and wages) will be entitled to their own pension instead of the spouse. Again, the demographic factors determine the number of pensioners – first increasing and eventually decreasing number of elderly.

Old schemes for the farmers' and military pensions are included under other pensions. Both types of pensions are phasing out – they include the old scheme for farmers that is phasing out and the farmers who treated in the current system as regular old age pensioners. Under the military pensions are remaining war veterans.

In the first pillar are under old age pension system included also pensioners with the difficult conditions (arduous & hazardous) and security and defence forces. In 2016 there were in total around 94,183 such pensions (63,515 were included in the old age and early pensions; 11,620 in disability pensions and 19,048 in survivor pensions) that corresponds to 1.75% of GDP. Under the new legislation they are being transformed into “occupational pensions” beneficiaries and moving from the first to the second pillar for the time period from retirement till fulfilling the retirement conditions for old age pension (at that time being moved to the first pillar). However, we do not expect substantial changes neither in the number of pensions nor in the level of pensions because of that, therefore in they are modelled and presented in the projections within the first pillar.

Table 9 - Projected gross public pension spending by scheme (% of GDP)

Pension scheme	2016	2020	2030	2040	2050	2060	2070	Peak year *
Total public pensions	10.9	11.0	12.0	14.2	15.6	15.2	14.9	2053
of which								
Old age and early pensions:	8.3	8.5	9.4	11.1	12.3	12.0	11.9	2052
<i>Flat component</i>	:	:	:	:	:	:	:	:
<i>Earnings related</i>	8.3	8.5	9.4	11.1	12.3	12.0	11.9	2052
<i>Minimum pensions (non-contributory) i.e. minimum income guarantee for people above 65</i>	:	:	:	:	:	:	:	:
Disability pensions	1.28	1.24	1.35	1.55	1.68	1.62	1.51	2052
Survivor pensions	1.26	1.22	1.30	1.48	1.60	1.60	1.52	2056
Other pensions	0.07	0.04	0.00	0.00	0.00	0.00	0.00	2016
of which								
<i>country-specific scheme 1</i>	:	:	:	:	:	:	:	:
<i>country-specific scheme 2</i>	:	:	:	:	:	:	:	:
<i>country-specific scheme 3</i>	:	:	:	:	:	:	:	:

Source: Commission Services

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

The main upward driver of pension expenditure remains dependency ratio. The old-age dependency ratio increases from 28.1% in 2016 to 50.2% in 2070. The impact diminished only in the last period of the projections, from 2050's peak of 56.9%.

Through the whole projection period, except the last decade the coverage ratio effect lowers the ratio of pension expenditure to GDP. In the new projections the participations rates are slightly lower than in the previous projections. However the rates are still increasing during the projection period and therefore they have positive effect on sustainability of the pension system.

The benefit ratio is decreasing in the first decade of projections due to the:

- change in 2013 from 100% to 60% indexation of real growth of pensions to the real growth of wages. Therefore, elderly in higher ages who were facing 100% indexation during their retirement period (and therefore having high pension) are gradually dying off. On the other hand, pensioners who retired after 2013 are (and will be) facing 60% indexation and therefore they will have lower pensions.
- accrual rates are not decreasing any more (with the exception of the accrual rates for women in the transitional period from 2016 to 2022), which was the case before the pension reform in 2013.

In the first several years of projection period the replacement rate is increasing because of the increasing contributory period for women coming from the 2013 pension reform in which the required age and the length of contributory period are gradually increasing. However, in those years the positive impact of the increasing replacement rate is not enough to neutralize declining benefit ratio.

Table 10a - Factors behind the change in public pension expenditures between 2013 and 2070 (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	0.0	1.1	2.1	1.4	-0.4	-0.3	3.9	0.073
Dependency ratio effect	1.7	3.1	2.0	2.2	-0.1	-1.4	7.5	13.4%
Coverage ratio effect	-0.5	-1.1	-0.2	-0.6	-0.2	0.5	-2.1	-4.1%
<i>Coverage ratio old-age*</i>	-0.1	-0.1	0.0	-0.1	0.0	0.1	-0.1	-0.2%
<i>Coverage ratio early-age*</i>	-0.3	-2.4	0.5	0.7	-1.2	0.3	-2.4	-4.8%
<i>Cohort effect*</i>	-1.2	-2.1	-1.8	-3.8	-0.3	2.6	-6.5	-13.4%
Benefit ratio effect	-0.6	-0.4	0.2	0.1	0.0	0.5	-0.3	-0.5%
Labour Market/Labour intensity effect	-0.4	-0.3	0.1	-0.2	0.0	0.2	-0.7	-1.3%
<i>Employment ratio effect</i>	-0.5	-0.2	0.1	-0.2	-0.1	0.1	-0.7	-1.3%
<i>Labour intensity effect</i>	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1%
<i>Career shift effect</i>	0.0	-0.1	-0.1	0.0	0.1	0.0	-0.1	-0.1%
Residual	-0.2	-0.2	0.0	-0.1	0.0	0.0	-0.5	-0.2%

Source: Commission Services

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

Table 10b - Factors behind the change in public pension expenditures between 2013 and 2070 (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	0.0	1.1	2.1	1.4	-0.4	-0.3	3.9	0.073
Dependency ratio effect	1.7	3.1	2.0	2.2	-0.1	-1.4	7.5	13.4%
Coverage ratio effect	-0.5	-1.1	-0.2	-0.6	-0.2	0.5	-2.1	-4.1%
<i>Coverage ratio old-age*</i>	-0.1	-0.1	0.0	-0.1	0.0	0.1	-0.1	-0.2%
<i>Coverage ratio early-age*</i>	-0.3	-2.4	0.5	0.7	-1.2	0.3	-2.4	-4.8%
<i>Cohort effect*</i>	-1.2	-2.1	-1.8	-3.8	-0.3	2.6	-6.5	-13.4%
Benefit ratio effect	-0.6	-0.4	0.2	0.1	0.0	0.5	-0.3	-0.5%
Labour Market/Labour intensity effect	-0.4	-0.3	0.1	-0.2	0.0	0.2	-0.7	-1.3%
<i>Employment ratio effect</i>	-0.5	-0.2	0.1	-0.2	-0.1	0.1	-0.7	-1.3%
<i>Labour intensity effect</i>	0,0	0,0	0,0	0,0	0,0	0,0	0,1	0,1%
<i>Career shift effect</i>	0,0	-0,1	-0,1	0,0	0,1	0,0	-0,1	-0,1%
Residual	-0,2	-0,2	0,0	-0,1	0,0	0,0	-0,5	-0,2%

Source: Commission Services

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

The employment effect lowers the pension expenditure relative to GDP. The positive impact comes through somewhat higher employment rates of those in prime age but even more due to longer stay on the labour market, especially of women. Slight improvement is also because of entering the labour market earlier.

The cohort effect also reduces pension expenditures relative to GDP. The number of population aged 50-64 is decreasing in comparison to the number of people aged 65+ until

2060. However, in the last decade the population aged from 50-64 relative to people aged 65+ is increasing.

Table 11 - Replacement rate at retirement (RR) and coverage by pension scheme (in %)

	2016	2020	2030	2040	2050	2060	2070
Public scheme (BR)	32%	30%	29%	30%	30%	30%	31%
Public scheme (RR)	:	:	:	:	:	:	:
Coverage	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Public scheme old-age earnings related (BR)	34%	33%	32%	32%	32%	32%	33%
Public scheme old-age earnings related (RR)	35%	36%	36%	36%	36%	36%	36%
Coverage	:	:	:	:	:	:	:
Private occupational scheme (BR)	:	:	:	:	:	:	:
Private occupational scheme (RR)	:	:	:	:	:	:	:
Coverage	:	:	:	:	:	:	:
Private individual scheme (BR)	:	:	:	:	:	:	:
Private individual scheme (RR)	:	:	:	:	:	:	:
Coverage	:	:	:	:	:	:	:
Total (BR)	32%	30%	29%	30%	30%	30%	31%
Total (RR)*	:	:	:	:	:	:	:

Source: Commission Services

* Total (RR) is the same as Public scheme old-age earning related, because private schemes are not included in the projections.

Table 11 shows the evolution of replacement rate at retirement and benefit ratios. The interpretation of the values depends on the average wage used for calculation. In Slovenia net pension principle is in place as the pension rating base is calculated in net terms. When comparing net and gross pension, there is no significant difference as only small percentage of pensions are eligible for personal income tax. Contributions for health insurance are calculated separately and paid out directly by the Institute for pension and disability insurance and therefore not deducted from the pensions. This is also the main reason why the ratios of the pension (first pension and average pensions) to the gross average wage of the economy and gross average wage at retirement are relatively low. In this view the net replacement rate would be higher. Under such calculations (net) Theoretical Replacement Rates for average earner retiring at 65 after 40 years of career would be 57.25% (men) and 60.25% (women).

The public scheme benefit ratio is lower than old age related benefit ratios because the public scheme benefit ratio includes not only old age pensions but also disability, widowers, survivor and other pensions that are lower than old-age pensions. Therefore the total average for all those pensions combined is lower than for old-age pensions. The average pensions are increasing slower during the projected period than the wages, because already mentioned changes in the indexation of pensions (only 60% of the increase of the wages). Compared to the Ageing Report 2015 results the average growth wage has been revised upwards, which translates into higher growth of old age and early pension and also total public pension. However, the increase in pensions is lower than the growth of pensions because of 60% indexation rule the increase in real wages is only in 60% transferred to the real growth of pensions. This change has positive effect on the sustainability of the public pension system.

The projections shows that the total number of pensioners increase slower than in 2015 projections but also the number of employees is lower (Table 12). Both is mainly due to the assumption of lower net immigration.

Table 12 – System Dependency Ratio and Old-age Dependency Ratio

	2016	2020	2030	2040	2050	2060	2070
Number of pensioners (thousand) (I)	616.4	658.4	721.3	790.5	812.2	775.4	736.2
Employment (thousand) (II)	915.1	924.0	892.9	845.8	794.5	775.4	777.0
Pension System Dependency Ratio (SDR) (I)/(II)	67.4	71.3	80.8	93.5	102.2	100.0	94.7
Number of people aged 65+ (thousand) (III)	385.2	430.0	523.3	583.7	624.4	604.1	556.2
Working age population 15 - 64 (thousand) (IV)	1371.8	1329.9	1268.0	1201.3	1116.4	1097.8	1107.9
Old-age Dependency Ratio (ODR) (III)/(IV)	28.1	32.3	41.3	48.6	55.9	55.0	50.2
System efficiency (SDR/ODR)	2.4	2.2	2.0	1.9	1.8	1.8	1.9

Source: Commission Services

The numbers in Tables 13a and 13b are obtained by dividing the number of pensions (not pensioners) by the number of inactive people. As in explanations to previous projections the numbers are above 100% for: i) many pensions are paid to the pensioners abroad (especially to ex-Yugoslavia's republics) and the model does not differentiate between the number of pensioners (Slovenian) and the number of pensions that are paid; ii) the model does not assign pensions to the people in lower age groups (children) who get pensions after their deceased parent. These pensions are assigned to higher age groups – to “deceased people” in their hypothetical age group.

The coverage ratios by age groups have lower profiles in comparison to the previous projections. The main reasons is the different starting points of the projections. Recently the Slovenian economic situation is much better than projected in Ageing report 2015. Employment rates are much higher and the trend of rapidly increasing number of pensioners has almost stopped in recent years. The lower coverage ratios in age groups below 65 years of age, particularly for the age group 55-59 are due to the lower inflow of new pensioners and shift of younger pensioners to the older age group. In Ageing Report 2015 such strong decline was not expected, but since this is the actual situation now, we are carrying it out also to the future. The lower ratios for the age group 60-64 are driven by the projected lower participation rates (and therefore higher share of inactive persons) used for the budgetary projections.

Table 13a – Pensioners (public schemes) to inactive population ratio by age group (%)

	2016	2020	2030	2040	2050	2060	2070
Age group -54	4.6	4.5	4.4	3.9	3.5	3.7	3.6
Age group 55-59	65.2	77.7	76.2	72.6	72.5	73.4	73.6
Age group 60-64	102.4	115.0	114.3	113.9	111.7	112.7	115.3
Age group 65-69	121.4	121.1	125.9	127.8	126.9	127.6	128.5
Age group 70-74	123.6	120.4	120.5	123.3	123.1	123.7	124.4
Age group 75+	109.6	108.7	107.9	108.5	108.1	108.7	109.4

Source: Commission Services

Table 13b – Pensioners (public schemes) to population ratio by age group (%)

	2016	2020	2030	2040	2050	2060	2070
Age group -54	1.7	1.8	1.8	1.6	1.5	1.6	1.5
Age group 55-59	24.8	22.2	17.8	17.9	17.8	17.9	18.1
Age group 60-64	82.2	81.5	63.2	62.5	62.2	62.5	62.9
Age group 65-69	115.1	114.2	113.3	114.1	113.6	114.2	115.0
Age group 70-74	118.2	117.5	116.8	117.6	117.4	118.0	118.7
Age group 75+	109.6	108.7	107.9	108.5	108.1	108.7	109.4

Source: Commission Services

Table 14a – Female pensioners (public schemes) to inactive population ratio by age group (%)

	2016	2020	2030	2040	2050	2060	2070
Age group -54	4.6	4.4	4.2	3.7	3.5	3.7	3.5
Age group 55-59	68.8	77.4	75.8	69.8	70.0	70.8	71.0
Age group 60-64	103.9	117.1	116.7	115.9	113.2	114.3	117.1
Age group 65-69	113.7	112.9	117.1	119.4	118.5	119.2	120.1
Age group 70-74	113.6	111.2	110.6	113.3	113.0	113.5	114.3
Age group 75+	103.8	103.0	102.2	102.8	102.4	103.0	103.7

Source: Commission Services

Table 14b – female pensioners (public schemes) to population ratio by age group (%)

	2016	2020	2030	2040	2050	2060	2070
Age group -54	1.8	1.8	1.8	1.6	1.5	1.6	1.6
Age group 55-59	30.0	25.5	17.7	17.8	17.7	17.8	17.9
Age group 60-64	89.1	88.4	65.4	64.0	63.7	64.1	64.5
Age group 65-69	108.7	107.8	107.0	107.6	107.2	107.8	108.5
Age group 70-74	109.6	108.8	107.9	108.6	108.2	108.8	109.5
Age group 75+	103.8	103.0	102.2	102.8	102.4	103.0	103.7

Source: Commission Services

The number of new pensioners in 2012 was high because of the pre-reform effect. In 2013 the number of new pensioners dropped again at levels of about 18 thousands with slightly decreasing trend in the following years. According to the projections the highest numbers will be in 2030's and 2040's when there will be strongest demographic pressure of population ageing.

Pensionable earnings are calculated on the basis of the average contributory periods for men and woman. From the average contributory period we estimated average accrual rate and with the actual data on average pension of new pensioners from Pension fund we calculated pension basis. The pension formula for women is different from men. In particular, for the first 15 years of service the accrual rate is 29% for women, whereas for men it is only 26%. Working years above 15 years are the same for both genders – 1.25%. For full career of 40 years the total accrual rate is therefore $29+25*1.25\%=60.25\%$ for women, but for men it is only $26+25*1.25\%=57.25\%$. Also, for women there is the transition period of decreasing accrual rate from 1.41% in 2013 to 1.25% in 2023. In 2016 average pension period for women was only slightly lower compared to men (37.6 and 38.1years respectively).

The average number of months paid in the first year of retirement is given by Pension fund according actual data and is the same as in the previous projections⁹. The value from the baseline year is assumed for the entire period for both, men and women, while for the both genders combined (“total”) it is calculated as a weighted average of both genders.

Table 15a - Projected and disaggregated new public pension expenditure (old-age and early earnings-related pensions) - Total

New pension	2016	2020	2030	2040	2050	2060	2070
I Projected new pension expenditure (millions EUR)	97.2	104.0	184.4	287.3	386.2	468.5	757.8
II. Average contributory period	37.9	39.0	38.9	38.9	38.6	38.7	38.7
III. Monthly average pensionable earnings	1130.6	1317.3	1965.3	2921.2	4273.9	6159.9	8755.3
IV. Average accrual rates (%)	1.5	1.5	1.5	1.5	1.5	1.5	1.5
V. Sustainability/Adjustment factor	:	:	:	:	:	:	:
VI. Number of new pensions ('000)	20.4	19.0	22.5	23.6	21.8	18.3	20.7
VII Average number of months paid the first year	7.3	7.2	7.3	7.3	7.3	7.3	7.3
Monthly average pensionable earnings / Monthly economy-wide average wage	61.1%	61.4%	61.2%	61.2%	61.2%	61.2%	61.0%

Source: Commission Services

⁹ The latest available data before the submission of the projections.

Table 15b - Projected and disaggregated new public pension expenditure (old-age and early earnings-related pensions) - Male

New pension	2016	2020	2030	2040	2050	2060	2070
I Projected new pension expenditure (millions EUR)	45.2	55.7	90.4	142.9	193.3	228.7	337.3
II. Average contributory period	38.1	39.1	39.0	39.0	38.8	38.9	38.9
III. Monthly average pensionable earnings	1173.5	1361.4	2038.7	3028.7	4430.6	6391.5	9113.0
IV. Average accrual rates (%)	1.4	1.4	1.4	1.4	1.4	1.4	1.4
V. Sustainability/Adjustment factor	:	:	:	:	:	:	:
VI. Number of new pensions ('000)	10.2	10.6	11.5	12.2	11.4	9.3	9.6
VII Average number of months paid the first year	6.9	6.9	6.9	6.9	6.9	6.9	6.9
Monthly average pensionable earnings / Monthly economy-wide average wage	63.5%	63.5%	63.5%	63.5%	63.5%	63.5%	63.5%

Source: Commission Services

Table 15c - Projected and disaggregated new public pension expenditure (old-age and early earnings-related pensions) - Female

New pension	2016	2020	2030	2040	2050	2060	2070
I Projected new pension expenditure (millions EUR)	52.0	48.3	93.9	144.4	193.0	239.8	420.5
II. Average contributory period	37.6	38.9	38.7	38.7	38.4	38.5	38.5
III. Monthly average pensionable earnings	1090.9	1265.7	1895.3	2815.6	4118.9	5941.7	8471.8
IV. Average accrual rates (%)	1.6	1.5	1.5	1.5	1.5	1.5	1.5
V. Sustainability/Adjustment factor	:	:	:	:	:	:	:
VI. Number of new pensions ('000)	10.2	8.3	11.0	11.4	10.4	9.0	11.1
VII Average number of months paid the first year	7.7	7.7	7.7	7.7	7.7	7.7	7.7
Monthly average pensionable earnings / Monthly economy-wide average wage	59.0%	59.0%	59.0%	59.0%	59.0%	59.0%	59.0%

Source: Commission Services

3.4. Financing of the pension system

The pillar 1 pension system is financed through the contributions and supplementary funds transferred from the state budget.

Table 16 – Financing of the pension system

	Public employees	Private employees	Self-employed
Contribution base	0	0	0
Contribution rate/contribution			
<i>Employer</i>	8,85%	8,85%	24,35%
<i>Employee</i>	15,5%	15,5%	
<i>State</i>	-	-	-
<i>Other revenues</i>	State provides funds from the national budget and other sources to cover the difference between the Institute's revenues from contributions and other sources, and the Institute's expenditures.	State provides funds from the national budget and other sources to cover the difference between the Institute's revenues from contributions and other sources, and the Institute's expenditures.	State provides funds from the national budget and other sources to cover the difference between the Institute's revenues from contributions and other sources, and the Institute's expenditures.
Maximum contribution	0	0	0
Minimum contribution	0	0	0

Source: Commission Services

The employers' and employees' contributions are increasing in line with the growth rate of the economy. The ratio of number of contributors and employment differs because of different source of data. The number of contributors is related to the statistic of formal employees and the employment from the ILO definition.

Table 17 – Revenue from contribution (million), 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	3637.5	4156.8	5973.4	8271.7	11352.1	16068.1	22889.9
<i>Employer contribution</i>	1424.7	1628.1	2339.7	3239.9	4446.4	6293.5	8965.5
<i>Employee contribution</i>	2115.1	2417.2	3473.5	4809.9	6601.1	9343.4	13310.2
<i>State contribution</i>	97.6	111.5	160.3	222.0	304.6	431.2	614.2
<i>Other revenues</i>	:	:	:	:	:	:	:
Number of contributors (I)	891.0	900.1	859.9	810.4	762.7	747.8	749.0
Employment (II)	915.1	924.0	892.9	845.8	794.5	775.4	777.0
Ratio of (I)/(II)	1.0	1.0	1.0	1.0	1.0	1.0	1.0

Source: Commission Services

3.5. Sensitivity analysis

Higher life expectancy

- With the assumption of higher life expectancy projected results show higher ratio of pension expenditure to GDP in 2070 (15.8%) that is caused mostly by higher number of pensioners projected and their longer stay in retirement.

Higher and lower employment and higher employment for elderly

- Higher employment lead to higher number of contributors and consequently to the increase of nominal GDP and therefore the ratio of expenditure to GDP decrease to 14.5% compared to 14.9% in baseline projection. The lower employment scenario has opposite effect and the expenditures to GDP increase to around 15.2%.
- Higher employment for elderly has positive impact on pension system and outcomes in the labour market. The largest impact of higher employment of elderly on lowering the ratio of expenditures is in the period until 2040s. Until the end of the period the impact slightly diminished and resulted in the 14.3% ratio of expenditure to the GDP in 2070. The dynamic of the impact correspond to the assumptions of the activity and employment rates for elderly. The differences in the rates are increasing in the beginning of the period and remain stable over period. Over all this results in higher employment of the elderly persons and longer working careers, more contributors and lower number of pensioners, in particularly in the age group of 55-59 and 60-64 years of age.

Higher and lower Total factor productivity

- Higher productivity has impact on higher GDP and wages, but without changes in the number of contributors and number of pensioners. The ratio of expenditure to GDP is lower compared to the baseline (14.3% in 2070) because indexation of pensions amounts to 60% of the growth of wages. Thus, the remaining 40% of the increase in productivity increases GDP (and wages) but not pensions of existing pensioners, therefore improving the sustainability of the pensions system. On the contrary, low productivity means lower contributions and wages as well as GDP, and the ratio is higher than in the baseline scenario (15.5% in 2070).

Lower and higher migration

- Lower migration first decreases the number of employees and therefore the GDP. Eventually, when the immigrants start to retire, the number of pensioners is lower as well (compared to the baseline scenario), which elevates the pressure on the pension system. However, the pension expenditure-to-GDP ratio is still higher than in the baseline scenario (15.6%). In contrary, the higher migration assumption decreases the expenditure to GDP to 14.3% in 2070.

Table 18 - Public and total pension expenditures under different scenarios (deviation from the baseline)

	2016	2020	2030	2040	2050	2060	2070
Public Pension Expenditure							
Baseline	10.9	11.0	12.0	14.2	15.6	15.2	14.9
Higher life expectancy (2 extra years)	0.0	0.0	0.1	0.2	0.3	0.5	0.9
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	0.2	0.5	0.6	0.6
Higher emp. rate (+2 pp.)	0.0	-0.1	-0.3	-0.3	-0.4	-0.3	-0.3
Lower emp. rate (-2 pp.)	0.0	0.1	0.3	0.4	0.4	0.4	0.4
Higher emp. of older workers (+10 pp.)	0.0	-0.1	-1.0	-1.0	-0.8	-0.5	-0.6
Higher migration (+33%)	0.0	0.0	-0.2	-0.4	-0.6	-0.7	-0.6
Lower migration (-33%)	0.0	0.0	0.2	0.4	0.7	0.8	0.7
Lower fertility	0.0	0.0	0.0	0.2	0.9	1.6	2.5
Risk scenario	0.0	0.1	0.2	0.4	0.4	0.3	0.3
Policy scenario: linking retirement age to increases in life expectancy	0.0	0.0	0.0	-0.2	-0.5	-0.8	-1.3
Total Pension Expenditure							
Baseline	10.9	11.0	12.0	14.2	15.6	15.2	14.9
Higher life expectancy (2 extra years)	0.0	0.0	0.1	0.2	0.3	0.5	0.9
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	0.2	0.5	0.6	0.6
Higher emp. rate (+2 pp.)	0.0	-0.1	-0.3	-0.3	-0.4	-0.3	-0.3
Lower emp. rate (-2 pp.)	0.0	0.1	0.3	0.4	0.4	0.4	0.4
Higher emp. of older workers (+10 pp.)	0.0	-0.1	-1.0	-1.0	-0.8	-0.5	-0.6
Higher migration (+33%)	0.0	0.0	-0.2	-0.4	-0.6	-0.7	-0.6
Lower migration (-33%)	0.0	0.0	0.2	0.4	0.7	0.8	0.7
Lower fertility	0.0	0.0	0.0	0.2	0.9	1.6	2.5
Risk scenario	0.0	0.1	0.2	0.4	0.4	0.3	0.3
Policy scenario: linking retirement age to increases in life expectancy	0.0	0.0	0.0	-0.2	-0.5	-0.8	-1.3

Source: Commission Services

Lower fertility

- The lower fertility scenario has the highest impact on the increase of expenditure to GDP in comparison to the baseline scenario (17.4% GDP in 2070). Compared to the baseline scenario the negative impact starts late – only when lower number of new-borns start to enter the labour market – but after 2050 the negative impact becomes really strong.

Risk scenario

- In the risk scenario projection results show an increase of expenditure to GDP to 15.2%.

Linking retirement age to increases in life expectancy

- Until 2033 the activity rates in this scenario are assumed to be the same as in the baseline scenario. The difference then gradually increases until the end of the projected period and have impact on decreasing of the number of pensioners in age group 55-59, 60-64 and 65-69 years old decrease and on increase of contributory period. Therefore, the impact on the ratio of expenditures to GDP starts only after 2030. In 2070 the expenditures for public pensions amount to 13.6% of GDP.

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

Table 19 compares the rise in the public pension to GDP ratio in this round of projections to previous ones. The decomposition of the increase of public pension expenditures shows that dependency ratio is the main driving force behind the increases of the pension expenditures relative to GDP. However the impact of dependency ratio is decreasing over the course of projections because 1) between the starting years (that are increasing) and the year 2060 some of the population ageing was already realized and 2) since in 2018 projections the final year is 2070 when the demographic pressure is already lower. Other drivers have less clear trend.

Table 19 - Average annual change in public pension expenditure to GDP during the projection period under the 2006, 2009, 2012 and 2015 projection exercises

	Public pensions to GDP	Dependency ratio	Coverage ratio	Employment effect	Benefit ratio	Labour intensity	Residual (incl. Interaction effect)
2006 *	7.28	13.26	-3.59	-0.97	-0.87	:	-0.55
2009 **	8.77	13.72	-3.48	-0.14	-0.67	:	-0.66
2012 ***	5.85	12.29	-2.97	-0.96	-1.62	0.01	-0.90
2015****	3.58	9.96	-2.81	-1.32	-1.39	0.00	-0.87
2018*****	3.94	7.53	-2.13	-0.70	-0.29	0.07	-0.54

Source: Commission Services

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

The reform effects were already included in the previous projection. The additional decrease of the ratio is caused by the changes in assumptions, improvement in the modelling and factors to the lower ratio in basic year.

Table 20 - Decomposition of the difference between 2015 and the new public pension projection (% of GDP)

	2016	2020	2030	2040	2050	2060	2070
Ageing report 2015	11.8	11.3	12.4	14.4	15.7	15.3	:
<i>Change in assumptions</i>	-0.9	-0.4	-0.4	-0.1	0.2	0.3	:
<i>Improvement in the coverage or in the modelling</i>	:	:	0	-0.1	-0.3	-0.4	
<i>Change in the interpretation of constant policy</i>	:	:	:	:	:	:	:
<i>Policy related changes</i>	:	:	:	:	:	:	:
New projection	10.9	10.9	12.0	14.2	15.6	15.2	14.9

Source: Member State

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

The projections were made with the same model and methodology as the previous exercise¹⁰. Model used for the projections has been technically derived from the “generational accounting” model, however the focus has been changed from cohort perspective to calendar years. Age profiles are combined with population projections and projections of employment rates. The impacts of expected future changes (like parameters of the pension reforms) are entering through the set of matrices, whereby we follow each cohort of pensioners separately since some matrices differ for each cohort of pensioners. Some matrices are derived by the microsimulation pension model that we run in parallel. Because it predominantly rests on the age profiles from the base year, we refer to the model as an “age-profiles-based model”.

4.1. Institutional context in which those projections are made

- Who actually runs the model?

Projections were made in cooperation with the Faculty of Economics, University of Ljubljana, the Institute of Economic Research and the Ministry of Finance.

- Are those projections submitted to a peer review in your country?

All activities linked to the long-term projections are led by the government working group for the preparation of long term projections of the expenditures related to ageing population. The aim of the group is to prepare the inputs, monitors the results of the AWG and to keep the ministries and the government informed. The member of the group are relevant ministries, experts (Faculty of Economics, University of Ljubljana, Institute of Economic Research), Institute for macroeconomic analysis and development, Statistical office of the Republic of Slovenia, Pension and Disability Insurance Institute of Slovenia, Health insurance institute of Slovenia. There is no special peer review in Slovenia.

4.2. Assumptions and methodologies applied

The calculations follow the assumptions on budgetary projections provided by the European Commission. The employment rates are related to the contribution rates and retirement rates. However, the link is not directly on 1:1 basis. Higher employment rates do not fully translate into higher contribution rates, but somewhat less. The level of pensions is based on the pensions of older cohorts and adjusted with the matrices from the microsimulation model.

4.3. Data used to run the model

In the calculations many different data sources have been used, so we will just point out those most extensively used. At the aggregate level the key data source is Statistical office of the Republic of Slovenia (SURS), especially system of national accounts (European system of accounts – ESA). Statistical office provided also data at the micro level (Consumer Expenditure Survey and the data assembled for the “Microsimulation Model of the Taxes and

¹⁰ The projections are made by the Faculty of Economics in Ljubljana in relation to the government’s working group for the preparation of projections of the population ageing effects activities.

Transfers”) which have been used for creating age profiles. For the pension part the key institution is the Institute of Pension and Disability Insurance of Slovenia (ZPIZ). Which annually and monthly reports have been used as the source of aggregate data and they provided also numerous age profiles based on the data with complete coverage. The obtained results are in synthetic form entering the age-profiles-based model. Another important source is Ministry of finance with detailed aggregate data about categories of public revenues and expenditures.

The macroeconomic assumptions and demographic and labour market projections are from European Commission and used as exogenous variables in the model.

4.4. Reforms incorporated in the model

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4.5. General description of the model(s)

Technically, the age-profiles-based model builds on age profiles matrix, population matrix and a coefficient matrix. The age profiles matrix includes average values of projected categories (contributions, pensions etc.) by age. It builds on the situation from the base year. The key assumption of the model is that next generations “inherit” the situation of the previous ones in the base year, on which the further matrices (of legally enforced changes etc.) are applied. The population matrix for the 2015 projections is based on the Eurostat population projections EUROPOP2013, and included in the set of assumptions, submitted by the European Commission.

The coefficient matrix (*C*) summarizes the effects of future departures from the basic age profile, assumed in the matrix of age profiles. Data for coefficient matrices have also been obtained from various simulations on micro data. For instance, for simulating the effects of the PDIA-1999 on pension expenditures we have taken individual data about pension years, age, pensions at the time of retirement etc. about individuals that are already retired. We have simulated their retirement age and their pensions under the new conditions. Weighted averages by age groups enter the coefficient matrix.

Technically, the matrices have age (*a*) in their rows and calendar years (*t*) in their columns. The matrix of pension profiles (*PROF*) has the pension levels in its cells; the population matrix (*P*) has the number of people in its cells; and the coefficients matrix (*C*) contains the coefficients of adjustments. Pensions paid to individuals aged *k* in year *t* are thus calculated as (matrices are multiplied in an element-by-element manner):

$$PENS_{a,t} = PROF_{a,t} P_{a,t} C_{a,t} G_t \quad (1)$$

where *G* contains coefficients of the cumulative growth of wages from the base year to time *t*. According to the Slovenian pension legislation the growth of pension is indexed 60% to wages and 40 to CPI. Pension expenditures in year *t* are calculated as the sum of projected pension expenditures by all age groups:

$$PENS_t = \sum_{a=0}^D PENS_{a,t} \quad (2)$$

where index a runs from 0 to D ; with D denoting the maximum length of life (in our model it is the age group 100+).

This pension module is linked to the macroeconomic assumptions provided by the European Commission. In the model demographic changes thus affect public pension expenditures expressed as a share of GDP through the pension expenditures and through GDP, since GDP depends on the labour input, which is influenced by the demographic development. Labour productivity growth enters into the calculations exogenously.

The Model covers all kinds of public pensions since they are all contained in the pension age profiles from the base year.

The Institute of the Macroeconomic Analysis and Development's sub-model for simulating retirement process (depending on the set of employment and unemployment rates, provided by the European Commission) has been used and incorporated into the age-profiles-based model.

4.6. Additional features of the projection model

The persons are not presented and analysed individually, i.e. each individual is not modelled separately. The units of analysis are age cohorts.

Due to the limitation of the model, we used also a dynamic microsimulation pension model (with static ageing procedure) in order to estimate the impact of various pension parameters and transition periods.

Disability and Survivor's pensions are modelled together with other pensions – being a part of all pensions.

The retirement age is not explicitly modelled. The sub-model of the Institute of the Macroeconomic Analysis and Development is used to link employment rates with the retirement rates.

Methodological annex

Economy- wide average wage at retirement

The economy-wide average wage at retirement is evolving in line with productivity growth and the consumer price index (inflation). Therefore, it follows the growth of the economy-wide average wage. Small differences at the beginning of the projection period are due to the fact that economy-wide average wage provided in the questionnaire is not exactly the sum productivity growth and inflation that are provided in the macro assumptions of the European commission.

Table A 1 – Economy wide average wage at retirement evolution (in thousands euro)

	2010	2016	2020	2030	2040	2050	2060	2070
Economy - wide average wage (current prices - 1000 €)	20.8	22.2	25.7	38.6	57.3	83.8	120.9	172.3
Average gross wage at retirement (current prices - 1000 €)*		22.7	25.1	37.2	55.6	81.5	117.9	168.7

Source: Commission Services

Pensioners vs Pensions

The pensioners vs. pensions are equal.

Pension taxation

The tax revenues as a share of pension expenditures are constant over time. Thus, implicitly it is assumed that tax allowances are adjusted in line with pension expenditures and the implicit average tax rate on pensions is assumed to remain unchanged during the projection period. There is no contribution ceiling in the Slovenian tax system. In Slovenia net concept of pensions is used. Gross pensions are calculated only in special cases when needed and in those rear cases the ratio between gross and net concept is applied. Pensioners almost do not pay any taxes on their net pensions. Taxes are paid only in the case of high income (usually if they also receive substantial amount of other income beside pensions).

Disability pension

The disability benefits are not foreseen to change in the future. Therefore, the expenditures on disability pensions are driven by the number of disability pensions – by the disability rates and population by age groups. The pension disability rates by age groups are assumed to gradually decline because of the factors described in section 3.2 (tightening conditions for granting disability pension, part-time employment, increasing safety at work and improving medicine).

The disability pensions are not transformed into old age pensions when statutory retirement age is reached. Thus, once granted, the disability pensions retain this status.

Table A 2 – Disability rates by age groups (%)

	2016	2020	2030	2040	2050	2060	2070
Age group -54	0.7	0.6	0.7	0.6	0.5	0.5	0.5
Age group 55-59	6.6	6.6	6.4	6.2	6.0	5.9	5.7
Age group 60-64	10.5	10.4	10.1	9.9	9.6	9.3	9.0
Age group 65-69	12.2	12.1	11.7	11.5	11.2	10.8	10.5
Age group 70-74	14.5	14.5	14.2	13.9	13.7	13.3	12.9
Age group 75+	11.9	11.9	12.0	11.8	11.6	11.4	11.1

Source: Member State

Survivor pensions

For survivor pensions the level of pensions are not expected to change under the current pension law. On the other hand it is expected that the share of survivor pensions will decrease because widowers (in particular women) will receive their own (old-age) pensions instead of taking up the pensions of the spouse (more in section 1.1). However, those probabilities are not explicitly modelled.

Non-earnings related minimum pension

Not applicable.

Contribution

The contribution rate is assumed to be constant over the projection horizon. However, the actual age distribution of contributions paid is used. Therefore, the collected contributions relative to GDP varies during the projection period, since age structure of the population (with different levels of contributions paid (since they depend on the gross wage)) changes. Also, as explained earlier, the higher employment rates (that generate higher GDP) do not fully translate into higher number of contributors, therefore the contributions relative to GDP fall.

Alternative pension spending decomposition

Table A 3 - Factors behind the change in public pension expenditures between 2016 and 2070 (in percentage points of GDP) - pensions

	2016-20	2020-30	2030-40	2040-50	2050-60	2060-70	2016-70
Public pensions to GDP	0.0	1.1	2.1	1.4	-0.4	-0.3	3.9
Dependency ratio effect	1.7	3.8	2.8	3.0	-0.1	-2.0	9.1
Coverage ratio effect	-0.5	-1.0	-0.2	-0.4	-0.1	0.3	-1.9
<i>Coverage ratio old-age*</i>	-0.1	-0.1	0.0	0.0	0.0	0.1	-0.1
<i>Coverage ratio early-age*</i>	-0.3	-2.2	0.3	0.4	-0.7	0.2	-2.3
<i>Cohort effect*</i>	-1.2	-1.8	-1.1	-1.7	-0.1	0.9	-4.9
Benefit ratio effect	-0.6	-0.4	0.2	0.1	0.0	0.3	-0.5
Labour Market/Labour intensity effect	-0.4	-0.3	0.1	-0.2	0.0	0.1	-0.7
<i>Employment ratio effect</i>	-0.5	-0.2	0.1	-0.1	-0.1	0.1	-0.7
<i>Labour intensity effect</i>	0.0	0.0	0.0	0.0	0.0	0.0	0.1
<i>Career shift effect</i>	0.0	-0.1	0.0	0.0	0.1	0.0	-0.1
Residual	-0.2	-1.0	-0.7	-1.1	-0.1	1.0	-2.1

Source: Commission Services

Table A 4 - Factors behind the change in public pension expenditures between 2016 and 2070 (in percentage points of GDP) - pensioners

	2016-20	2020-30	2030-40	2040-50	2050-60	2060-70	2016-70
Public pensions to GDP	0.0	1.1	2.1	1.4	-0.4	-0.3	3.9
Dependency ratio effect	1.7	3.8	2.8	3.0	-0.1	-2.0	9.1
Coverage ratio effect	-0.5	-1.0	-0.2	-0.4	-0.1	0.3	-1.9
<i>Coverage ratio old-age*</i>	-0.1	-0.1	0.0	0.0	0.0	0.1	-0.1
<i>Coverage ratio early-age*</i>	-0.3	-2.2	0.3	0.4	-0.7	0.2	-2.3
<i>Cohort effect*</i>	-1.2	-1.8	-1.1	-1.7	-0.1	0.9	-4.9
Benefit ratio effect	-0.6	-0.4	0.2	0.1	0.0	0.3	-0.5
Labour Market/Labour intensity effect	-0.4	-0.3	0.1	-0.2	0.0	0.1	-0.7
<i>Employment ratio effect</i>	-0.5	-0.2	0.1	-0.1	-0.1	0.1	-0.7
<i>Labour intensity effect</i>	0.0	0.0	0.0	0.0	0.0	0.0	0.1
<i>Career shift effect</i>	0.0	-0.1	0.0	0.0	0.1	0.0	-0.1
Residual	-0.2	-1.0	-0.7	-1.1	-0.1	1.0	-2.1

Source: Commission Services