Economic Policy Committee's Ageing Working Group

Belgium: Country Fiche 2020

November 2020

Federal Planning Bureau

The Federal Planning Bureau (FPB) is a public agency that carries out, in support of political decision-making, forecasts and studies on economic, social-economic and environmental policy issues and examines their integration into a context of sustainable development. It shares its expertise with the government, parliament, social partners, national and international institutions.

The FPB adopts an approach characterised by independence, transparency and the pursuit of the general interest. It uses high-quality data, scientific methods and empirical validation of analyses. The FPB publishes the results of its studies and, in this way, contributes to the democratic debate.

The Federal Planning Bureau is EMAS-certified and was awarded the Ecodynamic enterprise label (three stars) for its environmental policy.

https://www.plan.be
e-mail: contact@plan.be

Table of contents

List of tables

List of graphs

Foreword

The Ageing Working Group (AWG) was established in December 1999 by the Economic Policy Committee of the European Council ECOFIN. This working group is responsible for producing common budgetary projections on age-related public expenditure items. Each Member State calculates its long-term pension expenditure based on common assumptions discussed in the AWG. For Belgium, this pension projection is carried out using the MALTESE model of the Federal Planning Bureau. The results of the pension projection were peer reviewed in detail by the European Commission (DG Ecfin) and by the Romanian delegates to the AWG, and also by the other Member States, whom we thank for their very useful questions and comments.

This report presents the new Belgian pension projection 2019-2070 published in the "2021 Ageing Report". In addition, these results will be used in the context of the "Fiscal Sustainability Report" of the European Commission that assesses the mid-term and long-term fiscal situation of Member states.

It should be noted that the demographic and macroeconomic assumptions in the public pension expenditure projection of Belgium for the AWG are different from those retained in the national projection of the Study Committee on Ageing, as well as the scope of pension definition.

Executive summary

The Belgian projection of public pension expenditure 2019-2070 is based on Eurostat's EUROPOP2019 population projection, released in April 2020, and on the macroeconomic assumptions discussed in the Ageing Working Group and approved at the EPC level (see "The 2021 Ageing Report: Underlying Assumptions and Projection Methodologies", published in European Economy, Institutional Paper 142, November 2020). These results incorporate all pension reforms that been enacted until September 2020.

The change in gross public pension expenditure amounts to 3 percentage points of GDP between 2019 and 2070 in the baseline projection. The demographic dependency ratio (defined as the population aged 65 and more divided by the population aged between 20 and 64) contributes positively to this change with 7.2 percentage points of GDP. All other ratios contribute negatively: the coverage ratio (number of public pensions as a share of the population of 65 and more) with -1.8 percentage points, the benefit ratio (the average pensions divided by the average wage) with -1.8 percentage points and the labour market effect (mostly driven by the inverse of the employment rate) with -0.3 percentage points. The residual effect equals -0.2 percentage points.

In the 2018 Ageing Report, the additional cost of pensions for Belgium was 2.9 percentage points of GDP for the period 2016-2070. This cost for the period between 2019 and 2070 (the same projection period as in the 2021 Ageing Report) was 2.6 percentage points.

1. Overview of the Belgian pension system

1.1. Three pillars

1) The first pillar *(covered in the pension projections)*

Amounting to 12.2% of GDP in 2019, the first pillar or the statutory public pension scheme is the principal part of the Belgian pension system. It is a defined benefits (DB) system for 99% of the expenditure and means-tested for the assistance scheme (1% of the expenditure). The next table presents the structure and the importance of the first pillar in 2019, expressed in % of GDP, by scheme and type of pension. For the old-age and early pensions earnings-related and survivor's pensions, three schemes exist with different calculation for the pension: wage earners (including the contractual workers in the public services), self-employed and civil servants (only tenured workers). Moreover, almost two thirds of the expenditure of the civil servants' scheme concern special pension schemes, namely defence, teachers and railway crew.

Table 1   Composition of the first pillar following the AWG definition in 2019

	Old-age and early pensions earnings-related	Old-age non-earnings related (means-tested)	Disability	Survivor (related to the earnings of the deceased)	Total
Wage earner	5.7% GDP (including unemployment with company allowance[1])	-	1.3% GDP (earnings-related)	0.4% GDP	7.5% GDP
Self-employed	0.7% GDP	-	0.1% GDP (lump-sum allowance)	0.1% GDP	0.9% GDP
Civil servants (only tenured but including disability[2])	3.3% GDP (of which at least 2.1% GDP is covered by special schemes)	-	- (included in old-age and early pension)	0.4% GDP	3.7% GDP
Minimum non-contributory pension (assistance scheme)	-	0.1% GDP (guaranteed income for elderly persons)	-	-	0.1% GDP
Total	9.7% GDP	0.1% GDP	1.4% GDP	0.9% GDP	12.2% GDP

The first pillar is based on the pay-as-you-go financing (PAYG) principle. Since 1/1/1995, the financing of all social expenses for the wage earners' and self-employed schemes is carried out through global management that implies 1) a single contribution rate for all social security sectors (pensions, healthcare, disability, primary incapacity, maternity leave, unemployment, etc.) and 2) that each sector is financed according to its expenditure by the way of contributions, government grant or alternative financing. In the civil servants' scheme, most social benefits, among which pensions, are financed through the general budget of the federal government. The public pension deficit is financed by the government in any case.

2) The second pillar *(not covered in the pension projections)*

Private occupational pensions (second pillar) are less important than first pillar pensions but are far from negligeable. In January 2020, total vested reserves within the second pillar amounted to 19.2% of GDP, and in 2015 46% of recently retired employees received such a pension. In 2004 this percentage

---

[1]   Unemployment with company allowance only for non-job seekers: 0.2% GDP in 2019, phasing out scheme.
[2]   The old-age and the disability pension are calculated in the same way in the civil servants' scheme.

was only 35%. Note that occupational pensions are almost exclusively paid out as onetime lump sum payments.

3) **The third pillar** *(not covered in the pension projections)*

The private voluntary individual pension schemes constitute the third pillar for which data are not easily available.

1.2. Qualifying conditions for retiring in the first pillar

The following table summarizes information on the qualifying conditions for old-age and early retirement with a full pension as defined by the AWG[3] in the public pension scheme (wage earner, self-employed and civil servant), taking into account all the measures mentioned in section 1.5 below. The minimum early retirement age and the minimum number of career years required for eligibility were respectively 60 and 35 years in 2012. Between 2012 and 2019, these conditions have been progressively raised to 63 and 42 years in 2019. Nevertheless, exceptions are still possible as of 2019 for people aged 61 with a career of 43 years and aged 60 with a career of 44 years. There is no penalty for early retirement. The statutory retirement age in the old-age public pension schemes in 2019 is 65 for both men and women and will rise to 66 in 2025 and to 67 in 2030.

Table 2 Qualifying condition for old-age and early retirement in the public pension scheme (wage earner, self-employed and civil servant' schemes)

			2012	2019	2030	2040	2050	2060	2070
Qualifying conditions for retiring with a full pension (see footnote 3)	Minimum requirements	Contributory period – men	35	42	42	42	42	42	42
		Retirement age – men	60	63	63	63	63	63	63
		Contributory period – women	35	42	42	42	42	42	42
		Retirement age – women	60	63	63	63	63	63	63
	Statutory retirement age – men		65	65	67	67	67	67	67
	Statutory retirement age – women		65	65	67	67	67	67	67

The wage earners' pension scheme also comprises the unemployment with company allowance for non-job seekers, which is a phasing-out scheme. To benefit from this scheme, the new beneficiary must be aged of 62 in 2020 and have a career length of 43 years[4]. This kind of benefit ends when the beneficiary goes into retirement at the statutory age or in early retirement. The disability allowance in the wage earners' and self-employed schemes exists for the people aged less than the statutory retirement age. This kind of benefit ends when the beneficiary goes into retirement at the statutory age or in early retirement. The minimum age for beneficiaries of a survivor pension is 45 years[5], rising to 50 years in 2025. Finally, the minimum age to benefit from the guaranteed income for elderly people (assistance scheme) is the same as the statutory retirement age.

---

[3]   In this table, a full pension means getting a pension without paying any penalty for retiring before the statutory retirement age and is not the same as the definition according to the Belgian legislation, i.e., the maximum number of career years taken into account in the pension calculation or 45 years.

[4]   A special scheme for companies undergoing restructuring also exists in which in order to be considered as a non-job seeker, the new beneficiary must be 62 years old in 2019 or have a career length of 42 years (65 years old or 43 years career length in 2020).
      The access conditions for job seekers in the unemployment with company allowance scheme (counted in the labour force) are less restrictive (62/40 in 2020 in the general scheme and age of 60 years in 2021 in the special scheme for companies undergoing restructuring).

[5]   Only in the civil servants' scheme the children of deceased have a right to an orphan pension as long as they receive a family allowance (paid up to their 25th birthday at the latest), which means that very few people are concerned.

Special schemes

Some minor special schemes related to difficult conditions (miners, seamen) still exist in the wage earner's scheme (with a lower retirement age and higher accrual rate) but they are being phased-out.

The vast majority of special schemes' expenditure is found in the civil servants' scheme, i.e., teachers (1.5% of GDP in 2019), defence (0.3% of GDP in 2019) and railway crew (0.3 % of GDP in 2019). Although the conditions for retirement age and pension calculation have already been tightened in recent years for these schemes, they still benefit from lower retirement ages and higher accrual rates (lower tantième than 60, see Box 1). Raising the retirement age and calculating the pension as in the general civil servants' scheme had been under negotiation and linked to the dossier on arduous jobs under the previous government, though no agreement was eventually reached. It is likely that this issue will be discussed again.

Box 1   The characteristics of the different public pension schemes

Pension scheme for wage earners (old-age and survivor pension)

Formula for old-age pension:

$$P = 75\% \text{ or } 60\% \times \sum_{t=1}^{n} \frac{1}{45} \times \text{ wage in year t up to the wage ceiling } \times \frac{\text{price index in year n}}{\text{price index in year t}}$$

Accrual rates: 1.67% for the head of household with a dependent spouse (household replacement rate of 75% divided by 45) and 1.33% for pensioners whose pension is calculated on individual basis (single replacement rate of 60% divided by 45), applied to annual gross wages earned during the whole career (maximum career of 45 years). The annual gross wages are capped to the annual wage ceiling (for instance, ceiling of 58446.94 EUR in 2020) and adjusted only to current prices (CPI). Some periods of unemployment, disability, etc. are valued at the last corresponding earned wage and some others at the minimum claim per working year. Maximum pension for a maximum career exists due to wage ceiling.

Increased accrual rate for low wages: 1) minimum pension (not the assistance scheme) granted to pensioners with at least 2/3 of a maximum career in the wage earners' scheme (19369.22 EUR per year in March 2020 for a maximum career for the head of household with a dependent spouse, 15500.27 EUR per year for a maximum career for other pensioners;); 2) minimum claim per working year (guaranteed annual minimum wage of 25833.78 EUR in 2020) as long as the beneficiary can prove he/she has worked at least 15 years in the wage earners' scheme, and provided his/her job was at least one third of a full-time job. The total pension after application of the guaranteed minimum wage may not exceed for a full career 20543.69 EUR for the head of household with dependent spouse and 16434.94 EUR for other pensioners. These amounts are adjusted proportionally to the career fraction of the pensioner.

The survivor pension is calculated as 80% of the deceased person's retirement pension, computed at the household rate (which means 80% of 75%), that is 60% of the reference wage.

Pension scheme for self-employed (old-age and survivor pension)

Formula for old-age pension:

$$P = 75\% \text{ or } 60\% \times \sum_{t=1}^{n} \frac{1}{45} \times \text{ income in year t } \times \frac{\text{price index in year n}}{\text{price index in year t}} \times \text{ correction coefficients}$$

The pension calculation is very similar to that for the wage earners' scheme (75% of the reference income for the head of household with a dependent spouse and 60% in all other cases). The working years before 1984 are valued at a fixed income, while for the working years as of 1984, the reference income is calculated on the basis of the business income used to compute social security contributions and income tax, up to an income ceiling. The correction (reduction) coefficients reflect the discrepancy between the contributions paid by wage earners and by the self-employed. A minimum pension (not the assistance scheme) exists with the same amounts as in the wage earners' scheme, which is granted to pensioners with at least two thirds of a maximum career as a self-employed and/or wage earner and in proportion to the career fraction. Survivor pension is computed in a similar way to the wage earners' scheme.

Box 1 continued

Pension scheme for civil servants (old-age and survivor pension)

Formula for old-age pension and disability pension (civil servants declared permanently unfit to continue their career, regardless of their age or seniority):

$$P = \frac{\text{considered service years (max 45 years)}}{60 \text{ (reference career fraction)}} \times \text{reference wage}$$

(i. e. maximum pension of 75% x reference wage)

Accrual rate: 1.67% (1/60) applied to the average wage of the last 10 years of work (5 years for people born before 1962).

Maximum replacement rate of 75% of the reference wage: numerator of a maximum career length of 45 years and reference career fraction of 60 (so-called tantième). There is also an absolute maximum pension under this scheme of EUR 81 622.85 per year in March 2020. Some special schemes have a preferential tantième (for instance, 55 for teachers and non-train crew of national railway, 50 for the military and the police, 48 for the train crew of national railway, etc.). The December 2011 reform raised these preferential tantièmes to at least 48. The survivor pension is calculated as 60% of the reference wage.

Assistance scheme (means-tested): guaranteed income for elderly persons (GIEP)

This scheme is designed for elderly people with no income or an insufficient pension. In March 2020, the maximum annual amount of the GIEP is 13852.92 EUR for singles and 9235.32 EUR for cohabitants (for each person). The GIEP is mostly a complement to other pensions.

Unemployment with company allowance scheme for non-job seekers

Unemployment benefit, paid by the public authorities (National Employment Office): 60% of the last gross wage earned, limited by a ceiling (different from that used in the pension scheme). The company allowance, paid by the employer, is not taken into account in the model.

Disability

Wage earners' scheme: 65% of the limited lost wage (limited by a ceiling different from that used in the pension scheme) for beneficiaries who are heads of household, 55% for singles, and 40% for cohabitants. A minimum amount also exists (different from the assistance scheme).

Self-employed scheme: lump-sum benefit, different amount whether the beneficiary is a head of the household or not.

1.3. Rules for indexation and living standards adjustment in the first pillar

1.3.1. Legislation

All pensions are automatically adjusted to the price index (consumer price index, CPI[6]), unless an index jump is stipulated by legislation[7]. In addition to the indexation to prices, pensions by scheme are also adjusted to living standards in real terms:

– Civil servants' scheme: old-age and early pensions are automatically adjusted to an increase in the real wage of working civil servants, although this adjustment does not reflect one hundred percent of the average wage growth.

– Wage earners', self-employed and assistance schemes: the "Generation Pact" of December 2005 established the principle of adjustment of the replacement benefits (not only pensions) to living standards. To begin with, the government must provide for a budget covering an annual growth of 1.25% for the wage ceilings and the minimum claim per working year, an adjustment to living standards of 0.5% for the non-lump-sum allowances and a real growth of 1% for the lump-sum allowances. Once this budget is calculated, concrete measures for the adjustment to living standards are proposed by the social partners. These measures must respect the abovementioned global financial constraint in each scheme (wage earners', self-employed, assistance). However, in each scheme, they can be aimed at specific sectors, categories of beneficiaries or types of allowances. Finally, the government decides on the final measures.

1.3.2. Projection

The table below presents the rules for indexation and living standards adjustment in the projection. All allowances are indexed to prices (CPI) unless otherwise decided.

Table 3   Indexation and living standards adjustment of pensions by scheme in the projection

	Indexation to prices (whole projection period)	Living standards adjustment (in addition to price indexation)	
		Till 2020	From 2021
Wage earners (including unemployment with company allowance and disability)	Automatically adjusted to price index (CPI)	All the measures decided by the government	Adjusted to living standards following the "Generation Pact": annual growth of 1.25% for the wage ceilings and the minimum claim; 1% for the lump-sum benefit; 0.5% for the non-lump-sum benefit
Self-employed (including disability)			
Civil servants			Adjusted to the real average wage increases of the working civil servants diminished by 0.4%
Guaranteed income for elderly persons			1% per year the first ten years, then follows the average wage growth (rule defined by the AWG)

Regarding adjustment to living standards, until 2020 the projection takes into account all the measures already enacted by the government by September 2020. From 2021 onwards, in the wage earners' and

---

[6]   This is in fact the smoothed health index which corresponds to the average of the health indices of the last 4 months multiplied by a factor of 0.98. And the health index corresponds to the consumer price index excluding alcoholic beverages, tobacco and fuels (excluding LPG). In projection, the use of the CPI or the health index has no impact.

[7]   This had been the case in 1984, 1985, 1987 and 2015. For instance, the "index jump" stipulated by the Act of 23 April 2015 on the employment promotion means that the 2015 adjustment of pension benefits (and of other social allowances and wages) to price evolution has been skipped. Given the 2% stepwise indexation mechanism, this corresponds to a reduction by 2% in the pension benefits in real terms over the whole projection period (past as well as future wages are devaluated by 2% in real terms).

the self-employed schemes, social allowances are adjusted according to the parameters used for computing the budget devoted to the adjustment to living standards as stated in the "Generation Pact" (see 13.1. Legislation). The civil servants' pensions are adjusted to the real wage increase of the working civil servants diminished by 0.4%, which corresponds to the average historical difference between real wage increases and effective welfare adjustments of civil servants' pensions. The average minimum non-contributory pension or the guaranteed income for elderly persons is adapted the first ten years of the projection with 1% in real terms per year ("Generation Pact") and then follows the average wage growth.

1.4. Description of the "constant policy" assumptions used in the projection

The long-term modelling of the social expenses is carried out according to the constant policy principle, which is mainly similar to the constant legislation principle. All measures and reforms enacted by the government until September 2020 are incorporated in the projection.

In comparison to the Ageing Report 2018 projection, the average amount in the assistance scheme is calculated differently. The new projection follows the rule defined by the AWG, i.e., the national rule (adaptation by 1% per year in real terms as in the "Generation Pact") for the first 10 years and afterwards the growth of the average wage. In the Ageing Report 2018, this average amount was adapted by 1% per year for the entire projection period.

1.5. Recent reforms in the public pension scheme included in the new projection

1.5.1. New reform (in comparison with the 2018 Ageing Report)

– Introduction of a mixed pension in the public sector (except education) from 1 May 2018 for new pensioners: contractual periods of service before appointments from 1 December 2017 will be taken into account according to the pension calculation in the wage earners' scheme. Introduction of a second pension pillar for contractual civil service staff (excluding education), abolition of the five-year career requirement for an entitlement to a public sector pension (from 1 May 2019).

– Abolishment of career unity[8] in the wage earners' and self-employed schemes, modification of the valorisation of assimilated periods of unemployment in the wage earners' scheme.

---

[8] The principle of career unity meant that the number of days considered in the pension calculation was limited to 14040 full-time equivalent days or 45 years. If this limit was exceeded, the most advantageous days in terms of income were taken into account, which in practice meant the last 45 years. The new measure implies that more than 14040 career days would be taken into account if they are days worked. If the number of days exceeding 14040 days are days not worked, they would not be included in the pension calculation. If these non-worked days were spent in unemployment or unemployment with company allowance, the first 45 career years would count towards the pension calculation, as opposed to before when the 45 most advantageous years were considered.

> **Box 2   Announcements made by the new government (Policy Brief of 3 November 2020)**
>
> The new government has announced that by September 2021, a structural reform of the pension landscape will be presented to the Council of Ministers. Some envisaged measures have already been mentioned:
>
> - the minimum pension (in the earnings-related old-age and early retirement) for a single person would be gradually increased to 1 500 euro net for a full career (the minimum amount for the head of household will be adjusted accordingly) and adjusted pro rata for incomplete careers).
>
> - The minimum non-contributory pension (assistance scheme) would also be increased.
>
> - The wage ceiling would be increased in proportion to the increase in the minimum pension (earnings-related).
>
> - Reintroduction of the pension bonus so that people who work longer can also build up more pension rights.
>
> - Self-employed scheme: abolishment of the correction coefficients used in the calculation of the pension.

1.5.2. Other reforms

– A raise of the statutory retirement age from 65 to 66 years in 2025 and to 67 years in 2030, as well as extension of the access to the disability or unemployment schemes until these ages (2015 pension reform[9]).

– A raise, since 2012 (December 2011 and 2015 pension reforms), of the minimum early retirement age as well as the minimum number of career years required for eligibility (see Table 2). The conditions for some more favourable special schemes have been tightened. In the civil servants' scheme, the service credit allocated to higher education degrees, which was accounted for in the career condition for early retirement, is being phased out as of 2015.

– The validation of higher degree study periods for the pension calculation[10] in the three old-age pension schemes is harmonized as of 1/12/2017. The validation in the civil servants' scheme was cost-free before the reform. After the reform, civil servants will have to pay contributions to validate these periods.

– Survivor pension: no minimum age before 2015; minimum age of 45 years as of 2015 and gradually raised to 50 years in 2025.

– Unemployment with company allowance scheme: firstly, a raise of the minimum access age from 60 to 62 years in 2015 for new entries[11] and an increase of the minimum career length requirement to 40

---

[9]   Act of 10 August 2015 "aimed at raising the legal retirement age, conditions to early retirement pension and the minimum age for survivor's pension", Belgian Official Journal of 21 Augustus 2015.

[10]   Act of 2 October 2017 "Loi relative à l'harmonisation de la prise en compte des périodes d'études pour le calcul de la pension", Belgian Official Journal of 24 October 2017.

[11]   In the special scheme for companies in difficulty or undergoing restructuring, the entry age has increased from 55 years in 2015 to 59 years in 2020 and will be 60 in 2021.

years (in 2015 for men and in 2024 for women). Moreover, since 1/1/2015, the new beneficiaries of unemployment with company allowance must be available on the labour market and are therefore counted in the labour supply, unless they are considered as non-job seekers, for which the requirement of a career length of at least 43 years must be satisfied[12].

– Abolishment of the pension bonus as of 1/1/2015 (for people working after the age of 60 while complying with the requirement for early retirement): lump-sum amount for each additional effectively worked day as of the second year, increasing with the number of additional working days.

– As of 2015, the months in the calendar year in which a person retires are included in the pension calculation in the wage earners' and self-employed schemes.

– Valuation of some periods from the career year 2012 onwards (third period of unemployment[13], some periods of unemployment with company allowance before the age of 60, some periods of career break or time credit) in the wage earners' scheme according to the minimum claim per working year, instead of a notional wage[14]. The limitation of the periods of career break is taken into account for pension entitlements.

– In the civil servants' scheme, some periods of career break and of absence have been limited after 31 December 2011 in the pension rights. In this scheme, in the pension calculation, the reference wage corresponds to the average wage over the last 10 career years (instead of the last 5 years).

---

[12] To be considered as a non-job seeker in the special scheme for companies undergoing restructuring, the new beneficiary must be 62 years old or have a career length of 42 years in 2019 (65 years old or 43 years career length in 2020).

[13] Period of unemployment from 48 months of unemployment (or earlier depending on the length of the professional career).

[14] For periods not worked but assimilated for the pension, a notional wage is calculated on the basis of the total wage for the career year immediately preceding the assimilated period. For certain assimilated periods, from the career year 2012 onwards, the notional wage is limited to the guaranteed minimum wage or the minimum claim per working year.

2. Demographic and labour force projections

2.1. Demographic development

The next table presents the evolution of the main demographic variables for Belgium coming from EUROPOP2019, the population projection made by Eurostat and released in April 2020. Population is expected to rise slightly from 11.5 million people in 2019 to a peak of 11.9 million in 2047, and subsequently to decline to 11.8 million in 2070, meaning a growth of 3.1% between 2019 and 2070 (or an annual growth rate of 0.1%). This slight increase in the population entirely results from the group aged 65+ that grows by 51.5% between 2019 and 2070, while the age groups 0-19 and 20-64 decrease by 10.1% and 7.6% respectively. Consequently, the old-age dependency ratio, which represents the ratio between the 65 aged and over and the 20-64 aged, grows with 64% during the whole projection period: it goes from 32.5 in 2019 to 53.3 in 2070. This means that, while we had 3 working-age people for one person aged 65 or older in 2019, this ratio falls to 1.9 in 2070. The increased ageing of elderly people (the ratio between the number of those aged 80+ compared to those aged 65+) is also important, rising from 30% in 2019 to almost 42% in 2070.

Table 4   Main demographic variables evolution

	2019	2030	2040	2050	2060	2070	Peak value	Peak year	Change 2019-2070
Population (in thousands)	11,481	11,767	11,899	11,925	11,863	11,833	11,931	2047	352
Population growth rate (in %)	0.5	0.1	0.1	0.0	-0.1	0.0	0.5	2019	-0.5
Old-age dependency ratio (65+/20-64)	32.5	40.5	46.0	49.2	51.8	53.3	53.3	2070	20.8
Old-age dependency ratio (75+/20-74)	13.0	16.4	21.0	23.7	24.9	26.7	26.7	2070	13.7
Ageing of the elderly (80+/65+)	29.8	29.3	34.2	39.1	39.7	41.7	41.7	2070	11.9
Men - Life expectancy at birth	79.8	81.2	82.6	83.9	85.2	86.3	86.3	2070	6.5
Women - Life expectancy at birth	84.3	85.7	87.0	88.2	89.3	90.3	90.3	2070	6.0
Men - Life expectancy at 65	18.9	19.9	20.9	21.8	22.7	23.6	23.6	2070	4.7
Women - Life expectancy at 65	22.2	23.2	24.2	25.1	26.0	26.8	26.8	2069	4.6
Men - Survivor rate at 65+	86.8	89.0	90.6	91.9	93.1	94.1	94.1	2070	7.3
Women - Survivor rate at 65+	92.1	93.4	94.4	95.2	95.9	96.5	96.5	2070	4.4
Men - Survivor rate at 80+	59.6	65.0	69.4	73.3	76.8	79.9	79.9	2070	20.4
Women - Survivor rate at 80+	74.7	78.6	81.7	84.4	86.7	88.7	88.7	2070	14.0
Net migration (in thousands)	45.0	20.5	19.2	19.8	20.4	20.5	45.0	2019	-24.5
Net migration over population change	0.8	1.2	2.0	-6.3	-3.2	-68.0	36.3	2047	-68.8

Source: European Commission based on EUROPOP2019 (Eurostat population projection)

The survivor rates or the proportions of people who will survive the next year increase during the projection period. As a result, the gain in life expectancy at birth is 6.5 years for men and 6 years for women between 2019 and 2070, reducing the gap between men and women from 4.5 years in 2019 to 4.0 years in 2070. Life expectancy at 65 improves by around 4.6 and 4.7 years for women and men between 2019 and 2070, keeping the gap between men and women nearly unchanged during the projection period.

The projected net migration flow declines from 45 000 people in 2019 to 20 500 people in 2070. The slight increase of the total population is entirely due to the net migration flow till 2040 (see the ratio of net migration to the variation of the total population). After 2040, the net migration largely contributes to moderate the decrease of the total population.

The next graph shows the proportions of age groups as shares of the total population or the age pyramid by gender for 2019 and 2070. Already in 2019 it is not a pyramid anymore (the base has shrunk). By 2070 the pyramid has been transformed into a tube.

Graph 1   Age pyramid comparison: 2019 vs 2070
In % of total population

Source: European Commission based on EUROPOP2019 (Eurostat population projection)

There have been some substantial changes in the different vintages of the population projection made by Eurostat, as shown in the next graph for the Ageing Reports 2012, 2015, 2018 and 2021. Starting from 11.1 million in 2013, total population amounted to 13.5 million people in 2060 in the 2012 Ageing Report (growth of 22%), then knew a huge increase in the 2015 Ageing Report to 15.5 million in 2060 (growth of 40% compared to 2013), to go back down to 13.6 million in 2060 in the 2018 Ageing Report (growth of 22% compared to 2013) and to finally decrease to 11.9 million in 2060 (growth of 7% compared to 2013) in the 2021 Ageing Report.

The old-age dependency ratio (65+/20-64) rises between 2013 and 2060 by 62% in the 2012 Ageing Report, 48% in the 2015 Ageing Report, 61% in the 2018 Ageing Report and at last by 74% in the 2021 Ageing Report. It should be remembered that the evolution of the old-age dependency ratio is an important explanatory factor in estimating the cost of pensions (see Table 10 and Table 21).

Graph 2 — Population (In thousands). Legend: AR 2012, AR 2015, AR 2018, AR 2021

Graph 3 — Old-age dependency ratio (65+/20-64) (In %). Legend: AR 2012, AR 2015, AR 2018, AR 2021
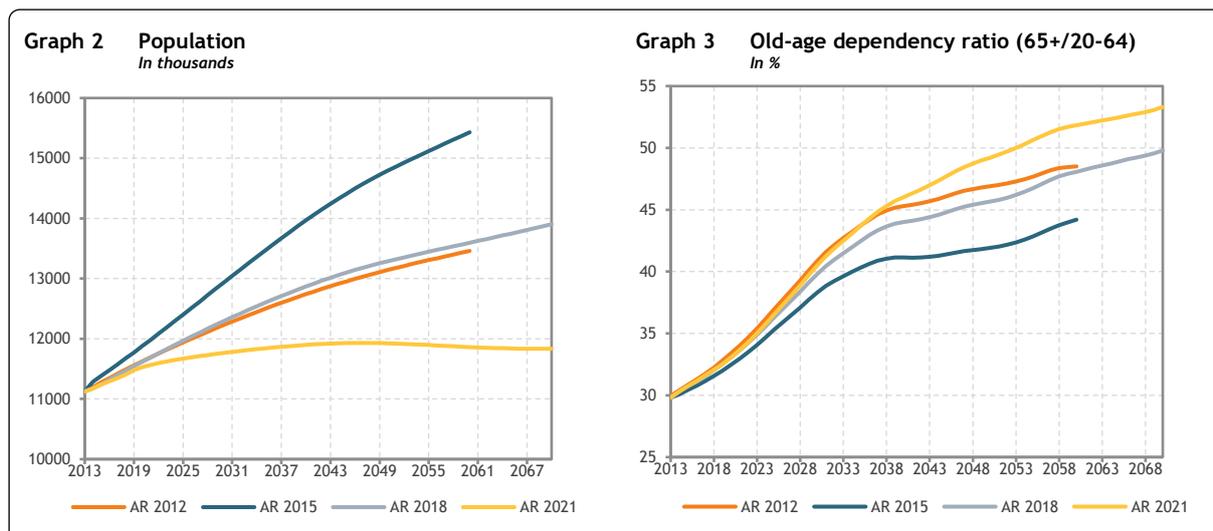
2.2. Labour force

Following the baseline assumptions of the European Commission for Belgium, using the cohort simulation model (CSM), the total participation rate (20-64) is expected to increase from 74.5% in 2019 to a peak of 76.5% in 2025, followed afterwards by a slight decline till 75.7% in 2070. Between 2019 and 2070, this total participation rate only rises with 1.1 percentage points. The distribution by age group presents very different profiles. The participation rate of the 20-24 aged people improves by 3 percentage points, while that of the 25-54 decreases by 1.5 percentage points. The participation rate of the age group 55-64 substantially rises by 9.4 percentage points between 2019 and 2070. The participation rate of the age group 65-74 is also boosted with an increase by 6.5 percentage points between 2019 and 2070. The median age of the labour force increases by 1 year already by 2030 and then remains stable.

Table 5   Participation rate, employment rate and share of workers
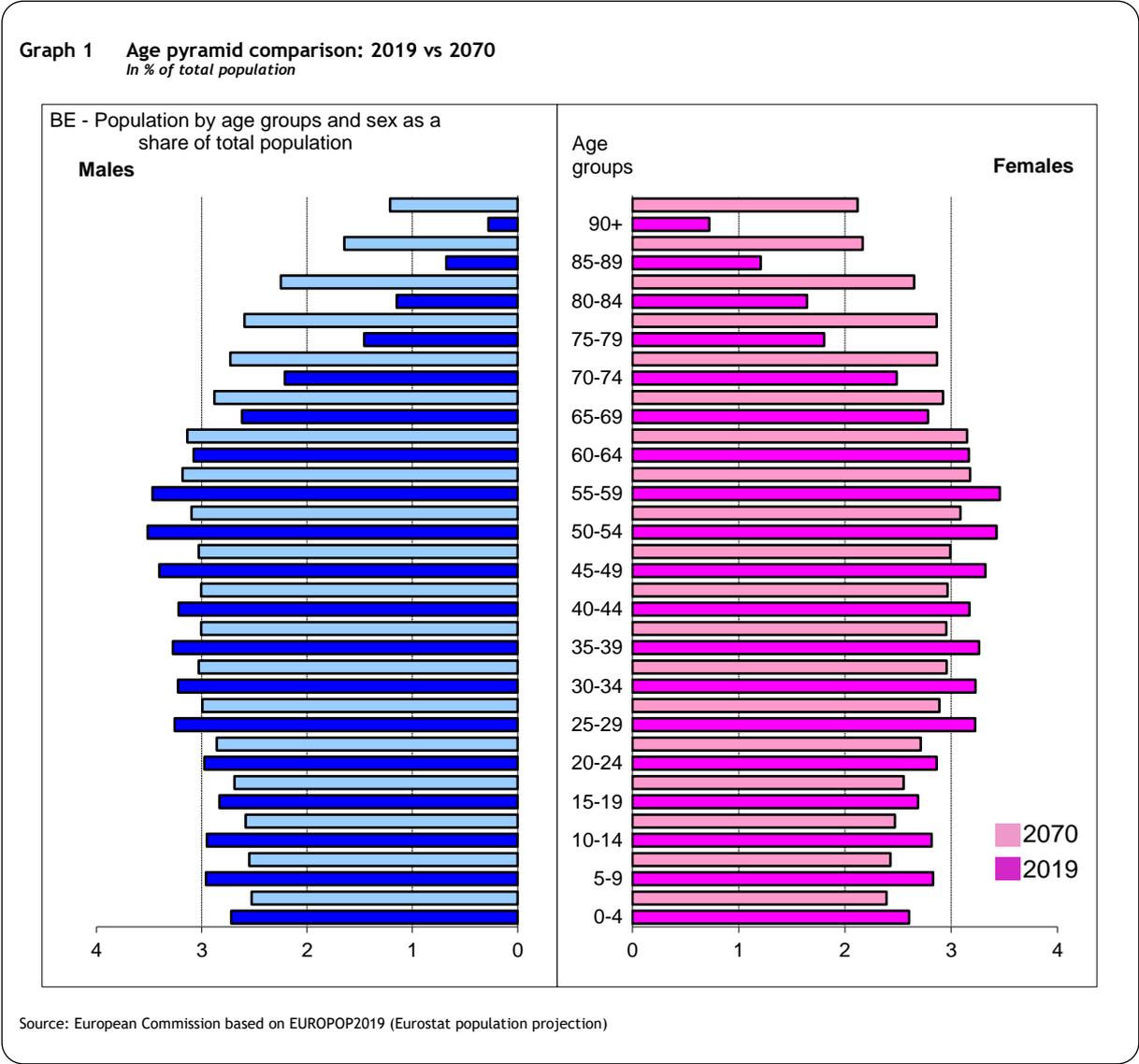
	2019	2030	2040	2050	2060	2070	Peak value	Peak year	Change 2019-2070
Labour force participation rate 20-64	74.5	76.4	76.2	76.0	75.8	75.7	76.5	2025	1.1
Employment rate of workers aged 20-64	70.6	71.6	71.5	71.2	71.1	70.9	72.0	2025	0.3
Share of workers aged 20-64 in the labour force 20-64	94.8	93.8	93.8	93.8	93.8	93.8	94.8	2019	-1.0
Labour force participation rate 20-74	64.2	65.0	65.0	64.8	64.3	64.4	65.2	2024	0.2
Employment rate of workers aged 20-74	60.9	61.1	61.0	60.9	60.3	60.4	61.4	2024	-0.4
Share of workers aged 20-74 in the labour force 20-74	94.8	93.9	93.9	93.9	93.9	93.9	94.8	2019	-0.9
Labour force participation rate 55-64	54.6	65.9	65.0	64.3	64.0	64.0	66.0	2034	9.4
Employment rate 55-64	52.4	62.6	61.8	61.0	60.8	60.8	62.7	2034	8.5
Share of workers aged 55-64 in the labour force 55-64	95.9	95.0	95.0	95.0	95.0	95.0	95.9	2019	-0.9
Labour force participation rate 65-74	4.3	10.5	11.0	10.9	10.7	10.8	11.1	2038	6.5
Employment rate 65-74	4.2	10.2	10.7	10.7	10.4	10.5	10.8	2038	6.3
Share of workers aged 65-74 in the labour force 65-74	98.4	97.3	97.3	97.3	97.3	97.3	98.4	2019	-1.1
Median age of the labour force	40.0	41.0	41.0	41.0	41.0	41.0	41.0	2021	1.0

Source: European Commission

Over the whole projection period, the unemployment rate goes up with 1 percentage point of the total labour force, starting from 5.4% in 2019 and ending at 6.4% as from 2029 (see Box 3). The evolution of the employment rates by age group between 2019 and 2070 results from the combination of the evolutions of the participation rates and the unemployment rate, i.e. a small improvement by 0.3 percentage points for the age group 20-64 and a large increase in the employment rate of the 55-64 year olds (+8.5 percentage points).

Graph 4 Participation rates by age groups, AR 2018 and AR 2021
In %
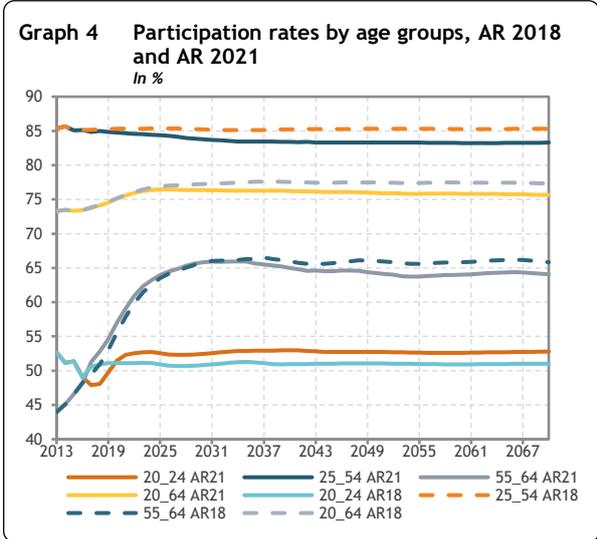
In comparison with the 2018 Ageing Report, the new projection of participation rates is less favourable, especially for the age group 25-54 whose participation rate was relatively stable in the 2018 AR, while it decreases now, in particular from the age of 40 till 54 years. This results from the latest Labour Force Survey observations which show a decrease in the participation rates of people under 40 years of age. With a cohort modelling, this is later reflected in the projection on the older age groups. As a result, although the participation rates by age group observed since 2016 are equivalent to the rates projected at the time of the 2018 Ageing Report, these rates are lower in 2070, which may seem contradictory. The participation rate of the 20-64 years old increases by 1.1 percentage points between 2019 and 2070, while it improved by 2.7 percentage points in the 2018 Ageing Report. The unemployment rate increased by 0.2 percentage points between 2019 and 2070 in the previous projection vs 1 point in the current projection. Consequently, the evolution of the employment rate is less favourable in the new projection: +0.3 percentage points between 2019 and 2070 against +2.4 percentage points in the 2018 Ageing Report.

The next table presents, among other things, the average effective retirement age for the year 2018, calculated on the basis of administrative data on new pensioners (see Table 27), the average labour market exit age calculated with the CSM model of the Commission and the evolution of the working career duration (contributory period), reported by the Member State in the pension questionnaire. The latest is a longitudinal concept that represents the past career of new pensioners in year *t* (up to 45 years), used to calculate pension expenditure.

Table 6   Labour market exit age, effective retirement age and expected duration of life spent in retirement

	2020	2030	2040	2050	2060	2070	Peak value	Peak year	Change 2020-2070
MEN									
Average effective retirement age (administrative data; 2018)*	62.5								
Average labour market exit age (CSM)**	63.3	64.3	64.3	64.3	64.3	64.3	64.3	2030	1.0
Contributory period	39.4	40.3	39.8	39.6	39.4	39.5	40.4	2025	0.1
Duration of retirement***	20.4	20.7	21.7	22.7	23.6	24.5	24.5	2070	4.1
Duration of retirement/contributory period	0.5	0.5	0.5	0.6	0.6	0.6	0.6	2070	0.1
Percentage of adult life spent at retirement****	31.0	30.9	31.9	32.9	33.8	34.6	34.6	2070	3.6
Early/late exit*****	1.9	2.2	1.5	1.6	1.5	1.5	2.7	2025	-0.4
WOMEN									
Average effective retirement age (administrative data; 2018)*	63.7								
Average labour market exit age (CSM)**	63.5	64.3	64.3	64.3	64.3	64.3	64.3	2029	0.8
Contributory period	35.6	40.7	39.5	39.6	39.4	39.7	40.9	2025	4.1
Duration of retirement***	23.0	24.1	25.1	26.0	26.9	27.8	27.8	2070	4.8
Duration of retirement/contributory period	0.6	0.6	0.6	0.7	0.7	0.7	0.7	2070	0.1
Percentage of adult life spent at retirement****	33.6	34.2	35.1	35.9	36.7	37.5	37.5	2070	3.9
Early/late exit*****	2.7	2.1	1.5	1.6	1.4	1.5	2.7	2020	-1.3

Source: European Commission

* The effective retirement age shows the age at which people on average start receiving an old-age pension benefit. It is calculated on the basis of administrative data on new pensioners for 2018 (see Table 27).

** The labour market exit age is calculated based on Labour Force Survey data for the base year and estimated by the Cohort Simulation Model thereafter.

*** 'Duration of retirement' is calculated as the difference between the life expectancy at the average labour market exit age and that exit age itself.

**** The 'percentage of adult life spent in retirement' is calculated as the ratio between the duration of retirement and the life expectancy minus 20 years.

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

The average labour market exit age between 2020 and 2070 increases by 1 year and 0.8 year for men and women respectively. The average contributory period or the past career of the new pensioners improves by 0.1 year for men and 4.1 years for women. The contributory period depends on the participation profile of the generation, based on historical data regarding participation rates by 5-year age group, and on the pension reform of 2015 (increase of the access conditions to early retirement and rise of the statutory retirement age). Note the bounce in the contributory period in 2025 (peak value) and 2030. In this context, these two years can be considered outliers, being years when the statutory retirement age increases. This induces a postponement of entry into retirement for people with a short career. Consequently, the new pensioners in these years have a relatively long career which increases the average contributory period. It should be noted that the improvement of the contributory period between 2020 and 2070 is less pronounced for men than in the 2018 Ageing Report (+1.4 year for men and +4.0 years for women), due to the less favourable evolution of participation rates.

Box 3   Assumptions on structural unemployment, labour productivity and potential GDP

In order to get a comprehensive view of the macroeconomic scenario elaborated by the European Commission, we give an overview of the assumptions concerning the structural unemployment rate, the labour productivity growth and, consequently, the potential GDP growth. The short-term evolution is based on the Spring 2020 Economic Forecast by the European Commission. The medium-term (until 2029) is based on the T+10 methodology developed by the Output Gap Working Group (OGWG), attached to the EPC.

The estimation of the structural unemployment rate is based on the results of the OGWG. The actual unemployment rate (Eurostat definition) is assumed to converge to the NAWRU rate (or non-accelerating wage rate of unemployment) in five years, by 2024, corresponding to the closure of the output gap. Afterwards, the NAWRU rate is assumed to gradually converge in T+10 (2029) to an Anchor, which is a country-specific value for the NAWRU. The anchor is calculated assuming that non-structural variables are set at their average value and that structural variables remain unchanged at their last observed value. In observation, the Belgian unemployment rate (15-64 years) has fallen from 8.5% in 2013 to 5.4 % in 2019. It rises to 7% in 2020 due to the sanitary crisis, followed by a decrease to 6% in 2024 (the NAWRU rate). It then goes up again to 6.4% in 2029 (the Belgian Anchor) and remains stable at this value.

To project potential GDP over the long term, a Cobb-Douglas production function is used. GDP growth results from the evolution of the employment and the labour productivity. In the long term, the growth of labour force leads the growth of employment. The evolution of the labour productivity results from the total factor productivity and the capital stock per worker. With respect to total factor productivity, the baseline scenario presents a convergence to a TFP growth rate of 1% by 2037 for Belgium. With regard to capital deepening, the capital to labour ratio is assumed constant in the long run, which leads to a capital deepening contribution of about 0.5%, and a total labour productivity of 1.5% per year in the long term.

The potential GDP growth rate for Belgium is 1.2% per year between 2019 and 2070, instead of 1.6% in the AR 2018. The difference comes mainly from the employment growth resulting from the combination of a much smaller working age population and lower participation rates.

Average annual growth rate 2019-2070 *In %*	AR 2021	AR 2018	AR 2021 - AR 2018
Population	0.1	0.4	-0.3
Productivity	1.3	1.3	0.0
Employment	-0.1	0.3	-0.4
GDP	1.2	1.6	-0.4

Source: European Commission, AWG baseline assumptions for Belgium

3. Pension projection results

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

The Belgian pension projection covers the statutory public pension scheme (first pillar), which comprises the old-age and early pension schemes (wage earners – including the unemployment with company allowance scheme for non-job seekers, self-employed and civil servants), the disability benefits, the survivor pension and the guaranteed income for elderly persons (assistance scheme), according to the AWG definition of pension expenditure. The table below shows the pension expenditure in percent of GDP between 2009 and 2018, according to Eurostat's ESSPROS database and data provided by Belgium to the Ageing Working Group.

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

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	change 2009-2018
1. Eurostat total pension expenditure	11.9	11.8	12.0	11.9	12.3	12.3	12.5	12.3	12.4	12.6	0.7
2. Eurostat public pension expenditure	11.5	11.4	11.6	11.5	12.0	12.0	12.2	12.0	12.1	12.3	0.8
3. Public pension expenditure AWG outcome	11.0	10.9	11.1	11.5	11.8	11.8	11.8	11.9	12.0	12.1	1.1
4. Difference (2-3)	0.6	0.5	0.5	0.1	0.1	0.1	0.4	0.1	0.1	0.2	-0.4
= benefits for handicapped persons and for occupational diseases											

Source: European Commission and Belgian pension questionnaire

Until 2011, the difference between the Eurostat's ESSPROS database and the data provided by Belgium to the Ageing Working Group lies in the disability function. Eurostat's ESSPROS public expenditure for disability registers the expenses for occupational diseases and all expenses related to handicapped persons, while that is not the case in the database used for AWG (according to the AWG definition of disability pensions).

3.2. Overview of projection results – public pension scheme

Gross public pension expenditure increases by 3 percentage points of GDP between 2019 and 2070 (see Table 8). Ninety percent of this increase takes place between 2019 and 2040 (+2.7 p.p. of GDP). In the 2018 Ageing Report, the additional cost of pensions amounted to 2.6 percentage points of GDP between 2019 and 2070 and 81% of this increase took place between 2019 and 2040 (2.1 p.p. of GDP). The net public pension expenditure (gross expenditure excluding contributions and taxes paid by the social security beneficiaries) represents around 85% of the gross public pension expenditure.

However, the contributions paid by workers and employers to finance pensions are not available since all contributions paid by workers and employers are gathered by the Global management and redistributed among the different social allowance categories according to their needs (see section 3.4).

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

	2019	2030	2040	2050	2060	2070	Peak value	Peak year	Change 2019-2070 (pps)
Expenditure									
Gross public pension expenditure	12.2	14.0	14.9	15.2	15.2	15.2	15.2	2059	3.0
Private occupational pensions	:	:	:	:	:	:	:	:	:
Private individual mandatory pensions	:	:	:	:	:	:	:	:	:
Private individual non-mandatory pensions	:	:	:	:	:	:	:	:	:
Gross total expenditure	12.2	14.0	14.9	15.2	15.2	15.2	15.2	2059	3.0
Net public pension expenditure	10.4	11.9	12.7	12.8	12.9	12.8	12.9	2059	2.5
Net total pension expenditure	10.4	11.9	12.7	12.8	12.9	12.8	12.9	2059	2.5
Contributions									
Public pensions contributions	:	:	:	:	:	:	:	:	:
Total pension contributions	:	:	:	:	:	:	:	:	:

Source: European Commission based on Belgian pension questionnaire

The following table offers a more comprehensive overview of the public pension spending by scheme.

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

	2019	2030	2040	2050	2060	2070	Peak value	Peak year	Change 2019-2070 (pps)
Total public pension scheme	12.2	14.0	14.9	15.2	15.2	15.2	15.2	2059	3.0
Old-age and early pensions[a]	9.9	11.6	12.9	13.4	13.6	13.7	13.7	2061	3.8
Flat component	:	:	:	:	:	:	:	:	:
Earnings related	9.7	11.4	12.7	13.3	13.5	13.5	13.5	2061	3.8
Minimum pension (non-contributory)	0.1	0.1	0.1	0.1	0.2	0.2	0.2	2070	0.0
Disability pensions	1.4	1.7	1.5	1.3	1.2	1.2	1.7	2030	-0.2
Survivor pensions	0.9	0.7	0.5	0.4	0.3	0.3	1.0	2020	-0.7
Other pensions	:	:	:	:	:	:	:	:	:
Public pension by scheme	12.2	14.0	14.9	15.2	15.2	15.2	15.2	2059	3.0
- Wage earners' scheme	7.5	8.9	9.4	9.4	9.3	9.1	9.5	2047	1.7
old-age and early pensions[a] – earnings related	5.7	6.9	7.8	8.1	8.0	7.9	8.1	2052	2.2
disability	1.3	1.6	1.4	1.2	1.2	1.2	1.6	2030	-0.1
survivor	0.4	0.3	0.2	0.1	0.1	0.1	0.4	2020	-0.4
- Self-employed scheme	0.9	1.1	1.2	1.3	1.3	1.3	1.3	2058	0.4
old-age and early pensions – earnings related	0.7	0.9	1.1	1.2	1.2	1.2	1.2	2059	0.4
disability	0.1	0.1	0.1	0.1	0.1	0.1	0.1	2030	0.0
survivor	0.1	0.1	0.1	0.1	0.1	0.1	0.1	2020	0.0
- Civil servants' scheme	3.7	3.9	4.1	4.3	4.4	4.6	4.6	2069	0.9
old-age and early pensions – earnings related	3.3	3.6	3.8	4.1	4.3	4.5	4.5	2069	1.2
survivor	0.4	0.3	0.3	0.2	0.1	0.1	0.4	2020	-0.3
- Minimum pension (non-contributory)	0.1	0.1	0.1	0.1	0.2	0.2	0.2	2070	0.0

a. Including unemployment with company allowance scheme for non-job seekers.

Source: European Commission based on Belgian pension questionnaire

The total increase in pension expenditure of 3.0 p.p. of GDP between 2019 and 2070 comes entirely from the earnings-related old-age and early pensions (+3.8 p.p. of GDP), while the expenditure for survivor's pension and disability decline respectively by 0.7 and 0.2 p.p. of GDP. By scheme, the earnings-related old-age and early pensions increase by 2.2 p.p. of GDP in the wage earners' scheme, 1.2 p.p. of GDP in the civil servants' scheme and 0.4 p.p. of GDP in the self-employed scheme.

The fall of the survivors' expenditure[15] is due to three reasons. Firstly, the increasing participation rates of women imply that a growing number of women receive an old-age pension. Secondly, it is necessary

---

[15]   Survivors' expenditure concerns "pure" survivor pensions: people who cumulate an old-age pension and a survivor pension are included in the category "old-age pension".

to have been married in order to receive a survivor pension and the number of married pensioners decreases in the projection. Finally, the increase of the minimum age to benefit from a survivor pension also reduces this expenditure, but to a minor extent.

Disability expenditure slightly diminishes (-0.16 p.p. of GDP) between 2019 and 2070. However, it increases until 2030, followed by a decrease until the end of the 2050s. Two factors explain the initial increase of the expenditure. Firstly, in line with the mid-term projection of the National Institute for Health and Disability Insurance, the entry probabilities and the probabilities of remaining disabled increase, until the mid-2020s, implying higher disability rates. Secondly, the raise of the statutory retirement age also implies a rise of the number of disabled. The decline of the disability expenditure expressed in % of GDP after 2030 is due to two reasons. First, as of the mid-2020s we assume that the entry probabilities and the probabilities of remaining disabled progressively decrease until the 2040s. The extent of this decrease is arbitrary. However, together with the assumptions relating to other pension schemes, it ensures consistency between the evolution of participation rates (given by the CSM model) and the pension rates for the 55-69 population. As of the 2040s, the entry probabilities and the probabilities of remaining disabled remain constant. With the modelling using cohorts, the number of disabled diminishes slowly from the beginning of the 2030s until the end of the 2050s. The second reason is that more than two thirds of the disabled benefit comes from a minimum amount (not the minimum non-contributory pension) that is adjusted by 1% per year in real terms, i.e., this amount grows more slowly than the GDP, decreasing the weight of the disability expenditure expressed in % of GDP over the whole projection period.

3.3. Description of the main driving forces behind the projection results

3.3.1. Factors behind the change in public pension expenditure

The breakdown of the increase in public pension expenditure is shown in Table 10 according to 5 explanatory factors: the dependency ratio, the coverage ratio, the benefit ratio, the labour market effect and a residual. The following picture shows this breakdown from a theoretical point of view as well as the further decomposition of the coverage ratio and the labour market ratio.

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

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

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

Between 2019 and 2070, the rise in public pension expenditure (+3.0 p.p. of GDP) results from the large positive contribution of the dependency ratio (+7.2 p.p.), while all other ratios contribute negatively (-1.8 p.p. for the coverage ratio, -1.8 p.p. for the benefit ratio and -0.3 p.p. for the labour market effect). As previously mentioned, most of the increase takes place between 2019 and 2040 (+2.7 p.p.) because of the rise in the dependency ratio (+4.9 p.p.), partially compensated by the declining coverage ratio (-1.5 p.p.), labour market effect (-0.4 p.p.) and benefit ratio effect (-0.2 p.p.). After 2040, the pension expenditure only increases by 0.2 p.p. of GDP, due to the positive contribution of the dependency ratio (+2.2 p.p.) being almost entirely offset by the negative contribution of the coverage ratio (-0.4 p.p.) and the benefit ratio (-1.7 p.p.).

Table 10   Factors behind the change in public pension expenditure between 2019 and 2070 – number of pensioners
In percentage points of GDP

	2019-2030	2030-2040	2040-2050	2050-2060	2060-2070	2019-2070
Public pensions to GDP	1.8	0.9	0.2	0.0	0.0	3.0
Dependency ratio effect (pop. 65+/pop. 20-64)	3.0	1.9	1.0	0.8	0.4	7.2
Coverage ratio effect (pensioners/pop. 65+)	-0.8	-0.7	-0.3	-0.1	0.0	-1.8
Coverage ratio old-age (pensioners 65+/pop. 65+)*	-0.2	0.3	0.1	0.1	0.0	0.3
Coverage ratio early-age (pensioners <=65/pop. 50-64)*	0.7	-2.3	-1.3	-0.6	0.0	-3.5
Cohort effect (pop. 50-64/pop. 65+)*	-3.0	-1.8	-0.8	-0.7	-0.1	-6.4
Benefit ratio effect (average pension/(GDP/hours worked 20-74))	0.0	-0.2	-0.6	-0.6	-0.5	-1.8
Labour market effect	-0.4	0.0	0.1	0.0	0.0	-0.3
Employment ratio effect (pop.20-64/employment 20-64)	-0.2	0.0	0.1	0.0	0.0	-0.1
Labour intensity effect (employment 20-64/hours worked 20-64)	0.0	0.0	0.0	0.0	0.0	0.0
Career shift effect (hours worked 20-64/hours worked 20-74)	-0.2	0.0	0.0	0.0	0.0	-0.3
Residual	-0.1	-0.1	0.0	0.0	0.0	-0.2

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

Source: European Commission based on Belgian pension questionnaire

The decreasing coverage ratio is subdivided between the old-age coverage ratio (number of pensioners 65+ divided by the population 65+), the early-age coverage ratio (number of pensioners not exceeding the age 65 divided by population 50-64) and a cohort effect (the population 50-64 divided by the population 65+). The old-age coverage ratio remains relatively stable between 2019 and 2070. On the contrary, the early-age coverage ratio decreases (because of the pension reforms), as well as the cohort effect.

3.3.2. Replacement rate at retirement and benefit ratio

The evolution of the replacement rate at retirement (the first pension divided by the last wage) and of the benefit ratio (the average pension benefit divided by the economy-wide average wage) are illustrated in table 11. The replacement rate at retirement only refers to old-age earnings-related pensions, while the benefit ratio is also calculated for the total pension benefits (including the disability allowances, the survivor's pensions and the non-earnings-related benefits). The average wage at retirement is provided by the Member State (see point 5.1 of the methodological annex) while the economy-wide average wage is given by the European Commission in the pension projection questionnaire.

Table 11   Public scheme: replacement rate at retirement, benefit ratio and coverage
In %

	2019	2030	2040	2050	2060	2070	Change 2019-2070 (pps)
Public scheme (BR)	45%	47%	47%	45%	43%	42%	-3
Coverage	100.0	100.0	100.0	100.0	100.0	100.0	0.0
Public scheme: old-age earnings related (BR)	47%	50%	48%	46%	44%	43%	-4
Public scheme: old-age earnings related (RR)	35%	39%	37%	35%	34%	33%	-2
Coverage	76.6	78.3	82.8	85.8	87.1	87.5	10.8

Source: European Commission based on Belgian pension questionnaire

One particular feature is that the level of the benefit ratio is higher than the level of the replacement rate at retirement. This is due to a large difference between the average wage at retirement (seniority wage scale) and the economy-wide average wage, while the average pension of the new pensioners is not that much higher than the average pension of all pensioners. It should be noted that the large increase of the replacement rate at retirement in 2030 can be considered as an outlier. It results from the raise of the statutory retirement age in this year, which induces a postponement of entry into retirement for the people with a short career. Consequently, new pensioners in 2030 have a relatively long career, which increases the average contributory period and the replacement rate at retirement.

The replacement rate at retirement increases till 2030 and then decreases until the end of the projection, due to four factors:

– The increasing average career length till the mid-2030s (see the average contributory period in Table 6), notably due to the 2015 pension reform, followed by a stabilization.

– The relatively low average wage growth between 2000 and 2020 tends to raise the replacement rate at retirement in the wage earners' scheme (which is the most important scheme in terms of pension expenditure) and in the self-employed scheme. Indeed, the reference wage in these schemes (the wages earned during the whole career) of new generations of pensioners grows faster than the last wage. Conversely, in the longer term, when average wages are going to grow faster again (converging to their long-term growth rate of 1.5%), this period of low wage growth will have a downward effect on the replacement rate at retirement.

– In the wage earners' scheme and in the self-employed scheme, the living standards adjustment of the minima and ceilings by respectively 1% and 1.25% per year (see section 1.3.2), in a context of low wage growth, will tend to raise the replacement rate at retirement. The reverse trend is observed when wages grow more rapidly.

– Finally, in the wage earners' scheme and in the self-employed scheme, the decreasing proportion of male pensioners with a dependent spouse benefiting from a higher pension (rate of 75%), given the growing participation of women in the labour market and the decreasing number of married persons, results in a decreasing replacement rate at retirement over the whole period.

The evolution of the benefit ratio follows the evolution of the replacement rate at retirement. Moreover, in the wage earners' scheme and to a lesser extent in the self-employed scheme, its evolution is also influenced by the partial adjustment of the non-lump-sum social benefits to living standards (0.5% per year in projection). This adjustment has a positive impact on the benefit ratio as long as the system of this adaptation to living standards does not reach maturity (around the mid-2020s). This maturation

takes place in a context of low wage growth. The subsequent wage growth recovery will tend to reduce the benefit ratio given the fixed adjustment of 0.5% per year for non-lump-sum social benefits.

Box 4   Benefit ratio: comparison between the 2018 Ageing Report and the 2021 Ageing Report

Two factors explain the difference in the benefit ratio between the 2021 Ageing Report and the 2018 Ageing Report.

Firstly, the method of calculation has changed. In the 2018 Ageing Report, the benefit ratio was calculated using the number of pensions and a national average wage series (black line in the graph below). In the 2021 Ageing Report, it is calculated with the number of pensioners and the average wage series given by the Commission (orange line). The green line represents the benefit ratio calculated with the figures of the 2018 Ageing Report but in accordance with the definition of the 2021 Ageing Report. This green line is to be compared with the orange one, being consistent calculation-wise.

- questionnaire average wage - number of pensioners - AR 2021
- questionnaire average wage - number of pensioners - 2018
- national average wage - number of pensions - AR 2018
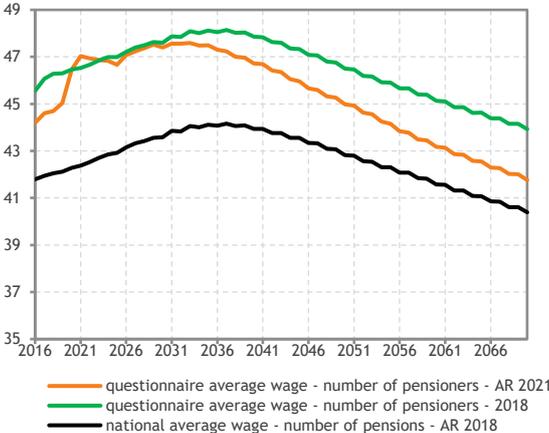
Secondly, comparing the green and the orange lines, the new projection shows a different evolution for some sub-periods. At the very beginning (2016-2019), the historical average wage series given by the questionnaire is slightly higher in the 2021 exercise, lowering the level of the benefit ratio in comparison with the 2018 exercise (updated calculation in the green line). In 2020, the sharp increase of the benefit ratio in the AR2021 results from the decrease in the average wage in a context of sanitary and economic crisis. In the long term, the more pronounced decline in the benefit ratio in the AR2021 is mainly explained by a smaller improvement in the career length of those retiring (see contributory period in Table 6), due to the lower increase in participation rates, implying lower average pension.

3.3.3. System dependency ratio and old-age dependency ratio

Table 12 presents indicators that shed light on the dependency of the public pension system (system dependency ratio or SDR) through the ratio between the number of pensioners and the number of employees and on the efficiency of the system by comparing the system's dependency ratio with the demographic old-age dependency ratio (OADR = 65+ over the 20-64).

Table 12 System dependency ratio and old-age dependency ratio

	2019	2030	2040	2050	2060	2070	Change 2019-2070
Number of pensioners in thousands (I)	2951	3410	3640	3750	3836	3912	962
Employment in thousands (II)	4861	4941	4861	4747	4653	4602	-259
Pension system dependency ratio (SDR) (I)/(II)	60.7	69.0	74.9	79.0	82.5	85.0	24.3
Number of people aged 65+ in thousands (III)	2186	2679	2999	3142	3245	3311	1125
Working age population 20-64 in thousands (IV)	6723	6611	6515	6386	6261	6210	-513
Old-age dependency ratio (OADR) (III)/(IV)	32.5	40.5	46.0	49.2	51.8	53.3	20.8
System efficiency (SDR/OADR)	1.9	1.7	1.6	1.6	1.6	1.6	-0.3

Source: European Commission based on Belgian pension questionnaire

The pension system dependency ratio increases from 60.7% in 2019 to 85% in 2070 (+24.3 percentage points), due to the rise of the number of pensioners and the decline of the employment. The old-age dependency ratio increases from 32.5% in 2019 to 53.3% in 2070, which represents a rise of 20.8 percentage points. This means that the system efficiency, namely the ratio between the SDR and the OADR, decreases from 1.9 in 2019 to 1.6 in 2070.

3.3.4. Number of pensioners in proportion to the (inactive) population

The next two tables present respectively the ratio of the number of pensioners to the inactive population (Table 13) and the ratio of the number of pensioners to the population (Table 14). The inactive population[16] is calculated as the difference between the total population and the labour force, as defined in the "Labour Force Survey", while the number of pensioners is based on administrative data. These two different statistical concepts make it sometimes difficult to compare the number of pensioners and inactive persons. We would also like to point out that the number of pensioners has been estimated in an attempt to eliminate the maximum amount of double counting. However, due to a lack of data, it is so far impossible to eliminate all of them.

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

	2020	2030	2040	2050	2060	2070
Age group -54	7.6	8.5	6.9	6.1	6.1	6.0
Age group 55-59	69.7	99.3	76.4	65.8	64.0	63.9
Age group 60-64	77.9	98.1	90.1	81.7	78.0	77.9
Age group 65-69	103.9	111.5	113.3	112.8	112.0	112.0
Age group 70-74	101.1	101.6	104.5	106.0	106.2	106.0
Age group 75+	100.1	100.4	101.9	102.7	103.3	103.4

Source: European Commission based on Belgian pension questionnaire

Table 14 Pensioners (public schemes) to population ratio by age group
In %

	2020	2030	2040	2050	2060	2070
Age group -54	3.5	3.8	3.1	2.8	2.8	2.7
Age group 55-59	19.2	22.4	19.3	16.9	16.4	16.4
Age group 60-64	50.8	44.8	40.6	37.5	36.2	36.1
Age group 65-69	97.9	90.9	90.7	90.7	90.5	90.1
Age group 70-74	98.5	100.3	102.7	104.1	104.4	104.2
Age group 75+	100.1	100.4	101.9	102.7	103.3	103.4

Source: European Commission based on Belgian pension questionnaire

---

[16] Inactive population of -54 is the population aged between 0 and 54 years diminished with the labour supply 15-54.

For those aged under 54 and 55-59, the evolution of the ratio number of pensioners to (inactive) population is explained by the evolution of the disability rate, which increases till 2030, and subsequently decreases till 2050 (see Table 24, section 4.4.1.d). In the age group 60-64, the total number of pensioners declines until 2060. This is due to the 2015 pension reform until the 2040s (despite the increasing disability rate during this period) and afterwards due to the diminishing disability rate.

The total pensioners to population ratio for the age group 65-69 decreases between 2020 and 2030 because of the raise in the statutory retirement age. It should be noted that ratios for the 70-74 and 75+ age groups exceed 100% most of the time due to two reasons: pensioners living abroad (not counted in the population) and some double counting of pensioners within the civil servants' scheme (some receiving both old-age and survivor benefits, or benefits from different public sub-sectors), which is impossible to avoid due to a lack of data.

The analysis of the ratio of the female pensioners to the (inactive) population (Table 15 and Table 16) is similar to the analysis of the global ratio.

Table 15   Female pensioners to inactive population ratio by age group
In %

	2020	2030	2040	2050	2060	2070
Age group -54	9.0	10.2	8.0	6.8	6.8	6.6
Age group 55-59	65.3	105.3	82.8	66.6	64.2	63.7
Age group 60-64	65.4	91.1	87.6	76.3	70.8	70.8
Age group 65-69	91.6	101.0	104.5	103.6	103.0	103.2
Age group 70-74	90.4	94.1	97.0	98.5	98.8	99.0
Age group 75+	93.9	96.7	98.9	99.4	99.1	98.8

Source: European Commission based on Belgian pension questionnaire

Table 16   Female pensioners to population ratio by age group
In %

	2020	2030	2040	2050	2060	2070
Age group -54	4.3	4.9	3.8	3.2	3.3	3.2
Age group 55-59	21.3	27.2	23.1	19.3	18.6	18.4
Age group 60-64	46.2	44.6	41.2	36.9	34.7	34.6
Age group 65-69	87.8	83.5	84.3	83.9	84.0	83.8
Age group 70-74	89.1	92.9	95.3	96.7	97.1	97.4
Age group 75+	93.9	96.7	98.9	99.4	99.1	98.8

Source: European Commission based on Belgian pension questionnaire

3.3.5. New public pension expenditure disaggregation

Table 17 illustrates the disaggregation of the new public pension expenditure by gender (old-age and early earnings-related) between the number of new pensions, the average contributory period, the average accrual rate and the average pensionable earning. The average accrual rate is an average of the accrual rates by scheme: 1.67% (1/60) in the civil servants' scheme, 1.33% (60%/45) in the wage earners' and the self-employed schemes (1.67% for head of a household with dependent spouse (75%/45)) (see Box 1). Taking into account the average contributory period and the average accrual rate as separate factors in the calculation of the new pension expenditure, the average pensionable earning can be considered as a reference wage for a maximum career. In the pension questionnaire, the new pension expenditure is given for a full year, namely 12 months, although in reality, not all new pensioners receive a pension in all 12 months the first year. The monthly average wage at retirement is based on the National Accounts.

For men, the average contributory period increases with 0.3 year over the whole projection period as a result of the 2015 pension reform. The number of new pensions tends to rise till 2035 and then remains relatively stable. The year 2030 (as well as 2025) is an outlier, being a year when the statutory retirement age increases. Over the whole projection period, the average accrual rate declines very slightly due to the replacement of male pensioners heads of household with a dependent spouse (75% of the reference wage) by pensioners whose pension is calculated at singles' rate (60% of the reference wage) in the wage earners' and self-employed schemes.

For women, the evolution of the number of new pensions is similar to that of men. The average contributory period of women improves by 4.8 years, due to the growing female participation rate and to the 2015 pension reform. The average accrual rate remains stable.

In total, the number of new pensions increases quickly between 2019 and 2035 with an average annual growth rate of 1.8% and then remains fairly stable with a zero annual growth rate. The average contributory period rises by 2.1 years between 2019 and 2070, thanks to the increase of female participation rate and to the 2015 pension reform. The average accrual rate falls slightly due to a decrease in the average male accrual rate.

Table 17   Projected and disaggregated new public pension expenditure (old-age and early earnings-related pensions)

	2019	2030	2040	2050	2060	2070
MEN						
Projected new pension expenditure (million EUR)*	1213.6	1843.8	2786.4	3895.3	5240.0	7353.0
I. Number of new pensions (in thousands)	63.5	73.5	82.4	83.8	82.9	84.3
II. Average contributory period (years)	39.2	40.3	39.8	39.6	39.4	39.5
III. Average accrual rates (%)	1.4	1.4	1.4	1.4	1.4	1.4
IV. Monthly average pensionable earnings ('000 EUR)	2.8	3.6	5.0	6.9	9.4	13.0
V. Sustainability/Adjustment factor	1.0	1.0	1.0	1.0	1.0	1.0
VI. Average number of months paid the first year	12.0	12.0	12.0	12.0	12.0	12.0
Monthly average pensionable earnings/Monthly economy-wide average wage**	79%	79%	79%	77%	74%	72%
Monthly average pensionable earnings/Monthly average wage at retirement**	69%	68%	68%	65%	63%	61%
WOMEN						
Projected new pension expenditure (million EUR)*	861.3	1366.7	2185.7	3066.3	4262.2	5980.5
I. Number of new pensions (in thousands)	55.5	55.3	70.7	72.2	73.1	72.9
II. Average contributory period (years)	34.9	40.7	39.5	39.6	39.4	39.7
III. Average accrual rates (%)	1.4	1.4	1.4	1.4	1.4	1.4
IV. Monthly average pensionable earnings ('000 EUR)	2.7	3.6	4.7	6.5	8.9	12.5
V. Sustainability/Adjustment factor	1.0	1.0	1.0	1.0	1.0	1.0
VI. Average number of months paid the first year	12.0	12.0	12.0	12.0	12.0	12.0
Monthly average pensionable earnings/Monthly economy-wide average wage**	75%	79%	75%	72%	70%	69%
Monthly average pensionable earnings/Monthly average wage at retirement**	65%	68%	64%	62%	60%	59%
TOTAL						
Projected new pension expenditure (million EUR)*	2075.0	3210.6	4972.2	6961.5	9502.0	13333.3
I. Number of new pensions (in thousands)	119.0	128.8	153.1	156.1	156.0	157.1
II. Average contributory period (years)	37.5	40.5	39.8	39.7	39.5	39.6
III. Average accrual rates (%)	1.4	1.4	1.4	1.4	1.4	1.4
IV. Monthly average pensionable earnings ('000 EUR)	2.8	3.6	4.9	6.7	9.2	12.8
V. Sustainability/Adjustment factor	1.0	1.0	1.0	1.0	1.0	1.0
VI. Average number of months paid the first year	12.0	12.0	12.0	12.0	12.0	12.0
Monthly average pensionable earnings/Monthly economy-wide average wage**	76%	79%	77%	74%	72%	70%
Monthly average pensionable earnings/Monthly average wage at retirement**	67%	68%	66%	64%	61%	60%

* new pension expenditure = I x II x (III/100) x IV x V x VI

** average wage at retirement: figures from the Belgian pension questionnaire

Source: European Commission based on Belgian pension questionnaire

3.4. Financing of the pension system

Since 1/1/1995, the financing of all social expenses for the wage earners' and self-employed schemes in Belgium is carried out through an overall financial management (the so-called "global management"). This global management essentially consists in a single contribution rate for all branches of the social security (pensions, healthcare, disability, primary incapacity, maternity leave, unemployment, etc.) and financing to each branch according to its expenditure. The main financial resources consist of social security contributions, a government grant and alternative financing or dedicated tax revenues. So, the government finances the public pension deficit if necessary[17]. In the civil servants' scheme, most social benefits, among which pensions, are financed through the general budget of the federal government. All of this explains why Table 8 and Table 19 do not present figures for the contributions due for working people.

Table 18   Financing of the pension system

	Public employees	Private employees	Self-employed
Contribution base	Wages taken into account for the calculation of the pension	All gross earnings	Gross annual income minus professional expenses
Contribution rate/contribution			
Employer	The vast majority of tenured civil servants' pension expenditure is financed by the public treasury. It can be noted that for most of local and provincial governments, a basis contribution rate of 41.5% exists, sometimes increased by a responsibility contribution.	24.92% for all social security sectors*	In 2020, 20.5% for revenues up to 60 428 EUR and 14.16% for revenues between 60 428 EUR and 89 051 EUR.
Employee	7.5%	13.07% for all social security sectors**	
State			
Other revenues	Budget of the federal government	Social security spending is also funded by State subsidies (17.7% of total revenue in 2019) and alternative funding (15.7% of total revenue), mainly VAT revenues.	Social security spending is also funded by State subsidies (17.7% of total revenue in 2019) and alternative funding (15.7% of total revenue), mainly VAT revenues.
Maximum contribution Minimum contribution			

Source: European Commission

* Many contribution reductions exist, whether structural reductions or reductions in favour of target groups (old workers, young workers, first commitments, etc.).

** Reduced contributions for low-wage earners, known as "employment bonus": the reduction consists of a lump-sum amount that gradually decreases according to the level of the wage. Reduced contributions also exist for dismissed workers as a result of restructuring when they return to work.

Every worker is a contributor. The beneficiaries of a social allowance pay a very small contribution and it is impossible to know how many of them are concerned. So, in the next table, the number of contributors is equal to the number of working people.

---

[17]   https://www.onssrapportannuel.be/2019/fr/activites-principales/financer/index.html
    "With the authorization of the Minister of Finance and the supervisory minister, the NSSO-Global Management may take out loans to guarantee the financing of all branches."

Table 19 Revenue from contribution (million), number of contributors in the public scheme (in 1000), total employ-ment (in 1000) and related ratios (%)

	2019	2030	2040	2050	2060	2070	Change 2019-2070 (pps)
Public contribution	:	:	:	:	:	:	
Employer contribution	:	:	:	:	:	:	
Employee contribution	:	:	:	:	:	:	
State contribution	:	:	:	:	:	:	
Other revenues							
Number of contributors (I)	4861	4941	4861	4747	4653	4602	-259
Employment Labour force survey (II)	4861	4941	4861	4747	4653	4602	-259
Ratio (I)/(II)	1.0	1.0	1.0	1.0	1.0	1.0	0.0

Source: European Commission based on Belgian pension questionnaire

3.5. Sensitivity analysis

Table 20 shows the sensitivity of public pension expenditure to various scenarios, expressed in deviation from the baseline in percentage points of GDP. In all scenarios, the parameters regarding the living standards adjustment are the same as in the baseline.

Table 20 Public pension expenditures under different scenarios (deviation from the baseline)
Baseline in % of GDP; sensitivity analysis in percentage points of GDP

	2020	2030	2040	2050	2060	2070	Change 2019-2070 (pps)
Public pension expenditure							
Baseline in % of GDP	12.2	14.0	14.9	15.2	15.2	15.2	3.0
Sensitivity analysis: deviation from the baseline in percentage points of GDP							
Higher life expectancy at birth (+2y)	0.0	0.1	0.2	0.4	0.6	0.8	0.8
Higher migration (+33%)	0.0	-0.1	-0.2	-0.4	-0.5	-0.5	-0.5
Lower migration (-33%)	0.0	0.1	0.3	0.5	0.7	0.7	0.7
Lower fertility (-20%)	0.0	0.0	0.0	0.5	1.1	1.8	1.8
Higher employment rate of older workers (+10 pps)	0.0	-1.1	-1.1	-1.0	-0.9	-0.9	-0.9
Higher TFP growth (convergence to 1.2%)	0.0	-0.1	-0.4	-0.7	-0.9	-1.1	-1.1
TFP risk scenario (convergence to 0.8%)	0.0	0.0	0.2	0.5	0.8	1.0	1.0
Policy scenario: linking retirement age to change in life expectancy	0.0	0.0	-0.2	-0.6	-0.9	-1.3	-1.3
Policy scenario: unchanged retirement age	0.0	0.4	0.4	0.3	0.3	0.3	0.3
Policy scenario: offset declining pension benefit ratio	:	:	:	:	:	:	:
Lagged recovery scenario	0.0	0.1	0.1	0.1	0.0	0.0	0.0
Adverse structural scenario	0.0	0.3	0.7	1.2	1.6	2.0	2.0

Source: European Commission based on Belgian pension questionnaire

It can be noted that the policy scenario relating to the offset declining benefit ratio has not been simulated. In fact, this scenario had to be carried out if the benefit ratio in the baseline decreased by more than 10% relative to the base year. In such a scenario, the benefit ratio would have been kept constant at this 10% lower point for the remainder of the projection period. In the baseline, the benefit ratio decreases by 9% between 2019 and 2070.

3.5.1. Demographic scenarios: higher life expectancy, higher/lower migration and lower fertility rate

The higher life expectancy (by 2 years) scenario generates higher public pension expenditure compared to the baseline scenario (+0.8 percentage points of GDP in 2070), because of the higher number of pensioners (higher old-age dependency ratio).

With a higher (lower) migration of 33%, public pension spending decreases (increases) by 0.5 (0.7) percentage points of GDP with respect to the baseline in 2070. A higher (lower) working-age population leads to higher (lower) employment, hence higher (lower) economic growth, which decreases (increases) the relative weight of pension expenditure as a percentage of GDP.

In the lower fertility scenario (-20%), public pension expenditure is higher by 1.8 percentage points of GDP in 2070 compared to the baseline. With unchanged participation rates, a lower population aged between 0 and 66 years diminishes the labour supply, and thus employment and GDP.

3.5.2. Higher TFP scenario or TFP risk scenario

The total factor productivity growth changes on the long run with +0.2 and -0.2 percentage points in the higher and risk TFP growth scenario respectively, implying a change of +0.3 and -0.2 percentage points of annual productivity growth between 2019 and 2070.

Public pension expenditure decreases (increases) by 1.1 (1.0) percentage points of GDP in 2070 in the higher (risk) total factor productivity scenario in comparison with the baseline. This results from the wage earners' and self-employed schemes, where pension is calculated on the basis of the income earned over the whole career, meaning that it progressively reflects only the effect of a higher (lower) productivity, whereas GDP rises (declines) immediately. In result, the weight of these pensions expressed as a percentage of GDP is lower (higher). On the contrary, in the civil servants' scheme the change in wages is directly mirrored in pensions (the reference wage for new retirees is the average wage over the last ten working years and the average pensions are automatically indexed to the average nominal wages), so that the change in the TFP assumptions has practically no impact on the cost of pension for the civil servants.

The results of the higher/risk TFP growth are not entirely symmetrical due to the GDP (assumptions file from the Commission) that in 2070 is 14.5% higher and 10% lower than in the baseline in the higher and risk TFP sensitivity analysis, respectively.

3.5.3. Higher employment rate of older workers

The scenario of a higher employment rate of ten percentage points for older workers leads to a decrease of public pension expenditure by 0.9 percentage points of GDP by 2070 compared to the baseline. The reasons for this deviation are the change in economic growth and the reduction of the number of pensioners.

3.5.4. Policy scenarios: linking retirement age to increases in life expectancy and unchanged retirement age as of 2019

In this scenario, a one year increase in life expectancy leads to a 0.75 years increase in the effective retirement age. The pension expenditure would fall by 1.3 percentage points of GDP in 2070 due to a decrease in the number of pensioners and to an increase of employment and GDP.

The policy scenario of unchanged retirement age as of 2019 increases the pension expenditure by 0.3 percentage points of GDP in 2070.

3.5.5. Alternative macroeconomic scenarios related to the COVID-crisis

In the lagged recovery scenario, which assumes a relatively limited impact on potential growth but with a much more pronounced cyclical downturn and a longer recovery phase, the cost of pensions between 2019 and 2070 is unchanged compared to the baseline.

The adverse structural scenario, on top of the lagged recovery scenario, additionally assumes that the potential output growth will be permanently lower than in the baseline (lower labour productivity and higher unemployment rate). In this scenario, the pension expenditure increases by 2 percentage points of GDP in 2070. This increase is in line with the results of the TFP risk scenario (increase of 1 percentage point of GDP). While, in the TFP risk scenario real GDP is 10% lower in 2070 than in the baseline scenario, it is 17.5% lower in the adverse structural scenario (mainly due to a 15.5% lower productivity).

The profile of the increase in the budgetary cost of pensions in the adverse structural scenario, which further rises in the last decades of the projection period (as in the TFP risk scenario), is explained by the way in which the old-age pension is calculated in the wage earners' (and self-employed) scheme. In this scheme, the pension is calculated taking into account earnings over the entire career. Lower productivity growth is then fully reflected in the growth of the pension amount for new retirees after more than 40 years. It will be fully reflected in the growth of the average pension of all beneficiaries after at least another 20 years. The gap in productivity growth between the adverse structural scenario and the baseline scenario becomes constant from 2039 onwards (at a level of 0.45%).

3.6. Description of the changes in the different vintages of the Ageing Reports

In the new pension projection, the public pension expenditure increases by 3.0 percentage points of GDP between 2019 and 2070. This rise results from the increase of the old-age dependency ratio with a positive contribution of 7.2 percentage points of GDP, while all other factors contribute negatively.

Table 21   Change in the public pension expenditure-to-GDP ratio and disaggregation for consecutive projection exercises
In percentage points of GDP

	Public pension expenditure	Dependency ratio effect	Coverage ratio effect	Benefit ratio effect	Labour market effect	Residual (incl. interaction effect)
AR 2006 (2004-2050)	**5.1**	*7.7*	*-0.4*	*-1.2*	*-0.9*	*-0.1*
AR 2009 (2007-2060)	**4.8**	*7.4*	*-0.9*	*-1.0*	*-0.5*	*-0.3*
AR 2012 (2010-2060)	**5.1**	*7.4*	*-1.1*	*-0.5*	*-0.5*	*-0.2*
AR 2015 (2013-2060)	**1.3**	*5.0*	*-2.1*	*-0.3*	*-1.1*	*-0.2*
AR 2018 (2016-2070)	**2.9**	*6.6*	*-1.9*	*-0.7*	*-0.9*	*-0.2*
AR 2021 (2019-2070)	**3.0**	*7.2*	*-1.8*	*-1.8*	*-0.3*	*-0.2*

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

The cost of public pensions in the current projection is almost the same as in the 2018 Ageing Report. However, the contributions of the explanatory factors are quite different. Although the dependency

ratio effect is still the explanatory factor of this cost, it is higher than in the 2018 Ageing Report, due to the new population projection of Eurostat (see Graph 3). The coverage ratio effects are practically identical. The new benefit ratio contributes more negatively (lower average pension due to a lower average contributory period – see Box 4) while the employment effect contributes less negatively (less favourable evolution of the participation rates and increase of the unemployment rate).

In the 2015 Ageing Report, the increase in the pension expenditure amounted to only 1.3 percentage points of GDP between 2013 and 2060. The difference with the 2018 Ageing Report (2.9 percentage points of GDP) lies in the much lower dependency ratio, due to the population projection made by Eurostat in 2015.

The huge difference between the 2015 Ageing Report and the 2012 Ageing Report in the pension expenditure (1.3 versus 5.1 percentage points of GDP) is mainly explained by two factors: the gap between the population projections from Eurostat and the incorporation of the 2015 pension reform in the 2015 Ageing Report.

There are not very significant differences between the 2006, 2009 and 2012 exercises in terms of cost of pension. The slight difference between the 2012 and 2009 exercises (+0.3 percentage points of GDP) is attributable to a less negative contribution of the benefit ratio due to a change of the assumption regarding productivity growth (1.5% annual growth between 2010 and 2060 instead of 1.7% in the 2009 projection). The slightly smaller cost of pension in the 2009 round (4.8 percentage points of GDP) than in the 2006 exercise (5.1 percentage points of GDP) is mainly due to a lower positive contribution of the dependency ratio.

The two next tables present the factors behind the difference between the 2018 Ageing Report projection and the new one: firstly, from 2016 till 2019 (differences between the observations and the old projection) and secondly, from 2019 till 2070.

Table 22   Disaggregation of the difference between the 2018 projections and actual public pension expenditure in 2016-2019
% of GDP

	2016	2017	2018	2019
Ageing Report 2018 projections	12.1	12.3	12.4	12.5
Assumptions (pps of GDP)	-0.2	-0.4	-0.3	-0.3
Coverage of projections (pps of GDP)				
Constant policy impact (pps of GDP)				
Policy-related impact (pps of GDP)				
Actual public pension expenditure	11.9	12.0	12.1	12.2

Source: FPB

The actual public pension expenditure is lower than the projected expenditure in the 2018 Ageing Report for the years 2016-2019 due to a revision of the National Accounts, resulting in a higher GDP.

Table 23   Disaggregation of the difference between the 2018 and the new public pension projections
  % of GDP

	2019	2030	2040	2050	2060	2070	2019-2070 (pps)
Ageing report 2018	12.5	13.8	14.5	14.7	14.9	15.0	+2.6
Change in assumptions	-0.29	+0.13	+0.35	+0.47	+0.30	+0.10	+0.38
Improvement in the coverage or in the modelling							
Change in the interpretation of constant policy			+0.01	+0.02	+0.03	+0.04	+0.04
Policy related changes					-0.01	-0.02	-0.02
New projection AR 2021	12.2	14.0	14.9	15.2	15.2	15.2	**+3.0**

Source: FPB

The extra cost of pension between 2019 and 2070 in the 2021 Ageing Report is 0.4 percentage points of GDP higher than in the 2018 Ageing Report, primarily due to the change in the assumptions. The change in the interpretation of constant policy, namely the adaptation of the average minimum non-contributory pension to the average wage growth after ten years of projection, only accounts for 0.04 percentage points of GDP in 2070. The policy-related changes relate to the measures introduced since the 2018 Ageing Report (see section 1.5.1) and are of minor importance.

The changes in assumptions have already been mentioned in the previous sections. They concern the population projection from Eurostat, the lower participation rates and the increasing unemployment rate. All of these lead to a much lower GDP in the current projection than in the previous one, as shown in the following graph.

Graph 5   Impact on the GDP
GDP 2021 AR in % of GDP 2018 AR
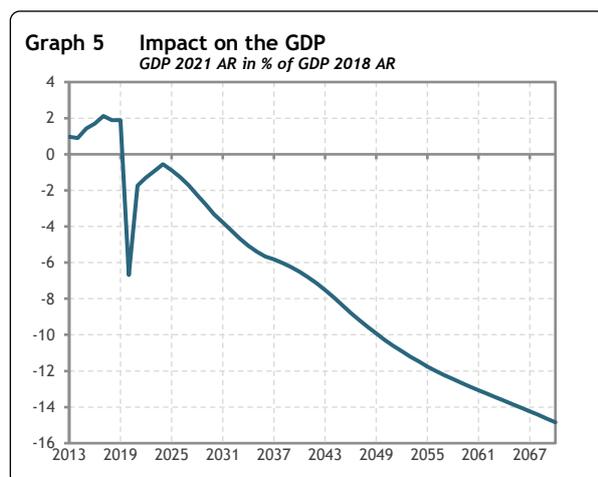
From 2013 to 2019, the actual GDP is higher because of the upward revision in the National Accounts. The following years till 2024 are marked by the projected evolution of the sanitary and economic crisis. As from 2024, the GDP in the 2021 Ageing Report is steadily deteriorating relative to the 2018 Ageing Report.

4. Description of the pension projection model and its database

4.1. Institutional context

The Belgian projection of first pillar pensions is made with the macro-budgetary MALTESE model, developed by the Federal Planning Bureau (FPB), relying on the AWG scenarios in the context of the AWG exercise. The FPB started developing the MALTESE model in 1987 at the request of the government, in order to estimate all long-term social expenditure (not only pension) within the overall framework of public finance. Since its creation in 1987, the MALTESE system has undergone permanent improvement and adjustment to the changing legislative environment.

Between 1987 and 2001, MALTESE was used several times, either at the initiative of the FPB or as an aid to decision-making (especially for estimating the impact of the public pension reforms of 1990 and 1996). In 2001, the Act "guaranteeing a continuous reduction in public debt and the setting up of the Ageing Fund" created the Study Committee on Ageing (SCA), which is assigned the task of publishing a yearly report on the budgetary and social implications of ageing (budgetary cost of ageing, living conditions of pensioners, etc.). The yearly "Memorandum on Ageing" of the Federal Government is based on the annual report of the SCA, as well as the long-term aspect of the Stability Programme. Given that the FPB has been entrusted with the technical and administrative work of the SCA, the MALTESE model is used every year to produce a long-term projection of all social expenditure for the yearly report of the SCA. The Law of 21 May 2015 established a National Pension Committee, a Knowledge Centre and an Academic Council. The Knowledge Centre gathers all knowledge on the Belgian pension system available within administrations and public bodies. The secretariat of its steering committee is managed by the FPB and the MALTESE model is frequently used for various reports by the Knowledge Centre.

4.2. General description of the MALTESE model

MALTESE consists of a central model and several specific peripheral models (computing the number of pensioners, average pensions, health care expenditure, etc.). These are macroeconomic accounting models, adequate to estimate long-term budgetary implications, especially of the public pensions. The global accounting framework relies on the National Accounts. The model is based on administrative data[18] for numbers of persons as well as for detailed average allowances.

The national projection (as for the yearly report of the SCA) proceeds in five steps:
1) Projection of the population by age and gender.
2) Socio-economic projection: the population is split up into different socio-economic groups by gender and age groups and, in some cases, by age (school population, labour force, unemployed with company allowance job seeker and non-job seeker, people on a full-time career break, disabled persons, pensioners and other). The socio-economic projection results from transition probabilities from one

---

[18]   In contrast to this approach, socio-economic categories may be based on a single source like the Eurostat Labour Force Survey. However, not all types of socio-economic categories (and social security beneficiaries) can be distinguished in this survey.

status to another. The participation and retirement behaviour of the different generations by age and gender is based on assumptions regarding participation rates and on present retirement behaviour, taking into account the effects of the reforms.

3) The social expenditure is projected by branch, gender, age group (or age) and category on the basis of the number of beneficiaries and average benefits (according to the calculation rules like wage ceilings, adjustment to living standards, etc.), except for healthcare and long-term care expenditure, which are estimated using econometric modelling in the national projection.

4) The dynamics (and not the level) of the expenditure obtained in the third step is applied to the corresponding aggregate of the National Accounts.

5) Social expenditure takes place in a projection of the public budget because it is financed by contributions, taxes and transfers from the federal budget and civil servants' pensions are financed by the public budget. The evolution of all revenues and primary expenditure leads to the calculation of public debt and interest payments.

Box 5   Coverage of the MALTESE model (social expenditure retained for the AWG pension projection are in bold)

Pensions
- **wage earner**
- **self-employed**
- **civil servants**
- **guaranteed income for elderly (assistance)**

Health care
- acute care
- long-term care

Disability allowances (wage earner and self-employed)
- primary incapacity allowances (first year of disability)
- **disability allowances (subsequent years of disability)**
- maternity leave

Unemployment benefits (wage earner)

Unemployment with company allowance non-job seekers (wage earner)

Unemployment with company allowance job seekers (wage earner)

Family allowances

Other social expenditure (mainly subsistence support, accidents at work, occupational diseases, handicapped persons)

Education

4.3. Assumptions made in the AWG labour market projection

The labour market projection is given by the AWG on the basis of Eurostat Statistics. Importing this AWG projection into the MALTESE model raises an issue because the "classical" socio-economic projection of MALTESE provides an exhaustive breakdown of the population by age and gender, which ensures the consistency between the demographic and the socio-economic projection, made on the basis of administrative data. The transition probabilities from the labour force and from employment to other socio-economic statuses (for instance, retirement) can be re-estimated using the AWG labour force projection, but the consistency between the demographic and the socio-economic projections would be lost.

Therefore, the chosen solution is that the projection of administrative employment and unemployment is aligned with the AWG labour force projection at two levels: the participation rate of the population aged 55 to 71 and the global employment rate. The administrative participation rate among the population aged 55 to 71 is supposed to follow, over the 2019-2070 period, a similar evolution to that simulated in the AWG projection for this age group. This assumption ensures the greatest possible consistency between the evolution of labour force and evolution of the retired population. The tendency of the administrative participation rate of the younger age groups is also aligned with the evolution shown in the AWG projection. The administrative unemployment rate is adjusted, such that global administrative employment and global employment from the AWG projection grow at the same rate between 2019 and 2070.

4.4. Assumptions and methodologies applied to the pension model

Almost all pension expenditure is projected in the MALTESE model[19]. The vast majority of pension expenditure is made by projecting the number of beneficiaries (new entrants and existing pensioners) and the corresponding average amount (according to the calculation rules, such as ceiling, minimum, indexation rules, etc.), by scheme, age, gender and category (old-age, survivor, pension based on the rate for individuals "with dependants" and pension based on the rate for singles). For some small pension schemes, representing 0.6% of total pension expenditure[20] in 2019, expenditures are obtained using the growth in average wages and the growth in the population aged 65 and over.

4.4.1. Number of pensions

The key principle used to model the number of pensions is to let the existing number of pensions grow old and to add new pensions based on recent "entry behaviour" and historical participation rates.

a. Entries in the old-age pension system

The statutory retirement age is 65 years before 2025, 66 years from 2025 to 2029 and 67 years from 2030 onwards. As far as men are concerned, **the overall pension rate at the statutory retirement age** (number of pensions in the first pillar to population aged 65 before 2025, 66 between 2025 and 2029 and 67 from 2030 onwards) is kept constant, because of the almost universal coverage of the legal pension. For women, a "total coverage rate" at the statutory retirement age is defined and assumed to be constant throughout the projection period. This "total coverage rate" is the ratio of the number of women benefiting either from their own pension (old-age or survivor pension) or their husband's pension (calculated at the household rate[21]) to the overall number of women aged 65, 66 or 67.

---

[19] A separate model exists for pension expenditure for expatriate workers (by modelling numbers and average amount), but the importance of this scheme declines over time (from 0.5% of total pension expenditure in 2019 to 0.1% in 2070).

[20] A last category of pension expenditure exists, namely the war pension (phasing out scheme, 0.1% of total expenditure in 2019 and 0.0% in 2070). These expenditures are related to yet another scheme that is being phased-out, namely, the scheme for people who worked in Africa in the 1950s and the 1960s (which models the number of beneficiaries and average amount).

[21] The household rate (75%) in the wage-earners' and self-employed pension schemes exceeds the singles rate (60%, see Box 1). It is used in the pension calculation if it results in a higher than the combined pension of both spouses calculated at the singles' rate.

The **distribution by scheme** (wage earner, self-employed and civil servant) **of the beneficiaries at the statutory retirement age** is determined according to the historical evolution of activity by scheme of the corresponding generation.

A first step is to establish the entries in old-age pension (mainly between 60 and 65 years) in a scenario without raising the legal statutory retirement age. The **entry profile for old-age pension between 60 and 65 years** depends on the socio-economic status (employment, unemployment, unemployment with company allowance or disability) and on the future pension scheme from which the population aged between 59 and 64 years will draw pension. Implicitly, retirements occur at varying ages; for example, wage-earners retire at a younger age than beneficiaries of a disability allowance. In a second step, this entry profile explicitly takes into account the 2015 pension reform, namely the increase in the career conditions for early retirement before the statutory retirement age and the rise in the statutory retirement age. The consequences of this reform on retirement are in line with the labour force projection of the AWG.

b. Entries in the survivor pension system

Before the age of 60, (female) entries in the survivor pension system are determined by scheme (wage earner, self-employed and civil servant) and 5-year age group, in function of the evolution of the female labour force, the widowed population and the distribution of the male labour force of the same age group by scheme. The projection also takes into account the survivor pension reform with the gradual increase of the minimum entry age to 50 in 2025. From the age of 60 onwards, the number of new female pensions in the survivor pension system is determined by the number of pensions attributed to deceased married men in the scheme concerned.

c. Entries into unemployment with company allowance non-job seeker (phasing out)

Entries into the unemployment with company allowance system for non-jobs seekers are calculated on the basis of an entry probability by age and gender based on the number of wage earners. These probabilities are adjusted in order to take into account the 2015 pension reform.

d. Entries into disability

The disability rates (the shares of disabled persons per gender and age category in the population) are calculated using the principle of cohorts. As a first step, the entry probabilities in the primary incapacity benefit system (the disabled for less than one year, which are not taken into account in the pension expenditure) are calculated from the potential labour force[22]. Subsequently, the entry probabilities in the disability benefit system (after one year of primary incapacity) are calculated from the primary disabled category. Finally, probabilities of remaining in the disability system are calculated. These probabilities are adjusted in order to take into account the 2015 pension reform. The number of primary disabled and disabled persons by age category and gender is computed by applying these rates to the population projection. The distribution of the number of primary disabled and disabled persons in the

---

[22] Working and unemployed people, people in unemployment with company allowance for non-job seekers and people on a full-time career break.

wage earners' scheme and the self-employed scheme is carried out proportionally to the number of workers in the respective schemes.

In line with the mid-term projection of the National Institute for Health and Disability Insurance, the entry probabilities and the probabilities of remaining disabled have been increased until the mid-2020s, implying increasing disability rates. The raise of the statutory retirement age also implies a rise of the number of disabled. As of the mid-2020s, we assume that the entry probabilities and the probabilities of remaining disabled progressively decrease until the 2040s. The extent of this decrease is arbitrary. However, together with the assumptions relating to other pension schemes, it ensures consistency between the evolution of participation rates (given by the CSM model) and the pension rates for the 55-69 population. From the 2040s onwards, the entry probabilities and the probabilities of remaining disabled remain constant. The cohort modelling implies increasing disability rates till 2040 for the individuals aged 60 to 64.

The next table shows the disability rates by age group (ratios of the disabled to the corresponding population). At the end of the projection period, the disability rate is slightly lower than in the base year for the people younger than 55 years, the same as the base year for the 55-59, and higher than the base year for people older than 64 years. The maximum age to receive a disability allowance is 64 till 2024, 65 between 2025 and 2029 and 66 from 2030 onwards (beyond that age, the beneficiary gets an old-age pension).

Table 24   Disability rates by age group
In %

	2019	2030	2040	2050	2060	2070	Change 2019-2070 (pps)
Age group -54	3.1	3.6	2.9	2.6	2.6	2.5	-0.6
Age group 55-59	13.6	18.6	16.2	14.0	13.5	13.6	0.0
Age group 60-64	11.9	17.6	19.0	16.2	15.1	15.2	3.3
Age group 65-69	0.0	2.2	3.3	3.0	2.8	3.0	3.0
Age group 70-74	0	0	0	0	0	0	0
Age group 75+	0	0	0	0	0	0	0

Source: FPB, Belgian pension model

4.4.2. Average pension

The average pension amount in the different pension schemes is estimated by modelling as accurately as possible the main legislative parameters for the successive cohorts of persons entitled to a pension. For each pension scheme (wage earner, self-employed, civil servant), an average pension is estimated for each career profile (maximum career or not, retirement age), each category (old-age, survivor) and according to the legal replacement rate (pension at the household rate of 75%or pension at the rate of a single person of 60% in the wage earners' and self-employed schemes).

The evolution of the profile of the new pensioners depends namely on the socio-economic and macroeconomic projections. For instance, the increase in the female participation rate results in a growing number of women building up full pension rights. As a consequence, a growing number of pensioners, both in the wage earners' and self-employed schemes, claim a single pensioner's allowance, which is calculated at a lower legal replacement rate (60%), instead of a household rate (75%).

The assumption concerning the productivity growth has also an impact on the evolution of the average pension amounts through the evolution of average wages. This effect occurs faster in the case of pensioners from the civil servants' scheme because their reference wages are calculated on the basis of their incomes over the last ten working years. As for the wage earners and the self-employed, this wage evolution is reflected in the long run, as their pension is calculated on the basis of the average income over their whole career. At the start of the projection period, this average income is almost entirely calculated on the basis of observed data.

The income distribution remains constant in the projection. It is used, among other things, to compute the percentages of recipients with incomes above the wage ceiling and below the minimum pension.

In the wage earners' scheme, the average unemployment with company allowance for non-job seekers (only the part paid by the National Employment Office) and disability benefits are calculated per gender and age group, taking into account the respective ceilings. Disability allowances in the self-employed scheme are lump-sum benefits.

4.4.3. Career length or contributory period

In a scenario without the 2015 pension reform, it was assumed that the average career length of men taking their pension depended, within the various systems, on the participation profile of the generation (historical participation rate for 5-year age groups). For women, the average career length was assumed to converge to that of men (without actually reaching that level). These trends were adjusted to reflect the postponed entries in old-age pension due to the 2015 pension reform.

4.4.4. Reforms incorporated in the model - See section 1.5.

4.5. Pension data used to run the model

The following table presents the data sources used in the MALTESE model for the pension expenditure (National Accounts) and the number of beneficiaries (administrative sources). Administrative sources are also used for the detailed benefits (gender, age, minimum or not, etc.).

Expenditure: National Accounts	
Old-age, survivor, assistance scheme, disability	National Accounts
Administrative data concerning beneficiaries and benefits	
Old-age pension and survivor:	
- wage earners' scheme by category (and details about the career)	Federal Service of Pensions
of which unemployment with company allowance non-job seekers	National Employment Office
- self-employed scheme by category	Federal Service of Pensions
of which details about the career	National Institute for the Social Security of the Self-Employed
- civil servants' scheme by category (and details about the career)	Federal Service of Pensions
Guaranteed income for elderly people (assistance scheme)	Federal Service of Pensions
Disabled population (wage earners' and self-employed schemes)	National Institute for Health and Disability Insurance

5. Methodological annex

Information about survivor and disability pensions is mentioned in sections 4.4.1.b and 4.4.1.d.

5.1. Economy-wide average wage at retirement

The next table presents the economy-wide average wage given by the Commission and the average wage at retirement provided by the Member State, which is a weighted average of the average wages at retirement by scheme.

Table 25   Economy-wide average wage
In thousand euro

	2019	2030	2040	2050	2060	2070	% change 2019-2070
Economy-wide average wage (AWG)	43.4	54.9	75.9	107.9	153.3	217.7	401.8
Economy-wide average wage at retirement	49.6	63.8	88.5	126.2	179.6	255.4	414.6

Source: European Commission and FPB (Belgian pension model)

In the wage earners' scheme, the average wage at retirement is based on the gross average wage multiplied by the ratio of the average wage of people aged between 60 and 64 years to the global average wage. The latter ratio, by gender and blue/white-collar workers, changes in parallel with the development of the ratio men-to-women and blue-to-white-collar workers.

In the self-employed scheme, we use coefficients that express how the self-employed income, by 5-year age groups, compares to the overall average. These coefficients are different for men and women and are differentiated over various types of professions (agriculture and fishing, industry and crafts, commerce, liberal professions and services). The coefficients are assumed to be constant throughout the whole projection period, but linking them to the average projected income of each projection year results in an average "end of career income" that is both gender- and profession-specific. These gender- and profession-specific averages are then aggregated into an overall "end of career" average for each projection year.

The observed average wages that civil servants receive at the end of their career are provided by the Federal Service of Pensions – Civil Servants. These reference wages are used to calculate the pensions of the new pensioners and are available by type of civil servant employment (public administration, education). The FPB corrects these wages to take into account mixed careers, since the Federal Service of Pensions provides wages of workers with pure career as tenured civil servants.

5.2. Number of pensioners vs number of pensions

The methodology behind the calculation of the number of pensions is presented in section 4.4.1. This number of pensions combines number of pensions and number of pensioners. Double counting of pensioners receiving benefits from both the wage earners' and the self-employed scheme is avoided: when pensioners receive a pension from both schemes, pensions are classified either in the wage earners' scheme or in the self-employed scheme, taking into account the average benefit in both schemes for

"mixed" pensions. However, double counting between pensioners of the civil servants' scheme and pensioners of the wage earners' and self-employed schemes could not be avoided.

To obtain the number of pensioners, we firstly assume that there is no double counting in the ages below 60. For the ages above 59, the number of pensioners is obtained on the basis of observed data related to double counting between pensions of the civil servants' scheme and the wage earners' scheme (15% of wage earners' pensions) and between pensions of the civil servants' scheme and the self-employed scheme (7% of the self-employed pensions). In the assistance scheme (guaranteed income for the elderly), the double counting rates with the other schemes are much higher (78% for women, 92% for men and 83% globally) because this minimum non-contributory pension represents in most of the cases a complement to another pension. We assume that all the double counting rates are the same by age group and remain largely unchanged during the whole projection period.

5.3. Pension taxation

Gross pension is subject to contributions: 3.55% for health care if the pension benefit exceeds a threshold, solidarity contribution between 0 and 2% according to the pension benefit and contribution of 0.5% for funeral expenses in the civil servants' scheme. The implicit contribution rate is 2.8% in 2019.

Pension benefit is taxed if above a minimum amount varying according to the number of dependent children. For this exercise, we use the OECD database which provides detailed information on the impact of the tax system on social expenditure[23] (instead of an old estimation). The implicit tax rate is 13.9% in 2019. It should be noted that the guaranteed income for elderly persons (minimum non-contributory pension) is not taxed.

5.4. Non-earnings-related minimum pension

The non-earnings-related pension is the guaranteed income for elderly persons (the assistance scheme). The driving forces behind its expenditure are the number of beneficiaries and their average benefit amount. The number of beneficiaries is dependent on the growth of older population and number of pensioners. Since the minimum income guarantee is a means-tested scheme and more than 80% of its beneficiaries also receive a pension benefit (almost exclusively in the wage-earners' or self-employed scheme), the average benefit amount is affected by the maximum amount of this social assistance scheme and the development of pension benefits in the wage earners' and self-employed scheme. In the AWG exercise, the average effective amount of the minimum income guarantee grows during the first ten years of the projection in line with the stipulations foreseen in the "Generation Pact", which is 1% per year in real terms, and afterwards with the average wage growth (in the national projection, it increases with 1% per year during the whole projection period).

5.5. Contributions – See section 3.4.

---

[23]   https://www.oecd.org/els/soc/expenditure.htm; OECD2019-Social-Expenditure-Update-Feb2019-Tax-Data-by-Country.xls

5.6. Alternative pension spending decomposition

Table 10 is calculated using the number of pensioners. The following table presents the same decomposition using the number of pensions, the analysis of which is similar to the one regarding Table 10.

Table 26 **Factors behind the change in public pension expenditures between 2019 and 2070 – number of pensions**
In percentage points of GDP

	2019-2030	2030-2040	2040-2050	2050-2060	2060-2070	2019-2070
Public pensions to GDP	1.8	0.9	0.2	0.0	0.0	3.0
Dependency ratio effect (pop. 65+/pop. 20-64)	3.0	2.1	1.2	1.0	0.6	7.8
Coverage ratio effect (pensions/pop. 65+)	-0.8	-0.6	-0.2	-0.1	0.0	-1.7
Coverage ratio old-age	-0.3	0.1	0.0	0.0	0.0	-0.2
Coverage ratio early-age	0.4	-1.9	-0.9	-0.4	0.0	-2.8
Cohort effect	-2.6	-1.2	-0.4	-0.4	0.0	-4.7
Benefit ratio effect (average pension/(GDP/hours worked 20-74))	0.2	-0.1	-0.4	-0.5	-0.4	-1.2
Labour market effect	-0.3	0.0	0.0	0.0	0.0	-0.3
Employment ratio effect (pop.20-64/employment 20-64)	-0.2	0.0	0.0	0.0	0.0	-0.1
Labour intensity effect (employment 20-64/hours worked 20-64)	0.0	0.0	0.0	0.0	0.0	0.0
Career shift effect (hours worked 20-64/hours worked 20-74)	-0.2	0.0	0.0	0.0	0.0	-0.2
Residual	-0.2	-0.4	-0.4	-0.4	-0.2	-1.6

Source: European Commission based on Belgian pension questionnaire

5.7. Administrative data on new pensioners

These administrative data are based on the number of new pensions, provided by the social institutions whom we thank for their assistance. We then made some calculations in order to transform the number of new pensions in the number of new pensioners.

Table 27 **Administrative data on new pensioners (2018)**

	All	Old-age	Disability	Survivor	Other (including minimum)
Men					
15 - 49	6087	180	5879	28	0
50 - 54	3644	364	3191	89	0
55 - 59	7434	2705	4591	138	0
60 - 64	29492	29240	26	226	0
65 - 69	17532	17435	0	97	0
70 - 74	294	162	0	132	0
75+	424	125	0	299	0
Women					
15 - 49	11094	301	10708	85	0
50 - 54	5080	332	4140	608	0
55 - 59	7088	1011	4913	1164	0
60 - 64	25747	24131	24	1592	0
65 - 69	20318	19368	0	950	0
70 - 74	2293	1075	0	1218	0
75+	8346	2747	0	5599	0
Total					
15 - 49	17181	481	16587	113	0
50 - 54	8724	696	7331	697	0
55 - 59	14521	3715	9504	1302	0
60 - 64	55239	53371	50	1818	0
65 - 69	37849	36802	0	1047	0
70 - 74	2587	1237	0	1350	0
75+	8770	2872	0	5898	0