# Greek Pension System Fiche
## European Commission
## Economic Policy Committee
## Ageing Working Group

*Ageing Projections Exercise 2024*

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Country Fiche EL – December 2023

# Introduction

The present country fiche of the Greek public pension system is part of the 2024 Ageing Report, which provides long-term projections of the economic and budgetary impact of population ageing at unchanged policy. The 2024 edition is the eighth update and covers the period up to 2070.

The fiche was prepared by the National Actuarial Authority of Greece. The pension projections presented in this fiche incorporate the macroeconomic assumptions and methodologies agreed within the Ageing Working Group of the Economic Policy Committee. The projections have been peer reviewed by the other Member States and the European Commission within the Ageing Working Group. The projections were finalised in the autumn of 2023 and represent the situation of the pension system according to legislation applicable on 01/12/2023.

Section 1 provides a general overview of the pension system in Greece. Section 2 describes the demographic and labour market assumptions underlying the pension expenditure projections presented in Section 3, which also discusses the sensitivity scenarios around the baseline. Finally, Section 4 gives an overview of the model used to produce the pension projections, with complementary data provided in the methodological annex.

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## 1. OVERVIEW OF THE GREEK PUBLIC PENSION SYSTEM

### 1.1. Description[1]

The Greek public pension system comprises:

- ✓ Main pension provision on a mandatory basis for salaried employees, self-employed persons, seamen and agricultural workers.

- ✓ Auxiliary pension provision for a large portion of insured; Also, additional benefits are provided to specific professional categories, such as: lump sum benefits (provided by e-EFKA to civil servants, military staff, engineers, lawyers, etc.) and dividends (civil servants, military staff).

- ✓ Means-tested benefits (Uninsured Elderly Benefits)

The main social security scheme which provides main, auxiliary pensions and lump sum benefits is e-EFKA. TEKA is the newly introduced auxiliary pension scheme mainly for new entrants to the labour market from 2022 onwards. Means-tested benefits for uninsured elderly are provided by OPEKA and dividend benefits by relevant Dividend Funds.

Table A shows insured individuals in main and auxiliary pension by type of occupation/profession.

| TABLE A Correspondence of main and auxiliary pension funds | | | |
|---|---|---|---|
| | Main Fund | Occupational type | Auxiliary Pension(*) |
| I. | e-EFKA (Unified Social Insurance Fund) | Private sector employees | ✓ |
| II. | | Civil servants & Military (Firefighters-Policemen-Air Force-Army-Navy) | ✓ |
| | | | Dividend Funds |
| III. | | Self-employed | On voluntary basis |
| IV. | | Agricultural workers | - |
| V. | | Lawyers- Notaries - Engineers | ✓ |
| | | Doctors | - |
| VI. | | Media Employees | ✓ |
| VII. | | Seamen | ✓ |

(*) Auxiliary Pension for insured under NDC system is provided by e-EFKA and under DC system by TEKA. Dividend Funs operate independently.

A brief description of social pension system is given below.

### 1.1.1. Main pension provision

The most important laws over social pension system up to 2015 were 2084/1992, 3029/2002, 3655/2008, 3863/2010, 3865/2010 and 4336/2015.

In May 2016, the Greek Parliament adopted a pension reform by law 4387/2016. Laws 4499/2017, 4578/2018, 4583/2018, 4584/2018, 4611/2019 and 4618/2019 introduced legislation amendments on law 4387/2016.

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[1] For an exhaustive description of pension schemes, please consult the PENSREF database

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In February 2020, law 4670/2020 was adopted, taking also into account the Council of State rulings on specific provisions of law 4387/2016.

A brief description of the key elements of laws 4387/2016 and 4670/2020 is given below:

- ✓ All social insurance main pension funds are integrated into one single social insurance pension fund (e-EFKA) with common governance, administration, and accounting framework.
- ✓ Auxiliary pension fund (former ETEAEP) is also integrated into e-EFKA as an independent financial branch.
- ✓ Harmonized contribution rates and pension benefit rules for all, with a small transition period 2016-2018. A greater transition period is only allowed for former OGA fund.
- ✓ Already accrued rights of both pensioners (except former OGA) and active insured (for former OGA insureds a 15-year transition period is provided) are affected by applying the common pension benefit rules on those as well.

The key elements for main pension provision are:

(i)    Immediate application of the main pension reform as of May 2016 (entry into force of law 4387/2016).

(ii)    The introduction of a flat-rate pension (national pension) initially set at 384€/month (12 yearly payments) for at least 20 years of contributions. The amount of 384€ (413.76€ as of January 2023) is decreased by 2% yearly for contributory period between 19 and 15 years (reduces to 345.60€ for 15 years – 372.38€ as of January 2023). National pension is financed by the state.

(iii)    The system introduces marginally applied accrual rates with the same profile for all workers that depend only on the length of the career.

(iv)    Pensionable earnings are calculated based on the full-earnings history. The valorisation mechanism for the calculation of pensionable earnings is based on the change in the average annual general consumer price index up to 2024 and for the period from 2025 onwards is based on the annual change in wages (calculated by ELSTAT).

(v)    Pro-rating pension benefits:

For former OGA, there is a 15 years transition period for new retirees. During this period a pro-rata pension is granted, as the sum of a decreasing proportion of the old system's pension and an increasing proportion of the new system's pension.[2]

(vi)    Pension indexation (national and contributory part) is equal to the minimum of CPI and the sum of 50% CPI and 50% GDP growth [min(50% GDP growth +50% CPI, CPI)]. Indexation is frozen up to 2022.

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[2] A 3 years transition period for new retirees (except of former OGA) was provided from 2016 to 2018, during which a pro-rata pension has been granted. Two amounts were calculated. One amount was calculated on the basis of the old system and the other one based on the new system. If the amount resulting from the provisions of new system was lower than the amount resulting from the old calculation method by more than 20% then a proportion of the difference was paid as a personal difference to the retiree. (Proportion for 2016 : 50%, 2017 : 33%, 2018 : 25%).

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(vii)    All main pensions granted up to the entry into force of the law 4387 are recalibrated according to the new system's rules. Each pension consists of the following components: a) National pension, b) Contributory pension according to the new rules and c) Personal difference, as the difference between the total pension amount according to the old and new rules.

Personal differences that correspond to pensions with lower pension amount according to the new rules are compensated until total elimination with future pension indexation starting from 2023 onwards.[3]

Personal differences that correspond to pensions with higher pension amount according to the new rules are granted in 5 installments starting from 2019 onwards.

(viii)    The full contributory period is set 40 years.

(ix)    Unified statutory retirement ages are set for all (67 years). The minimum age for retirement was set initially at 62. (L.4093/2012 & L.4336/2015)

(x)    As from 2021, the minimum and statutory retirement ages are adjusted in line with changes in life expectancy every three years.

(xi)    Unified transfer rates to survivors are set. The transfer rate for spouses is set to 70%.[4] The transfer rate for orphans is set to 25%.

(xii)    A minimum amount to insureds' survivors is introduced by Law 4499/2017, defined as the full amount of the national pension for 20 years of insurance (€ 384 up to 2022, 413.76€ as of 2023) or, in case of the insured's death with 15 years of insurance, € 360 per month (387.90€ as of 2023).

(xiii)    A maximum monthly pension amount of 12 times the monthly national pension amount (4608€ up to 2022, 4965.12€ as of 2023) is introduced by law 4623/2019.

(xiv)    For those with less than 15 years of contributions (elderly uninsured), and thus not eligible for pension, a flat rate means-tested benefit (360€ up to 2022-387.90€ as of 2023) is provided which constitutes an important social safety net.

(xv)    The legislation includes a sustainability clause, which stipulates that if long-term projections show a rise in public pension expenditure over 2.5 percentage points of GDP in reference to 2009 expenditure, then relevant parameters of the pension system are changed to bring the increase of expenditure below the targeted threshold.

## Special Pension Schemes

In old age main pensions also special pensions are included concerning subgroups of insured who work under difficult conditions. Special pension subgroups are:
- ✓ Insured in arduous professions
- ✓ Military Staff
- ✓ Recipients of OGA "Basic" pension (a non contributory pension for a closed group of insured farmers)

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[3] According to 2017 legislation, personal differences that correspond to pensions with lower pension amount according to the new rules were fully or partially to be eliminated in 2019. Pension cut could not exceed 18% of the pension paid (calculated according to the old rules). The remaining personal differences are compensated with future pension indexation starting from 2023 onwards. This provision for the reduction up to 18% of the pension paid was abolished by law 4583/2018 (article 1).

[4] The transfer rate for spouses was initially set to 50% which was amended to 70% by law 4611/2019.

The first two groups have lower age thresholds for retirement. Insured in arduous professions have higher contribution rate for both employee and employer compared to common professions.

The number of insured in special pensions schemes has been decreasing in the last years.

Additionally, reforms adopted in the recent years affect also special pensions. As a result, expenditure (% of GDP) is expected to be decreasing.

### 1.1.2. Auxiliary pension provision

The auxiliary pension provision began forming in the 1930s, based on the legislation of the main pension provision which had already come into effect. The employees of many different professions and companies founded several auxiliary funds. As of 1983 the auxiliary pension extended to the majority of employees.

In 1992 law 2084 unified the pension formula for those first insured from 1/1/1993, since each fund had its own provisions until then. Law 3655/2008 merged and incorporated many of these funds into newfound ones, according to the type of professions of their insured population.

The auxiliary pension provision works in parallel to the main pension provision and is mandatory for most people. Auxiliary pension is financed separately from the main pension from both employer and employee. It is awarded under the prerequisite of receiving a main pension.

On February 2012 the Parliament adopted a reform of auxiliary pension system by law 4052/2012, which established a unified auxiliary pension fund aiming to incorporate all employees' funds and introduced a pay-as-you-go (PAYG) notional defined contribution system (NDC). On May 2016 law 4387/2016 mainly introduced a unified calculation method for already accrued rights. By law 4670/2020, auxiliary pension fund (former ETEAEP) is integrated into e-EFKA as an independent financial branch. The key elements of the law for NDC system are:

i) A pro-rata pension calculation is applied for those insured before 1.1.2014. The new system is implemented starting on 1.1.2015 and the pension comprises two components: a) the first component part is using the arrangements of the DB system (accrual rate 0.45% and pensionable earnings calculated according to the method of the main pension) for as many years as the insured worked before 1.1.2015; b) the second component is using the NDC arrangements for as many years as the insured worked after 1.1.2015.

ii) All auxiliary pensions granted up to 31.12.2014 are recalibrated according to the new system's rules. Each pension consists of the following components:
- ✓ Contributory pension according to the new rules.
- ✓ Personal difference, as the difference between the pension amount according to the old and new rules, only for the cases in which the new pension amount is lower than the old one.[5]

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[5] Personal differences were eliminated starting from the 2nd half of 2016 in cases in which the sum of pension amounts (main and auxiliary) was higher than €1300. Law 4670/2020 restored the eliminated personal difference for those with sum of pension amounts higher than €1300 with effect from 1.10.2019. This amendment was adopted due to the Council of State ruling. According to 2017 law, remaining personal differences (for the cases that the sum of pension amounts -main and auxiliary - is lower than €1300) were to be eliminated fully or partially in 2019. Pension cut could not exceed 18% of the pension paid (calculated according to the old rules). By law 4583/2018 the provisions for the reduction of supplementary pensions in 2019 (for the cases that the sum of pension amounts -main and auxiliary - is lower than €1300) were abolished.

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iii) A balancing mechanism is applied to guarantee the system's financial stability, (no pension indexation in case of deficit). Any deficits are covered by fund's assets.

In September 2021 a new law 4826/2021 was adopted introducing a defined contribution system for auxiliary pensions, also establishing the organization and operation of a new fund named TEKA.
A gradual transition of the public Auxiliary Pension System is introduced, from the Notional Defined Contributions 'Pay-As-You-Go' system to a Funded Defined Contributions system.

TEKA is a legal entity, whose mandate and operation is governed by public law, operating independently from the existing National Organization for Social Security (e-EFKA). It is part of the National Social Security System (i.e. not an Occupational Fund). TEKA became operational in January 2022, when it also started receiving contributions.

Participation in TEKA is mandatory for new entrants to the labour market from 1/1/2022 onwards for whom the participation in auxiliary insurance is compulsory.
Participation in TEKA is optional/ voluntary for:
- persons aged below 35, who wish to be transferred from the existing to the new auxiliary pension system. This option is given during 2023.
- Self-employed aged below 35, for whom the existing auxiliary pension system is not mandatory.

Key elements for DC system:

✓ Contribution rate for employees, as well as the fixed contribution amounts for the self-employed, are maintained at the levels of the NDC system (6% of reference earnings and the existing fixed amounts respectively).

✓ Monthly contributions, along with net investment returns, will be credited to individual accounts.

✓ Participants will have neither access nor ownership, of the accumulated contributions and capital returns of the individual accounts, before meeting the foreseen retirement provisions, set by law.

✓ More than one life cycle investment programs can be provided with diversified investment risk.

✓ Adequate and sufficient assets are held to cover the obligations for payment of pension benefits.

✓ "Actuarially neutral" old age and disability pensions will be provided after retirement along with the main pension based on accumulated contributions and net investment returns credited to the individual account using lifelong annuity.

✓ For the old-age and disability pension, an annuity with transfer to beneficiaries is used.

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✓ The State guarantees the payment of a minimum contributory monthly pension calculated on the basis of the actual value of the total contributions paid accumulated by CPI.

✓ The balance of the individual account, based on which an invalidity or survivor pension is calculated, may not be less than the capital that would have been accumulated with fifteen (15) years of insurance and remuneration equal to the statutory minimum wage of an employee for full-time employment. If this is not the case, the difference shall be covered by a transfer from the State budget.

Funding Gap of the auxiliary NDC system:

The State shall cover from the State budget the depreciation of resources of the auxiliary pension branch of e-EFKA from insurance contributions (existing NDC scheme) due to the introduction and operation of the funded auxiliary pension scheme (new funded DC scheme).

### 1.1.3   Lump sum benefits

A reform has also been adopted regarding the lump sum benefits. The benefit consists of two parts. The first part concerns accrued rights up to 31.12.2013 and is calculated based on DB rules unified for all insured. The second part corresponds to accrued rights as from 1.1.2014 and is calculated based on NDC rules.

### 1.1.4   Means-tested benefits

Law 4387/2016 provides means-tested benefits for uninsured elders under specific conditions.

### 1.1.5   Eligibility rules

Laws 3863/2010, 3865/2010, 4093/2012 and 4336/2015 increased retirement ages significantly by: i) unifying age thresholds for males and females, ii) imposing longer career prerequisites iii) closing paths to early retirement gradually up to 2021(more details in Annex I) and iv) introducing the life expectancy factor.

According to legislation the age thresholds are re-determined in line with the change in life expectancy of the country's population with 65 years of age as point of reference. This will come into effect as of 1.1.2021 and upon its first implementation the change within the 2010 - 2020 ten-year period will be taken into account. After the first implementation the change in life expectancy will be re-examined every three years.

Table 1 below shows the evolution of the statutory retirement age, earliest retirement age and penalties for early retirement over the projection period 2022-70.

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| TABLE 1 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Qualifying condition for retiring** | | | | | | | | |
| | | | 2022 | 2030 | 2040 | 2050 | 2060 | 2070 |
| Qualifying condition for retiring with a full pension | Minimum requirements | Contributory period - men | 40 | 40 | 40 | 40 | 40 | 40 |
| | | Retirement age - men | 62 | 62+ | 62+ | 62+ | 62+ | 62+ |
| | | Contributory period - women | 40 | 40 | 40 | 40 | 40 | 40 |
| | | Retirement age - women | 62 | 62+ | 62+ | 62+ | 62+ | 62+ |
| | Statutory retirement age – men | | 67 | 67+ | 67+ | 67+ | 67+ | 67+ |
| | Statutory retirement age – women | | 67 | 67+ | 67+ | 67+ | 67+ | 67+ |
| Qualifying condition for retirement WITHOUT a full pension | Early retirement age – men | | 62 | 62+ | 62+ | 62+ | 62+ | 62+ |
| | Early retirement age – women | | 62 | 62+ | 62+ | 62+ | 62+ | 62+ |
| | Penalty in case of earliest retirement age* | | 1/200 | 1/200 | 1/200 | 1/200 | 1/200 | 1/200 |
| | Bonus in case of late retirement | | - | - | - | - | - | - |
| | Minimum contributory period – men | | 15 | 15 | 15 | 15 | 15 | 15 |
| | Minimum contributory period - women | | 15 | 15 | 15 | 15 | 15 | 15 |
| | Minimum residence period – men** | | 15 | 15 | 15 | 15 | 15 | 15 |
| | Minimum residence period – women** | | 15 | 15 | 15 | 15 | 15 | 15 |

\*   applied on national pension
\*\* required for the national pension

If the estimations regarding the change in life expectancy of the population, according to the EUROPOP2023 population projections released by Eurostat, are materialized, then table 1 will be revised as follows (table 1a):

| TABLE1a | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Qualifying condition for retiring*** | | | | | | | | |
| | | | 2022 | 2030 | 2040 | 2050 | 2060 | 2070 |
| Qualifying condition for retiring with a full pension | Minimum requirements | Contributory period - men | 40 | 40 | 40 | 40 | 40 | 40 |
| | | Retirement age - men | 62 | 63.5 | 64.5 | 65.5 | 66.7 | 67.5 |
| | | Contributory period - women | 40 | 40 | 40 | 40 | 40 | 40 |
| | | Retirement age - women | 62 | 63.6 | 64.5 | 65.5 | 66.7 | 67.5 |
| | Statutory retirement age - men | | 67 | 68.5 | 69.5 | 70.5 | 71.7 | 72.5 |
| | Statutory retirement age - women | | 67 | 68.6 | 69.5 | 70.5 | 71.7 | 72.5 |
| Qualifying condition for retirement WITHOUT a full pension | Early retirement age - men | | 62 | 63.5 | 64.5 | 65.5 | 66.7 | 67.5 |
| | Early retirement age - women | | 62 | 63.6 | 64.5 | 65.5 | 66.7 | 67.5 |
| | Penalty in case of earliest retirement age* | | 1/200 | 1/200 | 1/200 | 1/200 | 1/200 | 1/200 |
| | Bonus in case of late retirement | | - | - | - | - | - | - |
| | Minimum contributory period - men | | 15 | 15 | 15 | 15 | 15 | 15 |
| | Minimum contributory period - women | | 15 | 15 | 15 | 15 | 15 | 15 |
| | Minimum residence period – men** | | 15 | 15 | 15 | 15 | 15 | 15 |
| | Minimum residence period – women** | | 15 | 15 | 15 | 15 | 15 | 15 |

\*   applied on national pension
\*\*   required for the national pension
\*\*\* Estimated according to the EUROPOP2023 population/life expectancy projections released by Eurostat

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## 1.2. Recent reforms of the pension system included in the projection

All recent reforms are included in the projection exercise.

Paragraphs 1.2.1–1.2.4. describe the main elements of recent years reforms. The pension legislation amendments following the last pension projections (Autumn 2020) are briefly described in paragraph 1.2.5.

### 1.2.1. Main pension provision

A summary of main provisions of the new legislation (l.4336/2015, l.4387/2016, l.4670/2020), regarding all main pensions, is provided below.

### The pension amount consists of two components, namely the:

*National pension*: It is a flat-rate pension which is granted only if at least 15 years of contributions are accrued (for old age pensions).  Initially, it was set at €384 per month for at least 20 years of contributions (payable 12 times a year).  National pension amount was adjusted to 413.76€ as of January 2023.
The national pension is reduced:
- ✓ by 2% for each year of contributions below 20 years, between 19 and 15 years (reduces to 372.38€ as of 2023 for 15 years),
- ✓ by 2.5% for each year of residence below 40 years, and
- ✓ by 0.5% for each month the insured is younger than the statutory retirement age.

Also, for pensioners receiving a reduced pension due to disability, with a disability rate of:
- ✓ 67% up to 79.99%, 75% of the national pension is granted,
- ✓ 50% up to 66.99%, 50% of the national pension is granted,
- ✓ Especially for the Public Sector for a percentage disability up to 49.99%, 40% of the national pension is granted.

The cost of national pension is financed by the state through annual transfers to the social insurance system.

NOTE: Pensioners with two or more pensions by own rights are entitled to only one national pension. This, however, was not taken into account in the projections, which makes results prudent.

*Contributory pension:* The amount of pension which is in proportion to the amount of insurance contributions pertaining to the years of insurance. The contributory pension amount aims at rewarding insured people who choose to prolong their working lives. Contributory pension component for invalidity and survivors' pensions is calculated under the same rules as old age pension.

### Accrual Rates of contributory pension:

Law 4387/2016 introduced marginally applied accrual rates (table B1), for the contributory part of the pension that depend only on the length of the career (for all pension categories), with the same profile for all workers.
Law 4670/2020 introduced new scale of accrual rates for main pensions (table B2), effective from 1.10.2019 onwards, actually increasing the accrual rates over 30 years

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of contributions. The new scale is applied to the new pensions, as well as the existing ones for the calculation of personal differences with effect from 1.10.2019 onwards. This amendment was adopted due to Council of State ruling.

Accrual rates are applied marginally and not on the entire contributory career:

| TABLE B1 | | |
|---|---|---|
| Statutory Accrual Rates for the contributory pension component - Law 4387/2016 | | |
| Contributory Years | | Annual Accrual Rate |
| From | To | |
| 0 | 15 | 0.77% |
| 15.01 | 18 | 0.84% |
| 18.01 | 21 | 0.90% |
| 21.01 | 24 | 0.96% |
| 24.01 | 27 | 1.03% |
| 27.01 | 30 | 1.21% |
| 30.01 | 33 | 1.42% |
| 33.01 | 36 | 1.59% |
| 36.01 | 39 | 1.80% |
| 39.01+ | | 2.00% |

| TABLE B2 | | |
|---|---|---|
| Statutory Accrual Rates for the contributory pension component - Law 4670/2020 | | |
| Contributory Years | | Annual Accrual Rate |
| From | To | |
| 0 | 15 | 0.77% |
| 15.01 | 18 | 0.84% |
| 18.01 | 21 | 0.90% |
| 21.01 | 24 | 0.96% |
| 24.01 | 27 | 1.03% |
| 27.01 | 30 | 1.21% |
| 30.01 | 33 | 1.98% |
| 33.01 | 36 | 2.50% |
| 36.01 | 40 | 2.55% |
| 40.01 onwards | | 0.50% |

## Average pensionable salary:

For calculating the contributory component of the pension, the pensionable earnings are derived taking into account the average monthly earnings of the insured for the whole insurance life. This average is calculated as the total earnings divided by his total insurance period. Total earnings are the sum of the monthly earnings subject to contributions throughout insurance life.

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From 1.1.2019 onwards, for the calculation of pensionable salary of self-employed the level of pensions' contributions paid, divided by 0,20, is taken into account. Specifically, for farmers and for the period until 31.12.2019 the contributions paid are divided by 0.18, for the period from 1.1.2020 to 31.12.2020 the contributions paid are divided by 0.19 and for the period from 1.1.2021 to 31.12.2021 the contributions paid are divided by 0.195. Any social sources in favor of the corresponding funds for the pre 2016 period and any contributions paid by the employer are taken into account on an individual basis.

For insured retiring from the entry into force of the law 4387 the pensionable earnings are derived taking into account monthly earnings of the insured from 2002 until the day the person applies for pension.

Maximum and minimum pensionable earnings for salaried insured with full employment are given in table C.

| TABLE C | | |
|---|---|---|
| Pensionable Earnings for Salaried Insured | 2022 | 2023 |
| Max pensionable earnings | 6,500 € | 7,126.94 € |
| Min pensionable earnings | 713 € | 780€ |

## Valorization of pensionable earnings:

For the period up to 2024, pensionable earnings are valorized by the change in the average annual overall consumer price index (CPI) published by Hellenic Statistical Authority (ELSTAT), while from 2025 onwards pensionable earnings are valorized by annual change in wages (a salary change index will be calculated by ELSTAT).

## Harmonization of contributions:

Under law 4387, all social insurance contribution rates are gradually harmonized with those of IKA-ETAM (20%). In cases of insured persons who have paid or will pay contributions higher than those of IKA-ETAM, the contributory pension is increased by an additional amount. This amount is calculated with an annual replacement rate of 0.075% for each percentage point (1%) of additional contribution. The pensionable salary in this case is derived taking into account the basis for calculating the additional contribution.

Law 4670/2020 introduced insurance classes effective from 2020 onwards for self-employed (table D1) and farmers (ex. OGA) (table D2). The insured can freely choose the class to be insured every year. Choosing one of the six levels is compulsory. If the

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insured does not choose a level, he / she shall be forcibly classified in the first one. The insured may at his/her request choose a higher level.[6]

Insurance classes amounts are adjusted in 2023 and 2024 by CPI and from 2025 onwards by the annual change in wages.

This amendment was adopted by law 4670/2020, due to Council of State ruling.

| TABLE D1 SSC for Main Pension - Self Employed | | |
|---|---|---|
| Level of SCC | Monthly Amount (in euro) 2022 | Monthly Amount (in euro) 2023 |
| 1st | 155 € | 169.95 € |
| 2nd | 186 € | 203.94 € |
| 3rd | 236 € | 258.76 € |
| 4th | 297 € | 325.65 € |
| 5th | 369 € | 404.59 € |
| 6th | 500 € | 548.23 € |

| TABLE D2 SSC for Main Pension - Farmers Monthly Amounts (in euro) | | | | |
|---|---|---|---|---|
| Levels of SSC | 2020 | 2021 | 2022 | 2023 |
| 1st | 87 | 89 | 91 | 99.78 |
| 2nd | 104 | 107 | 110 | 120.61 |
| 3rd | 132 | 136 | 139 | 152.41 |
| 4th | 166 | 171 | 175 | 191.88 |
| 5th | 207 | 212 | 218 | 239.03 |
| 6th | 280 | 288 | 296 | 324.55 |

### Pro-rating pension benefits:

There is a 15-year transition period for new retirees of OGA, during which a pro-rata pension is granted. For insured retiring from 1.1.2017 until the end of 2030 the amount of pension is derived from the sum of two sub-amounts: by a% of the amount resulting from the old provisions of OGA and by b% of the sum of the national and the contributory pension according to L.4387/2016. Table D below shows the values for a% & b%.

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[6] For all self-employed, initially law 4387/2016 introduced that monthly earnings are the actual income on which contributions have been paid throughout their insurance life.

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For insured of OGA retiring during 2016 the old provisions of OGA are applied.

| TABLE D | | | | | | |
|---|---|---|---|---|---|---|
| **% PRO RATA FOR NEW RETIREES OF OGA (FARMERS)** | | | | | | |
| 2017 | 93.80% | | | 2017 | 6.20% | |
| 2018 | 87.10% | | | 2018 | 12.90% | |
| 2019 | 80.40% | | | 2019 | 19.60% | |
| 2020 | 73.70% | | | 2020 | 26.30% | |
| 2021 | 67.00% | | | 2021 | 33.00% | |
| 2022 | 60.30% | Old System (a%) | | 2022 | 39.70% | New System (b%) |
| 2023 | 53.60% | | | 2023 | 46.40% | |
| 2024 | 46.90% | | | 2024 | 53.10% | |
| 2025 | 40.20% | | | 2025 | 59.80% | |
| 2026 | 33.50% | | | 2026 | 66.50% | |
| 2027 | 26.80% | | | 2027 | 73.20% | |
| 2028 | 20.10% | | | 2028 | 79.90% | |
| 2029 | 13.40% | | | 2029 | 86.60% | |
| 2030 | 6.70% | | | 2030 | 93.30% | |
| 2031 | 0.00% | | | 2031 | 100.00% | |

## Pension indexation:

Pension indexation is fully linked to a uniform adjustment index which cannot exceed CPI. In particular, the index is equal to the minimum of CPI and the sum of 50% CPI and 50% GDP growth [min (50% GDP growth +50% CPI, CPI)].

## Minimum/maximum pension amount:

A monthly minimum amount for survivors' pensions was introduced by Law 4499/2017. This is defined as the full amount of the national pension for 20 years of insurance (€413.76 as of 2023) or, in case of the insured's death with up to 15 years of insurance, € 387.9 (as of 2023) per month.

A monthly maximum pension amount for main pensions was introduced by law 4623/2019 and a monthly maximum pension amount for auxiliary pensions was introduced by law 4997/2022. The relevant amounts for 2023 are 4,965.12€ and 1,489.54€ respectively.

## Invalidity pensions:

Current legislation provides unified eligibility rules for invalidity pensions. The contributory pension component is calculated under the same rules (accrual rates, pensionable salary calculation) as old age pensions.

A monthly allowance (constant-attendance allowance) is paid if the insured is assessed with a severe disability and requires the constant attendance of others to perform daily functions. This allowance is given to insureds who receive a disability and survivor's pension. The allowance for those first insured up to 31/12/1992 equals to 50% of the pension paid, while for those first insured as of 1/1/1993 is a constant amount (in 2023 equals to 186.77€). The allowance is not provided to Public Sector insured.

An allowance (for deinstitutionalization) is provided to insured/pensioners with a severe disability e.g., paraplegia. The monthly amount of the allowance amounts to €846.00 as of 1/5/2023 (or €423.00 in the case of a single amputation). The allowance is not provided to Public Sector insured.

## Survivor pensions:

The eligibility rules for survivors' pensions have been unified. The contributory pension amount is awarded under the same rules (accrual rates, pensionable salary calculation) as old age pensions. The survivors' pensions are paid to surviving spouses regardless of their age.[7]

Survivors' pensions to orphan children are paid if they are unmarried and under 24 years of age.[8]

## Life expectancy:

The legislation stipulates a retirement age increase mechanism from year 2021 onwards, that will adjust the retirement age in line with life expectancy every three years.

### 1.2.2. Auxiliary pension provision

### i. NDC system

The auxiliary pension scheme provides old-age pensions as well as pensions to disabled and survivors. Before 1.1.2014 a defined benefit system was implemented.

A pay-as-you-go (PAYG) notional defined contribution system (NDC) was introduced with the following elements:

(i) The notional rate of return, which is the annual growth in pensionable earnings (contributory earnings) of all insured with the Fund, applied for the accumulation of contributions (after the introduction of the new DC system, the notional rate of return will result from the annual growth of the sum of the pensionable earnings of the insured persons of the NDC system, the insured persons of DC system who are obliged to be covered for auxiliary pension by TEKA, as well as the insured persons who were formerly compulsorily covered for auxiliary pension by the NDC system and exercised the right of optional inclusion in the insurance of TEKA).

(ii) The life expectancy at retirement, applied for the calculation of the amount of pension.

(iii) A balancing mechanism applied to guarantee the system's financial stability (no pension indexation in case of deficit).

## Benefits Calculation:

The amount of pension paid must be entirely linked to the pensioner's age.

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[7] Initially with Law 4387/2016 pension was awarded to the surviving spouse, provided he/she had completed the 55th year of age at the time of death of the pensioner or of the insured person. If he/she had completed the 52nd year of age at the above time, he/she was entitled to a pension for a period of three (3) years, after the lapse of which the payment of the pension would be suspended until the completion of the 67th year of age. If he/she had not completed the 52nd year of age at the above time, he/she was entitled to a pension for a period of three (3) years. The above age threshold of 52 and 55 years were abolished by law 4611/2019.

[8] For children, initially with Law 4387/2016 a pension was awarded under the condition that: a) they are not married and they have not completed the 18th year of their age. This limit is extended until the 24th year of their age, provided they are studying. With law 4611/2019, survivors' pensions to orphan children are paid if they are unmarried and under 24 years of age (other limitations, e.g. eligibility of students only, are abolished).

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In order to calculate the amount of old-age pension, a whole life annuity is used, taking into account the transfer of pension rights to Assignees (survivors).
Disability pensions are calculated using the proper age annuity for each case.
Whole life annuities are recalculated every three years (change in life expectancy).

## Pro-rating pension benefits :

For those insured before 1.1.2014, the new system is implemented pro rata starting on 1.1.2015 and they are awarded a pension which consists of two components:
- ✓ The first component part is using the arrangements of the DB system (accrual rate 0.45% and pensionable earnings calculated according to the method of the main pension) for as many years as the insured worked before 1.1.2015.
- ✓ The second component is using the NDC arrangements for as many years as the insured worked after 1.1.2015.

## Indexation:

The formula for auxiliary pensions benefits indexation is: $\gamma_t = \min\left(\left[1 + g_{t-2} - r\right] - 1, \mathrm{CPI}_{t-1}\right)$

Where

$g_{t-2}$ : notional rate of return,

r :discount rate=1.3% (used in annuities calculation)

$\mathrm{CPI}_{t-1}$ : Consumer Price Indexation

The indexation can take negative values.

ii. DC System

A gradual transition of the public Auxiliary Pension System is introduced, from the NDC 'Pay-As-You-Go' system to a Funded Defined Contributions system.

Participation is mandatory for new entrants to the labour market from 1/1/2022 onwards for whom the participation in auxiliary insurance is compulsory.

Participation is optional/ voluntary for :
- ✓ persons aged below 35, who wish to be transferred from the existing to the new auxiliary pension system (this option is given during 2023),
- ✓ self-employed aged below 35, for whom the existing auxiliary pension system is not mandatory.

## Benefits Calculation:

"Actuarially neutral" pensions (lifelong annuity) will be provided after retirement along with the main pension based on accumulated contributions and net investments returns credited to the individual account.

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iii.    Funding Gap of the existing NDC system

According to article 59 of L.4826/2021, the State shall cover from the State budget the depreciation of resources of the auxiliary pension branch of e-EFKA from insurance contributions (existing NDC scheme) due to the introduction and operation of the funded auxiliary pension scheme (new funded DC scheme).

### 1.2.3.    Other welfare benefits

#### Uninsured elders' benefits

A social allowance is granted to the uninsured elders if they meet the following conditions:
✓ They have reached the age of 67.
✓ They do not receive or are not entitled to a pension.

The allowance is a non-contributory, flat-rate, means tested benefit. Its current value for 2023 is €387.90 per month, payable 12 months per year.

### 1.2.4.    Additional measures to control expenditure

#### Measures to control main pension expenditure include:

i.    Benefits indexation was frozen up to 2022.
ii.    Main Pensions Recalibration

All pensions granted up to the entry into force of the law 4387 are recalibrated according to the new system's rules. Each pension is captured in the IT System files with the following components:
   ✓ National pension
   ✓ Contributory pension according to the new rules
   ✓ Personal difference, as the difference between the pension amount according to the old and new rules.

Personal differences that correspond to pensions with lower pension amount according to the new rules are compensated with future pension indexation starting from 2023 onwards.

Personal differences that correspond to pensions with higher pension amount according to the new rules are granted in 5 installments starting from 2019 onwards.

### 1.2.5.    Overview of legislation amendments after AR2021 projections

I.    Legislation amendments

The legislation amendments related to the Greek Pension System following the last pension projections (peer reviewed in November 2020) are briefly described below :

- #### Introduction of a defined contribution system for auxiliary pensions

Greek parliament adopted a new law (4826) in September 2021 incorporating a reform regarding the auxiliary pension insurance. By this law:

- a new auxiliary pensions fund is established, named "TEKA" in Greek, operating as a defined contributions funded pension scheme.
- a gradual transition of the public Auxiliary Pension System is introduced, from a Notional Defined Contributions 'Pay-As-You-Go' system to a Funded Defined Contributions system.

Participation in TEKA is mandatory for new entrants to the labour market from 1/1/2022 onwards for whom the participation in auxiliary insurance is compulsory.

Participation in TEKA will be optional/ voluntary for:

i.   persons aged below 35, who wish to be transferred from the existing to the new auxiliary pension system. This option is given during 2023.
ii.  Self-employed aged below 35, for whom the existing auxiliary pension system is not mandatory.

Key elements for DC system:

✓ Contributions will remain at the same level with the ones of the existing auxiliary pension plan (6% of reference earnings for employees or a fixed amount (existing insurance classes) for self-employed.
✓ Risks covered: Old age, invalidity, survivor.
✓ More than one life cycle investment programs can be provided with diversified investment risk.
✓ "Actuarially neutral" pension (lifelong annuity) will be provided after retirement along with the main pension based on accumulated contributions and net investments returns credited to the individual account.
✓ The State guarantees the payment of a minimum contributory monthly pension calculated on the basis of the actual value of the total contributions paid accumulated by CPI (article 60).
✓ The balance of the individual account, based on which an invalidity or survivor's pension is calculated, may not be less than the capital that would have been accumulated with fifteen (15) years of insurance and remuneration equal to the statutory minimum wage of an employee for full-time employment. If this is not the case, the difference shall be covered by a transfer from the State budget (articles 54 & 55).

- **Invalidity pensions for self-employed and farmers**

Article 26 of Law 4997/2022 redefined the conditions for retirement due to disability from a common disease with a uniform degree of disability (assessed severeness of disability) for all e-EFKA insured persons of at least 50%. For receiving an invalidity pension from a common disease, similar conditions apply to all insured persons of former social security institutions which joined e-EFKA, regardless of the date of first insurance (prior 31/12/1992 or after 1/1/1993). As a result:

From the entry into force of the above law self-employed first insured before 1/1/1993 are eligible for an invalidity pension with a minimum required percentage of disability of 50% (instead of 67% applicable up to then).

For farmers, for the year 2024, the minimum required percentage of disability is set to 59% (instead of 67% applicable up to then), while from 1-1-2025 the minimum required percentage of disability is set to 50%.

II.     Overview of legislation amendments expected  by the end of 2023

## Pensioners who continue to work after retirement

A new provision is expected to enter in force by the end of 2023, for the abolition of the 30% penalty applied to the pensions of those pensioners who continue to be employed.  The new provision for working pensioners will come into effect from 2024. The current reduction of the pension by 30%, will be replaced by a contribution applied to the individual's insurable base (working earnings for salaried persons and insurance classes amounts for self-employed). This contribution is not taken into account in future recalculation of the pension amount.

## Introduction of uniform rules/conditions for awarding an auxiliary pension

A new provision is expected to enter in force by the end of 2023, for unifying eligibility rules of awarding auxiliary pensions. With the new provision, an auxiliary pension is awarded with at least 15 years of insurance in the auxiliary pension system provided that the beneficiary receives already a main pension. This rule is already applicable to former IKA-ETAM insured (private sector employees).

## 2. DEMOGRAPHIC AND LABOUR FORCES PROJECTIONS[9]

### 2.1. Demographic Development

The evolution of main demographic variables is given in table 2. The population is projected by EUROSTAT and decreases from 10,438 million in 2022 to 7,777 million in 2070. Furthermore, the old-age dependency ratio increases from 39.0 in 2022 up to 74.4 in 2050 and then decreases to 66.0 in 2070.

Life expectancy at birth, for men increases from 78.8 in 2022 to 86.5 in 2070 and for women, also increases from 84.2 in 2022 to 90.4 in 2070. Life expectancy at 65 for men, goes from 18.7 in the base year to 23.9 at the end of the projection period, while for women goes from 21.7 to 26.7. Evolution of life expectancy at 65 is an important factor for the projection, as statutory retirement ages are automatically linked to this factor.

The net migration over population decreases from 0.2% in 2022 to 0.0% in 2030, reaches 0.1% in 2040 and from 2060 stabilizes to 0.2%.

| Table 2<br>Main demographic variables evolution | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 2022 | 2030 | 2040 | 2050 | 2060 | 2070 | peak value | peak year | change 2022-2070 |
| Population (thousand) | 10,438 | 10,004 | 9,475 | 8,935 | 8,318 | 7,777 | 10,438 | 2022 | -2,661 |
| Population growth rate | -1.2% | -0.6% | -0.5% | -0.7% | -0.7% | -0.6% | -0.4% | 2023 | 0.7% |
| Old-age dependency ratio (pop 65+ / pop 20-64) | 39.0 | 46.0 | 60.6 | 74.4 | 72.1 | 66.0 | 75.0 | 2053 | 27.0 |
| Old-age dependency ratio (pop 75+ / pop 20-74) | 16.5 | 18.8 | 24.6 | 32.9 | 39.0 | 35.3 | 39.0 | 2060 | 18.8 |
| Ageing of the aged (pop 80+ / pop 65+) | 31.3 | 30.6 | 32.9 | 37.9 | 47.0 | 49.0 | 50.2 | 2066 | 17.7 |
| Men - Life expectancy at birth | 78.8 | 80.5 | 82.2 | 83.7 | 85.2 | 86.5 | 86.5 | 2070 | 7.7 |
| Women - Life expectancy at birth | 84.2 | 85.5 | 86.8 | 88.1 | 89.3 | 90.4 | 90.4 | 2070 | 6.2 |
| Men - Life expectancy at 65 | 18.7 | 19.8 | 20.9 | 22.0 | 23.0 | 23.9 | 23.9 | 2070 | 5.2 |
| Women - Life expectancy at 65 | 21.7 | 22.7 | 23.8 | 24.8 | 25.8 | 26.7 | 26.7 | 2070 | 5.0 |
| Men - Survivor rate at 65+ | 85.0 | 87.0 | 89.1 | 90.8 | 92.2 | 93.5 | 93.5 | 2070 | 8.5 |
| Women - Survivor rate at 65+ | 93.1 | 94.1 | 95.0 | 95.7 | 96.3 | 96.8 | 96.8 | 2070 | 3.7 |
| Men - Survivor rate at 80+ | 55.7 | 60.8 | 66.0 | 70.6 | 74.7 | 78.3 | 78.3 | 2070 | 22.5 |
| Women - Survivor rate at 80+ | 74.6 | 78.3 | 81.5 | 84.2 | 86.6 | 88.6 | 88.6 | 2070 | 14.0 |
| Net migration (thousand) | 21.5 | -4.3 | 5.2 | 8.2 | 12.6 | 19.5 | 21.5 | 2022 | -2.0 |
| Net migration (% population previous year) | 0.2% | 0.0% | 0.1% | 0.1% | 0.2% | 0.2% | 0.2% | 2070 | 0.0% |

**GRAPH 1** shows the age pyramid comparison between 2022 and 2070 for men and women.

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[9] For more details, see European Commission and EPC (2023), '2024 Ageing Report: Underlying assumptions and projection methodologies', European Economy, Institutional Paper 257.

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Males / Females — Age groups — thousand — 2070 / 2022
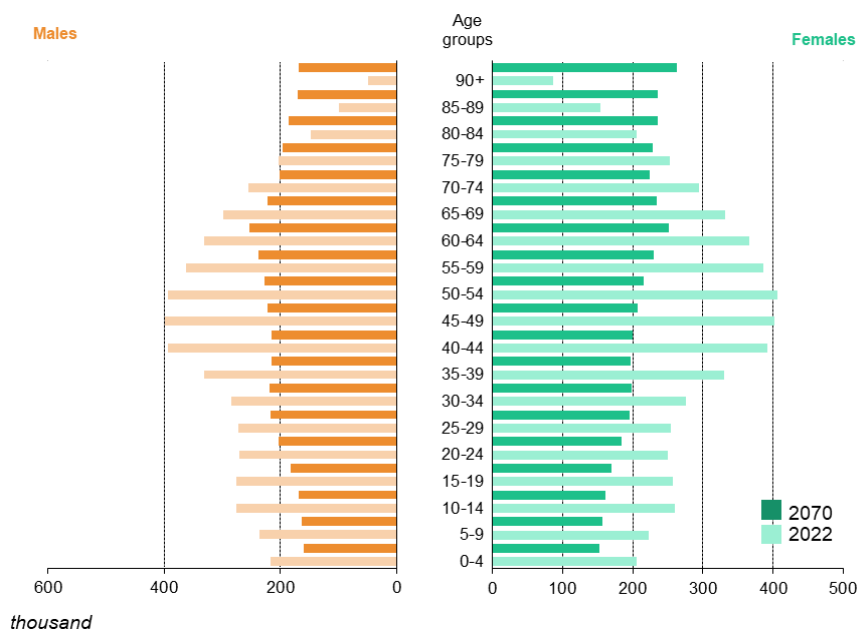
## 2.2. Labour Force

Overall, labor force participation is projected to increase for workers aged 20-64 (from 75.4% in 2022 to 79.9% in 2070 – table 3) as well as for workers aged 20-74 (from 64.7% in 2022 to 69.7% at the end of the projection– table 3).

Increase in labor force participation is projected for workers aged 55-64 (from 57.4% in 2022 to 78.2% in 2070 – table 3) and also for workers aged 65-74 (from 9.3% in 2022 to 24.3% in 2070 – table 3).

Employment rate for workers aged 65-74, increases from 8.6% in 2022 to 23.3% in 2070, which affects the projection results.

| Table 3 Participation rate, employment rate and share of workers for the age groups 55-64 and 65-74 | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 2022 | 2030 | 2040 | 2050 | 2060 | 2070 | peak value | peak year | change 2022-2070 |
| Labour force participation rate 20-64 | 75.4 | 76.3 | 77.6 | 79.1 | 79.6 | 79.9 | 79.9 | 2070 | 4.5 |
| Employment rate of workers aged 20-64 | 66.1 | 68.7 | 71.1 | 73.9 | 74.4 | 74.7 | 74.7 | 2070 | 8.6 |
| Share of workers aged 20-64 in the labour force 20-64 | 87.6 | 90.1 | 91.5 | 93.4 | 93.5 | 93.5 | 93.5 | 2060 | 5.8 |
| Labour force participation rate 20-74 | 64.7 | 63.9 | 63.4 | 64.3 | 68.1 | 69.7 | 69.7 | 2070 | 4.9 |
| Employment rate of workers aged 20-74 | 56.8 | 57.7 | 58.1 | 60.2 | 63.8 | 65.2 | 65.2 | 2070 | 8.4 |
| Share of workers aged 20-74 in the labour force 20-74 | 87.7 | 90.2 | 91.7 | 93.5 | 93.6 | 93.7 | 93.7 | 2070 | 5.9 |
| Labour force participation rate 55-64 | 57.4 | 65.5 | 70.9 | 74.0 | 76.5 | 78.2 | 78.2 | 2070 | 20.8 |
| Employment rate of workers aged 55-64 | 52.2 | 60.8 | 66.5 | 70.4 | 72.9 | 74.5 | 74.5 | 2070 | 22.3 |
| Share of workers aged 55-64 in the labour force 55-64 | 91.0 | 92.7 | 93.8 | 95.2 | 95.2 | 95.2 | 95.3 | 2067 | 4.2 |
| Labour force participation rate 65-74 | 9.3 | 9.9 | 13.9 | 16.8 | 19.9 | 24.3 | 24.3 | 2070 | 15.0 |
| Employment rate of workers aged 65-74 | 8.6 | 9.3 | 13.2 | 16.1 | 19.1 | 23.3 | 23.3 | 2070 | 14.8 |
| Share of workers aged 65-74 in the labour force 65-74 | 91.7 | 93.9 | 94.8 | 96.0 | 96.1 | 96.1 | 96.1 | 2055 | 4.3 |
| Median age of the labour force | 43.0 | 45.0 | 44.0 | 43.0 | 44.0 | 44.0 | 45.0 | 2029 | 1.0 |

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Due to pension reforms the average contributory period will reach 38.4 years (38.5 for men and 38.3 for women) by 2070 (tables 4, 4a & 4b respectively).

Percentage of adult life spent in retirement remains stable for both men and women at the level of 30% over the projection period.

| TABLE 4 Labour market effective exit age and expected duration of life spent at retirement | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 2022 | 2030 | 2040 | 2050 | 2060 | 2070 | peak value | peak year | change 2022-2070 |
| Average effective retirement age* | 63.8 | 65.5 | 66.4 | 66.6 | 67.4 | 67.9 | 67.9 | 2069 | 4.1 |
| Average labour market exit age (CSM)** | 63.8 | 64.6 | 65.6 | 66.4 | 66.9 | 67.5 | 67.5 | 2070 | 3.7 |
| Contributory period | 31.9 | 32.4 | 31.5 | 34.3 | 35.9 | 38.4 | 38.4 | 2070 | 6.6 |
| Duration of retirement*** | 21.1 | 21.3 | 21.6 | 22.6 | 22.6 | 22.6 | 23.5 | 2069 | 1.6 |
| Duration of retirement/contributory period | 0.7 | 0.7 | 0.7 | 0.7 | 0.6 | 0.6 | 0.7 | : | -0.07 |
| Percentage of adult life spent in retirement**** | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 2069 | 0.0 |
| Early/late exit***** | 3.1 | 7.0 | 6.4 | 6.6 | 7.3 | 17.4 | 20.1 | 2069 | 14.3 |

* The 'average effective retirement age' is the age at which people start receiving a pension benefit (old-age, early or disability). It is calculated on the basis of the administrative data on new pensioners for 2022, showing projected data for the other years for the total. ** 'Average labour market exit age (Cohort Simulation Model)' refers to 2023 instead of 2022. *** 'Duration of retirement' is the remaining life expectancy at the average labour market exit age. **** 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 exit the labour market before reaching the statutory retirement age and those who exit at or beyond the statutory retirement age. For 2022, the value refers to 2023.

| TABLE 4a Labour market effective exit age and expected duration of life spent at retirement – MEN | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 2022 | 2030 | 2040 | 2050 | 2060 | 2070 | peak value | peak year | change 2022-2070 |
| Average effective retirement age* | 63.6 | | | | | | | | |
| Average labour market exit age (CSM)** | 63.8 | 64.6 | 65.6 | 66.4 | 66.9 | 67.5 | 67.5 | 2070 | 3.7 |
| Contributory period | 32.5 | 32.7 | 32.7 | 34.8 | 36.3 | 38.5 | 38.5 | 2070 | 6.0 |
| Duration of retirement*** | 19.5 | 19.8 | 20.2 | 21.2 | 21.3 | 21.3 | 22.1 | 2069 | 1.8 |
| Duration of retirement/contributory period | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | : | 0.0 |
| Percentage of adult life spent in retirement**** | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 2069 | 0.0 |
| Early/late exit***** | 3.2 | 6.4 | 6.5 | 6.8 | 8.2 | 15.9 | 19.0 | 2069 | 12.7 |

* The 'average effective retirement age' is the age at which people start receiving a pension benefit (old-age, early or disability). It is calculated on the basis of the administrative data on new pensioners for 2022, showing projected data for the other years for the total. ** 'Average labour market exit age (Cohort Simulation Model)' refers to 2023 instead of 2022. *** 'Duration of retirement' is the remaining life expectancy at the average labour market exit age. **** 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 exit the labour market before reaching the statutory retirement age and those who exit at or beyond the statutory retirement age. For 2022, the value refers to 2023.

| TABLE 4b |
|---|
| **Labour market effective exit ahe and expected duration of life spent at retirement – WOMEN** |

| | 2022 | 2030 | 2040 | 2050 | 2060 | 2070 | peak value | peak year | change 2022-2070 |
|---|---|---|---|---|---|---|---|---|---|
| Average effective retirement age* | 64.1 | | | | | | | | |
| Average labour market exit age (CSM)** | 63.7 | 64.6 | 65.5 | 66.3 | 66.9 | 67.5 | 67.5 | 2070 | 3.8 |
| Contributory period | 30.8 | 31.9 | 30.4 | 33.8 | 35.5 | 38.3 | 38.3 | 2070 | 7.5 |
| Duration of retirement*** | 22.6 | 22.7 | 22.9 | 23.9 | 23.9 | 23.9 | 24.8 | 2069 | 1.3 |
| Duration of retirement/contributory period | 0.7 | 0.7 | 0.8 | 0.7 | 0.7 | 0.6 | 0.8 | : | -0.11 |
| Percentage of adult life spent in retirement**** | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 2028 | 0.0 |
| Early/late exit***** | 3.1 | 7.7 | 6.4 | 6.3 | 6.5 | 19.0 | 21.2 | 2069 | 15.9 |

\* The 'average effective retirement age' is the age at which people start receiving a pension benefit (old-age, early or disability). It is calculated on the basis of the administrative data on new pensioners for 2022, showing projected data for the other years for the total. ** 'Average labour market exit age (Cohort Simulation Model)' refers to 2023 instead of 2022. *** 'Duration of retirement' is the remaining life expectancy at the average labour market exit age. **** 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 exit the labour market before reaching the statutory retirement age and those who exit at or beyond the statutory retirement age. For 2022, the value refers to 2023.

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# 3. PENSION PROJECTION RESULTS

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

This projection exercise covers the pension expenditure of the main and auxiliary provision.

In table 5, the total public pension expenditure is presented as defined by Eurostat (ESSPROS) and AWG.

| TABLE 5 Eurostat (ESSPROS) vs. Ageing Working Group definition of pension expenditure (% GDP) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | change 2013- last available year |
| Eurostat total pension expenditure | 16.8 | 17.3 | 17.8 | 17.7 | 16.8 | 16.2 | 16.1 | 17.8 | : | 1.0 |
| Eurostat public pension expenditure (A) | 16.7 | 17.2 | 17.7 | 17.6 | 16.7 | 16.1 | 16.0 | 17.7 | : | 1.0 |
| Public pension expenditure (AWG: outcome) (B) | 16.7 | 17.2 | 17.7 | 17.6 | 16.8 | 16.1 | 16.0 | 17.7 | 16.4 | -0.3 |
| Difference Eurostat/AWG: (A)-(B) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | : | 0.0 |
| Expenditure categories not considered in the AWG definition | | | | | | | | | | |

In line 2 of the above table, benefit expenditure of main and auxiliary pension, means tested benefits (Uninsured benefits, EKAS) as well as dividends are included.

### 3.1.1. Main pension provision

The schemes modeled cover 100% of the 2022 main pension benefit expenditure. The total main benefit expenditure is 12.6%, of GDP in 2022.

### 3.1.2. Auxiliary pension provision

The public auxiliary NDC scheme which operates under e-EFKA (ex. ETEAEP) and the new public mandatory DC scheme (TEKA) were modeled. TEKA operates as of 2022.

The total auxiliary benefit expenditure is 1.9% of GDP in 2022.

The pension expenditure of ex. ETEAEP is approximately 83.65% (1.59% of GDP) of the total auxiliary benefit expenditure for the year 2022.

In order to guarantee the full (100%) coverage in the projections, there has been a loading on the amount of total benefits (0.3% of GDP in 2022) for the rest of the funds which are not explicitly modeled. The loading covers dividend schemes (public sector/MTPY, army, navy, and air force).

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## 3.2. Overview of projection results

| TABLE 6 Projected gross and net pension spending and contributions (% of GDP) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Expenditure** | 2022 | 2030 | 2040 | 2050 | 2060 | 2070 | peak value | peak year | change 2022-2070 |
| Gross public pension expenditure | 14.5 | 12.7 | 13.7 | 14.0 | 12.7 | 12.0 | 14.5 | 2022 | -2.5 |
| Private occupational pensions | | | | | | | | | |
| Private individual mandatory pensions | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.2 | 2070 | 0.2 |
| Private individual non-mandatory pensions | | | | | | | | | |
| Gross total pension expenditure | 14.5 | 12.7 | 13.7 | 14.0 | 12.7 | 12.2 | 14.5 | 2022 | -2.3 |
| Net public pension expenditure* | 12.6 | 11.0 | 11.9 | 12.2 | 11.0 | 10.4 | 12.6 | 2022 | -2.3 |
| Net total pension expenditure* | 12.6 | 11.0 | 11.9 | 12.2 | 11.0 | 10.6 | 12.6 | 2022 | -2.1 |
| **Contributions** | | | | | | | | | |
| Public pension contributions | 12.5 | 12.1 | 12.4 | 12.2 | 11.3 | 10.4 | 12.5 | 2044 | -2.1 |
| Total pension contributions | 12.5 | 12.3 | 12.8 | 13.0 | 12.3 | 11.7 | 13.0 | 2044 | -0.8 |
| Balance of the public pension system ** | -2.0 | -0.6 | -1.3 | -1.8 | -1.4 | -1.6 | -2.0 | 2022 | 0.4 |

*Net pension expenditure excludes taxes on pensions and compulsory social security contributions paid by beneficiaries.

**Public pension contributions - gross public pension expenditure (peak value/year shows most negative value).

The main points in relation to table 6 are:

✓ Gross public pension expenditure amounted to 14.5% of GDP in 2022 while the respective amount for 2070 reaches 12.0%. This represents a total decrease of 2.5% of GDP over the projection period 2022-2070. The maximum value of 14.5% of GDP is obtained in 2022. Expenditure of new auxiliary DC scheme (TEKA - started operating in 2022), reported under private individual mandatory pensions, gradually reaches 0.2% of GDP in 2070. Overall, gross total pension expenditure amounted to 14.5% of GDP in 2022 while the respective amount for 2070 reaches 12.2%. This represents a total decrease of 2.3% of GDP over the projection period 2022-2070. The maximum value of 14.5% of GDP is obtained in 2022.

✓ Net public pension expenditure amounted to 12.6% of GDP in 2022 while the respective amount for 2070 reaches 10.4% of GDP. Net total pension expenditure in 2070 (including new DC scheme) reaches 10.6% of GDP.

✓ Public pension contributions from employers, employees and state for the public pension funds decreases from 12.5% of GDP in 2022 to 10.4% of GDP in 2070. Total pension contributions, (including also employer and employee contributions to the new DC scheme) decrease from 12.5% of GDP in 2020 to 11.7% of GDP in 2070.


NOTES:

1) Legislated state contribution is included in the projections. Other revenues, like assets revenues, additional government grants e.t.c. are not included in this study.

2) The decline of the total contributions is due to the decrease of state contributions. State contribution includes the financing of a) national pension, b) the auxiliary

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NDC scheme because of the depreciation of its resources from insurance contributions due to the introduction and operation of the new funded auxiliary pension scheme and c) means-tested benefits. Thus, the evolution of state contributions is affected by the evolution of the first two components as % of GDP.

3) Table 6 includes :
   i) Main, auxiliary (both NDC and new DC scheme), and uninsured benefit expenditure and the respective contributions.
   ii) Outstanding claims (new awards) for both main and auxiliary insurance and the respective benefit expenditures.
   iii) Loadings for benefits/contributions for auxiliary (dividend) funds.
   iv) Net pensions expenditure after deducting pensions' taxes (in which social security contributions are included).
      The gross benefit expenditure is subject to
      - Social Solidarity Contribution for pensioners (on average 1.3% and 1.5% for years 2022 and 2023 respectively)
      - Health contribution (on average 5.3% and 5.4% for years 2022 and 2023)
      - Taxes (6,1% and 6.5% on average for years 2022 and 2023)
      A detailed description of taxation system can be found in Annex II.

4) According to legislation, no state funding is provided for possible deficits of the auxiliary pension (ETEAEP) besides that concerning the depreciation from insurance contributions due to the introduction and operation of the new funded auxiliary pension scheme. Extra deficits are covered by fund's assets. At the end of the base year, assets (securities, cash and deposits) amount about 2.5 billion €.

5) Lump sum benefits for the base year amounted 780mil. (i.e. 0.37% GDP) while the respective contributions amounted 645mil. (0.31% GDP).

### 3.2.1.  Projection results disaggregation

| TABLE 6a | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Projection results disaggregation  (% GDP) | | | | | | | | | |
| Pension scheme | 2022 | 2030 | 2040 | 2050 | 2060 | 2070 | peak value | peak year | change 2022-2070 |
| **Total gross pension expenditure** | 14.5 | 12.7 | 13.7 | 14.0 | 12.7 | 12.2 | 14.5 | 2022 | -2.3 |
| Main pension expenditure | 12.5 | 11.0 | 12.0 | 12.3 | 11.0 | 10.5 | 12.5 | 2022 | -2.0 |
| NDC Auxiliary/Dividends pension expenditure | 1.9 | 1.6 | 1.6 | 1.6 | 1.5 | 1.3 | 1.9 | 2022 | -0.6 |
| DC Auxiliary pension expenditure | - | 0.00 | 0.00 | 0.01 | 0.04 | 0.23 | 0.23 | 2070 | 0.2 |
| Minimum pensions non-contributory  (uninsured benefits) | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.15 | 2063 | 0.04 |
| | | | | | | | | | |
| **Total pension contributions** | 12.5 | 12.3 | 12.8 | 13.0 | 12.3 | 11.7 | 13.0 | 2044 | -0.8 |
| Main Employer & Employee | 5.9 | 5.9 | 5.9 | 5.9 | 5.8 | 5.8 | 6.0 | 2036 | -0.1 |
| NDC Auxiliary/Dividends (Employer & Employee) | 1.8 | 1.5 | 1.3 | 0.9 | 0.6 | 0.3 | 1.8 | 2022 | -1.5 |
| DC Auxiliary (Employer & Employee) | 0.0 | 0.1 | 0.4 | 0.7 | 1.0 | 1.3 | 1.3 | 2070 | 1.3 |
| State | 4.8 | 4.7 | 5.2 | 5.5 | 4.9 | 4.3 | 5.5 | 2044 | -0.5 |

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Table 6a gives the disaggregation of benefit expenditure and contributions into main and auxiliary pensions and also to means-tested benefits (uninsured benefits).

It is noted that the total pension expenditure is reduced by 1.8pps from 2022 to 2030. This result is due to the following reasons :

✓ Impact of the reform regarding eligibility rules (unified for men and women) have closed paths to early retirement gradually up to 2021

✓ Impact of the reform on new main pensions

✓ Compensation of personal differences of main pensions, awarded up to May 2016, with future pension indexation starting from 2023 onwards

✓ Impact of the reform on the new auxiliary pensions, (gradual application of NDC system)

In the period 2030-2050 the benefit expenditure increases from 12.7% of GDP in 2030 to 14.0% of GDP in 2050 mainly due to :

✓ The positive effect of the increasing number of pensioners in the same period, which results from the increasing employment in the first years of the projection,

✓ The negative effect of the reforms on main and auxiliary pensions

From 2050 onwards the benefit expenditure is gradually decreasing due to :

✓ the decreasing number of pensioners, resulting from the decreasing population,

✓ the impact of the reform regarding eligibility rules (retirement age linked to life expectancy) and

✓ pension calculation rules (i.e. whole career pensionable salary, full introduction of NDC system).

✓ The public pension expenditure further decreases due to the gradual transition of the auxiliary pension scheme from PAYG NDC system to funded DC system.

State contribution includes also the financing of the auxiliary NDC scheme because of the depreciation of its resources from insurance contributions due to the introduction and operation of the new funded auxiliary pension scheme.

As a gradual transition to the new DC system is introduced by law, the annual financing gap of the NDC system is small in the beginning (0.013% of GDP in 2022) and gradually increases, reaching 0.55% of GDP around the middle of the projection period and its peak value of about 1.1% of GDP at the end of the projection horizon.

### 3.2.2. Projection results by scheme

Table 7 gives the analysis of the expenditure results by pension scheme.

| TABLE 7 | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Projection results disaggregation  (%GDP) | | | | | | | | | |
| Pension scheme | 2022 | 2030 | 2040 | 2050 | 2060 | 2070 | peak value | peak year | change 2019-2070 |
| Total public pensions | 14.5 | 12.7 | 13.7 | 14.0 | 12.7 | 12.0 | 14.5 | 2022 | -2.5 |
| Old-age and early pensions | 10.5 | 9.5 | 10.6 | 11.2 | 10.1 | 9.8 | 11.2 | 2050 | -0.8 |
| Flat component | 3.5 | 3.3 | 3.7 | 3.7 | 3.0 | 2.5 | 3.9 | 2044 | -1.0 |
| Earnings-related | 6.9 | 6.1 | 6.7 | 7.3 | 6.9 | 7.2 | 7.3 | 2052 | 0.2 |
| Minimum pensions (non-contributory) i.e. minimum income guarantee for people above 65 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.15 | 2063 | 0.0 |
| Disability pensions | 0.9 | 0.7 | 0.7 | 0.6 | 0.6 | 0.5 | 0.9 | 2022 | -0.4 |
| Survivors' pensions | 2.2 | 2.2 | 2.2 | 2.0 | 1.8 | 1.5 | 2.3 | 2036 | -0.7 |
| Loadings (Main & Auxiliary) | 0.9 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.9 | 2022 | -0.7 |
| Other pensions | | | | | | | | | |

Old-age benefits, decline from 10.5% at 2022 to 9.5% up to 2030 and then increase to 11.2% up to 2050 and finally decline to 9.8% at the end of the projection period.

Survivors' pensions benefits are also decreasing from 2.2% of GDP in 2022 to 1.5% in 2070.

For disability pensions, expenditure decreases from 0.9% of GDP in 2022 to 0.5% in 2070.

The decrease in pension expenditure for all pension schemes is due to the reasons referred in paragraph 3.2.1.

The lower disability incidence rates observed in recent years and used in the projections contribute further to the downward disability pensions expenditure evolution, and also to an upward trend of old-age pensions expenditure evolution.

Loadings for 2022 include retroactive amounts regarding up to the base year outstanding claims and Dividend Funds (included under auxiliary pension) benefits.

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### 3.2.3.  Projection results for Special Pension Schemes

Tables 7a & 7b show the evolution regarding benefit expenditure and number of pensions for special pensions schemes.

| TABLE 7a | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Special Pensions: Benefit Expenditure (%GDP)** | | | | | | | | | |
| | 2022 | 2030 | 2040 | 2050 | 2060 | 2070 | peak value | peak year | change 2019-2070 |
| **Total (%GDP)** | 2.0 | 1.8 | 2.1 | 2.1 | 1.7 | 1.3 | 2.2 | 2044 | -0.7 |
| Difficult conditions | 1.3 | 1.3 | 1.4 | 1.4 | 1.1 | 0.8 | 1.4 | 2044 | -0.5 |
| Security and defence | 0.7 | 0.5 | 0.6 | 0.8 | 0.6 | 0.5 | 0.8 | 2050 | -0.2 |

| TABLE 7b | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Special Pensions: Number of Pensions (% of public pensions)** | | | | | | | | | |
| | 2022 | 2030 | 2040 | 2050 | 2060 | 2070 | peak value | peak year | change 2019-2070 |
| **Total (% of public pensions)** | 13.7 | 13.4 | 14.1 | 14.0 | 12.3 | 9.8 | 14.3 | 2044 | -3.8 |
| Difficult conditions | 10.8 | 10.7 | 11.0 | 10.5 | 9.3 | 7.2 | 11.0 | 2040 | -3.6 |
| Security and defence | 2.9 | 2.7 | 3.1 | 3.5 | 3.0 | 2.6 | 3.5 | 2050 | -0.3 |

It is noted that the total pension expenditure for special pensions is reduced from 2.0% at 2022 to 1.3% up to 2070.  Also, the share of special pensions (as a proportion of the total number of pensions) decreases by 3.8pps between 2022 and 2070.

The decrease in special pensions (number of pensions, benefit expenditure) is mainly due to:

- ✓ The reduction of the number of insured under difficult conditions professions in the last years

- ✓ the evolution of pensions and expenditure for the total main pension over the projection horizon due to the impact of the reforms.

Figures on special pensions are already included in the pension projections results.

NOTE : For arduous professions' subgroup, the contribution rate for both employee and employer is higher compared to common professions.

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

This part provides more details about the development of public pension expenditures (Table 8). It uses a standard arithmetic decomposition of a ratio of pension expenditures to GDP into the dependency, coverage, benefit ratio, employment rate and labour intensity.

$$\frac{\text{Pension Exp}}{\text{GDP}} = \overbrace{\frac{\text{Population } 65+}{\text{Population } 20-64}}^{\text{Dependency Ratio}} \times \overbrace{\frac{\text{Number of Pensioners (Pensions)}}{\text{Population } 65+}}^{\text{Coverage Ratio}}$$

$$\times \overbrace{\frac{\dfrac{\text{Average income from pensions (Average Pension)}}{\text{GDP}}}{\text{Hours Worked } 20-74}}^{\text{Benefit Ratio}} \times \overbrace{\frac{\text{Population } 20-64}{\text{Hours Worked } 20-74}}^{\text{Labour Market / Labour Intensity}} \quad [1]$$

The coverage ratio is further split with the scope of investigating the take-up ratios for old-age pensions and early pensions as below:

$$\overbrace{\frac{\text{Number of Pensioners}}{\text{Population } 65+}}^{\text{Coverage Ratio}} = \quad [2]$$

$$= \overbrace{\frac{\text{Number of Pensioners } 65+}{\text{Population } 65+}}^{\text{Coverrage Ratio Old-Age}} + \left( \overbrace{\frac{\text{Number of Pensioners} \leq 65}{\text{Population } 50-64}}^{\text{Coverage Ratio Early-Age}} \times \overbrace{\frac{\text{Population } 50-64}{\text{Population } 65+}}^{\text{Cohort effect}} \right)$$

The labour market indicator is further decomposed according to the following:

$$\overbrace{\frac{\text{Population } 20-64}{\text{Hours Worked } 20-74}}^{\text{Labour Market / Labour Intensity}} = \quad [3]$$

$$\overbrace{\frac{\text{Population } 20-64}{\text{Working People } 20-64}}^{1/\text{Employment Rate}} \times \overbrace{\frac{\text{Working People } 20-64}{\text{Hours Worked } 20-64}}^{1/\text{Labour intensity}} \times \overbrace{\frac{\text{Hours Worked } 20-64}{\text{Hours Worked } 20-74}}^{1/\text{Career shift}}$$

The decomposition, which is calculated using data on pensioners (Table 8), is shown below.

The following table describes the disaggregation of the total cost into its major components. These are: benefit ratio, dependency ratio, coverage ratio and ratio of labor market and labor intensity. The impact of these components to the GDP changes between 2022 and 2070 varies depending on the importance of each one of them.

Pension expenditure as a percentage of GDP is lower at the end of the projection period compared to the starting year.

It is evident that the major strike of the dependency ratio due to ageing is tackled by the reforms adopted in previous years.

In particular:

i)   The coverage ratio change by -0.7pp of GDP, which mainly comes from an impressive decrease of coverage ratio early-age. These results derive from the enforcement of much stricter criteria for old-age pension acquisition and the increase of the retirement ages by as many years as the life expectancy is estimated to be increased.

ii)  The improved employment effect.

iii) The reduced benefit ratio

| TABLE 8 | | | | | | |
|---|---|---|---|---|---|---|
| **Factors behind the change in public pension expenditures between 2022 and 2070 (in percentage points of GDP) - pensioners** | | | | | | |
| | 2022-30 | 2030-40 | 2040-50 | 2050-60 | 2060-70 | 2022-70 |
| **Public pensions to GDP** | -1.8 | 1.0 | 0.3 | -1.4 | -0.7 | -2.5 |
| **Dependency ratio effect** | 2.4 | 3.8 | 3.0 | -0.4 | -1.1 | 7.7 |
| **Coverage ratio effect\*** | -1.0 | -0.5 | 0.1 | 0.2 | 0.4 | -0.7 |
| Coverage ratio old-age | 0.1 | 0.2 | 0.5 | 0.3 | 0.5 | 1.5 |
| Coverage ratio early-age | -5.3 | -2.9 | -2.4 | -3.0 | -2.9 | -16.5 |
| Cohort effect | -0.9 | -3.6 | -4.5 | 1.0 | 1.5 | -6.6 |
| **Benefit ratio effect** | -2.4 | -1.4 | -1.8 | -1.2 | 0.2 | -6.6 |
| **Labour market effect** | -0.6 | -0.7 | -0.7 | 0.0 | -0.2 | -2.2 |
| Employment ratio effect | -0.5 | -0.4 | -0.5 | -0.1 | -0.1 | -1.7 |
| Labour intensity effect | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Career shift effect | -0.1 | -0.3 | -0.2 | 0.1 | -0.1 | -0.6 |
| **Residual** | -0.2 | -0.3 | -0.2 | 0.0 | 0.0 | -0.7 |

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

**Graph 2** shows the factors behind the change in public pension expenditure between 2022 and 2070



**Factors behind the change in PPE 2022-2070 pensioners data (% of GDP)**

| | |
|---|---|
| Public pensions to GDP | -2.5 |
| Dependency ratio effect | 7.7 |
| Coverage ratio effect | -0.7 |
| Benefit ratio effect | -6.6 |
| Labour market effect | -2.2 |
| Residual | -0.7 |

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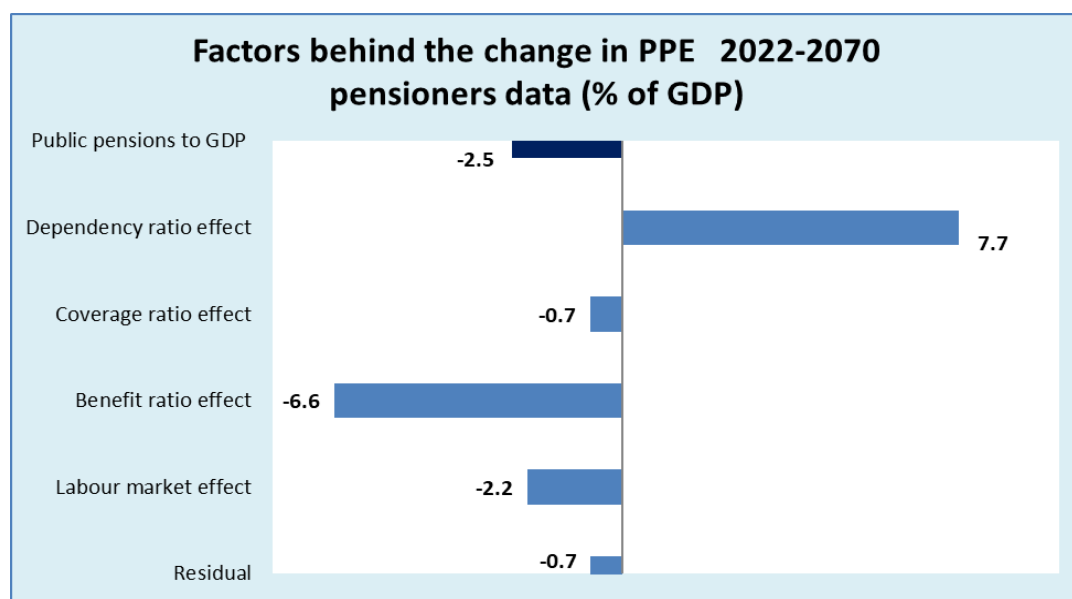
NOTE: Benefit ratio and coverage ratio effects differ, when calculated in terms of pensions or pensioners because a large number of pensioners receive more than one pension (mainly auxiliary, survivor pension e.t.c.).

Table 9 shows the evolution of the overall replacement rates for the main and auxiliary pension provision over the projection period 2022-70.

| TABLE 9 Replacement rate at retirement (RR). benefit ratio (BR) and coverage by pension scheme (in %) | | | | | | | |
|---|---|---|---|---|---|---|---|
| | 2022 | 2030 | 2040 | 2050 | 2060 | 2070 | change 2019-2070 (pps) |
| Public scheme (BR) | 0.76 | 0.73 | 0.65 | 0.57 | 0.52 | 0.53 | -0.23 |
| Coverage | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 0.0 |
| Public scheme: old-age earnings related (BR) | 0.78 | 0.75 | 0.67 | 0.59 | 0.54 | 0.56 | -0.23 |
| Public scheme: old-age earnings related (RR)* | 0.76 | 0.77 | 0.70 | 0.67 | 0.65 | 0.65 | -0.11 |
| Coverage | 75 | 74 | 76 | 78 | 77 | 78 | 3 |
| Private occupational scheme (BR) | | | | | | | |
| Private occupational scheme (RR) | | | | | | | |
| Coverage | | | | | | | |
| Private individual schemes (BR) | | 0.01 | 0.04 | 0.05 | 0.07 | 0.12 | 0.12 |
| Private individual schemes (RR) | | 0.00 | 0.07 | 0.10 | 0.13 | 0.16 | 0.16 |
| Coverage | | | | | | | |
| Total benefit ratio | 0.76 | 0.73 | 0.65 | 0.57 | 0.52 | 0.54 | -0.22 |
| Total replacement rate | 0.76 | 0.77 | 0.70 | 0.67 | 0.66 | 0.71 | -0.05 |

* Replacement rate refers to year 2023 instead of 2022.

The replacement rate (RR) of old age pension in the period 2022-2040 is decreasing as :
- ✓ contributory period remains almost stable due to the unemployment impact at the years of the crisis,
- ✓ pensionable salary is affected by a long transition period for its calculation (21 years salaries/income at the beginning combined with higher salaries for the pre-crisis period, moving to full career salaries/income).

In the period 2041-2070 the public old age pension replacement rate (RR) remains almost stable as the impact of the increase of the contributory period and the effect of the higher accrual rates for more than 30 years of contributions is compensated by the evolution of the pensionable salary (moving to a full career calculation), the mature of the auxiliary NDC system and also the introduction of the DC system. In

the last decade the total replacement rate increases due to the retirement of pensioners with long contributory periods under the new auxiliary DC scheme.

The benefit ratio (BR) is expected to drop as it is affected by the measures described in paragraph 3.2.1 .

For the calculation of the figures of table 10, dividend benefits (apply to certain professions, see paragraph 3.1.2.) are not taken in account.

**GRAPH 3** shows the Replacement Rate development of main, auxiliary and total old-age pension.
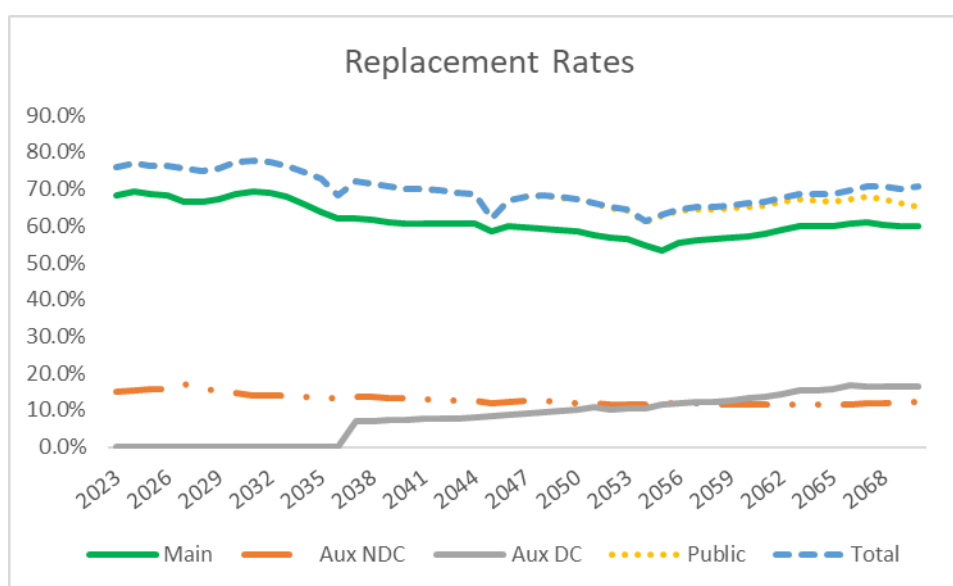


## Dependency Ratios

Table 11 analyses the impact of demographic factors on the financial sustainability of public pension schemes.

| TABLE 10 | | | | | | | |
|---|---|---|---|---|---|---|---|
| **System dependency ratio and old-age dependency ratio** | | | | | | | |
| | 2022 | 2030 | 2040 | 2050 | 2060 | 2070 | change 2022-2070 |
| Number of pensioners (thousand) (I) | 2460.4 | 2503.4 | 2764.9 | 2958.6 | 2742.0 | 2510.8 | 50.4 |
| Employment (thousand) (II) | 4155.2 | 4034.5 | 3705.7 | 3384.8 | 3191.4 | 3131.6 | -1023.7 |
| Pension system dependency ratio (SDR) (I)/(II) | 0.6 | 0.6 | 0.7 | 0.9 | 0.9 | 0.8 | 0.2 |
| Number of people aged 65+ (thousand) (III) | 2380.0 | 2607.6 | 2984.3 | 3173.6 | 2899.6 | 2568.5 | 188.4 |
| Working age population 20-64 (thousand) (IV) | 6106.3 | 5666.7 | 4924.7 | 4265.7 | 4019.3 | 3891.5 | -2214.8 |
| Old-age dependency ratio (OADR) (III)/(IV) | 0.4 | 0.5 | 0.6 | 0.7 | 0.7 | 0.7 | 0.3 |
| System efficiency (SDR/OADR) | 1.5 | 1.3 | 1.2 | 1.2 | 1.2 | 1.2 | -0.3 |

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The number of pensioners and pensions covered by public schemes remains almost stable up to 2030 (due to reforms legislated over the previous years) and afterwards increases up to 2050 (due to the increasing employment in the first years of the projection).

From 2050 onwards the number of pensioners is gradually decreasing due to the decreasing population.

Pension system dependency ratio (SDR) follows the same trend.

Old-age dependency ratio (ODR) increases also up to 2050 mainly because working population 20-64 decreases fast, while the number of people aged 65+ increases.

The ratio between the SDR and ODR as a measure of 'System Efficiency', shown in table 10, indicates a significant decrease from 1.5 to 1.2 over the projection period, highlighting the effectiveness of the pension reform.

## Pensioners compared with inactive and total population

Tables 11a and 11b show the evolution of the total number of pensioners, as a percentage of the total inactive population and as percentage of the total population respectively. Tables 12a and 12b provide the same information for female pensioners.

| TABLE 11a | | | | | | |
|---|---|---|---|---|---|---|
| Pensioners (public scheme) to inactive population ratio by age group (%) | | | | | | |
| | 2022 | 2030 | 2040 | 2050 | 2060 | 2070 |
| Age group -54 | 4.0 | 3.7 | 2.7 | 2.3 | 2.0 | 1.8 |
| Age group 55-59 | 44.8 | 31.5 | 23.6 | 24.8 | 23.9 | 16.8 |
| Age group 60-64 | 63.6 | 43.9 | 39.8 | 31.6 | 29.3 | 22.3 |
| Age group 65-69 | 76.9 | 75.6 | 79.8 | 84.5 | 84.2 | 81.0 |
| Age group 70-74 | 85.2 | 85.2 | 90.2 | 92.8 | 94.5 | 111.2 |
| Age group 75+ | 94.4 | 95.9 | 96.6 | 99.4 | 99.7 | 104.5 |

| TABLE 11b | | | | | | |
|---|---|---|---|---|---|---|
| Pensioners (public schemes) to total population ratio by age group (%) | | | | | | |
| | 2022 | 2030 | 2040 | 2050 | 2060 | 2070 |
| Age group -54 | 1.7 | 1.6 | 1.2 | 1.0 | 0.9 | 0.8 |
| Age group 55-59 | 13.7 | 6.5 | 4.5 | 4.7 | 4.4 | 3.0 |
| Age group 60-64 | 35.2 | 21.2 | 15.2 | 10.2 | 8.4 | 5.7 |
| Age group 65-69 | 64.9 | 63.2 | 60.4 | 59.2 | 55.0 | 48.8 |
| Age group 70-74 | 83.4 | 82.9 | 87.2 | 88.6 | 88.8 | 102.6 |
| Age group 75+ | 94.4 | 95.9 | 96.6 | 99.4 | 99.7 | 104.5 |

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| TABLE 12a | | | | | | |
|---|---|---|---|---|---|---|
| **Female pensioners (public scheme) to inactive population ratio by age group (%)** | | | | | | |
| | 2022 | 2030 | 2040 | 2050 | 2060 | 2070 |
| Age group -54 | 3.9 | 4.4 | 3.6 | 3.1 | 2.6 | 2.3 |
| Age group 55-59 | 37.2 | 26.2 | 19.2 | 19.4 | 19.3 | 13.6 |
| Age group 60-64 | 53.0 | 38.0 | 32.7 | 25.8 | 26.6 | 20.2 |
| Age group 65-69 | 66.2 | 64.2 | 69.9 | 71.9 | 71.9 | 70.5 |
| Age group 70-74 | 77.4 | 77.0 | 85.3 | 88.6 | 89.0 | 106.6 |
| Age group 75+ | 90.8 | 93.6 | 94.9 | 99.0 | 100.2 | 105.7 |

| TABLE 12b | | | | | | |
|---|---|---|---|---|---|---|
| **Female pensioners (public scheme) to total population ratio by age group (%)** | | | | | | |
| | 2022 | 2030 | 2040 | 2050 | 2060 | 2070 |
| Age group -54 | 1.8 | 2.1 | 1.7 | 1.5 | 1.3 | 1.1 |
| Age group 55-59 | 16.5 | 8.0 | 5.4 | 5.1 | 5.0 | 3.5 |
| Age group 60-64 | 35.3 | 20.4 | 14.6 | 10.3 | 9.3 | 6.4 |
| Age group 65-69 | 59.4 | 56.5 | 54.9 | 52.7 | 49.4 | 45.5 |
| Age group 70-74 | 76.5 | 75.8 | 83.0 | 84.9 | 84.1 | 98.7 |
| Age group 75+ | 90.8 | 93.6 | 94.9 | 99.0 | 100.2 | 105.7 |

In the first years of the projection paths to early retirement (based on special provisions for those first insured before 1993, especially for women, more details in Annex I) have been gradually eliminated up to 2021, thus the ratio of pensioners in the age brackets up to 64 years is reduced.

As also expected, due to the increase of the statutory retirement ages in line with the increase of life expectancy, the pensioners move to higher age groups during the projection period.

In the last part of the projection, the number of pensioners in the 60-64 bracket is low due to increased statutory ages as they are linked with changes in life expectancy. In the same period, since the statutory retirement age is expected to become 72.5 years, ratios in the 70-74 bracket are increased accordingly.

In the base year the ratios of the female to inactive population for the age-groups 70+ fall below 100%, as in Greece there are women that do not receive any pension or welfare benefit and live with the family (spouse) income. These ratios are gradually increasing and reach 100% or more at the end of the projection period, following the trend of the increasing participation/employment rates for women during the forecasting period.

The coverage ratio (pensioners to population, pensioners to inactive population) for age group 70-74 and 75+ exceeds 100% in the last years of the projection, due to the increasing employment in the first years of the projection and the constant coefficients used for estimating pensioners throughout the projection.

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NOTE
The Greek national projection model is based on the number of pensions and not on the number of pensioners. The number of pensioners is estimated approximately, based on coefficients derived from data of "HELIOS" system in the base year.


## New Pensions expenditure

- Main Pensions

Table 13a shows the specific factors related to new pensions under the main pension provision. Tables 13b and 13c give the same factors for male and female pensioners.

The contributory part of new pensions' expenditure is analyzed to its components which are:

- ✓ Average contributory period
- ✓ Average pensionable earnings
- ✓ Average accrual rates
- ✓ The number of new pensioners

The product of these factors is approximately equal to the new old-age pensions expenditure (earnings related component).

| TABLE 13a | | | | | | |
|---|---|---|---|---|---|---|
| **Projected and disaggregated new public pension expenditure (old-age and early earnings-related pensions)** | | | | | | |
| **New old-age earnings-related pensions** | 2023 | 2030 | 2040 | 2050 | 2060 | 2070 |
| Projected new pension expenditure (million EUR)* | 516.2 | 723.1 | 1299.5 | 1638.2 | 2174.3 | 3369.1 |
| I. Number of new pensions (1000) | 82.1 | 94.2 | 130.5 | 102.7 | 88.3 | 88.5 |
| II. Average contributory period (years) | 31.9 | 32.4 | 31.5 | 34.3 | 35.9 | 38.4 |
| III. Average accrual rate (%) | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 | 1.2 |
| IV. Monthly average pensionable earnings (1000 EUR) | 1.5 | 1.8 | 2.5 | 3.6 | 5.1 | 7.0 |
| V. Sustainability/adjustment factors | 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) | 1.2 | 1.1 | 1.1 | 1.0 | 1.0 | 1.0 |

*New pension expenditure equals the product of I, II, III, IV, V & VI

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| TABLE 13b | | | | | | |
|---|---|---|---|---|---|---|
| **Disaggregated new public pension expenditure (old-age and early earnings-related pensions) - MEN** | | | | | | |
| **New old-age earnings-related pensions** | 2023 | 2030 | 2040 | 2050 | 2060 | 2070 |
| Projected new pension expenditure (million EUR)* | 351.8 | 448.5 | 738.3 | 915.4 | 1241.8 | 1829.5 |
| I. Number of new pensions (1000) | 51.6 | 54.5 | 67.4 | 53.4 | 46.3 | 44.3 |
| II. Average contributory period (years) | 32.5 | 32.7 | 32.7 | 34.8 | 36.3 | 38.5 |
| III. Average accrual rate (%) | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 | 1.2 |
| IV. Monthly average pensionable earnings (1000 EUR) | 1.6 | 1.9 | 2.6 | 3.8 | 5.5 | 7.5 |
| V. Sustainability/adjustment factors | 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) | 1.3 | 1.2 | 1.1 | 1.1 | 1.1 | 1.1 |

*New pension expenditure equals the product of I, II, III, IV, V & VI*

| TABLE 13c | | | | | | |
|---|---|---|---|---|---|---|
| **Disaggregated new public pension expenditure (old-age and early earnings-related pensions) - WOMEN** | | | | | | |
| **New old-age earnings-related pensions** | 2023 | 2030 | 2040 | 2050 | 2060 | 2070 |
| Projected new pension expenditure (million EUR)* | 164.4 | 274.7 | 561.2 | 722.8 | 932.5 | 1539.6 |
| I. Number of new pensions (1000) | 30.5 | 39.7 | 63.1 | 49.3 | 42.0 | 44.2 |
| II. Average contributory period (years) | 30.8 | 31.9 | 30.4 | 33.8 | 35.5 | 38.3 |
| III. Average accrual rate (%) | 1.1 | 1.1 | 1.0 | 1.1 | 1.1 | 1.2 |
| IV. Monthly average pensionable earnings (1000 EUR) | 1.3 | 1.7 | 2.3 | 3.4 | 4.8 | 6.4 |
| V. Sustainability/adjustment factors | 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) | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 0.9 |

*New pension expenditure equals the product of I, II, III, IV, V & VI*

The contributory period remains almost stable in the first two decades due to the unemployment impact during the years of the crisis. Afterwards the contributory period is increasing (for both men and women) due to the linkage of statutory retirement ages to life expectancy.

Accrual rates for contributory main pensions increase from 1.1% to 1.2% towards the end of the projection horizon.

Pensionable earnings are affected by a long transition period for its calculation (21 years salaries/income/insurance classes at the beginning of the projections combined with higher salaries for the pre-crisis period, moving to full career salaries/income).

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According to 2016 reform, pensionable earnings are derived taking into account the average monthly earnings of the insured for the entire insurance life. For insured retiring from the entry into force of the new law until the end of 2016 the pensionable earnings are derived taking into account monthly earnings of the insured from 2002 until the end of the insurance life. From 2017 onwards this reference period increases by one year. So, the number of years taken into account for the pensionable earnings calculation is only 15 years in the first year, which number is gradually increasing in order to achieve a full career calculation.

Also, according to the 4670/2020 law the insurable base of self-employed changed from actual income to notional (based on insurance classes), with effect from year 2020. Pensionable earnings are defined as the amount which corresponds to division of class amount by the contribution rate 20% ([amount of contributions actually paid] / 20%).

The higher salaries/income in the pre-crisis period (2002-2008) for private sector employees and self-employed, affect the evolution of pensionable earnings up to the middle of the projection.

- Auxiliary Pensions

Table 13d & 13g shows the specific factors related to new pensions under the auxiliary NDC pension provision and the new introduced DC pension provision.

Tables 13e and 13f give the same factors for NDC scheme for male and female pensioners respectively.

New pension expenditure is analyzed to its components which are:

✓ The number of new pensions

✓ Average contributory period

✓ Average accrual rates

✓ Average pensionable earnings

| TABLE 13d<br>Projected and disaggregated new public pension expenditure NDC AUXILIARY FUNDS (old-age and early earnings-related pensions) | | | | | | |
|---|---|---|---|---|---|---|
| New old-age earnings-related pensions | 2023 | 2030 | 2040 | 2050 | 2060 | 2070 |
| Projected new pension expenditure (million EUR)* | 95.6 | 153.7 | 333.6 | 371.1 | 420.2 | 392.1 |
| I. Number of new pensions (1000) | 40.6 | 55.1 | 92.5 | 75.3 | 61.0 | 38.8 |
| II. Average contributory period (years) | 26.7 | 27.2 | 28.9 | 33.2 | 33.9 | 36.3 |
| III. Average accrual rate (%) (c/A) | 0.43 | 0.40 | 0.37 | 0.30 | 0.30 | 0.29 |
| Notional-accounts contribution rate (c) | | | | | | |
| Annuity factor (A) | | | | | | |
| IV. Monthly average pensionable earnings (1000 EUR) | 1.7 | 2.1 | 2.8 | 4.1 | 5.7 | 8.0 |
| V. Sustainability/adjustment factors | 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) | 1.4 | 1.3 | 1.3 | 1.2 | 1.1 | 1.1 |

*New pension expenditure equals the product of I, II, III, IV, V & VI

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| TABLE 13e | | | | | | |
|---|---|---|---|---|---|---|
| **Disaggregated new public pension expenditure NDC AUXILIARY FUNDS (old-age and early earnings-related pensions) - MEN** | | | | | | |
| **New old-age earnings-related pensions** | 2023 | 2030 | 2040 | 2050 | 2060 | 2070 |
| Projected new pension expenditure (million EUR)* | 64.1 | 95.9 | 176.1 | 198.7 | 237.5 | 201.7 |
| I. Number of new pensions (1000) | 27.9 | 33.9 | 44.8 | 36.2 | 30.9 | 17.9 |
| II. Average contributory period (years) | 25.9 | 26.7 | 29.1 | 33.5 | 34.5 | 36.8 |
| III. Average accrual rate (%) (c/A) | 0.44 | 0.42 | 0.39 | 0.32 | 0.30 | 0.29 |
| Notional-accounts contribution rate (c) | | | | | | |
| Annuity factor (A) | | | | | | |
| IV. Monthly average pensionable earnings (1000 EUR) | 1.7 | 2.1 | 2.9 | 4.3 | 6.2 | 8.7 |
| V. Sustainability/adjustment factors | 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) | 1.3 | 1.3 | 1.3 | 1.3 | 1.2 | 1.3 |

*New pension expenditure equals the product of I, II, III, IV, V & VI*

| TABLE 13f | | | | | | |
|---|---|---|---|---|---|---|
| **Disaggregated new public pension expenditure NDC AUXILIARY FUNDS (old-age and early earnings-related pensions) - WOMEN** | | | | | | |
| **New old-age earnings-related pensions** | 2023 | 2030 | 2040 | 2050 | 2060 | 2070 |
| Projected new pension expenditure (million EUR)* | 31.5 | 57.8 | 157.5 | 172.4 | 182.6 | 190.4 |
| I. Number of new pensions (1000) | 12.7 | 21.2 | 47.7 | 39.1 | 30.1 | 20.9 |
| II. Average contributory period (years) | 28.4 | 28.0 | 28.7 | 32.9 | 33.3 | 35.9 |
| III. Average accrual rate (%) (c/A) | 0.41 | 0.37 | 0.34 | 0.29 | 0.29 | 0.29 |
| Notional-accounts contribution rate (c) | | | | | | |
| Annuity factor (A) | | | | | | |
| IV. Monthly average pensionable earnings (1000 EUR) | 1.8 | 2.2 | 2.8 | 3.9 | 5.2 | 7.3 |
| V. Sustainability/adjustment factors | 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) | 1.4 | 1.4 | 1.2 | 1.1 | 1.0 | 1.0 |

*New pension expenditure equals the product of I, II, III, IV, V & VI*

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| TABLE 13g | | | | | | |
| :-- | :--: | :--: | :--: | :--: | :--: | :--: |
| **Projected and disaggregated new public pension expenditure DC AUXILIARY FUND (old-age and early earnings-related pensions)** | | | | | | |
| **New old-age earnings-related pensions** | 2023 | 2030 | 2040 | 2050 | 2060 | 2070 |
| Projected new pension expenditure (million EUR)* | 0.0 | 0.0 | 0.8 | 0.9 | 5.9 | 29.2 |
| I. Number of new pensions (1000) | 0.0 | 0.0 | 0.8 | 0.9 | 5.9 | 29.2 |
| II. Average contributory period (years) | 0.0 | 0.0 | 15.3 | 22.7 | 30.3 | 37.2 |
| III. Average accrual rate (%) | 0.00 | 0.00 | 0.44 | 0.38 | 0.36 | 0.36 |
| IV. Monthly average pensionable earnings (1000 EUR) | 0.0 | 0.0 | 2.5 | 4.0 | 6.1 | 8.5 |
| V. Adjustment factors | 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) | 0.0 | 0.0 | 1.1 | 1.2 | 1.2 | 1.2 |

*New pension expenditure equals the product of I, II, III, IV, V & VI*

The direct impact of the reforms is evident on NDC auxiliary pensions also.

Average years of service for new pensioners increase gradually (for both men and women) due to the linkage of statutory retirement ages to life expectancy.

The contributory period under the NDC system towards the end of the projection period is affected by the transition from the NDC to DC system. Especially for persons aged below 35, who are transferred during 2023 from the existing NDC to the new DC auxiliary pension system, a pension is also awarded from the NDC system for the contributory years they had in the NDC system. Because of the low age of this group of beneficiaries (up to 35 years old in 2023), their contributory years in the NDC system are relatively low. When this group starts to retire from 2050 onwards, the average contributory period of the NDC system is downward affected due to the low contributory years in the NDC system of this group of beneficiaries.

Average accrual rate for men declines from 0.44% in 2023 to 0.29% at 2070, while for women declines from 0.41% to 0.29% at 2070, due to the phase out of the pro-rata calculation period and the full transition to NDC system (tables 13g & 13 f).

Pensionable earnings evolution is affected by the same reasons as referred to main pension (i.e. transition period from last 15 years to full career, higher salaries for the pre-crisis period).

DC auxiliary pension system begins to mature toward the end of the projection period in terms of the emergence of new retirees based on retirement conditions (therefore pension spending remains low for much of the projection period). The accrual rate reaches 0.36% at 2070 while average contributory period reaches 37.2 years.

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## 3.4. Financing of the pension system

Table 14 shows the sources for financing the pension schemes.

| TABLE 14 Financing of Public Pension System | | |
|---|---|---|
| | **Private & Public employees** | **Self-employed** |
| Contribution base (millions) | 48,913.03 | 9,625.99 |
| **Contribution rate /contribution** | | |
| Employer | Main*pensions majority: 13.33%; Auxiliary pensions: 3% | Based on insurance classes |
| Employee | Main*pensions majority: 6.67%; Auxiliary pensions: 3% | |
| State** | - | - |
| Other revenues | National budget / other sources | National budget / other sources |
| Maximum contribution €*** | 6500€ for 2022 / 7126.94€ for 2023 | 500€ for 2022 / 548.23€ for 2023 |
| Minimum contribution €**** | 650€ for 2022 / 780 for 2023 | 155€ for 2022 / 169.95€ for 2023 |

\* Main Pensions : Unified rates from 2022 onwards.

\*\* State is financing national pension, means-tested benefits & NDC system due to introduction of DC system

\*\*\*Employees:Maximum monthly insurable earnings for full employment

\*\*\*\* Employees:Minimum monthly insurable earnings for full employment

There is an additional contribution rate for insured in arduous professions (3.6% main pension/2% auxiliary pension).

Also, a portion (30%) of the co-collected employer and employee contributions of the sectors and accounts of OAED [Greek Working Force Organization] constitutes a resource of main pension system.

Table 15 presents the evolution of contributions, number of contributors and employment.

| TABLE 15 Revenue from contribution (Millions), number of contributors in the public scheme (in 1000), total employment (in 1000) and related ratios (%) | | | | | | | |
|---|---|---|---|---|---|---|---|
| | 2022 | 2030 | 2040 | 2050 | 2060 | 2070 | change 2022-2070 (pps) |
| Public pension contributions (%GDP) | 12.5 | 12.1 | 12.4 | 12.2 | 11.3 | 10.4 | -2.1 |
| Employer contributions | 4.1 | 4.0 | 3.9 | 3.7 | 3.5 | 3.3 | -0.8 |
| Employee contributions | 3.6 | 3.4 | 3.3 | 3.1 | 2.9 | 2.8 | -0.8 |
| State contribution* | 4.8 | 4.7 | 5.2 | 5.5 | 4.9 | 4.3 | -0.5 |
| Other revenues* | | | | | | | |
| Number of contributors (I) (1000) | 4962.2 | 4829.7 | 4439.9 | 4055.8 | 3822.2 | 3748.9 | -1213.3 |
| Employment (II) (1000) | 4155.2 | 4034.5 | 3705.7 | 3384.8 | 3191.4 | 3131.6 | -1023.7 |
| (I) / (II) | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 0.0 |

*Includes only legislated contributions.

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The contribution rates for the main pension system of all salaried insureds were gradually harmonized with those of private sector employees (ex. IKA-ETAM) up to 2022.

In the above table, state contribution includes the financing of national pension, means-tested benefits and the auxiliary NDC scheme because of the depreciation of its resources from insurance contributions due to the introduction and operation of the new funded auxiliary pension scheme.

A loading of 0.3% of GDP for the year 2022 for auxiliary pension is included, for the rest schemes (Dividend Funds) which are not explicitly modeled.

## 3.5. Pension assets

Table 16 shows the assets of e-EFKA for main and auxiliary pension system.

| TABLE 16 Pension assets* in bil. € | |
|---|---|
| **Public pension scheme** | 2022 |
| *e-EFKA Main Pension* | 12.66 |
| *e-EFKA Auxiliary Pension* | 2.53 |

*Only financial assets are included (i.e. securities, cash and deposits)

## 3.6. Sensitivity analysis[10]

Table 17 shows the evolution of total pension expenditure under different scenarios.

| TABLE 17 Public and total pension expenditure under different scenarios (p.p. deviation from the baseline) | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Public pension expenditure** | 2022 | 2030 | 2040 | 2050 | 2060 | 2070 | change 2022-2070 (pps) |
| Baseline (% GDP) | 14.5 | 12.7 | 13.7 | 14.0 | 12.7 | 12.0 | -2.5 |
| Higher life expectancy at birth (+2y) | 0.0 | 0.0 | 0.2 | 0.0 | 0.1 | 0.0 | 0.0 |
| Higher migration (+33%) | 0.0 | -0.1 | -0.3 | -0.6 | -0.9 | -1.0 | -1.0 |
| Lower migration (-33%) | 0.0 | 0.1 | 0.3 | 0.7 | 1.0 | 1.2 | 1.2 |
| Lower fertility (-20%) | 0.0 | 0.0 | 0.0 | 0.1 | 0.5 | 0.7 | 0.7 |
| Higher inflation scenario (2% by 2052) | 0.0 | -0.2 | -0.2 | -0.1 | -0.1 | 0.0 | 0.0 |
| Higher employment rate of older workers (+10 pps) | 0.0 | -0.3 | -0.5 | -0.5 | -0.3 | -0.1 | -0.1 |
| Higher productivity (TFP converges to 1%) | 0.0 | 0.0 | 0.0 | 0.0 | -0.2 | -0.3 | -0.3 |
| Lower productivity (TFP converges to 0.6%) | 0.0 | 0.0 | 0.1 | 0.4 | 0.6 | 0.7 | 0.7 |
| Policy scenario: link retirement age to longevity | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Policy scenario: constant retirement age | 0.0 | 0.4 | 1.2 | 1.2 | 1.3 | 1.0 | 1.0 |
| Policy scenario: constant benefit ratio | 0.0 | 0.0 | 0.8 | 2.8 | 4.0 | 3.5 | 3.5 |

| **Total pension expenditure** | 2022 | 2030 | 2040 | 2050 | 2060 | 2070 | change 2022-2070 (pps) |
|---|---|---|---|---|---|---|---|
| Baseline (% GDP) | 14.5 | 12.7 | 13.7 | 14.0 | 12.7 | 12.2 | -2.3 |
| Higher life expectancy at birth (+2y) | 0.0 | 0.0 | 0.2 | 0.0 | 0.1 | -0.1 | -0.1 |
| Higher migration (+33%) | 0.0 | -0.1 | -0.3 | -0.6 | -0.9 | -1.0 | -1.0 |
| Lower migration (-33%) | 0.0 | 0.1 | 0.3 | 0.7 | 1.0 | 1.2 | 1.2 |
| Lower fertility (-20%) | 0.0 | 0.0 | 0.0 | 0.1 | 0.5 | 0.8 | 0.8 |
| Higher inflation scenario (2% by 2052) | 0.0 | -0.2 | -0.2 | -0.1 | -0.1 | -0.1 | -0.1 |
| Higher employment rate of older workers (+10 pps) | 0.0 | -0.3 | -0.5 | -0.5 | -0.3 | -0.1 | -0.1 |
| Higher productivity (TFP converges to 1%) | 0.0 | 0.0 | 0.0 | 0.0 | -0.2 | -0.3 | -0.3 |
| Lower productivity (TFP converges to 0.6%) | 0.0 | 0.0 | 0.1 | 0.4 | 0.6 | 0.7 | 0.7 |
| Policy scenario: link retirement age to longevity | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Policy scenario: constant retirement age | 0.0 | 0.4 | 1.2 | 1.2 | 1.4 | 1.1 | 1.1 |
| Policy scenario: constant benefit ratio | 0.0 | 0.0 | 0.8 | 2.8 | 4.0 | 3.5 | 3.5 |

On the "Higher Life Expectancy" scenario total pension spending is expected to drop slightly by 0.1 p.p. compared to the baseline scenario in 2070. The increase in life expectancy and consequently the increase in the retirement age results to a reduction in the number of new pensioners. On the other hand, the increase in life expectancy results to lower mortality rates, which gradually increase the number of total pensioners. The two previously referred reasons have as a consequence small difference in 2070 between the two scenarios.

The impact on pension expenditure for "Higher/Lower Migration" scenario is relatively symmetric during the entire projection period. Pension expenditure

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[10] For more information on the design of the sensitivity scenarios, see Chapter 5 of Part I in European Commission and EPC (2023), '2024 Ageing Report: Underlying assumptions and projection methodologies', European Economy, Institutional Paper 257.

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decreases/increases by 1.0/1.2 p.p. of GDP compared to the baseline projection in 2070.

On the "Lower fertility" scenario, an increase of pension expenditure by 0.8 p.p. of GDP appears in 2070, compared to the baseline scenario. The effect of this scenario on pensions appears in the last part of the projection. This result is explained by a decrease in the number of employees, and consequently in the GDP level.

On the "Higher emp. of older workers" scenario, a decrease of pension expenditure appears in the middle of projection compared to the baseline scenario. Afterwards this decrease gradually shrinks.

Pension expenditure on "Higher Inflation" scenario is projected to slightly drop by 0.1 p.p. of GDP until 2070 compared to the baseline scenario. The results of this scenario are affected mainly by the longstanding difference in the first years of the projection between GDP deflator and CPI values affecting respectively denominator and numerator.

Pension expenditure on "Higher TFP" scenario is projected to drop by 0.3 p.p. of GDP until 2070 compared to the baseline scenario. The increase of the average pension, caused by the higher wage growth, is offset by the increase in GDP side. The results of this scenario are affected by the weight of national pension on total pension during the projection (the contributory component increases due to the increasing contributory period).
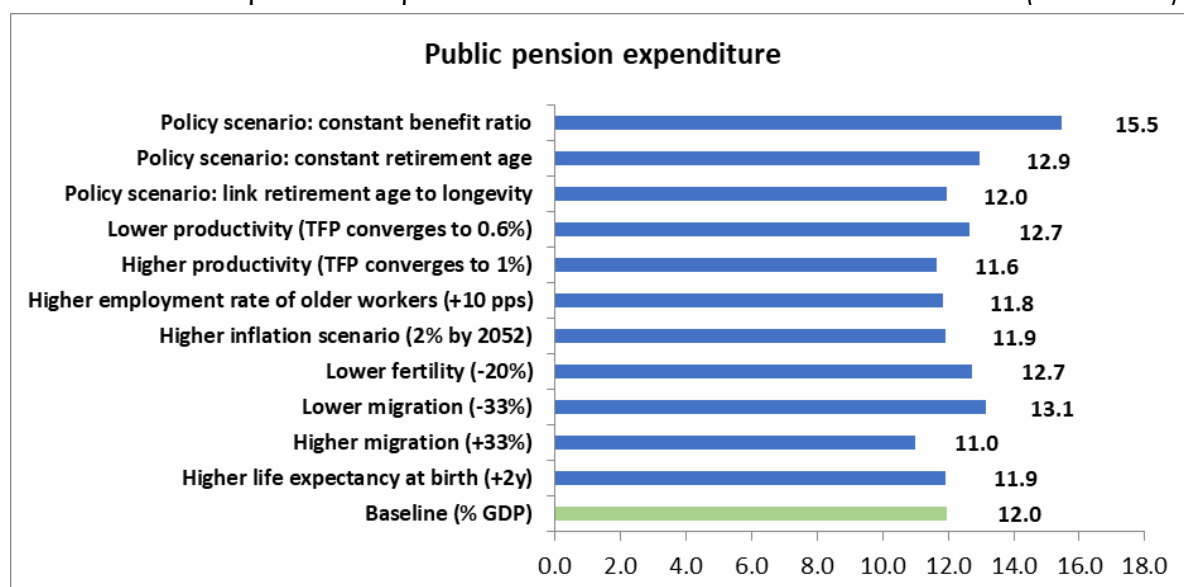
On the "Lower TFP" scenario, an increase of pension expenditure by 0.7p.p. of GDP appears in 2070, compared to the baseline scenario.

The macroeconomic assumptions of "Policy scenario: link retirement age to change in life expectancy (longevity)" are the same with those of baseline scenario, thus no difference is observed.

The "Policy scenario: constant retirement age" results in an increase of 1.1p.p in pension expenditure compared to baseline scenario in 2070.

The "Policy scenario: constant benefit ratio" results in the largest increase of pension expenditure of all policy scenarios in 2070 compared to baseline scenario (an increase of 3.5 p.p in 2070).

**GRAPH 4** shows pension expenditure under different scenarios in 2070 (% of GDP)



**Public pension expenditure**

| Scenario | Value |
|---|---|
| Policy scenario: constant benefit ratio | 15.5 |
| Policy scenario: constant retirement age | 12.9 |
| Policy scenario: link retirement age to longevity | 12.0 |
| Lower productivity (TFP converges to 0.6%) | 12.7 |
| Higher productivity (TFP converges to 1%) | 11.6 |
| Higher employment rate of older workers (+10 pps) | 11.8 |
| Higher inflation scenario (2% by 2052) | 11.9 |
| Lower fertility (-20%) | 12.7 |
| Lower migration (-33%) | 13.1 |
| Higher migration (+33%) | 11.0 |
| Higher life expectancy at birth (+2y) | 11.9 |
| Baseline (% GDP) | 12.0 |

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## Total pension expenditure

| Scenario | Value |
|---|---|
| Policy scenario: constant benefit ratio | 15.7 |
| Policy scenario: constant retirement age | 13.3 |
| Policy scenario: link retirement age to longevity | 12.2 |
| Lower productivity (TFP converges to 0.6%) | 12.9 |
| Higher productivity (TFP converges to 1%) | 11.9 |
| Higher employment rate of older workers (+10 pps) | 12.1 |
| Higher inflation scenario (2% by 2052) | 12.2 |
| Lower fertility (-20%) | 13.0 |
| Lower migration (-33%) | 13.4 |
| Higher migration (+33%) | 11.2 |
| Higher life expectancy at birth (+2y) | 12.1 |
| Baseline (% GDP) | 12.2 |

## 3.7. Description of the changes in comparison with the 2006, 2009, 2012, 2015, 2018, 2019 update, 2021 & 2024 projections

In previous rounds pension expenditure would increase due to the demographics, but reforms adopted regarding eligibility conditions and rules for pension calculation as well as the employment effect tackled/countered expenditure increase.

The 2024 round projection results are mainly affected by the new demographic & macroeconomic assumptions, as well as by law 4670/2020 and law 4826/2021.

| TABLE 18 | | | | | | |
|---|---|---|---|---|---|---|
| **Overall change in public pension expenditure to GDP under consecutive projection exercises** | | | | | | |
| | Public pension expenditure | Dependency ratio effect | Coverage ratio effect | Benefit ratio effect | Labour market effect | Residual (incl. interaction effect) |
| 2006 Ageing Report (2004-2050) | : | : | : | : | : | : |
| 2009 Ageing Report (2007-2060) | : | : | : | : | : | : |
| 2012 Ageing Report (2010-2060) | 1.0 | 10.4 | -3.4 | -3.6 | -1.8 | -0.6 |
| 2015 Ageing Report (2013-2060) | -1.9 | 10.6 | -3.2 | -2.1 | -6.2 | -1.0 |
| 2018 Ageing Report (2016-2070) | -6.6 | 9.1 | -1.9 | -8.3 | -4.9 | -0.7 |
| 2021 Ageing Report (2019-2070) | -3.8 | 8.4 | -1.5 | -6.2 | -4.1 | -0.4 |
| 2024 Ageing Report (2022-2070) | -2.5 | 7.7 | -0.7 | -6.6 | -2.2 | -0.7 |

*- The disaggregation for 2006/2009/2012 is on the basis of the number of pensions; for the other vintages it is on the basis of pensioners.*

*- The projection horizon has been extended over consecutive Ageing Reports, limiting comparability over time.*

Note: In 2006 the Hellenic Republic did not prepare comprehensive projections for the Ageing Working Group.  In 2009 the projections incorporated separate results of

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four main pension schemes (IKA, OAEE, Public Sector and OGA) and aggregate results for the rest of the main and auxiliary pension schemes.

Table 19 shows the differences between the 2021 projections and the actual public pension expenditure in 2019-2022 (% GDP). The differences resulted due to the change in assumptions.

Between round 2021 and round 2024, the following are observed:
✓ According to the realized figures the nominal GDP increased by 13.5% from 2019 to 2022.
✓ The 2022 nominal GDP value for the new round is 9.8% higher than the 2021 round estimated value for 2022 nominal GDP
✓ The decrease in the 2022 pension expenditure as percentage of GDP is mainly due to the increase of the Greek nominal GDP.

| TABLE 19 BREAKDOWN OF THE DIFFERENCE BETWEEN THE 2021 PROJECTIONS AND OUTCOME FIGURES (% GDP) | | | | |
|---|---|---|---|---|
| | 2019 | 2020 | 2021 | 2022 |
| Ageing Report 2021 projections (%GDP) | 15.7 | 18.0 | 15.9 | 15.5 |
| Assumptions (pps of GDP) | 0.3 | -0.3 | 0.6 | -1.0 |
| Coverage of projections (pps of GDP) | | | | |
| Constant policy impact (pps of GDP) | | | | |
| Policy-related impact (pps of GDP) | | | | |
| Actual public pension expenditure | 16.0 | 17.7 | 16.4 | 14.5 |

The decomposition of the difference in pension projections between AR2021 and the new public pension projection (AR2024) is reported in Table20.

| TABLE 20 DISAGGREGATION OF THE DIFFERENCE BETWEEN THE 2018 AND THE NEW PUBLIC PENSION PROJECTIONS (% GDP) | | | | | | |
|---|---|---|---|---|---|---|
| | 2019 | 2030 | 2040 | 2050 | 2060 | 2070 |
| Ageing Report 2021 projections | 15.5 | 13.8 | 14.0 | 13.6 | 12.0 | 11.9 |
| Change in assumptions | -0.95 | -1.16 | -0.30 | 0.44 | 0.64 | 0.24 |
| Improvement in the coverage or in the modelling | | | | | | |
| Change in the interpretation of constant policy | | | | | | |
| Policy related changes | 0.00 | 0.02 | 0.04 | 0.01 | -0.03 | -0.15 |
| New projections | 14.5 | 12.7 | 13.7 | 14.0 | 12.7 | 12.0 |

The difference in the evolution of public pension expenditure between the 2021 and 2024 rounds results from changes in assumptions regarding the demographic development, employment, GDP growth and policy/reform changes.

Taking into account only the effect of the legislation amendments as described in section 1.2.5., a downward revision is observed at the end of the projections due to the gradual transition from PAYG auxiliary NDC system to the new funded DC system. Other amendments do not cause material differences.

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Taking into account also the effect of the new macroeconomic assumptions, which in the first part of the projection period are more favorable compared to the AR2021 projections, the expenditure as %GDP results to a lower level compared to the AR2021 projections.

The macroeconomic assumptions for the second half of the projection period (after 2040) have an opposite effect since they are less favorable compared to the AR2021 projections. The expenditure as %GDP due to new macro-assumptions result to a higher level compared to AR2021 projections.

Graph 5 shows the evolution of the real GDP growth rate which is higher in the new round in the first years and lower afterwards. The main drivers for this are the evolution of TFP and employment growth rate.
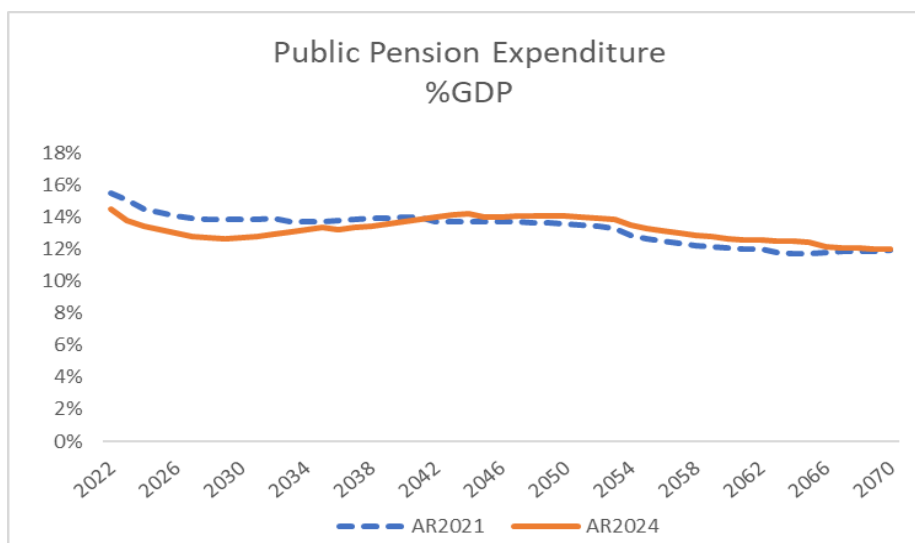
GRAPH 5
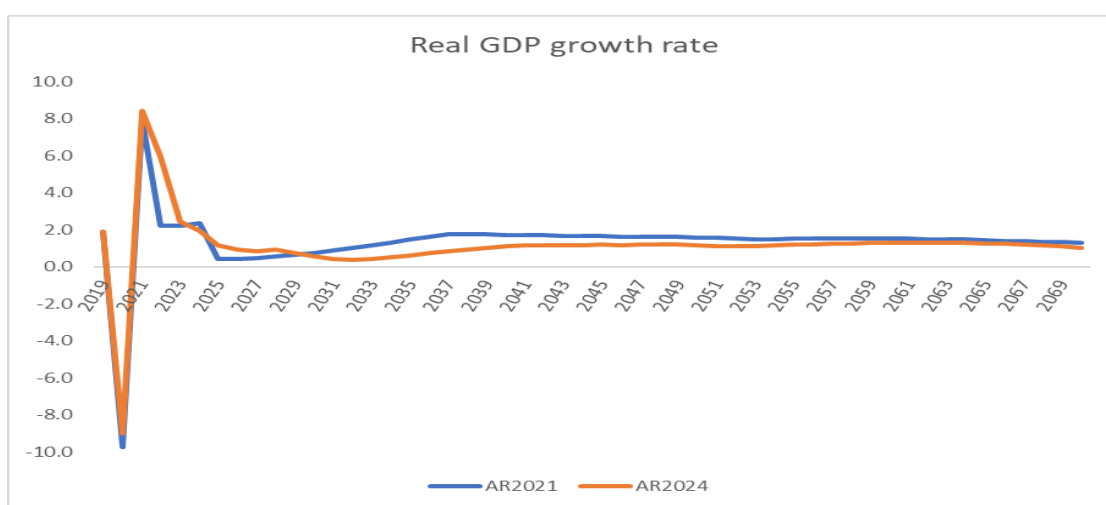


The TFP growth rate is higher in the new round in the first years and lower afterwards, converging to a lower target value in this round (0.8% by 2070).

The main driver of the employment growth rate trajectory is the evolution of the working age population (15-74) in the new population projections (EUROPOP2023) according to which this age group is gradually and significantly shrinking. In 2070 the size of working age population will be 35.8% lower than its 2022 level and 10.6% lower compared to the size estimated for 2070 in the previous EUROPOP2019 population projections.

Graph 6 shows the evolution of public benefit expenditure as a share of GDP between round 2021 and 2024.

### GRAPH 6



Graph 7 shows the evolution of benefit ratio between 2021 and 2024 rounds, which is also affected by the pre-referred reasons (measures to control expenditure, reforms).

The benefit ratio is higher during the projection period of the new round compared to the AR2021 projections due to both numerator and denominator evolution.

Numerator: The average pension in nominal terms is higher during the projection period compared to AR2021 projections. The higher average pension is driven by the increased compared to AR2021 values of labour productivity, inflation, CPI during the first years of the projection, affecting upwards all pension components (earnings related and flat rate).

Denominator : The average gross wage is lower during the whole projection period of the new round (on average lower by 8.5%), starting from the base year.

### GRAPH 7

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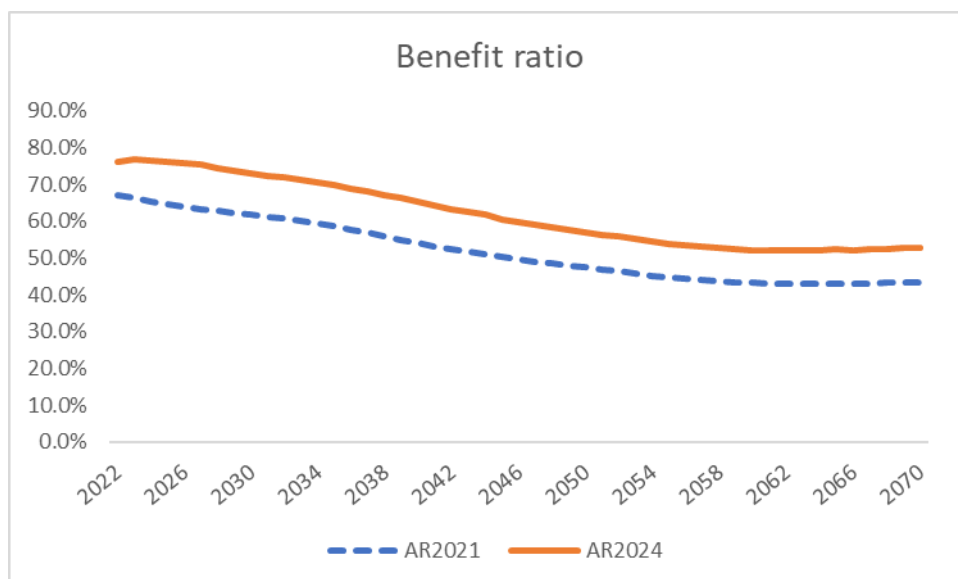
# 4. DESCRIPTION OF THE PENSION PROJECTION MODEL AND ITS BASE DATA

## 4.1. Institutional context

The AR2024 round projections for the main and auxiliary pension provision were undertaken by the National Actuarial Authority of Greece.

## 4.2. Assumptions and methodologies applied

The pension projections were carried out based on the agreed by the AWG AR2024 macroeconomic framework.

### General Population:

General population starts with the current data and it is projected applying the mortality, fertility and migration assumptions, which are in line with the EUROPOP2023 population projections released by Eurostat. In addition, existing pensioners and new pensioners are projected according to the mortality rates of Eurostat, retirement rates, invalidity rates, family statistics and legal provisions of each pension scheme.

### Labor Force, employment:

AWG assumptions on labor force participation rates, employment rates have been taken into account. According to the analytical data of the schemes in the base year, the total number of insured workers is higher than that provided by AWG. However the evolution of employees is assumed proportional to the evolution given by AWG.

### Wages:

The wage growth is obtained as the product of inflation and labor productivity. No negative growth is applied.

Salary valorization for the calculation of pensionable earnings is adjusted by the inflation and labor productivity. Needless to say that this adjustment is higher than the actual increase in the salaries observed in the past years. For the period up to 2024, CPI is used for salary valorization according to legislation.

### Benefit Indexation:

Main pensions benefit indexation is fully linked to a uniform adjustment index which cannot exceed CPI. In particular, the index is equal to the minimum of CPI and the sum of 50% CPI and 50% GDP growth [min (50% GDP growth +50% CPI, CPI)]. No nominal increase in pensions up to 2022 is applied. For the first five years, the indexation applied in the projections is according to the method actual applies: [min (50% real GDP growth +50% CPI, CPI)]. After the first five years indexation applied is equal to CPI (its maximum value, according to the formula).

The indexation percentages actually applied in the projections are as follows :

| Period | 2022-2027 | 2028-2070 |
|---|---|---|
| Benefits indexation rate | 3.31% | 2.00% |

The formula for NDC auxiliary pensions benefit indexation according to legal provision is

$$\gamma_t = \min\left(\left[1 + g_{t-2} - r\right] - 1, \text{CPI}_{t-1}\right)$$

Where

$g_{t-2}$  : notional rate of return,

r  : discount rate=1.3%  (used in annuities calculation)

$\text{CPI}_{t-1}$  : Consumer Price Indexation

This indexation can take negative values.

No pension indexation is applied in case of deficit (balancing mechanism).

| Period | 2023-2030 | 2031-2040 | 2041-2050 | 2051-2060 | 2061-2070 |
|---|---|---|---|---|---|
| Indexation applied on auxiliary pensions, taking into account balancing mechanism (average) | 1.3% | 1.4% | 1.8% | 1.9% | 1.8% |

## Age thresholds:

Current legislation provides that age thresholds will be re-determined according to the change in life expectancy of the country's population with the age of 65 years as point of reference. This comes into effect as of 1.1.2021 and upon its first implementation the change within the 2010 - 2020 ten-year period will be taken into account. After the first implementation the change in life expectancy will be re-examined every three years.

In the projections, age thresholds are increased by the integral part of the estimated increase in life expectancy. Age thresholds are increased by one additional year in 2027, 2036, 2045, 2054 and 2066.

## 4.3.    Data used to run the model

Data used to run the model for the main and auxiliary pension provision was provided by pension funds and HDIKA.

The database includes person-by-person information, from which all required inputs for the model are produced. The analytical information is aggregated by age, gender, group of similar characteristics, and by legal provisions, for producing the required inputs such as: distribution of active insured and inactive insured, distribution of past service, distribution of wages/income, density of payments, entry age, distribution of pensions in-payment, average pension, family statistics, disability statistics.

## 4.4.    Reforms incorporated in the model

The reforms incorporated in the modeling exercises for the main and auxiliary pension provision, are those described in the previous sections of this report.

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## 4.5.   General description of the model

The present version of ILO pension model has been developed to support actuarial reviews or studies of statutory social security pension funds.  It thus helps to provide the quantitative basis for making policy decisions on social security pension funds. The model estimates future cost on the basis of the cohort decomposition method and various statuses of a person and associated values (average wage, average pensions) are provided year by year.  To the extent possible, a distribution is considered for income level.  For each generation, the transition of a status of a person (active person, inactive person, pensioners) is mapped onto the next year's status by using actuarially assumed transition probabilities (mortality rate, retirement rate, invalidity rate) and applying the eligibility conditions and pension formula.  This cycle is iterated until the end of the projection period.  By summarizing age-specific results, global future costs are obtained.  Additional information can be found in the ILO Pension Model manual.

## 4.6.   Additional features of the projection model

The general description of features of the projection model is given in previous paragraphs.

# Methodological annex

- ## Economy-wide average wage at retirement

| TABLE A1 | | | | | | | |
|---|---|---|---|---|---|---|---|
| Economy-wide average wage at retirement evolution  (in thousand euros) | | | | | | | |
| | 2022 | 2030 | 2040 | 2050 | 2060 | 2070 | % change 2022-2070 |
| Economy-wide average gross wage at retirement | 15.1 | 19.1 | 27.3 | 40.9 | 59.6 | 83.6 | 68.5 |
| Economy-wide average gross wage | 15.1 | 19.1 | 27.3 | 40.9 | 59.6 | 83.6 | 68.5 |

- ## Pensions vs Pensioners

The number of pensioners was estimated approximately, based on data of "HELIOS" system for base year.

- ## Pensions taxation

Pension taxes were projected based on 2022 & 2023 administrative data regarding the effective tax rate (including compulsory social security contributions paid by pensioners). The effective tax rate was kept constant during the projection period.

- ## Disability pension

Invalidity pensions are under tight scrutiny by a committee of independently and randomly chosen doctors (KEPA authority).  Also, a new and more precise disability percentage table was introduced.

Invalidity incident rates are based on data from e-EFKA (new invalidity pensions awarded). Disability rates by age groups (%) are given in table A2.1 and the rates for new deinstitutionalization (paraplegic) allowance awards to pensioners is given in table A2.2. The rates for paraplegic allowance apply to all pensioners (except those from Public Sector).

| TABLE A2.1 Disability rates by age group (%) | |
|---|---|
| | 2023-2070 |
| Age group -54 | 0,06% |
| Age group 55-59 | 0,23% |
| Age group 60-64 | 0,30% |
| Age group 65-69 | 0,36% |
| Age group 70+ | 0,39% |

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| TABLE A2.2 Paraplegic Allowance Rates for pensioners by age group (%) | |
|---|---|
| | 2023-2070 |
| Age group -54 | 0.64% |
| Age group 55-59 | 0.30% |
| Age group 60-64 | 0.13% |
| Age group 65-69 | 0.09% |
| Age group 70-75 | 0.29% |

- Survivors pensions

Survivors' pensions are estimated using family statistics based on data provided by e-EFKA. The following parameters regarding family statistics are estimated by age of the deceased:
✓ probability of having a spouse and the respective average age of spouse,
✓ average number of children and the respective average age of the children.

- Alternative pension spending decomposition

Table A3 is equivalent to Table 8. Tables contained in the body of the country fiche are calculated by dividing into sub-intervals so to have smaller residual effect (interaction effect). Reduction of the residual is not allowed for table A3.

| TABLE A3 Factors behind the change in public pension expenditure between 2022 and 2070 (percentage points of GDP) – pensions | | | | | | |
|---|---|---|---|---|---|---|
| | 2022-30 | 2030-40 | 2040-50 | 2050-60 | 2060-70 | 2022-70 |
| **Public pensions to GDP** | -1.8 | 1.0 | 0.3 | -1.4 | -0.7 | -2.5 |
| **Dependency ratio effect** | 2.1 | 3.8 | 3.0 | -0.4 | -1.1 | 7.4 |
| **Coverage ratio effect*** | -0.5 | 0.1 | 0.3 | 0.4 | 0.1 | 0.3 |
| Coverage ratio old-age | 0.4 | 0.7 | 0.7 | 0.5 | 0.2 | 2.6 |
| Coverage ratio early-age | -4.6 | -2.7 | -3.0 | -4.2 | -4.8 | -19.2 |
| Cohort effect | -0.8 | -3.6 | -4.5 | 1.0 | 1.5 | -6.5 |
| **Benefit ratio effect** | -2.1 | -1.9 | -2.0 | -1.3 | 0.5 | -6.8 |
| **Labour market effect** | -0.4 | -0.7 | -0.7 | 0.0 | -0.2 | -2.0 |
| Employment ratio effect | -0.4 | -0.4 | -0.5 | -0.1 | -0.1 | -1.5 |
| Labour intensity effect | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Career shift effect | -0.1 | -0.3 | -0.2 | 0.1 | -0.1 | -0.6 |
| **Residual** | -0.9 | -0.3 | -0.2 | 0.0 | 0.0 | -1.5 |

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

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# Annex I

According to provisions applied before last 2015 reform, there were options for early retirement with either fewer years of service or lower retirement age than the statutory one.

Indicative clauses of such pre-reform provisions are given below:

i) <u>Men/Women of Private Sector insured in ex.IKA-ETAM before 1.1.1993, with at least 10.500 service days</u>

| MEN / WOMEN (INSURED BEFORE 1993) | 10.500 service days completed in YEAR | SERVICE DAYS Required for retirement | AGE LIMIT Required for full pension |
|---|---|---|---|
| | 2010 | 10500 | 58 |
| | 2011 | 10800 | 58 |
| | 2012 | 11100 | 59 |
| | 2013 | 12000 | 62 |

The insured is entitled pension upon completing the service days and age limit in force in the year of completing 10500 service days

ii) <u>Women of Private Sector insured in ex.IKA-ETAM before 1.1.1993, with at least 4.500 service days</u>

The insured is entitled pension upon completing the age limit in force in the year of attaining age 60.

| YEAR of attaining age 60 for full pension & 55 for reduced | SERVICE DAYS Required for retirement | AGE LIMIT Required for full pension | AGE LIMIT Required for reduced pension |
|---|---|---|---|
| 2010 | 4500 | 60 | 55 |
| 2011 | 4500 | 61 | 56 |
| 2012 | 4500 | 62 | 57 |
| 2013 | 4500 | 67 | 62 |

Insured women with vested rights to an old-age reduced pension before 31.12.2010 (i.e. at that date had the age of 55 and 4500 service days, of which at least 100 per year during the last 5 years), keep the right to a full pension at the age of 60.

iii) <u>Women of Private Sector insured in ex.IKA-ETAM before 1.1.1993/ mothers of minor children</u>

In order to vest pension rights it is required to have at least 5500 service days and the age limit in force in the year of completion of the 5500 service days provided that the child is a minor at the completion of the 5500 service days.

| 5.500 service days completed in YEAR | SERVICE DAYS Required for retirement | AGE LIMIT Required for full pension | AGE LIMIT Required for reduced pension |
|---|---|---|---|
| 2010 | 5500 | 55 | 50 |
| 2011 | 5500 | 57 | 52 |
| 2012 | 5500 | 60 | 55 |
| 2013 | 5500 | 67 | 62 |

### iv) _Women in Public Sector insured from 01/01/83 up to 31.12.1992_

| | Year of vesting rights (1) | Years of service & pension payment age limit (2) | Years of service & reduced pension payment age limit (3) |
|---|---|---|---|
| **Women without children or with adult children** | 2010 | 25/60 | 25/55 |
| | 2011 | 25/61 | 25/56 |
| | 2012 | 25/63 | 25/58 |
| | 2013 | 15/67 | 15/62 |
| Women with underage children | 2010 | 25/50 | - |
| | 2011 | 25/52 | - |
| | 2012 | 25/55 | - |
| | 2013 | 15/67 | 15/62 |

(1)  : It is the year that 25 years of service are completed
(2)  : Years of service and age limit required for full pension
(3)  : Years of service and age limit required for reduced pension

NOTE: 300 service days correspond to 1 service year

A. According to the 2015 reform all age limits applicable, until the date of publication of law 4336/2015 are gradually increasing according to the tales below until 31.12.2021, in order to reach the statutory age limits. Already vested rights are not affected by this measure.

Statutory eligibility conditions are:

-   At least 15 years of insurance and corresponding statutory retirement age of 67 years.
-   At least 40 years of insurance and corresponding statutory retirement age of 62.
-   Reduced pension with at least 15 years of insurance and corresponding statutory retirement age of 62 years. The penalty is 6% per year for each year of retirement earlier than 67.

| _Full Pension. Age limit : 67_ | | | | | | | |
|---|---|---|---|---|---|---|---|
| **2015 B' semester** | | **2016** | | **2017** | | **2018** | |
| **Age** | **Legislated Age** | **Age** | **Legislated Age** | **Age** | **Legislated Age** | **Age** | **Legislated Age** |
| 50 | 55.0 | 50 | 56.7 | 50 | 58.4 | 50 | 60.1 |
| 51 | 55.0 | 51 | 56.7 | 51 | 58.4 | 51 | 60.1 |
| 52 | 55.0 | 52 | 56.7 | 52 | 58.4 | 52 | 60.1 |
| 53 | 56.5 | 53 | 58.0 | 53 | 59.5 | 53 | 61.0 |
| 54 | 56.5 | 54 | 58.0 | 54 | 59.5 | 54 | 61.0 |
| 55 | 56.5 | 55 | 58.0 | 55 | 59.5 | 55 | 61.0 |
| 56 | 57.4 | 56 | 58.8 | 56 | 60.1 | 56 | 61.5 |
| 57 | 58.3 | 57 | 59.5 | 57 | 60.8 | 57 | 62.0 |
| 58 | 59.1 | 58 | 60.3 | 58 | 61.4 | 58 | 62.5 |
| 59 | 60.0 | 59 | 61.0 | 59 | 62.0 | 59 | 63.0 |
| 60 | 60.9 | 60 | 61.8 | 60 | 62.6 | 60 | 63.5 |
| 61 | 61.8 | 61 | 62.5 | 61 | 63.3 | 61 | 64.0 |
| 62 | 62.6 | 62 | 63.3 | 62 | 63.9 | 62 | 64.5 |
| 63 | 63.5 | 63 | 64.0 | 63 | 64.5 | 63 | 65.0 |
| 64 | 64.4 | 64 | 64.8 | 64 | 65.1 | 64 | 65.5 |
| 65 | 65.3 | 65 | 65.5 | 65 | 65.8 | 65 | 66.0 |
| 66 | 66.1 | 66 | 66.3 | 66 | 66.4 | 66 | 66.5 |
| 67 | 67.0 | 67 | 67.0 | 67 | 67.0 | 67 | 67.0 |

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| 2019 | | 2020 | | 2021 | | 2022 | |
|---|---|---|---|---|---|---|---|
| Age | Legislated Age | Age | Legislated Age | Age | Legislated Age | Age | Legislated Age |
| 50 | 61.9 | 50 | 63.6 | 50 | 65.3 | 50 | 67.0 |
| 51 | 61.9 | 51 | 63.6 | 51 | 65.3 | 51 | 67.0 |
| 52 | 61.9 | 52 | 63.6 | 52 | 65.3 | 52 | 67.0 |
| 53 | 62.5 | 53 | 64.0 | 53 | 65.5 | 53 | 67.0 |
| 54 | 62.5 | 54 | 64.0 | 54 | 65.5 | 54 | 67.0 |
| 55 | 62.5 | 55 | 64.0 | 55 | 65.5 | 55 | 67.0 |
| 56 | 62.9 | 56 | 64.3 | 56 | 65.6 | 56 | 67.0 |
| 57 | 63.3 | 57 | 64.5 | 57 | 65.8 | 57 | 67.0 |
| 58 | 63.6 | 58 | 64.8 | 58 | 65.9 | 58 | 67.0 |
| 59 | 64.0 | 59 | 65.0 | 59 | 66.0 | 59 | 67.0 |
| 60 | 64.4 | 60 | 65.3 | 60 | 66.1 | 60 | 67.0 |
| 61 | 64.8 | 61 | 65.5 | 61 | 66.3 | 61 | 67.0 |
| 62 | 65.1 | 62 | 65.8 | 62 | 66.4 | 62 | 67.0 |
| 63 | 65.5 | 63 | 66.0 | 63 | 66.5 | 63 | 67.0 |
| 64 | 65.9 | 64 | 66.3 | 64 | 66.6 | 64 | 67.0 |
| 65 | 66.3 | 65 | 66.5 | 65 | 66.8 | 65 | 67.0 |
| 66 | 66.6 | 66 | 66.8 | 66 | 66.9 | 66 | 67.0 |
| 67 | 67.0 | 67 | 67.0 | 67 | 67.0 | 67 | 67.0 |

*Full Pension.*
*Age limit : 62*

| 2015 B' semester | | 2016 | | 2017 | | 2018 | |
|---|---|---|---|---|---|---|---|
| Age | Legislated Age | Age | Legislated Age | Age | Legislated Age | Age | Legislated Age |
| 50 | 55.0 | 50 | 56.0 | 50 | 57.0 | 50 | 58.0 |
| 51 | 55.0 | 51 | 56.0 | 51 | 57.0 | 51 | 58.0 |
| 52 | 55.0 | 52 | 56.0 | 52 | 57.0 | 52 | 58.0 |
| 53 | 55.9 | 53 | 56.8 | 53 | 57.6 | 53 | 58.5 |
| 54 | 55.9 | 54 | 56.8 | 54 | 57.6 | 54 | 58.5 |
| 55 | 55.9 | 55 | 56.8 | 55 | 57.6 | 55 | 58.5 |
| 56 | 56.8 | 56 | 57.5 | 56 | 58.3 | 56 | 59.0 |
| 57 | 57.6 | 57 | 58.3 | 57 | 58.9 | 57 | 59.5 |
| 58 | 58.5 | 58 | 59.0 | 58 | 59.5 | 58 | 60.0 |
| 59 | 59.4 | 59 | 59.8 | 59 | 60.1 | 59 | 60.5 |
| 60 | 60.3 | 60 | 60.5 | 60 | 60.8 | 60 | 61.0 |
| 61 | 61.1 | 61 | 61.3 | 61 | 61.4 | 61 | 61.5 |
| 62 | 62.0 | 62 | 62.0 | 62 | 62.0 | 62 | 62.0 |

| 2019 | | 2020 | | 2021 | | 2022 | |
|---|---|---|---|---|---|---|---|
| age | Legislated age | age | Legislated age | age | Legislated age | age | Legislated age |
| 50 | 59.0 | 50 | 60.0 | 50 | 61.0 | 50 | 62.0 |
| 51 | 59.0 | 51 | 60.0 | 51 | 61.0 | 51 | 62.0 |
| 52 | 59.0 | 52 | 60.0 | 52 | 61.0 | 52 | 62.0 |
| 53 | 59.4 | 53 | 60.3 | 53 | 61.1 | 53 | 62.0 |
| 54 | 59.4 | 54 | 60.3 | 54 | 61.1 | 54 | 62.0 |
| 55 | 59.4 | 55 | 60.3 | 55 | 61.1 | 55 | 62.0 |
| 56 | 59.8 | 56 | 60.5 | 56 | 61.3 | 56 | 62.0 |
| 57 | 60.1 | 57 | 60.8 | 57 | 61.4 | 57 | 62.0 |
| 58 | 60.5 | 58 | 61.0 | 58 | 61.5 | 58 | 62.0 |
| 59 | 60.9 | 59 | 61.3 | 59 | 61.6 | 59 | 62.0 |
| 60 | 61.3 | 60 | 61.5 | 60 | 61.8 | 60 | 62.0 |
| 61 | 61.6 | 61 | 61.8 | 61 | 61.9 | 61 | 62.0 |
| 62 | 62.0 | 62 | 62.0 | 62 | 62.0 | 62 | 62.0 |

# Annex II

## Net Pensions Expenditure

Pensions are subject to:

i. Pensioner's solidarity contribution
ii. Social security contribution for health (6%)
iii. Taxes

Details on pensioner's solidarity contribution and taxes and given below.

### Pensioner's solidarity contribution for main and auxiliary pensions

I. Pensioner's solidarity contribution for main pensions is calculated under the following rules:

- For main pension amounts between 1400.01 € and 1700.0€, 3% rate. The remaining pension amount cannot fall below 1400 €
- For pension amounts between 1700.01 € and 2000.0€, rate 6%
- For pension amounts between 2000.01 € and 2300.0€, rate 7%
- For pension amounts between 2300.01 € and 2600.0€, rate 9%
- For pension amounts between 2600.01 € and 2900.0€, rate 10%
- For pension amounts between 2900.01 € and 3200.0€, rate 12%
- For pension amounts between 3200.01 € and 3500.0€, rate 13%
- For pension amounts over 3500.01 €, rate 14%

II. For auxiliary pensions different rates/bands apply:

- For auxiliary pension amounts between 300.01 € and 350.00 €, rate 3%. The remaining pension amount cannot fall below 300€.
- For pension amounts between 350.01 € and 400.00 €, rate 4%
- For pension amounts between 400.01 € and 450.00 €, rate 5%
- For pension amounts between 450.01 € and 500.00 €, rate6%
- For pension amounts between 500.01 € and 550.00 €, rate 7%
- For pension amounts between 550.01 € and 600.00 €, rate 8%
- For pension amounts between 600.01 € and 650.00 €, rate 9%
- For pension amounts over 650.01 €, rate 10%.

### Health Contribution

To what is left after the calculation of pensioner's solidarity contribution a 6% contribution for health is calculated both on main and auxiliary pensions.

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## Tax Schedule, Tax Credit and Solidarity Contribution

The Greek Tax Schedule scheme is progressive and applies a withholding tax on wages and pensions, comprised of four bands of taxable income. The starting band covers incomes ranging from 0 to 10,000 Euros and every successive band consists of 10,000 euros increments, up until the band for incomes of 40,000 euros and above. The respective tax rates for each band, applied in a marginal way, are 9, 22, 28, 36, and 44 percent.

Pensioners, as well as salaried individuals and farmers are eligible to a tax credit varying with the number of children. According to the scheme, it amounts to 777 euros for the case of no children, 810 in the case of one child, 900 for two children and plus 220 for every additional child. After income threshold of €12,000, the tax credit is reduced by €20 for every €1,000 in income scale.

During 2022, another PIT tax named "Solidarity Contribution" was imposed on the total amount, when all types on personal incomes are pooled. The bands are [0 – 12,000], [12,001 – 20,000], [20,001 – 30,000], [30,001 – 40,000], [40,001 – 65,000], [65,001 – 220,000] and [220,001 and above] with respective rates applied in a marginal way [0, 2.2, 5, 6.5, 7.5, 9, 10] percent. This PIT tax is abolished from 2023 onwards.

### Annex II Table 1. Income Tax

| | Tax rates and Income Bands | |
|---|---|---|
| **Tax Schedule for pooled Wage – Pensions** | 9.00% | 10,000 |
| | 22.00% | 20,000 |
| | 28.00% | 30,000 |
| | 36.00% | 40,000 |
| | 44.00% | > 40,000 |

### Annex II Table 2. Tax Credit

| No. of Children | 0 | 1 | 2 | ≥3 |
|---|---|---|---|---|
| **Personal Tax Credit** | 777 | 810 | 900 | +220 each additional child |

### Annex II Table 3. Solidarity Contribution

| | Tax rates and Income Bands | |
|---|---|---|
| **Tax Schedule for Solidarity Contribution** | 0 | 12,000 |
| | 2.20% | 20,000 |
| | 5.00% | 30,000 |
| | 6.50% | 40,000 |
| | 7.50% | 65,000 |
| | 9.00% | 220,000 |
| | 10.00% | >220,000 |

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## Project Team

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