

Retirement Security and Pension System in Greece: Reform Efforts, Ageing Population and Intergenerational Allocation of Risks and Benefits

1. Introduction

The purpose of a pension system is to provide old age income security and protection against the risk of poverty, smoothing consumption after retirement. During recent decades, several reforms have been implemented in many countries' social security and pension systems. Public pensions often constitute a large portion of government expenditure. In this regard, reforms are necessary to keep a pension system sustainable and adequate to meet the promised benefits for the retiring generations and to provide for intergenerational fairness, equality, and social inclusion. As such, pension systems are an essential component of social and economic policy agenda and reforms are crucial for their viability.

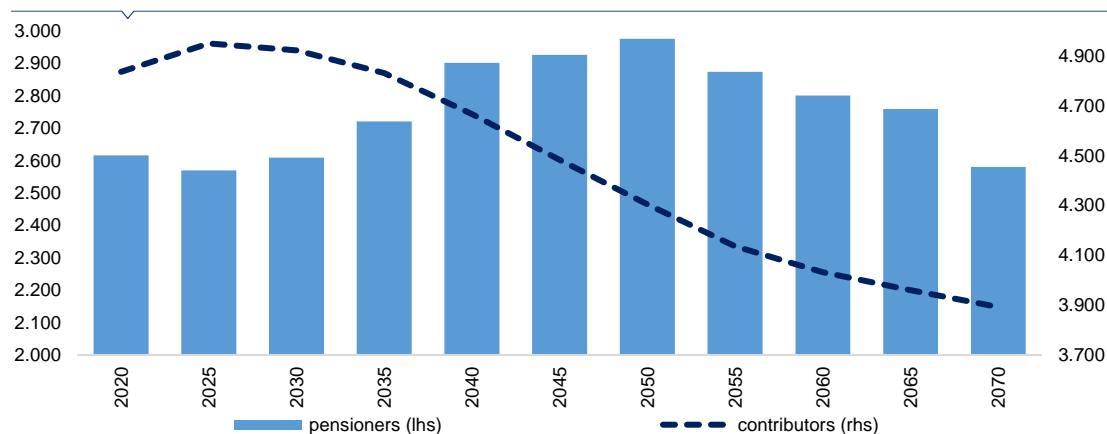
Sustainability and adequacy are the two primary objectives of any pension policy. An adequate retirement income signifies the ability to prevent old-age poverty, whereas to be preserved, a sustainable pension system implies limited deficits and fiscal adjustment needs. Radical demographic changes, such as population ageing, extended longevity, and lower fertility rates, are among the main factors that cause financial stress or large deficits in the public pension systems. Apart from the "baby boomer" generation – born in the years following WWII and now gradually retiring – retirement income adequacy is expected to be more contestable for the subsequent generations, such as generation X, the millennials or generation Z retirees.

According to the World Bank Group (WBG, 2019), an ageing society is one in which over 7% of the population is older than 65 years. In an aged society, this portion accounts for more than 14% of the total population, and in a super-aged society for more than 20%. Greece, as part of the developed world, has experienced major demographic changes, driven by increasing life expectancy and a decline in birth rates, and thus is considered a super-aged society. The latest available Eurostat data indicates that the percentage of people aged 65 years or older over the total population in Greece increased from 18.8% in 2009 to 22% in 2019. The median

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Graph 1. Long-term projections on the number of pensioners and contributors in Greece up to 2070 (in 1,000 persons, public pensions)



Source: European Commission. The 2018 Ageing Report: Economic and Budgetary Projections for the EU Member States (2016-2070): cross country tables

age in Greece stood at 44.9 years in 2019, the fourth highest in the EU-27 and above the European average (43.7), implying that half of the Greek population was older than 44.9 years. Projections from the European Commission (EC) on the number of retirees up to 2070 indicate the need to promote pension reforms in countries with a growing demographic problem. The population of all pensioners in both Greece and the rest of Europe exhibits an upward trend, peaking in 2050 (*Graph 1*). At the same time, the projected population of those contributing to the public pension system is expected to fall by half a million in Greece by 2070. This implies that a lower number of contributors will finance more pensioners, further threatening public pension system sustainability for a super-aged country like Greece. This increasing share of the population receiving benefits from the social security system relative to the working age population can lead to rising fiscal burdens.

The consequences of population ageing also include an increasing need of individuals to plan for potentially longer retirement spans and/or longer working lives while adjusting their saving plans, often in a low-return environment (Benartzi and Thaler, 2013; Card and Ransom, 2011). These tectonic demographic shifts are also expected to move the capital to labour ratio upwards, as the corporate sector will increase capital in order to compensate for labour, which will be getting scarcer (Goodhart and Pradhan, 2017, 2020). Consequently, capital return rates are expected to decline and wages to rise, causing welfare losses for current middle-aged generations when entering retirement (Vogel et al, 2017).

While arguably the most prominent issue, the demographic problem is just one of various challenges for pension systems. Administration and governance inadequacies, fiscal constraints, a growing informal economy, the impact of the digital economy on labour market structure, new risks or even extreme events and the protection of migrant workers, labour opportunities beyond retirement, tackling high taxation are among the challenges that call for effective reforms. The COVID-19 pandemic poses challenges on pension systems through various channels, although mainly in the short run. Due to the pandemic, labour market distortions with subsequent lower employment rates, wage contractions and early retirement or even tax and contribution deferral create further fiscal pressure. Asset price shocks also affect funded pension schemes with lower returns, negatively impacting their balance sheets and benefits (International Monetary Fund, 2020).

This Insights issue examines the key challenges facing the Greek pension system in light of recent macroeconomic developments and the lessons learned from a history of major implemented reforms and some uncompleted reform attempts. We question (a) whether there is a necessity for further reforms, beyond the recent government announcements which imply an intention for concrete reforms by introducing funded system elements, (b) under which conditions a successful reform can be achieved, given the examples of countries that have accomplished similar attempts and (c) what would be the macroeconomic parameters that will shape the evolving Greek pension system in the coming decades.

The study is organised as follows: [Section 2](#) provides an analytical framework of the conceptual characteristics of pension systems and determines the key features that differentiate public social security pensions from private occupational and individual schemes. [Section 3](#) explores the Greek pension system thoroughly, while [Section 4](#) examines the inadequacies of the existing system, by detailing the demographic problems that threaten its building blocks. [Section 5](#) summarises the major reforms that took place over the last thirty years in Greece. [Section 6](#) compares various reforms that have been implemented in the Greek and European schemes over time. In [Section 7](#), we explore the future drivers of pension expenditure as a percentage of GDP and how these will be determined by population ageing and the applied employment reforms. In [Section 8](#), we comment on the reasons that held Greece behind in promoting substantial reforms to its social security system. We also provide brief but comprehensive policy recommendations as necessary on conditions that could enhance future reform efforts. [Section 9](#) assesses the recent auxiliary pension reform announcements. [Section 10](#) comments on the new challenges ahead for pension systems, emphasising upon the issues of growth, labour supply, capital formation and fiscal space, and finally, [Section 11](#) concludes.

2. Public PAYGO pensions vs private pension plans

Pension funds are accumulated during years of employment, to provide a periodic income after retirement. State pensions are the largest source of retirement income in many countries, followed by occupational and private pension schemes. Pension plans are distinguished based on how contributions are collected during working life on a mandatory or voluntary basis, by the employee and/or the employer, and on how benefits are provided during retirement. Public social security and pension systems typically have the form of a redistributive, unfunded scheme¹, known as Pay-As-You-Go (PAYGO), indicating that the salary contributions and taxes of the current working population pay the social security pensions benefits of current retirees.

The PAYGO scheme is based on intergenerational solidarity and therefore the demographic features, such as fertility rates, longevity, and population ageing, play a crucial role in determining retirement income. In PAYGO pensions, the old dependency ratio -the population aged 65 and over to the employed population from 15 to 64 years old- is an important parameter for the adequacy of pensions, implying that the system is vulnerable to demographic and macroeconomic risks (OECD, 2019). In most countries, the public pension system is either PAYGO and unfunded or a hybrid scheme, in which contributions are partially funded. Pension benefits can have the form of either a flat-rate basic pension, i.e. a benefit of the same amount, or an earnings-related pension, both of which can be paid to either each retiree (universal) or to retirees who meet certain criteria (targeted) (OECD, 2007).

Another important feature of a pension system is the replacement rate and the eligibility age. The replacement rate defines the pension value as a percentage of individual earnings of the last drawn salary or another similar benchmark² (Whitehouse, 2014). The eligibility age incorporates years of employment and life-expectancy. The “normal” eligibility age determines the age at which people typically retire after having established a pension right.

On the other side of the pension spectrum are the mandatory or voluntary private pensions funds, which operate in the form of occupational / employment-based plans or individual /personalised accounts. Occupational and individual pensions have broadened retirement income options beyond the public pension scope. The private pension schemes are structured and funded in fundamentally different ways than the public PAYGO pensions and they also face different challenges³. In occupational retirement plans, the participant is entitled because of his/her workplace and the plan is usually established by the employer. Similarly, personal retirement plans are individual savings pension plans in which regular contributions are made usually up to a limit, in a diversified portfolio set up by the participant or the provider of the fund.

The custodians of personal pension schemes can be banks, life insurance companies, mutual fund companies or brokerage firms. The pension portfolio in both the occupational and individual plans usually invests in annuities, guaranteed investment certificates, public projects, mutual funds, bonds, stocks and so on. Moreover, many of these plans provide tax deferred arrangements, motives, and advantages to the employed and the employers for their acquisition, while also requiring the participant not to withdraw contributions prior to a predetermined age (Gomez et al, 2009)⁴. The undertaken returns and risk of the assets in which the funds are invested plays a crucial role in their future operation. The global financial and economic crisis of 2008-2009 offers a profound example of the risks related to privately funded retirement schemes, as the participants witnessed a large decrease in their assets’

¹ Funded and unfunded pension schemes are categorised based on the assets and income of the plan and its future investment performance. Unfunded pension schemes do not have enough assets to cover their liabilities. Funded schemes have adequate invested contributions, so that the return on investment and the assets of the fund can pay for the future benefits.

² The replacement rate is usually defined on an accrual basis, i.e. the level at which the annual replacement rate must be in order to achieve an overall target. The OECD distinguishes between gross and net replacement rate, the former defined as the gross pension entitlement divided by gross pre-retirement earnings and the latter taking into account personal income taxes and social security contributions paid by workers and pensioners.

³ Such as the Individual Retirement Accounts (IRAs) in the USA and the Tax-Free Savings Plan (TFSA) in Canada.

⁴ For example, tax deductions that decrease the amount of tax paid on pension income and tax exemptions in the invested money as long as they remain in the private pension account.

value due to low rates of return. However, PAYGO pensions were also affected during that period, due to increased unemployment, low growth rates and wage cuts (EC, 2016).

2.1 Defined benefit versus defined contribution pension plans

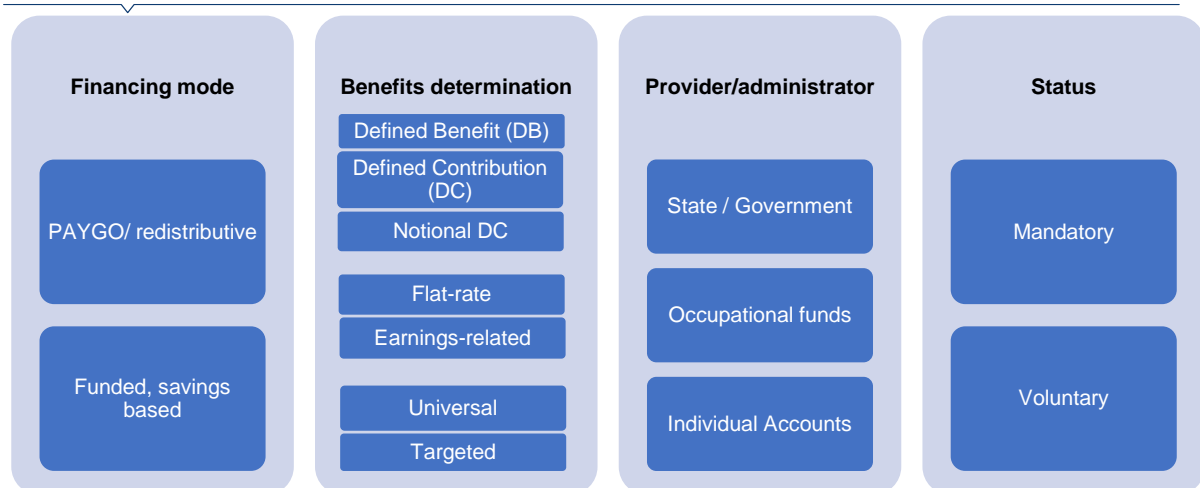
Two main types of pension schemes apply to both social security and private pensions: defined benefit plans (DB) and defined contribution plans (DC), which determine the way the pension benefits are calculated (Bell and Hill, 1984). The DB plan accrues pension rights for employees under a benefit that is determined by a pre-set function of the employee’s earnings history, tenure years, retirement age, and other factors. DB plans are earnings-related and do not depend on investment returns, whereas in some cases the benefits are typically indexed for inflation (Poterba et al, 2007).

In a DB plan, wealth accumulation depends on the employee’s market experience and the arranging parameters of the plan, with the benefits being fixed and the contributions varying according to the amount needed to fund the predetermined benefits (Wang et al, 2014). DB plans are usually unfunded, but they can also be funded. State pensions are typically similar in operation to a DB arrangement, although with a different structure than a private DB pension plan. In a funded DB plan, future investment returns cannot be predicted; therefore, by valuating its assets and liabilities, actuaries typically estimate the contributions needed to meet future predetermined benefits. Thus, investment risks and rewards are typically assumed by the sponsor/employer and not the participant.

Conversely, DC plans are purely funded schemes, in which the contribution rate is fixed, but the retirement benefit is not and, as such, the pension value accumulation depends on contributions paid and the future financial market returns of the underlying assets (Wang et al, 2014). As such, DC plans are exposed to investment and other microeconomic risks, as the level of future benefits is not guaranteed. In this regard, the financial risk of participation is typically borne by the employee. The participant of the plan can control the investment decisions of his account, although the plan provider is usually the investment administrator (EFAMA, 2008). Upon retirement, DC plans provide a regular income from savings and accumulated investment earnings, frequently in the form of an annuity.

DC plans are in general much more widespread among occupational and individual retirement accounts than DB plans. However, in various countries, DB schemes have some characteristics of a DC system and this is usually the case in publicly provided pensions. These DB systems that mimic some features of DC systems are called notional DC (NDC) systems. The accumulated contributions in NDC systems have a rate of return which is pre-set by the government and thus not produced as a market return (The World Bank, 2005). Contrary to the DB systems, in which the benefits are based on the earnings history,

Figure 1. Key dimensions of a pension system



in NDC systems, the benefits are claims determined by the “accumulated” funds in the retiree’s account. However, the contributions are not literally accumulated, and the benefits of the current retirees are essentially PAYGO financed by the contributions of the current employed generation.

Working life income distribution may reflect retirement security framework. For low-income individuals, access to private saving schemes can be difficult and thus rely only on their main public pension, whereas for medium and high-income earners, private savings can more easily complement their social security pension (Poterba, 2014). *Figure 1* summarises all key dimensions of a pension system.

2.2 Financing old age in the coming decades: The multi-pillar retirement system

Regarding the design of a pension system, various recommendations have been proposed by leading organisations, such as the International Labour Office (ILO), the Geneva Association, the International Monetary Fund, the OECD, and the World Bank (Wang et al, 2014). A pension system can combine many of the features discussed in the previous sections, as well as other technical parameters adjusted so that they best fit to the retirement needs of a country. The multi-pillar or multi-tier pension system is an approach that more coherently combines all these elements, which comes up with fundamental and diversified pension structures. Multi-pillar systems are not designed to be implemented *per se*, but to be adapted according to the specific needs of each country, taking into account the underlying related risks.

A widely used multi-pillar pension structure is that introduced by the World Bank in 1995 (Ståhlberg, 1995), aimed at the strengthening of social insurance and savings, by stressing out diversification. The initial three pillars included a) a mandatory, publicly managed pillar, tax-financed through contributions on a redistributive PAYGO scheme, providing minimum pension guarantee for securing a minimum standard of living, b) a regulated mandatory, privately managed pillar, with fully funded personal savings or occupational plans and the objective of savings plus coinsurance and c) additional voluntary arrangements of fully funded schemes through personal savings or occupational plans with the objective of savings plus coinsurance.

In 2005, the World Bank updated its structure to a five-pillar system (*Figure 2*) that can be applied in various ways in countries with divergent needs, objectives, and initial conditions (Holzmann and Hitz, 2005; Holzmann et al, 2008). The five-pillar structure, with a wide range of elements, determined the system’s modalities and available options, with the second and third pillars broadly remaining unchanged: The aim of the new zero and first pillars was to alleviate poverty among the elderly by providing social security, with all other pillars offering additional retirement income (Holzmann et al, 2008). A non-financial fourth pillar was included, consisting of access to family support, social programs, such as healthcare, housing, and other financial and non-financial assets, like home ownership and reverse mortgages.

Figure 2. The World Bank five pillars of a pension system

Non-contributory “zero pillar”	Mandatory “first pillar”	Mandatory “second pillar”	Voluntary “third-pillar”	Non-financial “fourth pillar”
<ul style="list-style-type: none"> • non-contributory • provides a minimum level of protection for the elderly • adequacy 	<ul style="list-style-type: none"> • public pension schemes • contributions linked to varying degrees of earnings • redistributive, typically financed on a PAYGO basis • income replacement 	<ul style="list-style-type: none"> • typically an individual savings account • usually a DC plan • wide set of design options • income replacement 	<ul style="list-style-type: none"> • can take many forms, but essentially flexible and discretionary • privately funded accounts through accumulated savings 	<ul style="list-style-type: none"> • access to informal support, such as family support • other formal social programs, such as health care/housing • other individual financial and non-financial assets (e.g. home ownership)

Source: The World Bank

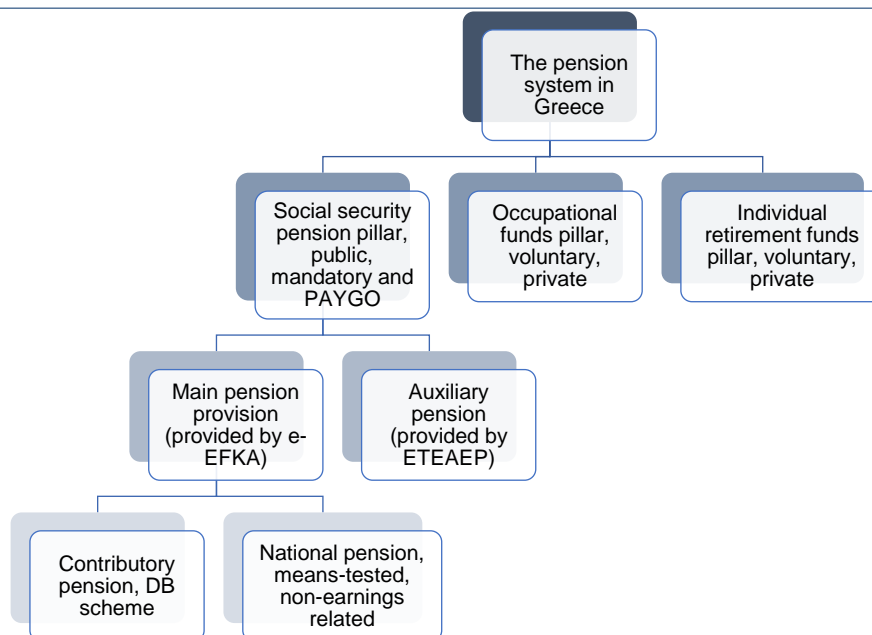
For many countries, pension systems fit a similar structure to that of the World Bank’s pillar system. Typically, the first pillar provides a compulsory, PAYGO social security pension and the second pillar is established as the private, occupational plans tier, which can be voluntary or mandatory and usually but not exclusively, in the form of a DC system. The third is the pillar of individual pension accounts, which is usually voluntary and less frequently enforced by the State. In some cases, a fourth pillar is defined as a set of labour market policies that extend working life beyond retirement (World Economic Forum, 2013). In particular, the fourth pillar of the Geneva Association Four-Pillar Program aims to promote the continued employment of retirees, mainly on a part-time basis, as a supplement of the other three pillars of retirement income (Geneva Association, 2012).

3. The Greek pension system: a mainly PAYGO system, with still weak private pillar components

The Greek pension system comprises three pillars: a first pillar of public, mandatory, and State provided pensions, a second pillar of voluntary, private occupational funds and a third pillar of voluntary, private individual funds (Figure 3). In addition to retirement, disability and survivors’ benefits, the Social Security contributions in Greece cover several other programs, including health insurance and maternity benefits, unemployment and worker’s compensation benefits and family allowances. The pension system in Greece relies heavily on the first pillar at a rate of about 95% of total contributions made to pensions each year (IOBE, 2019), with the second and especially the third pillar having limited application, leading to a rather low level of private pension shares in the pension market.

The public and mandatory first pillar of the Greek pension system includes a) the main pension, which is the sum of a national pension and a contributory pension and b) the auxiliary pension. For the main pension, there is tripartite financing, through the parallel funding from employees, employers, and the State. The national pension is a means-tested⁵, non-earnings-related elderly benefit, financed by the public budget and is provided by the insurance fund of e-EFKA (electronic Unified Social Security Fund). The national pension currently has a ceiling of €384/month for a contributory period of 20 years, reduced by 2% for each year less, provided that at least 15 years of contributions are completed.

Figure 3. The design of the pension system in Greece



⁵Means-tested pensions are those in which their eligibility is based on income and/or other assets tests/ criteria

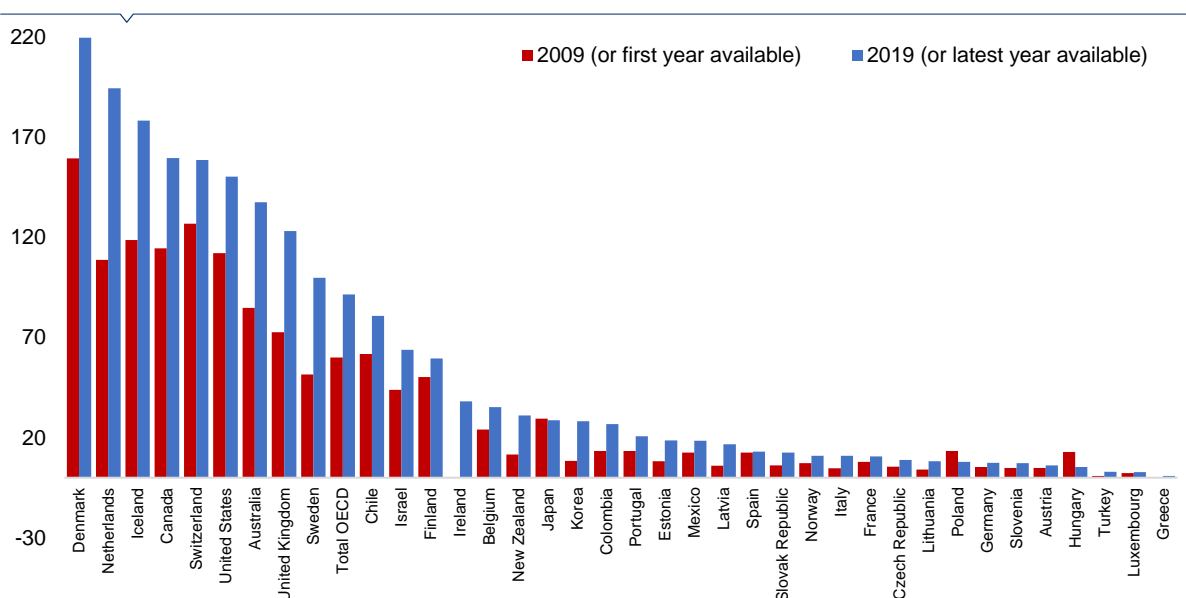
The contributory and auxiliary pensions are PAYGO financed through the annual contributions paid from employees and employers. The contributory pension is provided by e-EFKA, which covers all salaried employees, self-employed, agricultural workers, and seamen (OECD, 2019). The contribution rate stands at 20% of the income for employees and the self-employed. The contributory part of the main pension is DB based, so that the contributions are a predetermined percentage of the average earnings of the working life and the years of service of the employee, which also determine the replacement rate⁶.

Furthermore, the auxiliary pension is a supplementary benefit provided in parallel for most employees, financed separately from the main pension from contributions of employers and employees, without any State budgetary participation. Auxiliary pensions are provided by the insurance fund ETEAEP and are financed on a PAYGO, NDC (Notional Defined Contributions) basis. The number of main pensions in 2018 was over 2.8 mn (at 01.01.2018, National Actuarial Authority, 2019).

Occupational funds in Greece, as supplementary and voluntary insurance coverage options, were enacted by Law 3029/2002. The institutional entity that represents occupational funds in Greece is the “Hellenic Union of Institutions for Occupational Retirement Provision” (HUIORP), a non-profit civil-law partnership in operation since 2018. Currently, there are 18 funds operating in Greece under the supervision of the Ministry of Employment and the Hellenic Capital Market Commission, with a total of 37 thousand insured employees in 2020 (HUIORP). The main target of investments in these funds is the smooth coverage of their obligations. Robust investment policies, effective risk management, assessment and portfolio diversification are key aspects of the operation of occupational schemes, which operate on the basis of a funded, usually DC system⁷.

The capitalized, third pillar of individual, savings pensions in Greece is also voluntary with limited application. The contributions in these funds are paid by the insured and the benefits do not depend on employment parameters, such as income or years of tenure. The schemes are DC and, as in private occupational plans, the amount of benefits is linked to the amount of accumulated payments during working life plus the investment return. These programs are usually offered by insurance companies or through the Undertakings for the Collective Investment in Transferable Securities (UCITS), with an optional participation of the employers or the state (IOBE, 2019).

Graph 2. Assets in private retirement savings plans in EU countries in 2009 and 2019 as a % of GDP



Source: OECD

⁶ For the self-employed, there are various contributory categories, based on contributions paid up to 2016 and from 2017 onwards.

⁷ A basic condition for establishing an occupational fund by a sector, company or a professional organisation is to have at least 100 insured employees.

In Greece, the funded second and third pillars represent only 5% (occupational funds 1% and private insurance funds 4%) of total contributions paid for pensions per year (IOBE, 2019). Moreover, there are currently no financial or other tax incentives for the Greek private, individual pension plans (OECD, 2015). As depicted in *Graph 2*, Greece ranks last compared to other OECD countries in terms of total assets in private retirement savings plans as a percentage of GDP (at 0.83% in 2019), recording only a marginal increase between 2009 and 2019 (0.02% in 2009).

4. Fiscal Consolidation and Population Ageing in Greece

The growing demographic problem and the unprecedented sovereign and financial crisis of the previous decade led to high unemployment rates, low wages, and low productivity, which forced the Greek government to proceed with cuts in pension expenditure. Moreover, the massive brain drain and the subsequent losses of high skilled workforce with a high level of education and professional qualifications during the previous economic crisis in Greece also intensified the demographic problem⁸.

Pensions in Greece as a percentage of GDP recorded a strong upward trend from 2007 (12.3%) to 2012 (17.9%) (*Graph 3*), falling to 16.1% as of 2018, remaining the highest among European countries, mainly because of the large GDP reduction (EU-27 average at 12.7% and Euro area at 13.1% in 2018) (Eurostat, Pensions database). Despite the large share of pensions to GDP, total pension expenditure was cumulatively reduced by 14.5% in the period 2009-2018, - because of the fiscal discipline measures implemented by the Memorandums of Understanding (MoUs) – reaching 29,009 bn EUR in 2018 (current prices). Moreover, the per capita pension expenditure in Greece remained lower (€2,799 per person in constant 2010 prices) than the EU and the Euro area average in 2018 (€3,517 and €4,062 per person respectively). For 2020, it is estimated that the expenditure for pensions will reach 28.7 bn or 17.7% of GDP, half of which are financed by the State Budget, reaching around 25% of total expenditure (Bank of Greece, 2021; State Budget, 2021).

Furthermore, the forecasts on demographic developments in Greece over a period of 50 years ahead are deeply concerning. According to the EC (Ageing Report, 2021), the key demographic determinants are a) the fertility rate, b) the mortality rate, and c) the level of net migration⁹. Greece's fertility rate in 2019 was among the lowest of European countries, at 1.34 children per woman, expected to stay below 1.6 up to 2070. Life expectancy in Greece as drawn from Eurostat's baseline projections is expected to increase to 86.4 and 90.3 years for males and females respectively by 2070 (*Graph 4*). Net migration is projected to increase cumulatively by 8.7% from 2019 to 2070. Moreover, the median age for the Greek population will have gained 6 years by 2070 compared to 2019, reaching 51 years, among the highest, after Poland, Italy, Croatia, and Finland (Eurostat, Demographic balances, and indicators by type of projection).

Similarly, the old dependency ratio of people over 65 years to those aged 15-64, which plays a vital role in the system's viability, is projected to increase from 35 in 2019 to 60 in 2070, being the highest after Poland, Portugal, Italy, and Lithuania. In Eurostat's baseline projections, the proportion of people over 65 years over the total population in Greece is expected to increase to 32.8% in 2070 from 22% in 2019, under the also unfavourable forecast for a significant reduction in the country's overall population to 8.6 mn people by 2070 (*Graph 5*). Under the "lower fertility" and "no migration/repatriation" scenario, the population of the country will drop further. Thus, the reversal of the brain drain, the "brain regain" and the attraction of workforce from abroad are a *sine qua non* condition for inverting an excessive downward population trend.

⁸ It has been estimated that, in order to find better opportunities for their professional development during the previous Greek economic crisis, more than 467 thousand people between 25-44 years old moved abroad from 2008 to 2017 (Bank of Greece, Monetary Policy Interim Report 2019)

⁹ Net migration inflows as immigration minus emigration, which impacts the population growth apart from the natural growth due to births and deaths.

Greece’s demographics suggest that if the pension system continues to rely heavily on the first public, PAYGO pillar, and thus, current pensions continue to be largely dependent on current contributions, the system will not be sustainable or adequate. As a result, future generations may face significant reductions in their benefits, while state budget deficits will be enlarged.

The demographic problem in Greece is coupled with several other dysfunctions in the pension system (IOBE, 2019; Nektarios and Tinios, 2019), such as

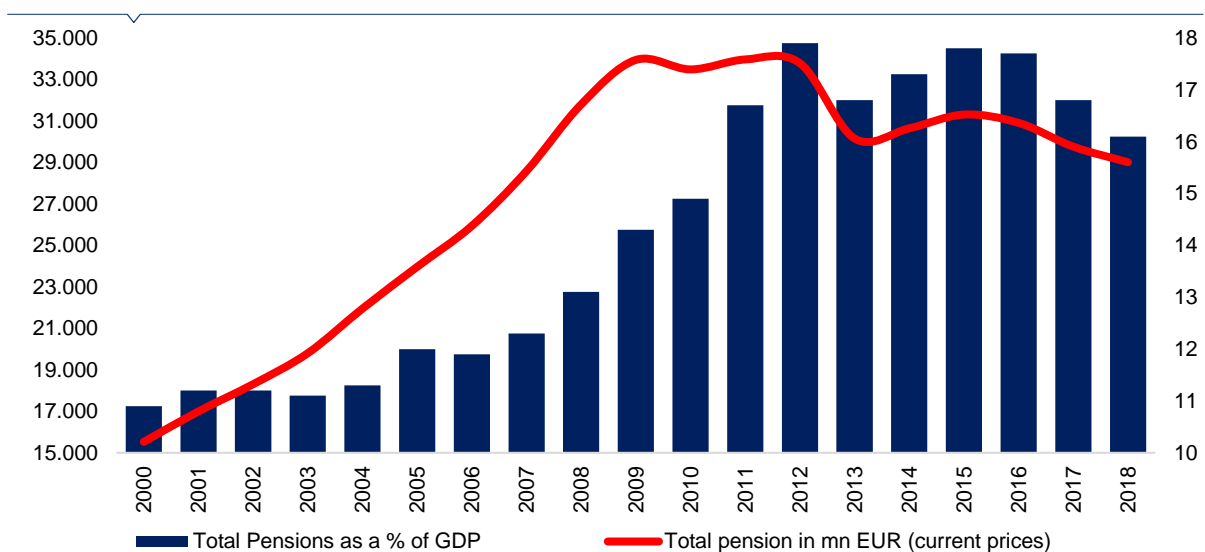
- (i) the still relatively high contributions for employees and employers, which a) jeopardise the labour effort and supply by raising the incentives for contribution evasion and undeclared work and b) compress the after tax and social security contributions wages and thus reduce incentives for the Greek high-skilled workers to return from abroad, which negatively affects the old dependency ratio,
- (ii) an institutional framework that remains complicated,
- (iii) the insufficient information on employees' retirement choices,
- (iv) the reduced incentives for the participation of younger workers in the face of the uncertainty about their future pensions,
- (v) the relatively high funding from the state budget for the main pensions and the subsequent increase of budget deficits and
- (vi) the insufficient incentives to reduce early retirement.

5. A chronicle of major recent pension reforms in Greece

The roots of pension reform attempts in Greece go back to the 1990s, when various fruitless efforts were made to rationalise the system and minimise the confusing administrative process and numerous coexisting funds. Law 2084/1992 suggested the equalisation of the rules for contributions and benefits for the employees insured from 1/1/1993 onwards and the containment of expenditure by a less generous pension calculation. The pension benefits of the older, especially for certain employment categories, were not affected, resulting in costs that were borne only by the younger insured persons (Matsagganis, 2012).

It is worth mentioning the Spraos’ Committee report, a reform proposal in 1997, which unleashed social and political reactions and was not eventually passed. In 1997, the Macroeconomic Policy Examination Committee– the Spraos Committee – presented a study predicting the derailment of the pension system if alternative options and gradual methodological changes were not pursued, so as to reduce costs and

Graph 3. Evolution of pensions in Greece (in mn EUR and as a % of GDP)



Source: Eurostat

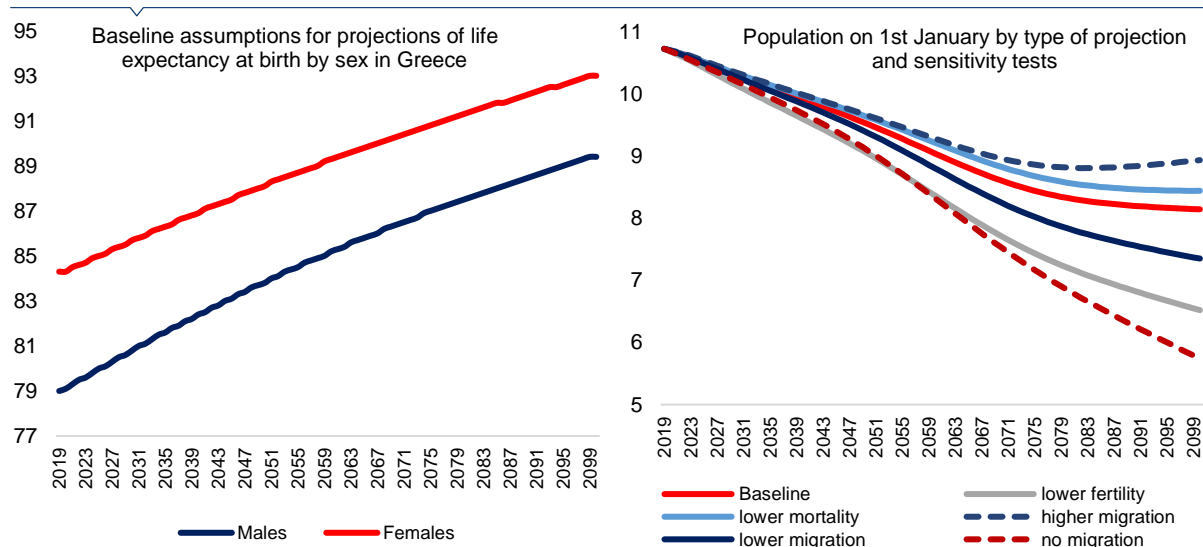
increase revenues. The report suggested the gradual rise of the retirement age and the extension of working life, the increase of contributions as well as changes in the funding method of the system. It also proposed the consolidation of the main and auxiliary insurance funds and the operation of a solidarity fund, which would finance the deficit pension schemes by those exhibiting a surplus. The report suggested three types of pensions: a national pension, granted to all citizens over 65 years, one based on the employee's contributions and a third, based on sectoral savings.

Later on, Law 3863/2008 introduced mergers of funds of the wider public sector, the self-employed and the private and public sector auxiliary funds. Although the assets and liabilities were transferred to the new funds to which they belonged, each statutory pension fund retained those it had before the consolidation. Retirement income inequalities and various distortions of a still highly fragmented system remained, benefitting certain categories of pensioners, such as those of the public sector, higher income classes or the current generation at the expense of private-sector employees, lower income classes and the next generations (Matsagganis, 2012).

Following the 2009 Greek debt crisis, the EU, the ECB, and the IMF - the so-called troika - proposed limits to the fragmentation of the social security system by merging the existing funds and establishing uniform rules for all current and future employees. Under the first MoU in 2010, a proposed pension reform with a detailed outline was necessitated as an immediate policy

priority. Among others, the 2010 MoU proposed setting new retirement age limits, equalising those for men and women, gradually extending pensions so that they would correspond to the earnings of the total working life, reducing early retirement, substantially revising the list of heavy and unhealthy occupations, introducing more stringent rules for granting disability pensions, reducing the ceiling of pension earnings and strengthening contributory pensions, i.e. the relationship between contributions and benefits with an annual replacement rate of 1.2% (Matsagganis, 2012). Law 3863/2010, applying one of the most crucial reforms for the pension system, integrated important features. For instance, the pension provision was divided into two parts: the basic and the proportional. In addition, the amount of the basic pension in 2010 was set at €360 per month, for 12 months, whereas for the calculation of the total pension, the entire earnings history was taken into account. Moreover, under Law 3865/2010, all new civil servants would be mandatorily and automatically subject to the main pension branch of IKA-ETAM¹⁰.

Graph 4. Projections of life expectancy at birth by sex and on population by type of projection



Source: Eurostat

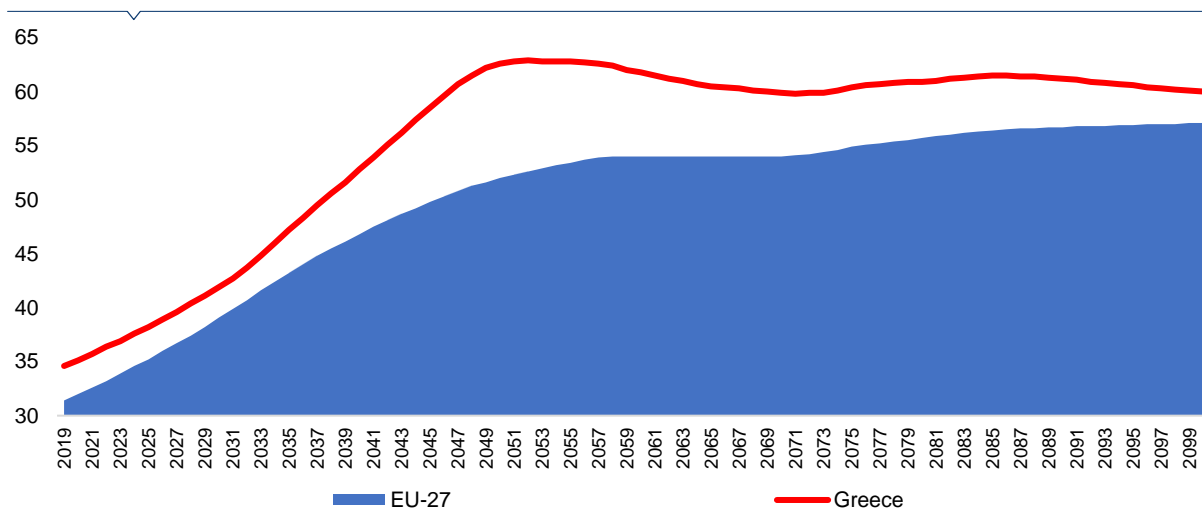
¹⁰ Social Insurance Institute – Unified Insurance Fund for Employees, the former state-owned main insurance fund in Greece.

Regarding auxiliary pension reforms, Law 4052/2012 unified the numerous auxiliary funds and established a single fund (ETEA), which would be financed on a PAYGO, notional DC (NDC) basis. The law increased the statutory retirement age from 01/01/2013 by two years, for those insured under IKA and those employed in Public Utility Organisations and the Bank of Greece. In 2015, Law 4336/2015 increased the statutory retirement age thresholds for establishing pension rights at the age of 62, with 40 years of full insurance, and at 67, with 15 years of full insurance, for men and women. The age threshold will be adapted to life expectancy from 01/01/2021 and any change in the 2010-2020 decade will be considered as a basis for adjustments in eligibility age thresholds, readapting them thereafter every three years if necessary (IOBE, 2019).

In May 2016, mostly parametric reforms in the social security system came into effect. Law 4387/2016 (“Katrougalos Law”) incorporates all social security pension funds into a unified single fund for main pensions, EFKA, under a common administration, governance, and accounting system¹¹ (National Actuarial Authority, 2019). The Law established the harmonisation of the contribution rates and pension rules for all participants, affecting the accrued rights of both pensioners and those already insured. The flat-rate national pension of €384/month for a minimum of 20 years of insurance was also put into force and marginally applied accrual rates for all were introduced, depending on the period of service. The reform changed the way that pensionable earnings were calculated, based on the average earnings of total working life, instead of the earnings of the last years¹². Law 4387/2016 also eliminated the non-contributory, flat-rate means-tested solidarity grant, the EKAS, as of the end of 2019¹³ and introduced a single method for calculating the accrued rights of auxiliary pensions.

During the adjustment programs, numerous successive benefit reductions were applied that shook the people’s confidence in the pension system and increased the incentives to engage in undeclared work, while legal risks were created by court decisions to overturn the cuts (IOBE, 2019). More recent laws reintroduced a 13th pension payment to all participants in the main pension from 2019 onwards (Law 4611/2019). In addition, according to Law 4670/2020, the EFKA was digitalised, renamed to "electronic Unified Social Security Fund " (e-EFKA) from 01/03/2020, also incorporating the auxiliary fund ETEAEP.

Graph 5. Projections of the old dependency ratio (population 65 and over to population 15 to 64 years) in Greece and the EU-27



Source: Eurostat

¹¹ The former fund for agricultural workers, OGA, and that for seamen (NAT) were also integrated in EFKA.

¹² The 2016 reform introduced the “personal difference” for the new retirees from 2016 to 2019, which in the case of auxiliary pensions were also determined as part of the auxiliary pension for those retired up to 31/12/2014. After the transition period 2016-2019 the calculation of personal differences for the main pension was eliminated with Law 4583/2018, which also abolished the provisions for the reduction of auxiliary pensions in 2019 when the main and the auxiliary pensions are lower than €1,300.

¹³ Income from main and auxiliary and salaries, wages and other allowances or benefits

6. Parametric and structural reforms of pensions systems in Europe: a comparative analysis

Various countries have intensified their pension system reforms since 2000 and especially after the financial crisis of 2008-2009, through a broad range of measures regarding their structure and its various parameters. Many European countries introduced structural reforms by developing multi-pillar pension systems and prioritising benefit provisions of DC, occupational or individual pension schemes. Reforms have also changed key parameters of the system, such as the pension age or contributions rates, the indexation of pensions and the provision of incentives, such as tax exemptions or deferrals regarding the participation in private retirement plans.

The introduction of automatically adjusting mechanisms to demographic changes is also an important step for the pension system's sustainability and the containment of future pension expenditure, since it creates balancing mechanisms that automatically take into consideration increases in life expectancy and dependency ratios, as well as reductions in birth rates. The increase of the early and statutory retirement age thresholds was also a common parametric reform over the last years in most European countries, among which Greece, Sweden, France, and Finland legislated the largest raises over the period 2008-2013 (EC, 2016). Most European member states introduced measures to gradually equalise the pension ages of men and women. However, the pension age of women is still lower than

Table 1. Key features of pension systems in EU-28 countries*

Country	Pillar 1 – Public pension schemes						Pillar 2 – Private occupational schemes		Pillar 3 – Private individual schemes	
	Financing		Type of pensions				Status		Status	
	PAYGO	Pre-funded*	Flat rate	DB	PS**	NDC	Mandatory	Voluntary***	Mandatory	Voluntary
Austria	●			●			●			●
Belgium	●	●		●			●	●		●
Bulgaria	●			●				●	●	●
Croatia	●				●			●	●	●
Cyprus	●	●			●		●	●		
Czechia	●	●		●						●
Denmark	●		●	●			●			●
Estonia	●	●		●			●		●	●
Finland	●	●		●				●		●
France	●	●		●	●			●		●
Germany	●	●			●			●		●
Greece	●		●	●		●		●		●
Hungary	●			●				●		●
Ireland	●	●	●	●			●	●		●
Italy	●					●		●		●
Latvia	●	●				●			●	●
Lithuania	●			●			●		●	●
Luxembourg	●	●		●				●		●
Malta	●		●	●			●			●
Netherlands	●		●	●			●			●
Poland	●	●				●		●		●
Portugal	●	●		●			●	●		●
Romania	●				●				●	●
Slovakia	●				●				●	●
Slovenia	●	●		●			●	●		●
Spain	●	●		●				●		●
Sweden	●	●				●	●		●	●
UK	●		●	●				●		●

Source: EC Pension Reforms in the EU since the Early 2000's: Achievements and Challenges Ahead (2016).

*In certain countries, prefunding of public pension schemes refers to reserve funds aiming at securing public pension schemes,

In Point Systems (PS), the employed persons receive "pension points" based on their annual earnings, *In Greece, only 1% of total contributions paid for pensions come from occupational funds.

those of men, most notably in France, Italy, Austria, Poland, Romania, and the UK.

Furthermore, incentives to curtail early retirement were introduced by various countries. These included:

- a) the increase of the required years of contributions for full pension, for example in Spain, France, Austria, and Netherlands
- b) the closure or strict restriction of enabling early retirement to new participants
- c) the introduction of penalties or bonuses before and after the normal pension age
- d) the easier accumulation of pensions and wages, for example in Czechia, Spain, and Romania.

Box 1. The pension reform paradigms of Italy and Sweden: NDC public pension systems, the “orange envelope” and the role of information

In Sweden, the statutory retirement system has a PAYGO NDC component, a mandatory funded DC pension component and a DB income-tested pension. The pension system in Sweden until 1998 comprised a flat-rate pension and an earnings-related, DB PAYGO scheme. Under widespread public and political consensus, in 1998 the country introduced a profound pension reform that relied on an NDC scheme for public pensions for the employed and self-employed born after 1954, which was supplemented by mandatory private DB and DC occupational and individual schemes. The reform became fully enforced in 2003, whereas by 2005, private pensions had already a broad coverage of 1/5 of total pension expenditure, predicted to represent over 1/3 by 2060 (EC, 2016; OECD, 2019).

Italy adopted an NDC public pension scheme under its 1995 reform and introduced a three-pillar model, focusing on providing incentives for later retirement¹⁴. Before the reform, Italy’s pension system suffered from increasing pension expenditures, lack of retirement incentives and rather complicated distributional effects (Franco and Tommasino, 2020). Contrary to Sweden, where the replacement of the old DB system would be completed by the end of 2020, the replacement of the DB public system in Italy is profoundly long and complex, expected to be fully phased out by the mid-2030s, with only those employed after 1995 being fully entitled to participate in it. At the same time, voluntary occupational and individual retirement plans remain at relatively low levels (EC, 2016).

Moreover, contrary to the broad consensus of the NDC reform in Sweden after the initial debates and the large efforts to extensively inform the public, the proposed reform in Italy was accompanied by ongoing political dispute and limited preparations and efforts to provide a full report and adequately inform the public on the new pension scheme (Franco and Tommasino, 2020). Although the 1995 reform suffered from various weaknesses in its initial implementation stages, Italy promoted further reforms up to 2011, to accommodate sustainability issues and control government deficit, by overhauling the institutional framework for private pillars and imposing stricter eligibility criteria, such as raising the retirement age and associating it with life expectancy projections. In 2018, 30.2% of the Italian workforce participated in funded pension schemes, with their financial assets accounting for 9.5% of GDP.

In Sweden, after the NDC pension system was initiated, participants were sent the so called “orange envelope”, a brief report that became a trademark for the pension system. The orange envelope is sent once a year to participants to inform them of their pension contributions paid and it includes an account statement, a fund report for the funded part and a forecast of the future pension (Paulsson, 2006). Italy adopted a similar policy in 2015, in which participants can be informed online from the Italian Social Security Institute (INPS) about the development of their NDC account pension benefits, based on projections of various scenarios (Boeri et al, 2019). The program is called “My future pension” and according to a recent survey, over 80% of respondents replied that the new service is “at least very helpful”. Educating and informing a country’s employees on the reforms of the pension system that are being promoted and how exactly they will affect their retirement income is perhaps one of the most crucial aspects of a successful reform. Informing people reduces uncertainty over the provision of pensions and provides for most pension participants that are lacking familiarity with financial literacy.

¹⁴Before the reform the retirement ages were as low as 60 years for men and 55 years for women.

Measures aimed at the containment of pension expenditure have also been legislated to reduce pension benefits and provide for the adequacy of the system. Among others, these measures were a) the indexation of pensions in payment and b) the calculation of the first pension in payment by taking into account the average salary of a long working life instead of the last or highest salaries. Greece, along with Croatia, Romania and Finland applied a mix of partial nominal wage and nominal price valorisation, which is less generous than wage valorisation. Among other countries, Greece, Italy, Luxembourg, Austria, and Slovakia also directly reduced their annual accrual rates, whereas others increased them indirectly, by increasing the contributory period for a full pension, like Belgium and France or applied early retirement penalties and/or introduced links to life expectancy changes, as sustainability factors.

Moreover, for decreasing benefits progression, one parametric reform was the introduction of other indexation methods to adjust rules for pensions in payment. Various countries moved for example from full indexation to wages, to partial or full indexation to prices, with the latter implemented in France, Italy, Hungary and Austria. After the 2008-2010 financial crisis, Bulgaria, Cyprus, UK, Poland, and others increased their social security contribution rates, in order to enhance the revenues of the system and be able to respond to the pensions expenditure. *Table 1* summarises the key features of pension systems in European countries, based on their three-pillar design.

7. Main drivers of the future pension expenditure trajectory

Regarding its future course, according to the projections of the EC (Ageing Report 2018) for the evolution of future pension expenditure by 2070, Greece is expected to witness the highest reduction in gross public pension expenditure as a percentage of GDP from 2016 to 2070 (-6.6 percentage points or pps.). The respective reduction of the European average is projected to reach 0.5 pps. The Ageing Report (2018) identified four key sources of change, namely the dependency ratio, the coverage ratio, the benefit ratio, and the labour market effect, according to the formula:

$$\text{Pension expenditure/GDP} = \text{dependency ratio} \times \text{coverage ratio} \times \text{benefit ratio} \times \text{labour market ratio}$$

The four factors are subsequently decomposed into the following:

- a) dependency ratio = population 65+/population 20-64. This factor quantifies the impact of the demographic shift.
- b) coverage ratio = number of pensioners/population 65+. This factor reflects the developments in retirement age and the population perimeter covered by the pension system.
- c) benefit ratio = average pension benefit (pension spending divided by number of pensioners) / labour productivity (GDP/hours worked 20-74). The benefit ratio indicates how the average pension evolves compared to the average wage.
- d) labour market effect = employment rate effect + labor intensity effect + career prolongation effect. The labour market effect reflects the impact of labour supply, it is equal to population 20-64 / hours worked 20-74 and it decomposes to:
 - employment rate effect = 1/employment rate = working population 20-64/population 20-64
 - labour intensity effect = 1/labour intensity = hours worked 20-64/ working people 20-64
 - career prolongation effect = 1/career shift = hours worked 20-74/ hours worked 20-64, which reflects the effect of a career prolongation beyond the age of 65.

The demographic factor, reflected in the dependency ratio, is projected to register the largest contribution in the increase of public pension expenditure for all member states by 2070 (*Graph 6*), resulting from an increasing number of pensioners relative to the number of contributors. According to the 2018 EC Ageing Report, population ageing will surge pension expenditure by 6.5 percentage points of GDP on average in the EU-27. However, this adverse effect varies significantly among European countries. In Greece, it will contribute to the increase of pension expenditure as a percent of GDP by 9.1 percentage points until 2070, the 6th highest contribution among EU-27 countries.

In Greece, in addition to countries such as Poland, Portugal, Italy and Spain, the overall pension expenditure is expected to decrease, although the demographic factor is projected to display a significant increase in the following decades. The EC attributes this trend to the fact that Greece and

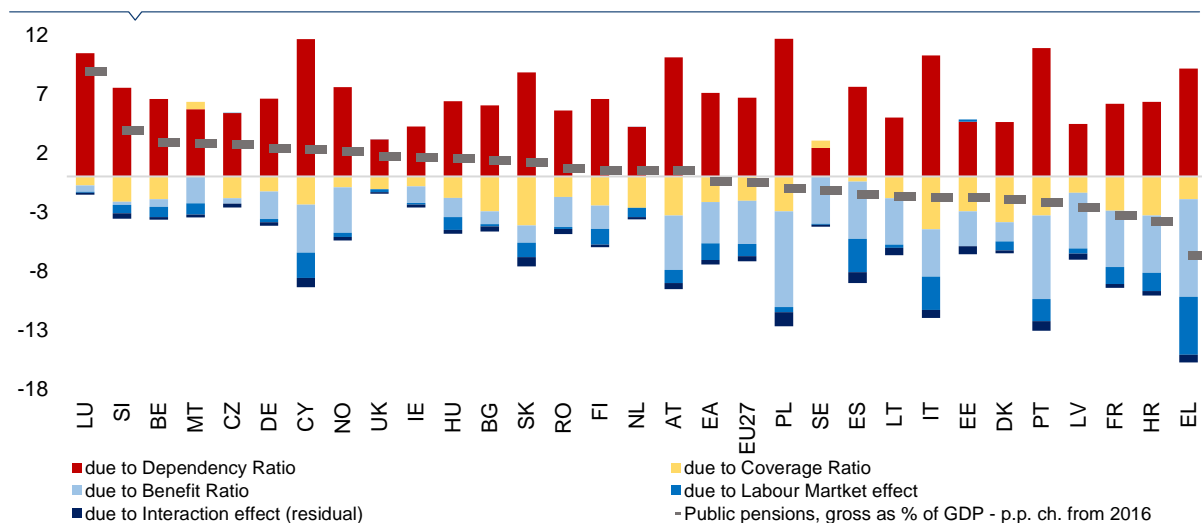
the rest of these countries have improved their pension systems with other sustainability factors. As a result, the positive contribution of the dependency ratio to the public pension expenditure will be counterbalanced by the negative contributions of the coverage ratio, the benefit ratio, and the labour market effect.

The benefit ratio and the coverage ratio are considered reform-affected indices that incorporate, *among others*, the impact of (i) the restriction of early retirement, (ii) the increase of the statutory retirement age, (iii) the changes in the calculation of pension benefits, such as less generous indexation rules, but also (iv) the shift to the second or third pillar pension schemes. Specifically, the benefit ratio, which captures the generosity of the public pension system, is expected to decline and lead to a compression of pension expenditure as the average benefits will increase more slowly compared to the average wage. The benefit ratio will be a key driver with the largest impact in Greece (-8.3 percentage points of GDP), with an average impact of -3.1 pps. in the EU-27.

The coverage ratio, which measures the extent to which people below 65 retire (an early retirement indicator), is also expected to negatively affect the pension expenditure by 1.9 pps. of GDP in Greece and by 2.1 pps. on average in the EU-27. Given the recent reforms and medicine technology advances, fewer people aged below 65 will be retired.

The contribution of the labour market effect in the change of the pension expenditure ratio has a minor effect in most countries (-) but a larger effect in the case of Greece (-4.9 pps.). The labour market effect is further split into three components: labour intensity effect, employment rate effect and career prolongation effect. It reflects *inter alia* the impact of policy measures that aim to permanently raise employment and thus boost economic growth and increase the number of contributors. Examples are labour market reforms, such as employment increases for older age groups, which could lift the effective retirement age¹⁵ and support the pension system's sustainability. Employment rate and career prolongation effects affect the labour market factor the most for all countries, while labour intensity has a neutral effect¹⁶. For Greece, the employment rate effect is the factor that contributes the most compared to the other two factors of the labour market effect, by -4 pps., reaching the highest impact of contributions among all European countries (-0.7 pps. the EU-27 average).

Graph 6. Drivers of gross public pensions p.p. change from 2016 to 2070, as % of GDP*



Source: EC 2018 Ageing Report.

*The interaction effect is the unexplained difference between the change in all drivers and the sum of the effects of the individual drivers.

¹⁵ The effective retirement age is the exit age from the labour market as estimated by the Cohort Simulation Model of the EC Ageing Reports, which calculates entry and exit rates in the labour market by gender and cohort.

¹⁶ Which according to the report mostly results from the projections' macroeconomic assumptions

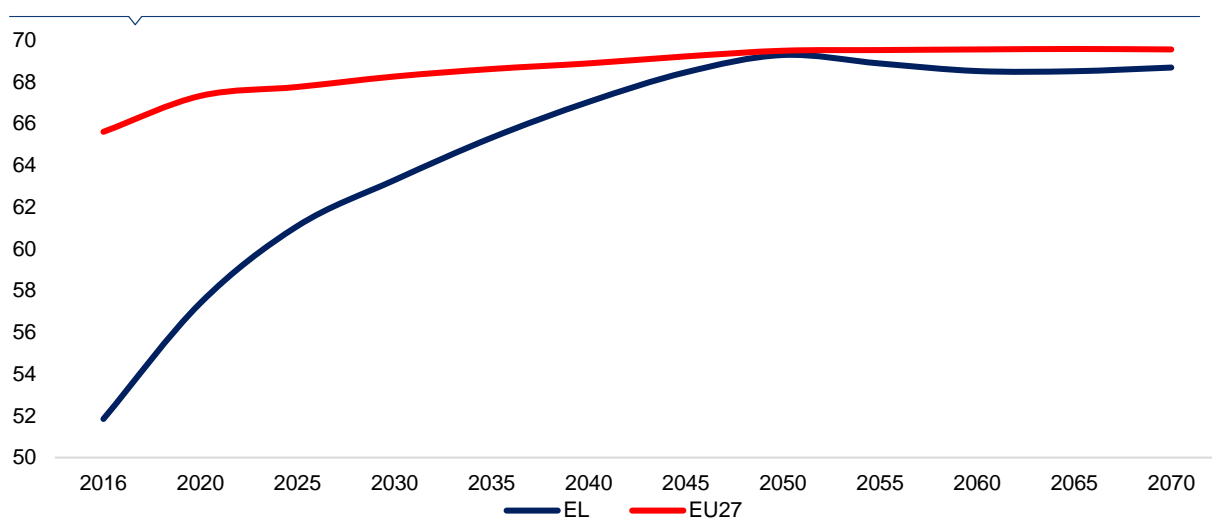
The change of public pension expenditure due to the employment rate effect in Greece (age between 15-64) is evident in its projected course from 2016 up to 2070, expected to go up by 32% and record the largest increase among EU countries (5% on average) (*Graph 7*). This significant lift is due to the low initial employment rate in 2016 and high unemployment rate during the previous economic crisis in Greece, which is set to be gradually restored. Finally, the career prolongation effect refers *inter alia* to the impact of reforms that increase the statutory retirement age or the implementation of active policies for ageing, thus increasing the hours worked by people older than 65 years. In Greece this accounts for 1 pps. reduction in the gross public pension expenditure by 2070. Finally, labour intensity effect is expected to have a minor impact (0.1 pps.) in Greece, as well as in most EU countries.

8. Explaining the puzzle of pension reforms delay: Time inconsistency, special interest groups and the median voter

The pensions reform puzzle in Greece has been a controversial issue for many decades. The pension system underwent various reforms, being almost constantly a top political priority of every government since the 1990s. However, few of them managed to provide efficient solutions to the permanent problems of limited sustainability, inadequacy, fragmentation, and inefficient administration. The impairments were coupled with political unwillingness and procrastination to substantially change the *status quo*, recognise the complexity of the problem, take action and go against established special interest groups. Core reforms that would alter the structural properties of the system were delayed or were never applied as optimal solutions.

Reforms can become difficult to pursue if not vocally supported by the median voter of the concurrent generations. During reform efforts, the various special interest groups (lobbying activities) engage in a struggle to pass on the costs from one to another so that the reform is finally postponed (Alesina and Drazen, 1991). The longer the delay of a reform in the pension system, the higher the cost of adjustment, ultimately becoming more difficult to promote it and pass on the intergenerational budgetary burdens (Provopoulos and Kapopoulos, 2001, 2002). In addition, if the cost is disproportionately higher for the current generation, then the latter will not easily vote for a comprehensive reform. Moreover, time inconsistency on behalf of the decision-makers often places biases towards not promoting an optimal and necessary reform. In this regard, policy makers can weigh more the choices that will benefit the current generations and discount less the reforms which are mainly beneficial for future generations and pension system's longer term viability (Persson et al, 1987).

Graph 7. Projected employment rate until 2070 in Greece and the EU-27



Source: EC. The 2018 Ageing Report: Economic and Budgetary Projections for the EU Member States (2016-2070): cross country tables

However, the reforms of the last decade in Greece have exhibited a more determined intention to solve the puzzle, although under the necessity to contain the fiscal derailment during the economic crisis after 2009 and the subsequent MoUs imposed by the EC, the ECB and the IMF. The fiscal problems of the previous decade stressed the extent of the problem in the pension system and it became obvious that not more deficits could be afforded. The measures taken to reduce public pension expenditure were last-minute agreements that ended up leaving deep scars in the system through multiple and horizontal cuts in public pensions. However, although at that time necessary, this was not a radical solution. Other reforms, such as the establishment of equal retirement ages for men and women, the provision of motives to contain early retirement, the unification of all pension funds, the dependence of pension benefits on the entire working life earnings, were measures in the right direction.

But are they enough? Almost all reforms pertained to the public pension pillar. The development of private savings retirement schemes is also a big challenge ahead, although it is inevitable that the PAYGO system will continue to be the cornerstone of the Greek system. The fruits of the effort to solve the pension puzzle will not be visible until many decades after action is taken. Therefore, understanding in depth the problematic aspects of the system and acting upon them takes political will, social and political consensus, looking beyond myopic and populist electoral gains and being able to grasp the needs of not only of the current, but also of future generations.

Proper, timely information offered to the public both by the media and politicians is an indispensable condition for the effectiveness of any reform effort. Independent actuarial studies that consider all dimensions of a transition of the system and estimate who and when will bear the costs and what can be done to minimise them, must be at the heart of any effort to reform the pensions status quo and change the established perceptions. The essential support and promotion of the second and third occupational and individual retirement tiers of the system, as alternative, core options for employees is also a prerequisite in order to move forward and be directed to effective multiple pension pillars, following the successful examples of many other countries that have reaped the fruits of similar reforms.

9. Introducing funded system elements: The recent reform announcements and the Cost of Transition

The new announcements of the Ministry of Employment pertain to reforms that will take place from 01/01/2022. According to the announcements, the auxiliary pensions of the first pillar will take the form of a DC scheme, which will remain in the first, public pillar, with no other reforms promoted for the second and third pillar (Interview “To Vima”, 09/09/2020). As such, the currently NDC auxiliary pensions scheme will be replaced by a funded (capitalized¹⁷), DC auxiliary pension plan. The new system will be mandatory and applied to new entrants from 01/01/2022 who will be eligible for an auxiliary pension, whereas those under the age of 35, together with the self-employed and farmers, will also be able to join in the new system on an optional basis. The existing auxiliary pensions will continue to be paid under the current arrangement and will not be affected. According to the announcements, under a transparent framework, the insured will be able at any time to watch the contributions and returns of the auxiliary fund online, whereas at the end of each year, they will receive a detailed report on the activities of the fund, investments, risks, accumulated returns and so on. The contributions will follow the rate of the insured under the current NDC system and as such, they will correspond to 6% of their insurable earnings¹⁸.

The fund will invest the contributions in bonds, stocks, and other products, mainly in Greece but also abroad, and the insured employees will have the option to choose from a range of a limited number of investment profiles, such as a conservative profile, a default balanced profile, and a third, riskier profile.

¹⁷ The term “capitalized pension system” is widely used in Greek terminology to refer to the opposite of a PAYGO scheme that includes funded elements, so that contributions are invested and returned as benefits to the same contributors when they retire.

¹⁸ 3% for the employee and 3% for the employer. For the self-employed with or without a mandatory auxiliary pension, the contributions will follow the regulations of the current system of those with a mandatory auxiliary pension.

The insured will not choose specific investment products, since there will be a public administrator that will serve as investment manager, under regulated supervision. The new proposed reform will come to force during a period in which the options for pension choices will be broadened by the introduction of a European program for retirement, called PEPP (see *Box 2*).

Box 2. The Pan-European Personal Pension Product (PEPP) as a future vehicle for promoting individual private pensions and fostering savings

The Pan-European Personal Pension Product (PEPP) of the European Union is a voluntary individual retirement program accommodating all European citizens, established by the EC in order to complement the existing state, occupational and national private pension schemes¹⁹. The PEPP was legislated under EU Regulation 2019/1238, which is the legal foundation for a single EU market for personal pensions, designed to standardise transparency requirements, protection rules and investment options. The PEPP is not expected to come into force before 2022. The European Insurance and Occupational Pensions Authority (EIOPA) is responsible for its implementation and supervision.

According to EIOPA, the purpose of the PEPP is twofold: it provides a means for a supplementary pension to citizens, but it also aims at financially supporting European companies through fostering savings and long-term investment in capital markets²⁰. PEPPs will be available not only to the employed and self-employed, but also to the unemployed and students. The PEPP is an opportunity to channel the savings of retirement pensions in safe investments with positive returns, with strong consumer protection, especially in the current macroeconomic environment of low and negative yields. As such, a developed market for private pensions in Europe can also strengthen the development of Capital Markets Union (CMU). Banks, asset managers, insurance companies, certain investment firms and occupational pension funds can be the financial providers of PEPPs in European countries, given that they fulfil the criteria that match the PEPP regulations.

The basic features of the PEPP include:

- full transparency of fees and costs
- affordability, with providers mandated to offer a simple default option (basic PEPP), with costs and fees at 1% of the annual capital accumulated, providing capital protection. The saver will be able to choose from a maximum of six investment options.
- full mandatory advice before the decision to buy a PEPP and personalised advice before retirement.
- flexible pay-out, with more than one types of out-payments, such as annuities, regular drawdown payments or lump sum payments.
- encouragement of the providers to allocate assets in sustainable investments that consider environmental, social and governance factors (ESG)
- the right to switch, enabling savers to switch provider or alternate their investment options.
- cross-border portability, enabling providers to offer PEPPs on a pan-European basis, and
- digital disclosure and distribution, with the option to be purchased online.

Although the EC encourages member states to treat tax incentives provided by PEPPs equally to the existing national personal pension accounts, the PEPP does not provide *per se* any tax deferral incentives. Therefore, its success is also conditional on the specialised tax framework under which it will operate, as well as on further clarifications regarding its operation.

The reform introduces funded elements in the public first pillar of the pension system and thus it reduces its extended exposure to demographic risks. Therefore, it advances risk diversification in the first pillar and as such it is necessary and in the right direction. Since the PAYGO system redistributes the benefits and contributions, the demographic problem in Greece will put pressure on the system by enlarging the

¹⁹ Pan-European personal pension product (PEPP) - Regulation 2019/1238

²⁰ Daniel Boffey (2017-06-09). "EU pension' planned for people who move between countries". Article in The Guardian.

deficits created from lower contributions that finance higher benefits. Thus, this reform will over time limit these deficits and therefore the fiscal burden on the State budget since the deficits will be financed by public resources.

In addition to the adverse demographic predictions that threaten the system's sustainability, this reform is also based on the need a) to gradually compress the tax wedge so as to give breathing space to employers and employees for an increase in labour supply and labour demand respectively and b) to create resources for the benefit of the national economy in order to boost business investment. A precondition of the latter is to create well-balanced, prudently managed, and adequately differentiated portfolios.

Ultimately, the reform aims to restore the confidence of new generations in the pension system and provide incentives for reducing undeclared work and achieve higher auxiliary pensions for new entrants. The lost contributions and the subsequent increase of fiscal cost and public debt impose a further challenge for the government, which is to address the following issues. Firstly, it will make up for the cost of transition and secondly, it will provide a fair and effective intergenerational and intertemporal allocation of the cost. It is essential to provide information and a clear picture of the public costs during the transition period. To this end, the Ministry of Employment has announced there will be actuarial studies that will focus on the "gross" budgetary cost of the reform, which will take some decades to be offset (Interview in "Kathimerini", 15/11/2020).

The view that the new reform will boost the country's economic growth rate, which in turn will be translated into higher employment, productivity and wages is the one side of the coin. The relationship between the success of the DC schemes and economic growth is bidirectional. The success of a DC scheme depends *inter alia* on the growth prospects of the Greek economy and its ability to create wealth. A strongly growing economy will have the capacity to support such a reform and under the appropriate conditions, the new scheme will be able to assist the pension system and further boost the economy. But if the growth prospects of the economy are weak, then it is ambiguous whether this reform alone will help support the sustainability and adequacy of the pension system.

Since the new reform aims at introducing the DC scheme in the auxiliary, public pension scheme, it is essential to further promote and inform the insured on the choice of supplementary pensions provided by occupational plans and individual retirement accounts. In addition, if the actual implementation of the reform verifies the announced commitments which show an intention to inform the insured regularly, officially and fully on the details of the new regime and the course of their contributions and savings, then it is probable that people's confidence in the system will be restored.

10. The Big Picture: Interconnection of Retirement Policies with Growth, Labour Supply, Capital Formation and Fiscal Space

Pension systems are tailored to the needs of a country and the one-fits-all rule does not apply. The macroeconomic environment, regulatory institutions and the development of domestic financial markets must be considered when introducing a reform, so that it a) is properly adjusted to provide affordable, effective, sustainable, and adequate pensions and b) can contribute to economic stability and a country's growth prospects. Thus, the pension system should not be viewed only as an autonomous, technical, or actuarial problem, but in full relation to its macroeconomic environment and the related future challenges, due to its interdependence with labour markets and the macroeconomy.

In this regard, a key question that arises from the previous analysis is how the macroeconomic environment of an ageing society determines the sustainability of the pension system and the adequacy of old-age financing in the future. For the Greek economy, population ageing implies rising fiscal burdens because of the increasing share of the population receiving PAYGO pensions, and a decline in the number of those working, which will further press upwards the already high level of age-related public spending. Although early retirement increases employment opportunities for young employees, in a country with an ageing population, it makes the financial burden of the pension system to rely more on

the relatively fewer younger employees. In addition, demographic ageing will also increase spending on healthcare and long-term care (Nerlich and Schroth, 2018).

Maestas et al (2016) estimate that a 10% increase in the fraction of the population aged over 60 decreases the GDP per capita growth rate by 5.5%. In particular, they found that 2/3 of this reduction is due to the slower growth of labour productivity, with the other 1/3 resulting from slower labour force growth. Using data for developing Asian countries, Park and Shin (2012) estimated a sizable adverse economic impact in cases where population ageing is higher. Additionally, an ageing society creates age-dependent demand structures since older individuals have limited time windows for investments to pay off. As a result, research and development is cut back, as demand for innovative goods falls. Based on this theoretical background, Legge (2016) used data from OECD and found that countries facing the most severe demographic changes witnessed the sharpest growth reduction in their patent applications.

The adequacy and sustainability of pension systems is also affected by various macroeconomic factors, such as government spending on consumption, transfers and pensions and the point of the economy in the Laffer curve, i.e. to what extent tax rates affect tax revenues. Macroeconomic factors, combined with the current and projected structure of the population, pose fiscal constraints on pension provision and consequently, a limit to the dependency rate, beyond which the pension system can no longer sustain the promised benefits to retirees that rely only on income taxation revenues (Heer et al, 2020). So, is a reversal of these adverse effects on the pension system feasible?

Although they found that OECD countries are likely to experience lower growth rates because of population ageing, Bloom et al (2010) also pointed out that significant behavioural responses are likely, such as wider female labour force participation and policy reforms, including increases in the legal retirement age, which might relieve the demographic consequences on national economic growth. Policy factors, such as an increase in the supply of the eldercare workforce and foreign manpower can also partly counterbalance the negative impact of an ageing population (Huang et al, 2019)²¹.

In this regard, we can elaborate further on three issues. First, the participation of the elderly in the labour market can a) positively affect resource allocation, as the improvement in health conditions of the elderly can provide for the extension of working life, b) enhance pension system sustainability, by mitigating its financial pressure (Yakita, 2017). Second, an efficient migration policy that incorporates migrant labour supply in the official labour market can also support the sustainability of the pension system. And third, reversing the brain-drain trend – brain regain – and skills mismatch which was observed during the previous financial crisis in Greece and accelerated the economy's already detrimental demographics is also of vital importance. Thus, effective participation of the elderly in the labour market, the incorporation of migrants in the labour market and brain regain policies can contribute to reducing the shadow economy and undeclared work and consequently to the partial resolution of the ageing problem. All three measures can promote a chain of positive effects for the economy, but also for the social security system, since contributions will be increased and more taxes will be paid, supporting the benefits of the system.

In the case of Greece, a growth-friendly economic policy after the long period of MoUs has been already begun with a reduction in tax rates on income, corporate profits, property, and consumption (VAT). This tax-driven expansionary policy increased public expenditure in 2020 on the back of the attempt to minimise the effects of the COVID-19 pandemic. In the beginning of 2021, the Greek government further decreased social security contributions and labour taxes²². This is expected to have a positive impact on labour supply and the containment of undeclared labour and the shadow economy, which could contribute to an increase of the country's potential output and pension system revenues.

²¹ On the other hand, ageing could create new opportunities for institutional investors, regarding the evolving opportunity set within real estate and new opportunities in health care and technology.

²² As of 01/01/2021, Law 4756/2020 for the reduction of social security contributions by 3 pps. of employees and employers in entities outside the public sector came into force, as well as Law 4738/2020 for the exemption of income from the Special Solidarity Contribution for the employees of the private sector.

The country-specific cultural tradition of intergenerational transfers should also be integrated in how pensions are structured. Galasso and Profeta (2018) found that the family culture and inheritance rules affect the design of pension systems because they determine the within-family intergenerational transmission of resources, and the generosity of the public pension system. In countries with low intergenerational transfers, population ageing will put substantial pressure on older persons to be self-reliant. Mukherjee (2018), using US data, showed that social security benefits are linked with increased monetary transfers from elders to their children, while at the same time they appear to alleviate caregiving burdens on the next generation. Thus, benefit cuts could cause “financial, emotional, or even physical burdens” on the children of retirees.

On top of that, current retirees and those that will retire over the next years will enter late life with greater levels of debt and financial fragility than previous generations, putting the stability of their lifecycle after their prime earning years at risk (Lusardi et al, 2020). This is evident in Greece, where the high burden of private debt over the last decades together with tax arrears and non-performing loans outstanding, exceeds 100%, while intergenerational transfers in the form of bequests are rather widespread and play a stronger role in wealth accumulation than earned income (Humer et al, 2016).

11. *Epilogue*

The sustainability and adequacy of social security and pension systems is a twofold problem that most developed countries have confronted, in the face of substantial ongoing demographic changes. The problem is intensified by population ageing, extended longevity and lower fertility rates, factors that can cause financial stress or large deficits in the public pension systems. Thus, retirement policies take into account demographic projections in order to promote reforms that, optimally, combine various features and technical parameters in analogies that are country specific. Toward the direction of reforms, many countries are currently relying on a multi-tier system in which alternative options of private or public retirement savings schemes have been adopted.

For Greece, the demographic projections for the decades ahead do not favour the maintenance of the social security and pension system as it is. If the pension system continues to rely heavily on the first public, PAYGO pillar and current pensions continue to be largely dependent on current contributions, the system will not be sustainable or adequate and future generations will face significant reductions in their benefits, while state budget deficits will be enlarged.

Although almost constantly a top political priority, the Greek pension system has undergone various reforms but very few have managed to provide efficient solutions to these permanent problems of limited sustainability and adequacy in addition to the extensive fragmentation and inefficient administration. Pension system reforms usually necessitate long-term transitions and sometimes appear to be controversial and bear political costs in their implementation. Political unwillingness, inconsistent time preferences of policymakers and procrastination to change the status quo and go against established interests are among the main causes for the delay of core reforms in the Greek pension system.

Under any reform, it is imperative to carefully balance the advantages and disadvantages, address the affected population groups and minimise the costs and implications during the transition period. Educating and informing people on the promoted reforms and how these will affect retirement income is crucial for their success. The further development of efficient retirement savings schemes as an optional retirement choice, such as occupational accounts or individual retirement funds, also requires a well-regulated and properly functioning financial market. Supervision of the investment choices of private schemes, as well as proper regulation of their arrangement are key steps in any reform that widens the second and third pillar options of the pension system.

However, although further reforms are needed to secure the sustainability and adequacy of the Greek pension system for the current and future generations, these are not *per se* the only variables in the pensions equation. The macroeconomic environment and structure in which the pension system evolves is tightly related to its future course. The reversal of the observed, adverse trends in the Greek labour

market, such as the brain drain of the previous decade, the supply of undeclared labour, the subsequent lost public revenues and the unintegrated migrant labour force, must be also put as variables in the equation for policymakers.

Moreover, high income taxation and contribution rates do not leave much room for extending the participation in private pension pillars, since resources are absorbed by the public social security system. In this direction, lowering the contribution rates can, *ceteris paribus*, increase consumption and/or savings and leave room for participation in occupational or individual pension markets, which will in turn create scale economies and foster investment in domestic markets.

In conclusion, the social security and pension system in Greece requires on the one hand further reforms that will improve its sustainability and adequacy, and on the other hand a proper and efficient look at the interconnected macroeconomic policies. These are closely related to the uninterrupted function of the Greek social security and pension system and can thus mitigate financial pressures on it and support its future course and provisions for the generations ahead.

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