INTERNATIONAL MONETARY FUND

IMF Country Report No. 17/41

GREECE

SELECTED ISSUES

February 2017

This Selected Issues paper on Greece was prepared by a staff team of the International Monetary Fund as background documentation for the periodic consultation with the member country. It is based on the information available at the time it was completed on January 23, 2017.

Copies of this report are available to the public from

International Monetary Fund • Publication Services
PO Box 92780 • Washington, D.C. 20090
Telephone: (202) 623-7430 • Fax: (202) 623-7201
E-mail: publications@imf.org Web: http://www.imf.org
Price: $18.00 per printed copy

International Monetary Fund
Washington, D.C.

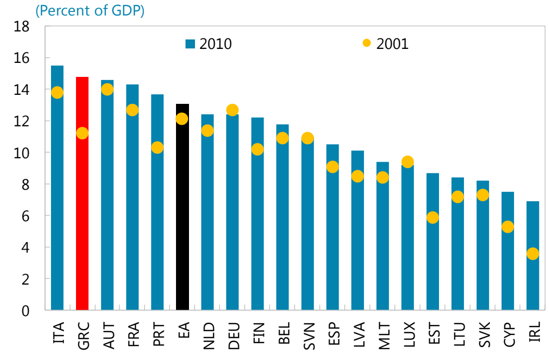
REFORMING THE GREEK PENSION SYSTEM[1]

The Greek pension system has been costly, complex, and unfair, which has contributed to Greece's fiscal problems and discouraged labor force participation. Several attempts to reform the system faltered due to lack of implementation, pushback by vested interests, and court mandated reversals. The most recent reform introduced in 2015-16 goes in the right direction by removing some distortions and reducing costs. However, it too falls short of making the system affordable and creating strong incentives to work and contribute, and is subject to large implementation risks. The authorities should fully implement the recent reform and complement it with additional reforms to address remaining deficiencies.

A. Background: Early Pension Reforms and Outcomes

1. **Excessive pension spending was one of the main drivers of Greece's poor fiscal performance prior to the crisis**. During 2000-10, Greece's pension spending increased from close to 11 percent of GDP (below the euro-area average of 12 percent) to almost 15 percent (the second highest in the euro area, after Italy). This represents the largest increase in relative terms among peers, and was due to a rapid increase in nominal pensions on account of high wage and inflation growth, combined with generous benefits (pensions were linked to the best five of the last 10 years of one's wage history) and options for early retirement. As a result, the system's deficit reached an estimated 7.3 percent of GDP by 2010, being the largest contributor to the overall general government deficit (of close to 11 percent).[2] Moreover, pension projections pointed to a significant solvency problem, prompting the OECD to describe the Greek pension system as "a fiscal time bomb," as pension spending was expected to double by 2050, driven by rapid population aging and a doubling of the old-age dependency rate (OECD, 2007; EC 2009).

Pension Expenditure
(Percent of GDP)



Source: Eurostat.

2. **A comprehensive reform was undertaken in 2010 aiming to address the long-term sustainability of the pension system.** The reform aimed to contain future pension spending by tightening eligibility conditions and introducing a less costly benefit rule for new retirees, among others. Specifically, it set the early and statutory retirement age at 60/65 for all insured, while increasing the required years of contribution (from 35 to 40). It also tightened early retirement rules by introducing a penalty for early retirement and streamlining the list of hazardous professions entitled to early retirement options. The design of a unified benefit formula introduced for all main pension funds (except the farmers' fund OGA) was overhauled by introducing a basic pension component (€360 per month) in addition to an earnings-related pension with "average" accrual

[1] Prepared by Alvar Kangur.

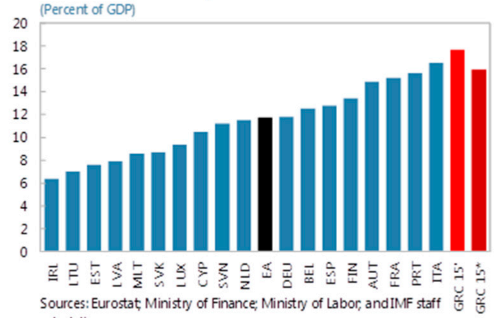
[2] This figure is likely an underestimate, as it excludes lump-sum pensions.

rates—annual proportion of pensionable earnings transformed into a pension benefit—ranging from 0.8 to 1.5 percent of earnings, compared to 2-3 percent before the reform. However, while the reform linked pensionable earnings to *the lifetime* earning history (rather than the best five of last ten years), the introduction of the non-contributory basic pension flattened the benefit schedule and weakened contribution-benefit links. Moreover, the reform was undermined by extensive grandfathering of previous early retirement options, which led to a massive wave of early retirements to take advantage of the previous more generous rules. Finally, its key element—the unified benefit rule—*was never applied*.

3. Further reforms during 2011-12 sought to contain the medium-term costs of the pension system. The reforms introduced a zero-balance rule for auxiliary pension funds aiming to ensure the elimination of their annual deficits, increased the early and statutory retirement ages by a further two years (to 62 and 67, respectively), and froze the indexation of pensions (previously linked to GDP and inflation growth) until 2016. In addition, the reforms reduced the benefits of current retirees, including by eliminating the 13th and 14th pension payments and introducing a series of progressive cuts of main and supplementary pensions above certain limits.[3] However, these reforms also suffered from serious setbacks. The zero-balance rule was not implemented, leading to continued deficits that had to be financed from the general budget. The increase in the retirement age lacked effectiveness due to extensive grandfathering. And the pension cuts (expected to yield 2¼ percent of GDP in gross fiscal savings) were ruled unconstitutional by a Council of State (CoS) decision in 2015.[4]

4. Despite the successive reforms, pension spending continued to rise during 2010-15. Pension spending increased from 14.8 to 17.7 percent of GDP during 2010-2015. Although the average pension (calculated as the ratio of nominal pension spending to the number of retirees) declined by about 8 percent during this period, this was not sufficient to offset the decline in GDP (by around 25 percent), leading to an increase in pension spending relative to output.[5] While part of the increase could be considered cyclical, as GDP is expected to recover over time, pension spending is also likely to grow along wage and inflation growth. Taking into account

Pension Expenditure, 2014
(Percent of GDP)



Sources: Eurostat; Ministry of Finance; Ministry of Labor; and IMF staff calculations.
Note: Data for Greece is for 2015; GRC 15* is defined as 2015 pension spending divided by potential GDP.

[3] These targeted mainly main monthly pensions above €1,300, and above €1,000 of retirees younger than 55, as well as supplementary pensions at various ranges.

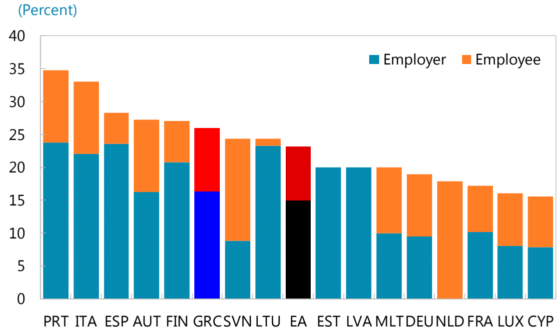
[4] The CoS did not find sufficient evidence of exceptional circumstances to support the 2012 reforms and concluded that a scientific study should have examined if the measures were "appropriate and necessary" to address the problem of sustainability of the pension system, taking into account the effect of all measures (e.g. tax reforms, cost of goods and services etc.) on retiree's living standards. The CoS also found that pension cuts applied only to certain categories of pensioners and violated the principle of equal participation in public charges and the principle of social solidarity.

[5] Relative to a no-reform scenario, the reduction in the average pension per retiree is estimated at around 24 percent, as pensions per retiree were projected to increase by 16 percent on the basis of the pre-reform parameters.

cyclical effects (i.e. dividing pension spending in 2015 by potential output), the increase since 2010 is smaller, at 1.1 percent of GDP, although Greece's pension spending still remains among the highest in the euro-zone (second only to Italy). Moreover, the evolution of pension spending over the last five years stands in sharp contrast to other spending categories—in particular investment and discretionary spending—which were compressed significantly relative to GDP to help reduce the fiscal deficit (along with tax rate increases).

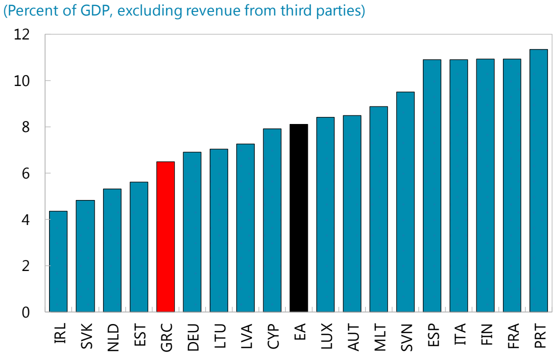
5. While social contribution rates are above the euro-area average, contribution revenues have been low compared to peers. Contribution rates for both employers and employees, including main and supplementary pensions, stood at 26 percent at end-2015, above the euro-area average of 25 percent. Together with high income taxes, this contributes to relatively high marginal and average tax wedges in Greece.[6] Nonetheless, pension contribution revenues have been relatively low by international comparison (6½ percent of GDP compared to a euro area average of about 8 percent in 2015). This is an indication that the Greek social security, similarly to the tax system, suffers from high rates levied on narrow bases eroded by low payment and collection efficiency.[7,8] At the same time, the prolonged recession has taken a significant toll on individuals' incomes and their ability to support an increasing tax and social security contribution burden, given the declining workforce (by 22 percent since 2009), the high unemployment rate (25 percent at end-2015) and large wage reductions (more than 20 percent during 2010-15).

Public Pension Contribution Rates in the Euro Area, 2013
(Percent)



Source: EC (2015) Aging Report.
Note: Data for Greece excludes lump-sum and dividend fund contributions. For Austria and Finland the rates are simple averages of mandated ranges.

Pension Contributions Revenues, 2015 (Estimates)
(Percent of GDP, excluding revenue from third parties)



Sources: 2012 and 2015 Aging Reports; and IMF staff calculations.

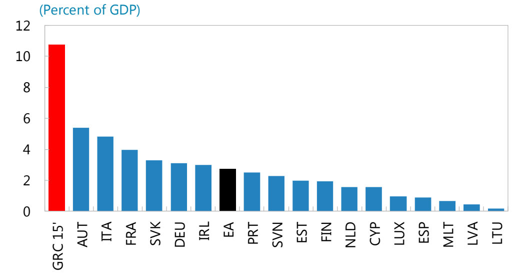
[6] At 38 percent, the average tax wedge in Greece in 2015 for a one-earner married couple with two children and average earnings is much higher compared to 26.7 percent in OECD or 31.4 percent in the euro area. In addition to pensions this reflects also high non-pension social security contributions. These relative magnitudes are similar for a two-earner family. While a single person with average earnings in Greece benefits from exceptionally generous tax credit, a single person with a higher income is subject to steeply increasing marginal income tax rates. According to the OECD a single person receiving 67 percent above the average earnings faces a 55 percent marginal tax wedge, compared to 47 percent in the OECD and 53 percent in the euro area.

[7] Greece has one of the highest shares of informal economy, incidence of tax evasion, and hours per week spent on undeclared work in the OECD (Andrews and others, 2011). According to the Ministry of Labor (Artemis reports, 2014), about 9 percent of audited employees and 18 percent of audited companies have not been formally declared and thus were not insured in late 2014.

[8] Collection rates are only about 30-50 percent in the farmers' fund, 55 percent in the fund for self-employed, and about 80 percent in the fund for doctors, lawyers and engineers. As a result, large contribution arrears have accumulated across funds, especially among the self-employed where arrears are 4.5 times the annual revenue collected. See Selected Issues Paper "Addressing the Burden of Large Tax Debt and Social Security Debt."

6. With high pension spending and low pension contribution revenues, substantial state transfers have been needed to finance the large deficit of the pension system. Transfers to the pension system have risen from 7.3 percent of GDP (excluding lump-sum funds) in 2010 to almost 11 percent of GDP by end-2015.[9] All main funds experienced large deficits, as in most cases contributions cover less than half of benefit spending, especially in funds in the energy and communication sectors, the navy and public administration and the funds for journalists, and doctors, engineers, and lawyers (ETAA), whose insured enjoy relatively high benefits, while contributions are low as a result of under-declaration of income. The state has been mandated to cover all these deficits, along with subsidizing the farmers' fund (OGA), since insured pay only the employees' contribution of 7 percent (less than 10 percent of benefits).

State Transfers to the Public Pension System
(Percent of GDP)



Sources: 2012 and 2015 Aging Reports; and IMF staff calculations.
Note: State transfers is defined as difference between pension spending and actual contributions, excluding third-party revenues and non-contributory state transfers. Data for Greece is for 2015; data for other countries is for 2013.

B. Characteristics of the Pension System Prior to the 2015-16 Reforms

7. Despite the reforms, the pension system remained highly fragmented (Box 1). By end-2014, the mandatory main pension system was differentiated into seven occupational funds. As the unified benefit rule of the 2010 reform that was set to take effect in 2015 was never applied, the funds retained their own rules. While most supplementary or auxiliary pension funds were merged under a single umbrella fund after the 2012 reform, they retained different degrees of autonomy and their own benefit formulas. In addition, several lump-sum and dividend funds provided additional benefits mostly for civil servants but also some professional groups. As a result, close to half of pensioners received one pension, 35 percent two, and 15 percent three or more pensions from the various funds. The pension provision consisted of multiple benefit layers, where basic, contributory, and minimum pensions in the main funds were topped up by auxiliary, lump-sum, dividend and/or targeted pensions (e.g. the EKAS benefit). The introduction of basic pension, various minimum and targeted pensions, as well as a series of past progressive cuts had considerably flattened the pension system and weakened its contribution-benefit links.

[9] Consistent with EC (2012) Ageing Report, the calculations exclude revenues from third-parties, government grants, income from property as well as any legislated state transfers not in the nature of actual contributions.

Box 1. The Greek Pension System Prior to 2015-16 Reforms

Prior to the 2016 reform, the Greek pension system was fragmented across occupations, types of pensions, and benefit rules. It provided main, auxiliary, lump-sum, dividend, targeted, and social pensions as well as other contributory welfare benefits financed through a pay-as-you-go principle. The system was financed by state transfers, and in some cases by third-party charges benefitting special groups (e.g. journalists). The benefits were provided by a number of segmented funds with their own rules:

- ***The main pension*** providers comprised eight funds: IKA (salaried workers, including also Banks, TAP-DEH that is Public electricity company, and others), PS (civil servants), OAEE (self-employed), OGA (agricultural sector), ETAA (lawyers, doctors, and engineers), ETAP-MME (journalists), NAT (seamen), and a fund for Bank of Greece employees.
- ***Auxiliary (supplementary) pension funds,*** which in 2012 were merged into a single entity (ETEA) and in 2014 were transformed into a Notional Defined Contribution (NDC) system, pro-rated over defined benefit (DB) rules for pre-2014 contribution periods. The NDC included a sustainability factor that under a full pay-as-you-go principle required maintaining a zero deficit every year; however, the zero-deficit rule was not implemented.

Greece's pension benefits consisted of the following components:

- ***Basic pension:*** introduced with the 2010 law as part of the main pension formula at a fixed level of €360 per month available to all who were eligible to a pension.
- ***Contributory pension***: the earnings-related component of main pensions calculated through a defined benefit (DB) formula. The accrual rates—annual share of pensionable earnings transformed into a pension benefit—varied widely across funds between 2 and 3 percent prior to the 2010 reforms, and between 0.8 and 1.5 percent, depending on years of insurance, after the reform.
- ***Guaranteed contributory pension*** (minimum pension): a pension benefit floor applied to the main (sum of basic and contributory) pensions. In the main pension fund IKA this floor was €487-€600 depending on family size. Supplementary pensions, lump-sum pensions and a solidarity grant were provided in addition to the guaranteed contributory pension.
- **Auxiliary or supplementary pensions:** followed their own DB rules often subject to separate minimum pension limits with an eligibility linked to the main pension provision.
- **Lump-sum and dividend pensions** provided additional layers of contributory benefits mostly to civil servants and selected categories of professionals / self-employed.
- ***EKAS pension:*** a means-tested solidarity grant provided to those who already qualified for an insurance pension up to a ceiling of €850 per month and pension income of €767 per month, in monthly payments ranging from €30 to €230. The guaranteed contributory pension topped up with EKAS thus exceeded the minimum wage of €684.
- ***Social pension:*** a means-tested welfare benefit of €360 per month provided to elderly at 67 years of age who had not fulfilled the eligibility conditions for social insurance pension.
- **Other pension benefits** provided by the social security funds included summer camps, temporary accommodations to seamen etc.

8. Moreover, nominal pensions in Greece remained relatively generous by international standards, despite lower productivity. Despite the reduction in pensions due to the reforms, the average old-age pension in Greece at end-2015 (the ratio of total monthly pension spending to the total number of retirees) was estimated at €978[10], similar to the euro-area average, once it is adjusted for purchasing power parity (PPP).[11] However, in Greece, pensions are granted at younger ages and based on shorter contribution periods, and productivity has lagged that of peer countries. For example, while pension benefits in Greece in 2014 (when comparable PPP data can be found) were almost identical to those in Germany, in Greece average wages and productivity were less than half of those in Germany and about half of euro area average (text table). Furthermore, workers in Greece retired on average 5 years earlier and made lifetime contributions that were only ⅓ of their lifetime benefits—less than half of the contributions made by German workers.

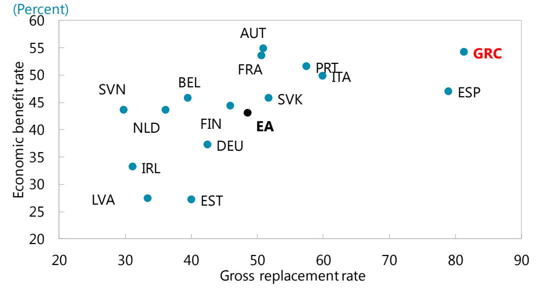
Comparison of Greek and German Pension Systems
(Monthly amounts in Euros, unless stated otherwise)

	Germany	Greece
Standard Pension ("Eckpension") in 2014 1/	1,287	1,152
Average pension (comparable data) in 2014	1,224	954
Average pension (comparable in PPS terms) in 2014	1,208	1,168
GDP per capita (2015)	3,092	1,350
Average wage (2015)	3,134	1,470
Ratio of standard pension to average wage	41%	78%
Ratio of average pension to average wage	39%	65%
Minimum pension	N/A	>486 + EKAS
Effective retirement age (new old age pension)	64	59
Average contributory period (new pensions, 2010)	36.3	29.3

Sources: Eurostat, OECD, Social Security Administration, Bundesversicherungsamt (2014), IDIKA, EC 2012 and 2015 Aging Reports, and staff calculations.
1/ The standard pension is calculated for an average wage earner with 45 years of insurance retiring at 65 years of age. It provides a useful benchmark for comparison of pension benefits for retirees with the same retirement ages and contribution years.

9. A better measure of the generosity of pensions is the replacement rate, which has remained high in Greece relative to peers. The gross replacement rate (the ratio of the average pension of new retirees to the average wage at retirement) was about 81 percent at end-2013, the highest in the euro-area, and almost 30 percentage points higher than the euro-area average. This illustrates the relative generosity of pension benefits relative to what retirees earned prior to retirement, suggesting that strong incentives to retire remained even after the 2010-12 reforms. Another metric is the economic benefit rate (pension spending per individual aged 65 and older relative to GDP per working aged population), which was 54 percent compared to a euro area average of 43 percent. This

Gross Replacement Rates and Economic Benefit Rates, 2013
(Percent)



Sources: Eurostat, 2015 Aging Report, and IMF staff calculations.
Note: Gross replacement rate is a ratio of the average first pension to the average wage at retirement. Economic benefit rate is defined as a ratio of pension spending per individual aged 65 and older to GDP per working aged population.

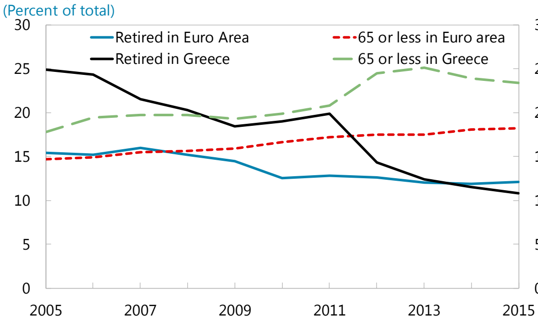
[10] IDIKA, October 2015.

[11] The analysis here and throughout this paper refers only to public pension provision. Private or occupational pensions are excluded, as they are generally fully funded, not mandatory, and do not replace the coverage of public pensions. Thus, private pensions do not burden public finances directly, and private contributions do not constitute a revenue for the general government.

indicator suggests that benefits per retiree in Greece remained relatively high compared to the economic resources available to the workforce supporting the retirees.

10. A corollary of generous pensions relative to wages is that the poverty level among pensioners has declined, while that for the working-age individuals has increased, pointing to an unequal distribution of the adjustment burden. Despite the income losses among retirees noted above, pensioners in Greece carry the lowest risk of poverty within the Greek population. In particular, the poverty rate for retirees has declined by 8 percentage points since 2010 to 10.8 percent at end-2015, just below the euro area average (of 12.1 percent), and well below 17 percent in Germany. If one accounts for the very high share of home ownership of the elderly population (84 percent in Greece compared to 53 percent in Germany), the poverty of pensioners would be even smaller (OECD, 2013). In contrast, the brunt of the adjustment has been borne by the working-age population, whose poverty rate has increased to 23. percent at end-2015, well above the euro-area average of 18.2 percent.

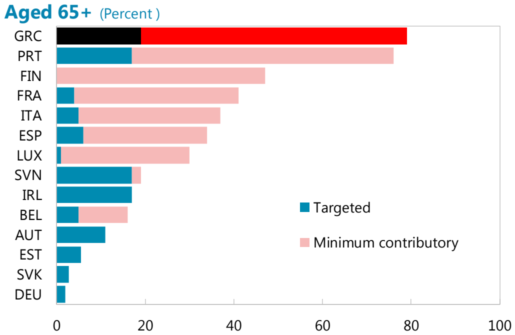
Poverty Rate
(Percent of total)



Source: Eurostat.
Note: share of population below 60 percent of median equivalized income after social transfers.

12. In addition, minimum pensions remained generous by international standards, curtailing incentives to work and contribute. Targeted and minimum pensions aim at guaranteeing a minimum standard of living after retirement, but can be costly and are also some of the most important determinants of labor market incentives. In Greece, the minimum pension amounted to €5844-€8400 annually, exceeding the standard poverty threshold of €4,512 (EU-SILC, 2015), and being among the highest in the euro area.[12] In addition, Greek pensioners were eligible to receive a means-tested solidarity top-up benefit EKAS if their income was below €9,200 per annum, that is almost twice as large as the poverty threshold and above the minimum wage (€7,963). In comparison, in Germany, the income eligibility threshold for means-tested pensions was about ¾ of the 2013 poverty level (€11,749, below the EKAS eligibility threshold in Greece), with no minimum limit on contributory pensions. As such, a minimum wage earner in Greece contributing for 15 years would have received a guaranteed pension similar to the pension received by a retiree who worked and contributed for 31 years, and would thus have no incentive to

Coverage of Minimum Pensions as a Share of Population Aged 65+ (Percent)



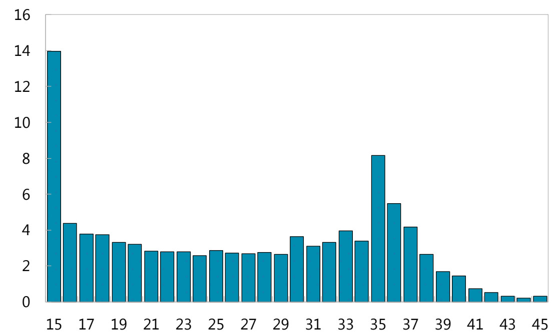
Source: OECD (2013) "Pensions at a Glance."

[12] In the euro area, minimum pension and safety net protection is in the range of 50-80 percent of the poverty threshold (World Bank, 2013a,b; MISSOC comparative tables on social protection).

contribute beyond the minimum 15 years. Greece stands out in the euro area as the country with the highest ratio of the elderly receiving minimum pensions.[13]

13. As a result, retirement with few years of contributions remained prevalent. Despite the increase in the early and standard statutory retirement ages to 62 and 67 years, respectively, the average retirement age of old-age retirees fell to 59 years. This reflects the fact that vested rights were protected under all previous reforms by grandfathering those insured with accrued rights to retire (those fulfilling either the retirement age or years of contributions requirements). Consequently, the distribution of retirement applications in Greece at end-2015 remained skewed toward few years of formal work, with a spike at 15 years (14 percent of total applications), and about half of retirement applications made by 26 years of contributions. Only about ¼ of applications were made after 35 years of contributions—the required contribution period in the past—and a small fraction were made after the post-2010 requirement of 40 years.

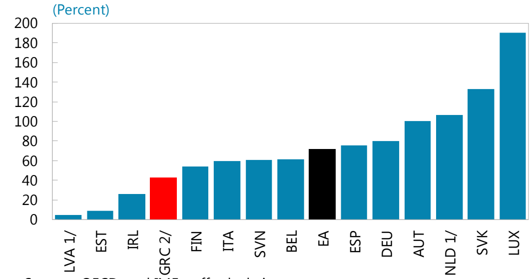
Retirement by Years of Insurance, 2015
(Percent)



Sources: Sources: IDIKA, and IMF staff calculations.

14. Incentives to contribute have been particularly weak for the self-employed. Even after the 2010-12 reforms, the contributions of the self-employed applied on assessed earnings (notional income based on number of years of experience) instead of on actual earnings.[14] This meant that for the young self-employed with short experience history (even in lucrative professions), the base for calculating benefits was similar to the minimum wage, implying pension rights much below the minimum pensions at minimum required 15 years of insurance, and thus creating incentives to minimize contribution payments and histories. But disincentives to contribute also applied to more experienced professionals, which underreported income to avoid taxation or found it

Revenue Productivity of Self-Employed, 2015
(Percent)



Sources: OECD; and IMF staff calculations.
1/ 2/ Data as of 2013 or 2014 due to availability, respectively.
Note: revenue productivity is calculated as a ratio between the share of contributions paid by self-employed in total contributions and the share of self-employment in total civilian employment.

[13] Gruber and Wise (2004) and others show that financial incentives for continued work and early retirement options are the strongest determinants of labor force participation among elderly workers. Jiménez-Martín and Sánchez Martín (2007) and Jiménez-Martín (2014) find evidence that generous retirement protection increases early retirement probabilities and results in fewer working hours. Joubert (2015) has shown that more generous minimum pension guarantees lead to significant reduction in labor force participation at older ages and transfer of workers towards informality of home production, especially for women.

[14] The main fund for self-employed (OAEE) has 14 notional income classes, with ¼ of insured qualifying for the lowest notional income class (€763 per month) and ⅔ for the four lower income classes (up to €1,213 per month). The minimum notional income scales in other funds for self-employed (OGA, TSAY, TSMEDE, TAN-TEAD) are even lower, ranging from €487 to €693 per month.

beneficial to operate in the shadow economy.[15] As a result, and in addition to exemptions most notably provided to farmers and newly insured professionals, the share of social contributions paid by self-employed (16 percent) is less than half of the share of self-employed in the economy (35 percent of total employment), resulting in one of the lowest "revenue productivities" of self-employed in the euro zone.

C. The 2015-16 Pension Reforms

15. In 2015-16, the authorities renewed the reform efforts, seeking to address the structural deficiencies in the pension system and reduce its medium-and long-term costs. The main structural changes aimed at, inter alia: (i) tightening early retirement rules; (ii) harmonizing the main pension benefit rules, including to address the CoS ruling; (iii) phasing out the solidarity grant EKAS; (iv) putting auxiliary, dividend, and lump-sum funds on more sustainable footing; (v) harmonizing contribution rules; and (vi) consolidating the main pension funds. The reforms also aimed to achieve fiscal savings of about 1½ percent of GDP by 2018.

Expected Fiscal Savings from the 2015-16 Pension Reforms
(Percent of GDP)

	2015	2016	2017	2018
TOTAL	**0.2**	**0.7**	**1.2**	**1.5**
Benefits	**0.0**	**0.3**	**0.7**	**1.0**
Tightening early retirement rules	0.0	0.0	0.1	0.1
Phasing out social solidarity grant EKAS		0.0	0.3	0.4
Main pension benefit reform		0.0	0.1	0.2
Summplementary, lump-sum, and dividend fund reforms		0.2	0.2	0.2
Other (incl. wider eligibility for social pension, lower ceiling)		0.0	0.0	0.0
Contributions	**0.1**	**0.4**	**0.5**	**0.5**
Raising health contributions for retirees	0.1	0.3	0.3	0.3
Harmonizing contribution rules and base		0.0	0.0	0.0
Temporary increace by 1/0.5 pp in supplementary contributions		0.1	0.2	0.2

Source: IMF staff estimates.

16. The reform overhauled early retirement rules. To contain the excessive grandfathering of retirement rights allowed under the previous reforms, the authorities required a gradual convergence by 2022 of all existing grandfathered retirement ages toward 67 years (or 62 years with 40 years of contributions).[16] It also increased the benefit discount for early retirement from 6 to 16 percent for those affected by the reform. However, the reform was not able to change the eligibility to retire at earlier ages for those who by 2015 had reached both the required retirement age and years of insurance (vested rights) and did not eliminate grandfathering on the basis of years of insurance, thus exempting a large number (up to ¾) of civil servants with a short period of service.

17. It also harmonized the main pension benefit rules. The reform introduced a single uniform benefit rule for both existing and new retirees in the spirit of the 2010 law, consisting of a

---

[15] Artavanis et al. (2015) estimate, based on household credit microdata, that self-employed in Greece do not report about 45 percent of their income. They also find that tax evasion in Greece is concentrated among highly educated and high-income professions such as doctors, engineers, lawyers, accountants, financial service agents, and educational service providers. In General, tax evasion among self-employed in Greece does not always take the form of underreporting but also over expensing through "miscellaneous" expenses that sometimes can form up to half of their total costs.

[16] Arduous and hazardous workers, disabled, survivors, and some vulnerable groups could still retire at earlier ages.

basic and a contributory component. The basic pension component was increased from €360 to €384 per month at 20 years of insurance (corresponding to the 2014 poverty level). To compensate for the increased cost, the new benefit formula for contributory pensions was based on lower marginal accrual rates (in the range of 0.77 to 2 percent, depending on years of insurance). For new retirees, the new benefit rule is applied without pro-rating over the previous more generous rules. For existing retirees, the main pensions were frozen at end-2014 level (pre-dating the 2015 CoS ruling) to both maintain the savings achieved from the 2012 cuts and address the concerns of the CoS ruling. The freeze implies that in cases where the new benefit formula suggests a pension lower than the end-2014 level, the paid-out pension remains unchanged, and the difference with the formula-implied level will be eroded only gradually through indexation. In other words, current pensioners would not suffer additional reductions in main pensions even if the new formula suggests otherwise (about 1.4 million current pensioners fall into this category).

18. The reform transformed the system of basic, minimum guaranteed, and targeted pensions. With a higher basic pension, the minimum guaranteed pension became redundant and was eliminated for all retirees except those with work-related disabilities. Importantly, the authorities also legislated the phasing out of the noncontributory solidarity grant EKAS by end-2019 that distorted incentives to retire and was not compatible with the contributory insurance-based system. However, they have subsequently provided several fragmented forms of compensation to those beneficiaries who lost EKAS in 2016 and distributed a "bonus" for 2017 to retirees with pension benefit below €850 per month, which is the pre-reform limit for payments of EKAS, in effect neutralizing the effect of the reform in 2016-17.

19. Measures were taken to reduce the medium-term deficit of supplementary pensions. The authorities legislated selective cuts of supplementary pensions for pensioners with total (main plus supplementary) pension benefits above €1,300 per month, affecting about 200,000 current retirees and froze supplementary pensions as long as the funds remain in deficit. However, since these measures were insufficient to close the deficit in supplementary funds (which amounted to about 0.4 percent of GDP at end-2015), the authorities also increased temporarily supplementary social security contribution rates by 1 percentage point until May 2019, when this increase will be phased out, and pledged to use the assets of the supplementary fund to cover remaining deficits. The increase in the contribution rates rolls back previous attempts to reduce it. It also generates additional pension entitlements, given that supplementary funds operate under a notional defined contribution (NDC) regime.[17]

20. Finally, the reform sought to harmonize pension and health contribution rates as well as contribution bases for the self-employed. Main pension contributions were harmonized at 20 percent for all employees (implying an increase for farmers of 13 percentage points), and health contribution rates for retirees were increased to 6 percent (from 4 percent in the main funds and 0 percent in the supplementary funds). Importantly, the reform transformed the social security contribution base for self-employed from notional to actual earnings from self-employment, subject

[17] In the NDC scheme the higher contribution rate feeds into accumulated notional capital that in turn determines the pension benefit at retirement.

to a minimum income limit,[18] and eliminated all third-party charges (nuisance charges) previously used to finance the deficits of pensions funds for the self-employed. However, the reform did not fully eliminate existing exemptions for vested interest groups (e.g. lawyers, doctors, engineers and other highly qualified self-employed), who still benefit from reduced rates and from a 30 percent discount on the minimum earnings limit (the latter also applies to farmers).[19] Furthermore, all the self-employed pay contributions on a lower base (net of social contributions of the previous year) compared to salaried workers, and pension benefits for the self-employed accrue even if they do not stay current with their contribution obligations.[20] Such exemptions for the self-employed are not common practice in other euro area countries, and risk perpetuating both the financial imbalances of the pension funds and the perception of lack of fairness of the system as a whole.

21. While these measures constitute important steps forward, overall, the pension system remains costly, distortive and unfair, and is subject to high risks:

- ***Medium- run implications:*** Despite aiming to achieve savings of 1½ percent of GDP by 2018, the reform still leaves a significant pension system deficit (9 percent of GDP) over the medium-term, after the output gap closes, which is still far above the euro-area average. This will continue to consume resources from the general budget, preventing the government to reallocate spending to other priorities, such as welfare or essential public services.

- ***Incentives to contribute***. The introduction of the new (higher) basic pension led to an increase in the benefit rate—the ratio of average pension benefits to average wages—by more than 1½ percentage points (3½ percentage points for a minimum wage earner) compared to the pre-reform regime. As noted above, accrual rates for contributory pensions were reduced as a result, leading to a decline in long-run replacement rates, especially for individuals with higher earnings or longer contribution histories. Specifically, the reform is estimated to lead to a gradual reduction in replacement rates (average pensions relative to pensionable wages) by about 4.4 percentage points compared to the pre-reform scenario (assuming full implementation of 2010-12 reforms). This implies a *worsening* of contribution-benefit links, with adverse implications for labor force participation.[21] Moreover, the combined basic and contributory benefit at 15 years of

[18] This limit is applicable only to the self-employed and is equal to minimum salary of unmarried employee above 25 years of age, currently €586 per month.

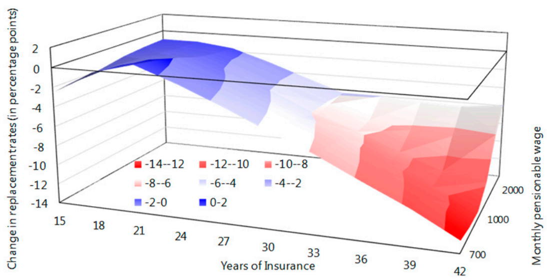
[19] These categories are allowed to pay 14 percent for the first 2 years and 17 percent for the next 3 years, with the remaining amount up to harmonized 20 percent rate payable fully at the completion of 15 years of insurance or in annual payments of one-fifth of the outstanding debt per year upon reaching a preset high income level of €18,000. The 30 percent discount is applied on the minimum income level on which contributions are paid, reducing it from €586 to €410 per month. The old—more generous rules—remain in force for seamen.

[20] This implies that the period when one is in arrears is counted as pensionable earnings up to a limit, and will add to pension rights, leading to higher pensions (at increasing marginal accrual rates). The contribution arrears are to be withheld from pensions at the time of retirement. The contribution arrears of self-employed (OAEE, ETAA, and OGA) reached 5.3 percent of GDP in 2015.

[21] With weaker links between earnings and benefits, contributions are perceived as distortive labor taxes that impinge on employment incentives, rather than deferred savings (IMF 2012; Disney et al., 2004). Progressive (continued)

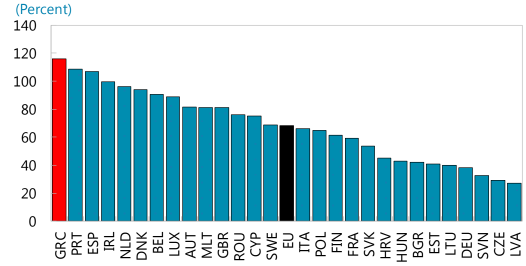
insurance still provides a generous minimum pension guarantee (estimated at around 115 percent of the poverty threshold, compared to a euro-area average of around 70 percent, as noted in EC-SPC 2015a, b). This reinforces existing incentives to retire at short careers.

2016 Reform: Change in long-run replacement rates
(Percentage points)



Source: IMF staff calculations.
Note: Steady-state reform impact of a unified main benefit formula against the 2010 reform and full implementation of 2010-2012 cuts. The replacement rate is defined as a ratio of calculated pension benefit to pensionable wage.

Minimum Pension Income Provision in the Euro Area
(Percent)



Sources: EC-SPC (2015), and IMF Staff Calculations.
Note: Minimum Pensions as calculated in the 2015 Pension Adequacy Report as a share of poverty threshold. For Greece, sum of basic and contributory pensions under 2016 reform at minimum required 15 years of insurance as a share of poverty threshold.

- ***Fairness***. The fiscal adjustment delivered by the main pension recalibration and supplementary benefit reductions is largely borne by new generations of retirees with longer careers. In contrast, individuals with shorter careers (e.g. around 20 years) can see their future replacement rates and average pensions even increasing. Moreover, the main pensions of current retirees have been protected through the pension freeze, exacerbating already large inter-generational imbalances. Finally, as noted above, specific interest groups continue to benefit from exemptions and special treatment compared to salaried workers.

- ***Risks***. The general ownership of the reform remains fragile in face of strong resistance, which has resulted in rollbacks (including the offsetting of EKAS cuts, most recently through the Christmas bonus to EKAS-eligible pensioners) and a weakening of the original aims of the reform (e.g. the recent narrowing of the contribution base for self-employed, and the introduction of a high minimum pension for work-related accidental disabilities, among others). Moreover, the full implementation of the reform still requires following through with a large volume of implementing legislation, abolishing old conflicting legislation, processing long outstanding unpaid pensions, creating electronic registries, completing the merger of main funds, and recalibrating pensions existing retirees. Lack of full and timely implementation could risk eroding the (already weak) support for the reform, compromising its long-term gains. Finally, the reform remains subject to high legal risks, as it preserves the structure of the 2012 cuts, which had been ruled unconstitutional, and adds new progressive cuts on some of the same groups of retirees.

D. Conclusions and Policy Recommendations

22. The Greek pension system has been complex and costly, and earlier efforts to reform it have faltered. Generous benefits**,** nontransparent contribution rules, favorable treatment of special

accrual rates that value additional years of work more than previous years are very rare in practice. In Greece the 2010 reform introduced such progressivity to "offset" already then the very high basic pension granted to everybody notwithstanding their income level.

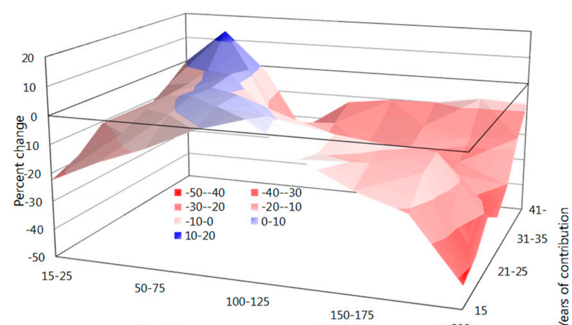
groups, and favorable early retirement options resulted in an unaffordable pension system. After two major attempts to reform the system and bring down medium- and long-term costs, pension spending in Greece at end-2015 remained the highest in the euro-area, requiring state transfers that are several times larger than the euro-area average. The prolonged economic downturn exacerbated the pension system's imbalance, although the key driver remained the structure of the system, based on overly generous benefits and a narrow contribution base.

23. The 2015-2016 reform has many desirable features, but the overall pension system still remains costly in the medium run and subject to high risks. If fully implemented, the reform will consolidate the pension system's institutional structures and largely harmonize benefit and contribution rules. However, the system deficit over the medium term remains an outlier compared to euro-area peers, contribution-benefit links remain weak, limiting incentives to participate in the labor force, and the system remains unfair with regard to the treatment of current and future retirees, as well as special interest groups. Moreover, implementation risks remain high, given the large number of steps still required, the erosion of credibility in reform ownership from rollbacks, and lingering legal risks.

24. The authorities should implement the reform fully and in a timely manner, without additional rollbacks; in the medium term, they should consider additional reforms to reduce the deficit of the system and improve incentives to work and contribute. There are two areas where reforms could bring additional benefits, both in terms of fiscal savings, and of improving the system's fairness and the resulting incentives to work and contribute:

- *Recalibration of pensions*. Applying the recalibration of benefits based on the new rule also to existing retirees could deliver savings of 1 percent of GDP in the medium run that can be used to strengthen social safety nets or reduce the very high contribution rates (or other excessive tax rates). This would result in larger cuts for high-income retirees at shorter years of contributions while slightly increasing pension benefits for lower-end pensioners with higher years of contributions, thus improving both inter- and intra-generational fairness (as well as incentives to contribute longer into the system).

Distribution of Losses from Applying the New Benefit Formula to Current Retirees (percent change in monthly median pension benefit)



Sources: IDIKA, and IMF staff calculations.

- *Contribution-benefit links.* Over the medium- to long-run, the level of basic pension could be reviewed in light of international trends, which could help to strengthen the contributory pension in an actuarially fair manner. Moreover, lowering the tax wedge as fiscal space allows would help strengthen work and contribution incentives. Finally, the authorities should aim to fully harmonize contribution rules for the self-employed, including by removing remaining distortive exemptions.

References

Andrews, D., Sanchez, A.C. and A. Johansson (2011), "Towards a Better Understanding of the Informal Economy," OECD Economics Department Working Papers No. 873.

Artavanis, N.T., Morse, A. and M. Tsoutsoura (2015), "Measuring Income Tax Evasion using Bank Credit: Evidence from Greece", Chicago Booth Research Paper No. 12-25; Fama-Miller Working Paper.

Bundesversicherungsamt (2014), "Bericht der Bundesversicherungsanstalt fuer Angestellte."

Disney R., Boeri T. and T. Jappelli (2004), "Are Contributions to Public Pension Programmes a Tax on Employment?" *Economic Policy*, Vol. 19, No. 39, pp. 267-311.

Duval, R. (2003), "The retirement effects of old-age pension and early retirement schemes in OECD countries," OECD Economics Department Working Papers, No. 370, OECD Publishing.

EC (2009), "2009 Ageing Report: Economic and budgetary projections for the EU-27 Member States (2008-2060)", *European Economy* 2|2009.

EC (2012), "The 2012 Ageing Report: Economic and budgetary projections for the EU27 Member States (2010-2060)", *European Economy* 2|2012.

EC (2015), "The 2015 Ageing Report: Economic and budgetary projections for the EU27 Member States (2013-2060)".

EC-SPC (2015a), "The 2015 Pension Adequacy Report: current and future income adequacy in old age in the EU", Vol. I.

EC-SPC (2015b), "The 2015 Pension Adequacy Report: current and future income adequacy in old age in the EU. Country Profiles", Vol. II.

Gruber, J. and D.A. Wise (2004), "Social Security Programs and Retirement around the World: Micro-Estimation", NBER, The University of Chicago Press.

IDIKA (2015), "Monthly Representation of Pension and Welfare Benefits", Helios Report, October 2015IMF.

IMF (2011), "The Challenge of Public Pension Reform in Advanced and Emerging Economies", IMF Policy Papers.

IMF (2012), "Fiscal Policy and Employment in Advanced and Emerging Economies", IMF Policy Papers.

Jiménez-Martín, S. (2014), "The incentive effects of minimum pensions," IZA World of Labor, Working Paper 2014:84.

Jiménez-Martín, S. and A.R. Sánchez Martín (2007), "An Evaluation of the Life Cycle Effects of Minimum Pensions on Retirement Behavior," *Journal of Applied Econometrics*, Vol. 22, pp. 923-950.

Joubert, C. (2015), "Pension design with a large informal labor market: evidence from Chile," *International Economic Review*, Vol. 56, No. 2, pp. 673-694.

OECD (2004), "Informal Employment and Promoting the Transition to a Salaried Economy," in OECD Employment Outlook.

OECD (2007), "Pensions: A comprehensive reform is urgently required", in *OECD Economic Surveys: Greece 2007*, OECD Publishing. http://dx.doi.org/10.1787/eco_surveys-grc-2007-5-en

OECD (2011), *Pensions at a Glance 2011: Retirement-income Systems in OECD and G20 Countries*, OECD Publishing. *http://dx.doi.org/10.1787/pension_glance-2011-en*

OECD (2013), "Pensions at a Glance 2013: OECD and G20 Indicators", OECD Publishing. *http://dx.doi.org/10.1787/pension_glance-2013-en*

Queisser, M. and E. Whitehouse (2006), "Neutral or Fair? Actuarial Concepts and Pension-System Design", OECD Social, Employment and Migration Working Papers, No. 40, OECD Publishing.

World Bank (2013a), "Review of Key Design Parameters and Legislation for Social Assistance Programs in Latvia," in Scientific Research: Latvia: "Who Is Unemployed, Inactive or Needy? Assessing Post Crisis Policy Options."

World Bank (2013b), "Analysis of the Incentive Structure Created by the Tax and Benefit System," in Scientific Research: Latvia: "Who Is Unemployed, Inactive or Needy? Assessing Post Crisis Policy Options."