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The Greek Pension Reforms: Crises and NDC Attempts Awaiting Completion

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ABSTRACT

The Greek Pension Reforms: Crises and NDC Attempts Awaiting Completion*

Greece's current pension system relies almost exclusively on the state and remains staunchly pay-as-you-go (PAYG) and defined benefit (DB). This paper offers a radical proposal for change: (i) a new multipillar notional and financial defined contribution (NDC and FDC) pension system for all generations first insured after 1993, with contribution rates for primary pensions reduced by 50 percent; and (ii) a transitional system for those first insured before 1993. The proposal's robustness is tested actuarially for the period up to 2060. Though financing the legacy cost would be challenging, the quantitative exercise indicates that a radical pension reform, especially if implemented as a part of an overall recovery package, could set the country on a more favorable growth trajectory.

KEYWORDS: PAYG, Proposed Multipillar System, NDC, Reduced Contributions, Economic Growth

JEL CODES: H55, H21, H63

Abbreviations and Acronyms

DB	Defined Benefit
DC	Defined Contribution
EPC	Economic Policy Committee
EU	European Union
GD	Gross Domestic Product
IMF	International Monetary Fund
NDC	Nonfinancial Defined Contribution
PAYG	Pay-As-You-Go

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1. The crisis and the current structure of the Greek pension system

Greece in 2018 is trapped in the deepest and longest recession of any developed country – longer and deeper than even the US Great Depression of the 1930s. Output per capita is lower by one-quarter than at precrisis levels, and earnings by one-third – the product of eight successive years of falling gross domestic product (GDP) after 2008. Ten years after the start of the country's economic woes, the most likely prospect is more stagnation (Meghir et al. 2017).

Pensions and pension reform were never far from the epicenter of this economic maelstrom. Pension reform was the first action of the first bailout (Law 3865/10) and destined to be the last of the third (Law 4472/17, prelegislated for January 2019). This busy reform scorecard was unable to prevent income insecurity among pensioners, evidenced in repeated cuts in pensions-in-payment.¹

In 1997 an independent committee warned that the Greek pension system would collapse by 2007 unless it was drastically reformed. Trying to reassure public opinion, the head of the Confederation of Trade Unions retorted, "The social insurance system will collapse after the State Budget and the economy as a whole" (quoted in Paleologos 2014, 80). Indeed, the country resorted to a bailout less than 10 years later.

This paper makes three strong claims about the causal link between pensions and the crisis. As for the past, the crisis would not have happened had pensions been reformed in time. As for the present, an exit from the crisis is prevented by side effects of the pension reform. As for the future, Greece's long-term prospects are being poisoned by an inappropriately designed pension system. The common thread is a political economy system that places the needs of pensions and pensioners uppermost, calling instead upon production to adapt.

¹ For a timeline see Panageas and Tinios (2017) and Tinios (2018).

These claims go beyond the quantitative observation that deficits linked to the pension system accounted for most of the fiscal deterioration behind bankruptcy. The microeconomic operation of the pension system is also examined. Benefits were decoupled from contributions, hampering the operations of pensions as insurance. Instead, they became an instrument of redistribution between occupational groups, encouraging a systematic shifting of the burden toward future generations. The lack of a clear link between contributions and entitlements is termed “a lack of reciprocity” in a pension system. This paper asserts that this lack of reciprocity is at the heart of the causal link between pensions and fiscal failure. Restoring reciprocity through systemic change should be the centerpiece of any meaningful reform if it is to lead the country out of the crisis.

Section 2 examines how reform postponement fed the crisis in 2009/2010. Section 3 surveys the cumulative results of the pension reforms undertaken during the crisis, from 2010 to 2018, before section 4 illustrates how the new postcrisis system is undermining future prospects. Section 5 outlines a bold new proposal to galvanize public discussion. The proposal is capable of breaking the impasse by making pensions serve the economy, rather than vice versa. Specifically, a proposed multipillar system is built around notional defined contributions (NDC) with a new prefunded second pillar; the break with the past is signaled by a boost to reciprocity but also a major reduction in contribution rates. In a country whose pension system demonstrably failed both the economy and those it was meant to serve, the proposal aims to regain the Greek public’s trust.

2. The past: Pensions as a mechanism for disaster

The Greek pension system looks outwardly like that in many advanced country systems based around pay-as-you-go (PAYG). The main pension provider, IKA, founded in 1934, was a direct contemporary of the US Social Security system. As both were a reaction to the Great Depression, the two systems had many design similarities. In practice, however, the Greek system was governed with far greater laxity; for instance, the requirement for regular actuarial reviews was ignored for decades. Consequently, the system over the second half of the 20th century progressively fragmented. It did so in numerous dimensions— by

occupational group; by pension tranche; and by cohort, within and between pension providers (Börsch-Supan and Tinios 2001; Panageas and Tinios 2017).

The combination of PAYG funding with fragmentation meant that the pension system severed its links with insurance and operated as a fiscal landmine: old-age support was exploited to secure privileges for different occupations – turning pensions into a key component of clientelistic politics. For example, the retirement age rule (65 years for men) was followed by only 15 percent of male applicants in 2006; the remaining 85 percent exploited various loopholes to retire much earlier. The system combined one of the highest pension expenditures in the Organisation for Economic Co-operation and Development (OECD) with the worst performance in old-age poverty alleviation (Börsch-Supan and Tinios 2001; Nektarios 2012; Panageas and Tinios 2017). The route to a good pension for many was either a shrewd choice of occupation or an ability to “play the system,” rather than a long contribution history. The lack of reciprocity removed constraints on expenditure growth at the micro level, as groups tried to secure privileges and shifted costs onto consumers, taxpayers, or others. After the 1980s, expenditures were almost decoupled from system revenues – the difference was made up by ad hoc government grants, deficit finance, third-party taxes, and other devices shifting the burden of finance. These removed constraints to expenditure growth at the macro level. Finally, notwithstanding the awareness that structural changes were overdue, pension reform proceeded in a piecemeal fashion – moving the system in the right direction but in small steps; this allowed intragenerational distributional issues to overshadow intergenerational equity (Tinios 2012a).

These structural issues created secular tendencies for expenditures to grow. In a fragmented system with diverse degrees of generosity, the process of urbanization and the growth of the public sector gave rise to composition effects, raising total expenditures.² The system, still preoccupied with consolidation, was ill-prepared to meet the aging challenge, which appeared from the mid-1990s and accelerated in the 2000s. The interplay of these

² Farmers’ pensions were less than one-half those of the private sector. Public sector and civil servants’ replacement rates were well above 100 percent.

tendencies was sufficient to anchor Greece in the EU Ageing Working Group's (AWG) Reports from 2002 on as the EU state facing the greatest expected increase in age-related pension expenditures in the long term.³

How were these mechanisms connected to the debt bubble that finally burst in 2009? Structural deficits in the pension system had been endemic from the early 1980s. Policy makers were fully aware that structural reform was overdue. However, that reform was hard to implement and painful to discuss. While waiting for reform, all deficits were not financed by increasing system revenues, as that would have forestalled the pending reform on spending. They were, instead, seen as a "temporary phenomenon" and were financed largely by ad hoc government grants; these grants were originally not seen as a structural feature of the system, but as a kind of bridging finance of legacy costs. The last reform increasing contributions was passed in 1992; most changes affecting entitlements (age, system structure, privileges) were left for later. Unfortunately, the hoped-for entitlement rationalization was repeatedly announced and then postponed (notably in 1998, 2001, 2003, and 2008), and the "temporary measures" took on a permanent mantle.

In consequence, Greece before the crisis saw "half a reform," increasing contributions in 1992. The more controversial other half of the reform that should have reduced entitlements kept being postponed. As contributions were felt to be already too high, all expenditure increases were financed mainly by direct government grants. This became easier after Eurozone entry in 2001, when interest rates and external borrowing became cheaper, just as deficits were rising. On a wider political economy front, the evident reluctance to deal with an emblematic structural reform almost certainly stalled structural reform in other fields.⁴

³ But also, the one least concerned to correct it; it was the only EU country not to send any projections in the 2006 round of AWG projections. See Tinios (2012b) for an analysis of how the EU Open Method of Coordination highlighted the unsustainability of Greek pensions, but was unable to overcome government complacency.

⁴ Greece is not the only country where pension reforms acquire a systemic importance. The Juppé reforms of 1996 in France are probably the best known example.

Could meaningful pension reform have averted the crisis that broke in 2010? A prominent protagonist of the period, ex-Labour Minister Tassos Giannitsis, certainly thinks so. He calculated that cumulative grants to the pension system between 2001 and 2009 were €134 billion, representing 83.6 percent of the increase of the national debt. In the critical period 2006–2009, central government expenditures on pensions accounted for 35.8 percent of the increase in the public sector deficit, when wages and salaries accounted for only 9.9 percent (Giannitsis 2016, 48–50, 60–61). To this direct effect should be added any indirect political economy effects of postponing other structural reforms (Featherstone and Papadimitriou 2008).

A common justification for public subsidies was that these were dictated by social policy – the need to bolster low pensions. However, this confuses cause and effect: pensions were low because recorded careers were short. These, in addition to opportunities for early retirement, were due to a high minimum pension that meant that a person on minimum earnings would be entitled to the same pension between 15 and 23 years of work (Börsch-Supan and Tinios 2001). It is significant that a safety net for the general pensioner population did not exist; its introduction was prevented by the necessity to bankroll pensions.⁵

Counterfactuals can be treacherous – even if pension reform created fiscal space, the slack could have been taken up by other excesses. Nevertheless, discretionary pension increases indubitably played a direct part in the derailment after 2007 (with rises in farmers', military, and civil service pensions almost 15 percent above inflation (Tinios 2010). In any case, Greek pension data are a well-known example of “Greek statistics”; data availability has become worse, not better.⁶

⁵ The pension supplement EKAS played the role of a pensions-only safety net. It was introduced in 1996 to forestall generalized increases in minimum pensions. When incomes were rising precrisis, EKAS expenditures played little role in expenditure increases.

⁶ “Greek statistics” became notorious in the misreporting of the 2009 public sector deficit. The Head of ELSTAT (Hellenic Statistical Authority) in charge of the recalculation is on record as saying the social insurance deficit was in reality 0.8 percent of GDP higher than originally reported.

A country that misgoverned its pension system to the extent seen in Greece would doubtless have succumbed to other problems.

Whatever the macro counterfactuals, the deeper microeconomic cause behind the fiscal debacle was ultimately that the Greek system, despite the logic of its foundation, had ceased to operate as social insurance. Individual entitlements bore little relation to personal contributions, while the principle of financial autonomy of pension providers was long forgotten. The lack of reciprocity at all levels meant that decisions at individual, system, and macroeconomic level were made as if a budget constraint were absent. In that generational Ponzi game, burdens kept being shifted forward to the next generation. As many commentators realized,⁷ it was only a matter of time before the pyramid collapsed. That collapse finally came in 2009/2010.

3. The present: The bailout leads to a new pension system

The bailout period after 2010 introduced two key differences in the rules of the game. First, a strong new player entered, possessing an effective veto: the “Troika” (composed of the International Monetary Fund (IMF), the European Central Bank (ECB), and the European Commission), representing the creditors.⁸ Blame avoidance and blame shifting became the order of the day on the part of governments. Second, a hard budget constraint was enforced for total pension expenditures. As no borrowing was possible, any expenditure overruns, caused for instance by early retirements, could only lead to cuts in pensions already paid out (pensions-in-payment) (Lyberaki and Tinios 2012).

There was no doubt that pension reform would top the bailout reform agenda. There was keen awareness that the postponed reform should have been imposed without delay (IMF 2010). It was also clear that ironing out privileges and consolidation should be a key part of that reform. As the bailout was ultimately financed by German taxpayers (themselves

⁷ Featherstone, Kazamias, and Papadimitriou (2001) examine a particular case where an outspoken report on pensions was ignored and its key messages suppressed.

⁸ After the third bailout the Troika was transformed into a Quartet with the addition of the European Stability Mechanism.

recovering from their 2003 pension reform), there was great sensitivity about comparisons – especially relating to retirement ages. In addition to dealing with consolidation (“problems of the past,” or legacy issues), the reform would also have to deal with aging, which accelerated after 2010 (“problems of the future”). However, two difficulties arose that are largely absent in other pension reforms: (i) the reform had to be undertaken in a deep crisis without a functioning social safety net, which would need to be built up at the same time; and (ii) macroeconomic adjustment had to occur. The crisis revealed that Greece was not as rich as it thought it was: GDP per capita compared to precrisis levels was down by 25 percent; if pensioners were to share in overall adjustment, it could only be done through nominal cuts to pensions.⁹ Seen a different way, any defined benefit (DB) pensions calculated on precrisis incomes would lead to relative incomes of pensioners far higher than before 2010. An equitable sharing of the pain of adjustment should have been placed on the political economy agenda.

Urgency by the creditors and lack of ownership by the authorities meant that reform took place in a sequence of confused steps, unfolding unsteadily between 2010 and 2018. The original law was supplemented by at least five other major reform laws, implemented over three bailouts by five governments, from all sides of the political spectrum. In addition to legislative changes, the process involved over a dozen nominal cuts to pensions-in-payment, introduced under protest and presented as short-term fiscal fixes unrelated to the reform effort. The last major law was passed in May 2017 –it preannounced further deep cuts to be implemented four months after the end of the last bailout, in January 2019 (Panageas and Tinios 2017; Tinios 2018).

In retrospect, the cumulative changes implemented over eight years amount to one of the most drastic parametric reforms ever implemented to a PAYG system. The end result, which will be fully complete in 2019, is characterized by three key features, amounting to

⁹ In the 1990–1993 adjustment, pensions were eroded by inflation by 25 percent. In the context of Eurozone monetary stability, this was not feasible.

wholesale abandonment of the status quo (Symeonidis 2017; Nektarios, Tinios, and Symeonidis 2018):

- A new two-tier DB system is applied to all – even retroactively to existing pensioners.
- The retirement age applicable to everyone not able to retire by May 2016 is 67 (62 for long service). In certain cases, this means step increases of up to 17 years.
- All separate (primary) pension providers, including civil service and military pensions, are consolidated from 2017 into a single pension organization.

The drawn-out process that led to the ultimate result generated extra costs, though: as (low) pensions fell by less than earnings, a wave of early retirements, mostly of women, increased expenditures on a permanent basis. The repeated reneging of pension promises, typified by pension cuts, led to a diminution of trust in the pension system, which together with the fall in earnings encouraged falls in revenue. These were exacerbated by the fact that cuts repeatedly penalized long contribution records and favored short careers.

A cyclical process was repeated four times, in 2010, 2013, 2015, and 2017. The Troika, setting off the process, first pushed for decisive action to address fiscal problems; the government attempted to protect those close to retirement, favoring dual systems differentiating incumbents from new entrants. However, attempts to protect incumbents led to early retirement; as government grants to the pension system were strictly controlled, this increased cash shortfalls.

These in turn were addressed by cutting pensions-in-payment. This was added to by passing new laws extending the application of the new system retroactively to categories of the population previously protected. While the precrisis practice was to affect only new entrants, the 2010 law applied new rules to all entitlements earned after 2011 by all those working. In 2016 new rules were applied to all new pension applications for the entirety of their careers.

Box 3.1: Recalibration of pensions-in-payment: A primer

The fall in nominal GDP by one-quarter with the price level falling necessitated (for fiscal and for equity reasons) a downward adjustment of pensions-in-payment. Between 2010 and 2013, this was undertaken by repeated ad hoc cuts imposed using the sole criterion of pension size. The top administrative court decided that cuts before December 2012 were warranted constitutionally, on the grounds of fiscal necessity. In 2015, the same court reversed course, decreeing cuts that took place after 2012 were insufficiently justified and hence unconstitutional. So, the government legislated (4387/16) that rather than calculating new pensions under old rules and then applying cuts, as hitherto, all entitlements after May 2016 would be computed by applying new rules retroactively – as if the employee had always been subject to new rules. To comply with the court decision, the law decreed that all existing pensions would be recalculated under new rules by January 2019; any excess of pensions as currently paid over the recalibrated amounts was termed a “personal bonus,” and was to be offset against any future rises and gradually abolished.¹⁰

A year later, and in the context of ensuring Greece would be able to meet future primary surplus targets, Law 4472/17 went a step further, positing that the personal bonus would be discontinued on January 1, 2019. It specified a maximum difference of 18 percent.¹¹ Any excess will be subject to the same offsetting process as before. The abolition of the personal difference is important as it will affect low-income pensioners, who were mostly protected from previous pension cuts.¹²

In this way, a 90-year-old pensioner will be drawing in 2019 a pension as if she had contributed all her life into the new system. Widows, interestingly, will be hardest hit: the pension will be calculated as if the deceased had contributed all his life to the new system; survivors will be entitled to 50 percent of the direct beneficiary’s hypothetical pension, rather than 70 percent; and they will not be entitled to the protection of the personal bonus cap.

On reflection, this unique recalibration exercise forcibly took entitlements approximately to where they would have been, had early warnings of pension unsustainability been heeded. But it did so by negating more than a generation’s worth of solemn political reassurances that entitlements were “safe.”¹³ Seen as part of a larger aging narrative, Greece over the bailout period “telescoped” developments that normally span generations.

¹⁰ Using as a frame of reference the current value (i.e., after cuts) rather than the legal entitlements (before cuts) had the effect of “franking” all postcrisis cuts in pensions.

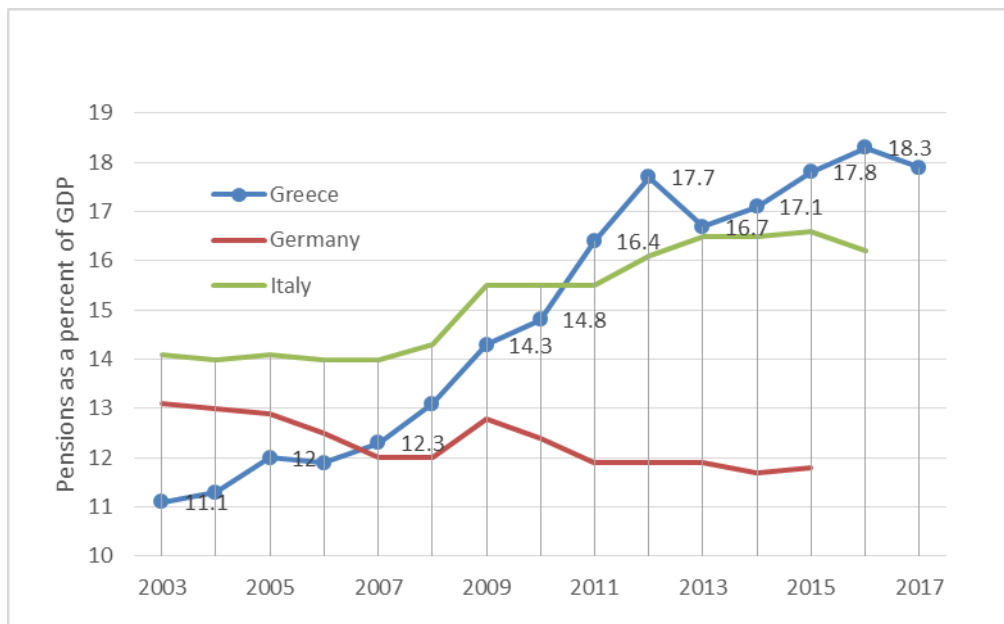
¹¹ Any shortfall from the deficit reduction target of 1 percentage point of GDP would be taken by further cuts in auxiliary pensions.

¹² Low pensions will also lose the protection of the dedicated means-tested pension supplement EKAS. They will be eligible for the (less generous) new “social solidarity income.”

¹³ This process of recontracting did not affect retirement ages. Applications submitted before May 2016 will be entitled to the lower retirement ages.

The vicissitudes and problems of syncopated parametric pension reform in the midst of a deep crisis are shown in the consistent rise of pension expenditures over the crisis period to levels unprecedented in advanced economies. The share of pensions in GDP, already high in 2009, increased to 18.3 percent in 2016 (Figure 3.1). For comparison, the figure also shows the behavior of pensions in Germany and Italy, the two other EU countries challenged by aging.¹⁴ The repeated pension cuts in Greece were insufficient to stem the rise in pensions, which were fed instead by a wave of early retirements. With private sector employment taking the biggest hit, pensions appeared a safe haven out of the labor market¹⁵ (Tinios 2018; Lyberaki 2018).

Figure 3.1: Pensions as % of GDP in Greece, Germany, and Italy, 2003–2017



Source: Eurostat (accessed 30/09/2018), Ministry of Labor(for 2016 on).

The fiscal problem was ultimately due to a departure from reciprocity of pension benefits, possibly aided by a collapse of revenues during the crisis. This is obvious in the exceptionally

¹⁴ Germany was reaping the benefits of reforms implemented in 2003. In Italy the financial crisis is seen to have exerted an upward pressure on the share of pensions in GDP.

¹⁵ Rises were partly due to the denominator falling. With a fall in GDP by 28 percent, a country that spends 12 percent of GDP will spend 16.5 percent of GDP. However, the crisis showed that levels of GDP were unsustainable; identifying precrisis GDP with normality begs a serious question.

high share of direct government finance: of the 18 percent spending on pensions, more than one-half (11 percent) came directly from government grants, rather than through contribution revenues (IMF 2017, 35¹⁶). Subsidies of that magnitude, mostly handed out on an ad hoc basis, negate the ostensive social insurance logic of the system. Regardless of the legal form, when over 50 percent of income is unrelated to contributions, it is difficult to talk of “insurance.”¹⁷

The new system that, according to official pronouncements, is to carry Greece to the mid-21st century is characterized by four key aspects:¹⁸

- *A new state first pillar system.* In a two-tier PAYG, DB pension system, the first tier is accessible to those with more than 15 years of contributions (€360 for 15 years, rising to €384 for 20 years). The second tier is proportional to years of contributions on a DB base, calculated on a nonlinear scale based on career average income.¹⁹ Total replacement rates for minimum pay recipients are over 80 percent for contributions from a 40-year career. An important feature is the low monthly pension ceiling (€2,000, when the ceiling for contributions is close to €6,000), which will discriminate against better-paid contributors.
- *Retirement age.* This rises to 67 for all who retire after May 2016 (62 for a full career), subject to a short transition period lasting to 2022. Exceptions remain for

¹⁶ The fragmentation and opacity of pension system finances imply that the exact numbers are subject to controversy. For example, how to account for civil service pensions, for which no employer contribution was levied from the 1950s to 2017? Or the many funds where employers had the legal obligation to cover all pension expenditures; in the case of some public enterprises, this was combined with large losses on their operating account.

¹⁷ The precrisis levels were not very different. In 2008 all contribution revenues amounted to 9.9 percent of GDP, the cost of civil service pensions to 1.8 percent of GDP, and all other noncontribution revenues (i.e., grants, third-party taxes, deficit finance) another 5.8 percent of GDP (Tinios 2010, 352–355). These grants were later proved to be underestimated by 0.8 percent of GDP.

¹⁸ Stergiou (2017) exhaustively covers legal aspects. For a critical economic reading, see Panageas and Tinios (2017).

¹⁹ Strictly, on all income since 2002, due to the absence of records. Given that that period encompasses the drop of 30 percent in earnings of the crisis, career average income will be larger than the previous situation – best five of the last ten years.

“Hazardous Occupations.”²⁰ Retirement age is to be reconsidered every 10 years to match longevity increases. Work by pensioners is severely discouraged; undertaking any gainful employment means automatically forfeiting 60 percent of the pension.

- *Consolidation on the revenue side.* All contributors from 2017 are equated to salaried workers and pay the same contribution rates – 26 percent for pensions only; total contributions for all risks rise to 38 percent for those entitled to separation payments. This entails a major change for professionals, the self-employed, and farmers (who were subject to an archaic system of voluntary insurance classes). All workers on nonstandard contracts, such as those in the sharing (gig) economy, were treated as pseudo-self-employed and equated to salaried workers. All subsidiary income accruing to employees (e.g., for supplying services, or in a supplementary second job) is also fully subject to contributions. Widening the contribution base was hoped to boost overall revenue. However, early indications are that disintermediation and avoidance have increased.²¹
- *Organizational consolidation.* All primary pension providers were folded into a single organization. In contrast to previous efforts to consolidate, which were accused of being merely decorative, the objective was to lead to uniform rules for entitlements, for revenues, and for administrative procedures. Fragmentation, the defining characteristic of the Greek pension system, was to be replaced by uniformity.²²

The single exception to consolidation was the so-called “auxiliary pensions.”²³ These were retained in a separate state provider and were supposedly converted to NDC schemes. This

²⁰ “Heavy and Hazardous” occupations were a feature of the precrisis system, encompassing over 40 percent of all private sector retirees. Certain occupations (e.g., hairdressers) were withdrawn in 2011. However, in a characteristic move, all incumbents with more than 10 years of contributions retained their rights.

²¹ Small firms and service companies have reportedly shifted their operations to Cyprus or Bulgaria to avoid contributions. A recurring problem is the unavailability of publicly available financial information.

²² However, two years on, consolidation is well behind schedule and is apparently causing major problems. One such problem is the delay in implementing the new (and far simpler) entitlement regulations.

²³ These are also sometimes known as supplementary pensions. This risks confusion with the European use of supplementary pensions to mean occupational pensions (of the second pillar).

is sometimes cited as a successful example of the application of NDC pensions in Greece. As the reality is somewhat different, it is worth examining this claim in some detail.

All employees since 1983 had to pay a minimum of 6 percent of their salary for auxiliary pensions to receive an additional second pension of about 20 percent replacement. That entitlement was otherwise indistinguishable from primary pensions: auxiliary pensions were compulsory, mandatory, PAYG, and DB; were provided by state bodies; and were equally prone to deficits. Nevertheless, the Greek government consistently tried to keep auxiliary pensions separate from primary pension. The purpose was to retain the flexibility of being able to separately influence particular sectors of employment.

Auxiliary pensions were thus excluded from the 2010 reform on the grounds that they ought not to receive public subsidies. This fiction created a major funding problem, “dealt with” in 2012 (Law 4052/12) by folding (almost) all auxiliary funds into one, the ETEA. As some funds were generous and ran deficits and other were parsimonious and may have even been in surplus, unification resulted in extending the life of the spendthrift funds (representing influential groups, mostly in the civil service and in public enterprises). To prevent cross-subsidization, the 2012 law attempted to introduce strict reciprocity between contributions and pensions. It did so by applying the NDC principle retroactively to contributions from 2001. However, this decision was later overturned by stipulating that NDC would apply only after 2014. The main beneficiaries were the two most generous funds – customs officers and tax collectors – whose pensions could be paid for a few more years, using contributions of other occupations with less generous systems. This decision was confirmed by a later law in 2016 that specified that a DB system would be in operation for contributions paid between 2002 and 2016 and NDC would only be applied afterwards. Characteristically, though, the first NDC pension was only issued in late autumn 2017, five years after the NDC system passed into law.

Getting one occupation to pay for the others in auxiliary pensions cannot balance the books for long. To stick to the story that auxiliary insurance is not bankrolled by the state, the “zero deficit clause” was inserted. Under this clause, if a deficit arises in one year, the

balance is attained by cutting all pensions by an equal amount. Interestingly, pensions can only go down, and can never rise again (Zampelis 2013). The fact that NDC only existed on paper and all pensions paid were calculated on DB principles repaying precrisis level of incomes – which were in any case actuarially overgenerous—deficits would be a virtually permanent fixture. Indeed, the zero deficit clause was applied in 2014, when pensions were cut by 5.3 percent.²⁴

Auxiliary pensions thus remain a one-way bet downwards. Given their rapid deterioration, they are no more than a pay-while-you-can, or even a pay-what-you-grab, system. The Committee of Experts formed by the government suggested in October 2015 that they should be incorporated into primary pensions.²⁵ This proposal was overruled and auxiliary pensions were retained, though contribution rates were increased temporarily by 1 percentage point, to 7 percent. Nevertheless, this did not improve finances: higher auxiliary pensions were extensively cut in late 2016, while more cuts are expected in future, including as part of the cuts preannounced for 2019 by Law 4472/17.

In consequence, after seven years of reform, the two questions of why separate auxiliary pensions exist and whether they will still exist in 10 years remain unanswerable. Appeal to the NDC principle was used, in practice, as a medium-term ploy to support some incumbents entitled to more generous auxiliary pensions. Actuarial reality predicts that this attempt is ultimately doomed; it will succeed in postponing the final reckoning for a few years only.

4. The future: Pensions and long-term prospects

According to pronouncements from the government, echoed by the institutions overseeing the bailout, the system to be in force in 2019 is the one that should see Greece through to 2060 and beyond (EPC 2018). There is little doubt that many of the dysfunctional

²⁴ No data justifying that figure were ever released, creating the suspicion that the cut warranted was larger. This, however, only creates pressure for bigger cuts in later years.

²⁵ See Nektarios, Tinios, and Symeonidis (2018, 97). The Committee's recommendation echoes earlier proposals of Tinios (2015) and Nektarios (1997).

characteristics of the precrisis situation were put right. Yet it is also true to say that the reform chose continuity over systemic change: the new system relies exclusively on the state; it does not advance toward a multipillar system; and it remains staunchly PAYG and DB. Despite accusations that the system promotes a “neoliberal agenda” (Busch et al. 2013), it remains solidly within the logic of parametric change. Even if the system was imposed from the outside, the proposals mostly implemented the logic of the preceding discussions, shying away from systemic change.²⁶ The new system looks like a monolithic 1960s-style, state-run, PAYG system, currently under question in the advanced world.²⁷ It is still:

- *Too generous.* Pension replacement, especially for low earnings, though lower than before, will still be at the top end of the EU for a full career.²⁸
- *Too expensive.* Nonwage costs are high and will become higher. The increased emphasis on contribution revenues will prove a major drain on competitiveness.²⁹
- *Too inflexible.* Little leeway is allowed for individual or sectoral differentiation. All are entitled to maximum protection and have to pay the necessary price. There is no possibility of opting out. Large groups of the population, such as the self-employed, are forced to overinsure to shore up current pensions of salaried workers.
- *Too statist.* Pensions are exclusively provided by the state, leaving very little room for other providers. High nominal replacement rates crowd out demand, while high state social insurance contributions (27–38 percent) crowd out supply. The insurance

²⁶ Tinios (2016) explains that the features of the reform are due to a failure of reform technology; oriented to solving the original issue of fragmentation (the problem of the past), it failed to address issues of the present (aging) and the future (technology, competitiveness).

²⁷ Countries differ on whether to present reforms as systemic breaks. Countries where systems were seen as discredited (e.g., in Eastern Europe and Latin America) stressed novelty. In others, reassurance was prioritized. That Greece chose continuity is itself interesting, and can be seen as an instance of denial.

²⁸ Official pronouncements concur with this evaluation. An op-ed piece by the Employment Minister states that replacement rates will exceed 90 percent of final salary, while keeping total pension expenditures to 2040 (though not later) below the EU average (Achtsioglou 2018). No explanation is offered for the apparent paradox.

²⁹ Precrisis contributions were high for traded sectors and low for nontraded services, agriculture, and the government. New contributions are levied on all categories of income as if everyone was a salaried employee. All gig economy work is treated as “hidden salaried employment” and is liable to 26–38 percent contributions.

sector is still being actively discouraged from offering supplementary insurance cover, for example by being barred from administering occupational funds.

- *Too opaque.* The new system eschews the transparency afforded by multipillar systems. Under the logic of PAYG finance, the increase in contributions is immediately available to bankroll incumbents; this generational transfer is hidden as an internal transfer. The opacity of the pension promise operates as another disincentive to contribute.³⁰

However, the main problem arises from the way the 2010–2018 reforms came about (Panageas and Tinios 2017). Those reforms dealt with (macro) fiscal problems, but ignored (micro) insurance aspects. The principal victim was trust in the ability of pensions to deliver income security. This was compromised by blame avoidance, and eroded by seemingly arbitrary pension cuts. High nonwage costs coupled with violations of solemn assurances undermined confidence, leaving younger contributors unable to distinguish between contributions and a punitive tax on work. Even if the pension promise is more viable (which is still to be demonstrated), it is therefore trusted less. Restoring trust should top any reform agenda.

An issue that has been overlooked is that pension entitlements proceed in tandem and compete with debt servicing of the national debt as claims on current production. The links between debt servicing and GDP growth are currently drawing attention, most notably in the context of GDP-linked bonds (Shiller 2018). The time structure of aging, whereby Greek dependency rates peak between 2040 and 2050, means that the rise in pension payments follows the peak in debt service obligations and extends the problems created. This coincidence can potentially have dire effects on growth prospects.

A DB pension system of the type in force hands out pension promises redeemable in the distant future. In this way, future pensioners in a DB system are very similar to bondholders.

³⁰ Another little appreciated feature is that actuarial viability relies on consistent rises in the retirement age every decade. In EPC 2018, this is set to rise from the current 67 to 72 in 2050.

Though they may be domestic residents, they are still external to the production process. Their interest lies in ensuring the promises they hold are honored; they do not care how. Pensions are senior to production. Indeed, external bondholders have similar concerns.³¹ Both DB pensions and external debt mortgage future output; DB pensions could even be worse, as implicit debt may carry more fiscal and political uncertainty, for both the issuer and the holder, than explicit contractual debt.³² In other words, a large DB system may well replicate in the future some of the conditions that led Greece to bankruptcy in the past, by encouraging irreconcilable claims on output.

In a country struggling to exit a deep recession, pension schemes need to help the recovery; this obligation is underlined by the central place of pensions in the processes that led to the crisis. Such schemes would be systems that redistribute the fruits of economic success after this has been earned, rather than mortgaging it in advance. Future pensioners must be encouraged to think and behave like shareholders, in partnership with production, rather than like external bondholders, in competition with other claims. These general arguments are reinforced in the specific case of Greece by four considerations of wider macroeconomic relevance:

- The size of the pension system is very large, both absolutely and relative to other public obligations— close to 18 percent of GDP and subject to upward risk due to demography and the consequent need for other aging-related expenditures, such as long-term care.
- Nonwage costs are very important as a determinant of competitiveness. Social insurance contributions, unlike VAT (value-added tax), cascade tax obligations and directly hurt exports. A country like Greece would benefit from a revenue-neutral reform shifting revenue out of payroll taxes. Export recovery propelled the exit of

³¹ All pensions are bond-like. However, DC and NDC pension entitlements are closer to GDP-linked bonds, which will pay more in favorable eventualities.

³² The argument that external debt represents a contractual obligation whereas pension promises rely on moral obligations only was proven to be facile when in June 2015 Greece preferred to pay monthly pensions at the expense of defaulting on an IMF payment, when the IMF was the senior legal creditor.

the other Eurozone countries; the failure of exports to rise, despite internal devaluation, makes Greece stand out (Arkoulakis et al 2017).

- The dominant positions of the self-employed and the small business sector mean that applying employee-type contributions (up to 38 percent on net earnings) will be especially hurtful to competitiveness (Lyberaki and Tinios 2017).
- Growth is impeded by a shortage of savings. Greece has been, since 2006, dissaving in aggregate, as public sector surpluses are offset by private sector dissaving. In the absence of domestic savings, growth is reduced to hoping for foreign capital to flow in as a kind of *deus ex machina*. Pension systems are currently adding to dissaving (Haliassos et al 2017).

The four macroeconomic considerations back the key claim of this paper, that the current structure and size of the pension system (even after reforms) is preventing economic recovery. Indeed, it is possible to claim that without radical change in pensions, no recovery can prove lasting.

For Greece to exit stagnation, both the size of pension promises and the way they relate to the rest of the economy need to change. A proposal satisfying this condition should thus have three features:

First, it should provide a competitiveness shock – ideally by reducing nonwage costs. Second, it should alter how pensions relate to production. Defined contribution systems do exhibit this key characteristic; their claims are contingent and not absolute. Third, it should be seen as a clean break with the (largely discredited) past. Contributory pension systems should directly benefit participants; they must be used as aids to individual longevity planning, and not as “get-rich-quick” schemes on the part of some occupations or generations.

NDC systems satisfy these conditions. They deliver at an aggregate level by linking, in various ways, the technical rate of return to GDP growth. Prefunded DC systems go one step

further by directly involving the investment of pension reserves, providing a link visible to individuals.

The next section proposes and describes a system designed to meet the three requirements.

5. “Pensions for the young”: A radical proposal to exit the crisis

A radical proposal for change, actuarially costed, was first compiled in December 2016, and published in May 2018 (Nektarios, Tinios, and Symeonidis 2018). This proposal extended earlier suggestions to introduce a three-pillar system (e.g., Nektarios 2008, 2012; Panageas and Tinios 2017). The proposal has three key characteristics (see Box 5.1 for details):

- It accords top priority to the immediate start of a new separate multipillar pension system based on full reciprocity for all who started working after 1992 – that is, for virtually everyone under 45 years of age.³³ A major reduction in contribution rates is combined with the immediate introduction of a separate, prefunded pension pillar. The system should be introduced as soon as possible – under a year after the decision to go ahead.
- For older system participants (those who started working before 1993), it aims for the largest possible reassurance – that is, for a durable guarantee, financed out of general revenues, that pensions will not be cut again – for at least the next 20 years. The extent of the guarantee is deliberately left open, to not preclude the reconsideration of legacy costs; these costs could be further contained by measures such as alterations in the “Heavy and Hazardous” occupations schemes, or by providing incentives for those who retired early to return to employment.³⁴

³³ The choice of 1992 corresponds to a familiar criterion introduced by an earlier law (L2084/92) (Börsch-Supan and Tinios 2001).

³⁴ Panageas and Tinios (2017) mention a number of possibilities, including a recall to the labor market of pensioners below certain ages.

- It places a premium on transparency by electing the multipillar framework, where the roles of different kinds of actors and the extent of subsidization are subject to scrutiny and circumscribed. It also tries to keep separate insurance (income replacement) from safety net (social policy) factors. The latter should be transparent and subject to explicit rules.

The new proposal is calibrated to the specific needs of a macroeconomic recovery program for Greece. In doing so, it focuses on regaining younger contributors' trust by stressing systemic breaks with the old, discredited, system³⁵; it endeavors to keep the new system's operation "uncontaminated" to the maximum possible extent from transition and legacy issues. For the same reason, it seeks to start the new system as soon as possible by decoupling it from financing legacy costs. More importantly, and in sharp contrast to pension reform proposals in other countries, the proposal is not fiscally neutral – a central feature is an immediate reduction in contributions. This bold reduction is intended to operate as a growth shock, and to form a prominent part of an overall recovery package.³⁶ Social insurance contributions are high and could have important disincentive and competitiveness effects. Recent changes widening the contribution base and extending the application of the system probably exacerbated an already problematic situation.³⁷ This reduction will combine with reciprocity in calculating entitlements to underline that a new leaf is being turned; new pensions must be seen to abide to a different logic from what pertained in the past. Finally, the creation of a stock of savings to finance domestic investment will address the chronic private savings deficit in the medium term and beyond.³⁸

³⁵ The "brain drain" since 2010 has meant half a million mostly highly educated younger people emigrated in search of work. Enticing these people back to Greece should be a priority.

³⁶ International discussions of Greek debt center on the necessity for debt relief as an aid to long-term prospects. If seen in this frame, financing the legacy cost of a growth-oriented pension reform out of a reduction in primary deficits could be interpreted as an acceptable form of debt relief.

³⁷ So that, even if contributions are replaced by increase in income tax, say, to an equivalent amount, there could be a welfare gain. See below for a discussion of contribution tax elasticities.

³⁸ Private sector savings has been negative since 2007. The proposal must also be seen against the backdrop of needing to maintain very high public sector surpluses – 3.5 percent of GDP to 2022 and 2 percent afterwards. The extra private savings will be partly offset by the necessity to finance transition costs.

Box 5.1: Outline of the proposed three-pillar system for Greece

I. A new pension system for generations first insured after January 1, 1993. A three-pillar system can lead to an expected total replacement of over 60 percent.

A. First pillar: A single provider for all primary pensions on the NDC principle

- Contribution rate is 10 percent (down from 20 percent today); the reduction could be phased in gradually.
- Pensions result from an NDC basis. Contributions cumulate in personal accounts, using a technical interest rate related to the rate of growth of GDP.³⁹
- No specific safety net for pensions is envisaged; pensioners would be eligible for the new Social Solidarity Income that exists for the general population.
- Primary pensions corresponding to the period before the start of the system will be credited on a pro rata basis. There will be no right to an old system NDC auxiliary pension.

B. Second pillar: New mandatory prefunded supplementary pension system

- Contributions at 6 percent (replacing the current 7 percent to auxiliary funds).
- Credited to a personal account; funds invested professionally to build reserves.
- Pension entitlements are DC.
- Opting out to occupational funds is allowed provided equivalent cover is secured. This encourages a sense of ownership.

C. Third pillar: Voluntary occupational pension funds

- Separation funds (together with their property) are transformed into occupational funds.
- Occupational funds allow for flexibility across employment sectors.
- The self-employed, free professions, or small enterprises can combine into open occupational funds.

II. The transition period: Guarantees for all who started work before 1993.

Outstanding commitments will be itemized and costed within six months, so that entitlements can be credibly costed and guaranteed and possible adjustments identified. Those currently working will receive a pension in two parts – one corresponding to pre-2017 service calculated as today (Law 4387/16), and one corresponding to new system rights earned. All preexisting primary and auxiliary funds will be consolidated. All entitlement changes legislated to 2017 will be fully implemented. Transition costs are reduced by the legislated cut in pensions due to take place in 2019. Government grants from general taxation will back the guarantees.

Source: Nektarios, Tinios, and Symeonidis 2018.

³⁹ NDC entitlements are calculated according to the formula used today for auxiliary pensions. This is not to imply that other alternatives are not feasible; however, using an existing method has the advantage of familiarity.

The proposal was tested actuarially, to the extent possible, for the period up to 2060 (Nektarios, Tinios, and Symeonidis 2018). Given inherent data and other limitations, such a quantification cannot be definitive. It should instead act as a reality check signposting areas of difficulties, but should, nevertheless, take the discussion forward.

The study built on demographic and economic projections prepared for the 2015 EPC Ageing Working Group exercise (EPC 2015), updated for macroeconomic and legislative developments.⁴⁰ Table 5.1 computes assumed replacement rates for individuals retiring after a 40-year career at different points in time for the proposed system.

Table 5.1: Projected replacement rates for a full career under the existing and proposed Greek pension system, 2020–2060

	Proposed System				
	First pillar NDC	Second pillar		Total	
		3% return DC	4% return DC	3%	4%
2020	88%	1%	1%	89%	89%
2030	83%	6%	6%	89%	89%
2040	59%	11%	13%	70%	72%
2050	33%	18%	21%	51%	54%
2060	27%	23%	29%	50%	56%

Note: The existing system yields total replacement over 80% (primary $\approx$ 70–74%; auxiliary 8%). Assumptions: 40-year career, retired at 67, real wage increase 0.5% per year, 0.5% charge on second pillar contributions, annuity calculated over a 15.64 years expected period after retirement.

These must be compared with total replacement rates over 80 percent for the existing system: 74 percent primary (allowing for the flat rate national pension) and around 8 percent auxiliary).⁴¹ The proposed system gradually reduces replacement (as a larger

⁴⁰ Nektarios Tinios, and Symeonidis (2018) catalogue data infelicities – e.g., that the insured population is 2 percent larger than those employed, or that no data exist for the baseline. The EPC 2015 projection did not allow for changes legislated or economic developments after the third bailout. Subsequent partial projections simulated the changes of 2015–2017. The quantification combined all data available by 2017 and attempted to safeguard consistency to the extent possible.

⁴¹ Exact replacement rates cannot be calculated, as clarification is still needed. Nevertheless, official statements largely concur with this analysis. The minister is on record that Greek replacement rates remain at the top end of the Eurozone (Achtsioglou 2018). Because of the two-tier structure of the current system, replacement rates for low earnings are larger. Replacement rates do not allow for separation benefits.

portion of total pensions are derived from NDC), and makes it up by a greater reliance on a financial defined contribution (FDC) pension. When the new system is fully operational, first-pillar pensions (for which the public will be responsible) will be around 30 percent. To this will be added funded supplementary pensions, to reach around 50 percent replacement, if the return on capital is 3 percent. This type of return can provide a solid basis for individual pensions of the third pillar on a voluntary basis.

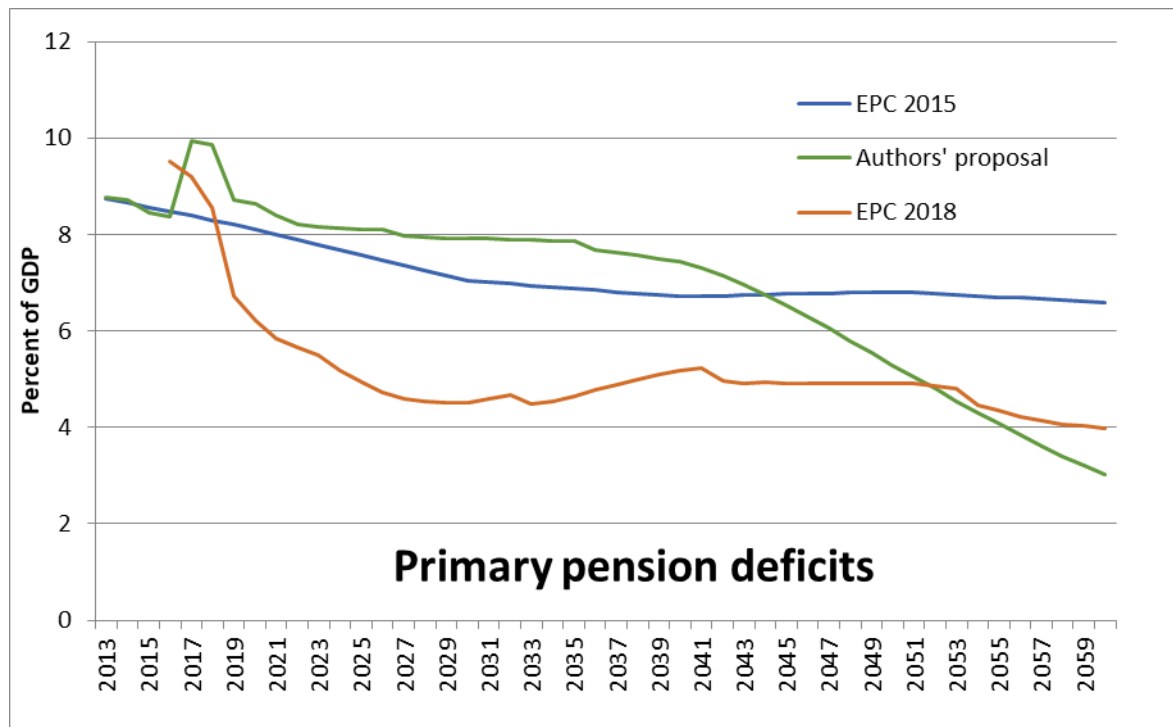
As regards financing, the new three-pillar system – first and second pillars – is self-supporting. Government finance is restricted to compensation for contributions lost due to unemployment, parental leave, and military service⁴²; government grants concentrate on financing legacy costs, insulating the new system to the extent possible. The second pillar will accumulate reserves, which are projected to amount to one-quarter of GDP (€50 billion) by 2030 and will rise over 55 percent before 2060 (€400 billion). These figures make no allowance for impacts through incentives or through improving macroeconomic performance or faster reduction of unemployment.

The key problem is to secure resources to pay the (reduced) pensions for the long transition period; the last legacy contributor will have retired by 2045. The actuarial study tried to approximate the funds needed as well as the financing gap that will be created by the reduction in contributions. Figure 5.1 shows the impact on primary pension deficits of reducing contributions by half (10 percentage points) plus redirecting 6 percent currently paying for auxiliary pensions to forming prefunded individual accounts. This is contrasted with the EPC projections of 2015 and 2018, corresponding to the second and third bailouts. The latter incorporates all changes passed in 2017, including full allowance for the recalibration of pensions-in-payments, as well as increases in contribution rates. The 2015 projection would have introduced substantially the same system as the 2018 variant, but would have grandfathered incumbents. In this proposal, the deficit of 8.8 percent rises on impact to 10 percent. The relatively contained rise is due to (i) the problems of collecting contributions, and (ii) the coincidence of the proposals with the legislated fall of pensions-

⁴² A buffer fund could provide a cushion for revenues lost in recessions.

in-payment to take place in 2019⁴³; if comparison is made with the 2018 projection, the rise in deficits is larger, though probably overstated.⁴⁴ As NDC pensions fall in line with contributions, deficits fall, halving by the end of the projection period.

Figure 5.1: Primary pension deficits for the proposal and 2015 and 2018 EPC projections, Greece 2013–2060



Source: EPC 2015 and 2018, and authors' calculations.

Part of the financing gap is due to the conversion of PAYG obligations of auxiliary pensions to prefunded DC supplementary pensions. This “implicit debt” is brought into the open and will stop growing. The second part is due to the reduction of contributions, essentially rebalancing the tax system away from distortionary taxes on labor,⁴⁵ and reflects legacy

⁴³ A mystery surrounds near-term pension projections. The official EPC 2018 projection holds that pensions will fall by 3.8 points of GDP (22 percent) from 2018 to 2020; the only plausible justification – the recalibration of old pensions – should account for a 1 percent fall only. This is an example of the kind of issues quantification can occasionally turn up.

⁴⁴ Some aspects of the proposal, such as the abolition of insurance classes for the self-employed, are in common with the EPC2018 projection, but could not have been allowed in the projection exercise.

⁴⁵ Figure 5.1 showed that the pension system is already reliant on government grants by more than 50 percent. The financing change, seen in this context, is less drastic.

costs. This interpretation is aided by the fact that the first pillar will be fully NDC –100 percent reciprocity. Further finance could be sought from targeted consolidation (e.g., pension age increases on “hazardous occupations”) or the use of new financial instruments to allow a more equitable spreading of the burden across generations.⁴⁶ Gradual introduction of the reduction in contributions⁴⁷ would ease fiscal problems but could subtract from the growth impact.

The deficit shown in Figure 5.1 is thus, in a sense, an upper limit, and is the consequence of an attempt to keep the new system uncontaminated from legacy costs. For example, a larger PAYG component would increase current fiscal flows, but would increase the share of pensions in the steady state. This conundrum would have been dealt with in the past by promising now and planning to renege on promises a decade on, as part of a “reform by installments” (Tinios 2012). This course of action would undermine confidence in the system and could risk negating key benefits of the reform. If generational rebalancing is needed, it would be better if it were discussed openly.

The rationale of this pension reform is squarely macroeconomic. This is obvious insofar as pensions are a large part of government finances, which must adhere to the fiscal limits agreed with Greece’s creditors. The proposal is to act as a growth shock, with an impact on employment, savings, tax collection, and investment. All these matters are dependent on the speed and extent of the reaction of the economy to falling insurance contributions.

The issue of how to “press reset” in the economy was approached in a unified proposal designed to deal simultaneously with the three major growth impediments of the economy: (i) the inability to finance investment while running 3.5 percent public surpluses, (ii) a dysfunctional tax system, and (iii) a top-heavy pension system.⁴⁸ Those three issues are held

⁴⁶ Panageas and Tinios (2017) explore analytically the use of recognition bonds to speed the introduction of the second pillar. These could be sold to the funds and treated as government consols – i.e., amortized as the need arises to pay contributor benefits. This is a way to rationalize and plan for general revenue finance – which would have to happen in any case.

⁴⁷ Equivalently, shifting contributions of the self-employed to an ad valorem basis could be phased in.

⁴⁸ The proposal colorfully terms the three obstacles “the three dragons” guarding the exit to growth.

to condemn Greece to a permanently anemic growth path; the question is how to shift gears and switch to a higher growth trajectory. Thus, the features of this pension proposal were integrated in a macroeconometric dynamic model (Christodoulakis, Nektarios, and Theocharis 2018). The model examines how the economy reacts when 2 percent of public sector surpluses are redirected to private investment, combined with a gradual cut in insurance contributions and a revenue-neutral tax reform built around simplification. A pension reform of the type envisaged leads to employment increases, which translate to extra tax revenues and higher growth. This takes effect just as the growth-boosting impacts of the investment increase begin to wear out (after 2025). After the first decade, all nominal magnitudes are improved in the reform scenario.

An important issue is the elasticity of revenues following reductions in contribution rates, which depends on the impact on employment. This question is approached by Christodoulakis, Nektarios, and Theocharis (2018) through a comparative study of time series data in Eurozone pension systems. In four countries (Spain, Portugal, Ireland, and Greece), a reduction in the contribution rate would increase employment – a kind of Laffer curve. Greece has the sharpest reaction of any country studied: the long-term unemployment rate would fall by one-half, to 7.5 percent, compared to 15 percent without the reform. It is estimated that a 1.0 point reduction in the contribution rate in the other Eurozone countries leads to 0.77 percent increase in employment, whereas in Greece it is 1.1 percent. The model, nevertheless, employs the more conservative estimate. In this way, contribution revenues would rise to offset the biggest part of the fall in rates within the first decade. The macroeconomic model predicts that, without a pension reform, the impact of smaller surpluses will soon peter out. Its impact is magnified if it is combined with a pension and contribution reform of the type outlined. Table 5.2 gives summary indicators of the scenarios investigated. Column A corresponds roughly to the anemic macroeconomic scenario presumed by the actuarial model. Column B includes the rise in investment plus the tax reform. Column C adds to that a reform like the one outlined; the difference is that contributions fall by 8 percentage points rather than 10, and this is implemented over a four-year period.

Table 5.2: Simulated macroeconomic effects of three scenarios

		(A) High contribution scenario	(B) High contribution without reform	(C) Reforms/ low contributions ¹	Difference (C-B)
Employment (000s)	2030	4,010	4,063	4,413	350
	2050	3,621	3,566	3,971	405
Unemployment (%)	2030	15.26	12.89	7.11	-5.79
	2050	15.23	14.29	7.82	-6.47
Pensioners (000s)	2030	1,913	1,913	1,913	0
	2050	2,479	2,564	2,740	176
Personal disposable income (000s €) 2017	2030		136	142	6
	2050		240	266	25
Fiscal balance (% GDP)	2030		0.91	1.23	0.31
	2050		1.78	3.06	1.28
Replacement rate (%)	2030		45.85	48.89	3.04
	2050		26.48	33.20	6.72
Average total pensions (€) 2017	2030	15,152	16,506	22,771	6,265
	2050	15,410	19,509	47,018	27,509

Source: Chistodoulakis, Nektarios, and Theocharis 2018, 96.

Note: ¹Contributions are projected to fall to 12% gradually.

This radical proposal would have positive implications in five directions:

- *Pension protection.* A young contributor can be assured that 16 percent of contributions will lead to replacement of final salary exceeding 50 percent. If she contributes an additional 4 percent to an occupational fund, her replacement rate could reach 75 percent.
- *Viable state funding.* The new system has zero state subsidies. Extra finance is necessary for the transition period for older workers and pensioners only and will be provided in a transparent manner; the amounts are no larger than the burdens projected for the current system.
- *Aid to national debt restructuring.* The implicit debt due to pensions stops growing. The assurance and transparency will improve Greece's credit rating in financial

markets. As new system reserves accumulate, Greece will find it easier to shift the composition of debt from external to internal.

- *New attitudes to saving that promote generational solidarity.* The immediate reduction of contributions should free funds so that households and businesses can pay off part of their outstanding debts. Reciprocity could prove to be an incentive for saving.
- *An impetus for growth.* Halving social insurance contributions promotes competitiveness, improves work incentives, and helps saving. Success will be rewarded by growing pension reserves, but possibly also by the return of the new diaspora of young qualified people who left the country after 2010.

6. Conclusions

Greece's economic performance and troubles since 2010 are often compared to a tragedy. This comparison is more apt than many realize. Aristotle, analyzing classical tragedies in his *Poetics*, posited that the tragic hero goes through three stages: Hubris, thinking he can transcend rules laid by gods; this leads to Ate, a state of blindness to the impending catastrophe; and finally Nemesis, the punishment due to presumption.

This paper's overview of pension reform would not surprise Aristotle. Greek governments ignored repeated warnings that aging necessitated restructuring pensions (Hubris). They kept postponing reform and invented novel ways to increase spending (Ate). When bankruptcy arrived, the people worst affected were those who had secured the most generous promises (Nemesis), bringing down the economy with them.

Greek tragedies have universal appeal, as people recognize themselves in the tragic hero. In a similar way, the troubles of Greek pensions can be a type of warning of what lies ahead of any government that thinks that pension reform can wait indefinitely.

If pensions were responsible for this deep crisis, it follows that no exit will be viable if those same pensions continue on unchanged. This paper's proposal takes the dramatic challenge seriously: pensions, hitherto only renewing problems, must be used to provide solutions.

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