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ΕΚΔΟΣΕΙΣ ΔΙΟΝΙΚΟΣ

**Implementing "Automatic Pilots" for Greek pension reform. Managing the pension crisis against social insurance values**

*Vagelis Koumarianos*

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# Implementing “Automatic Pilots” for Greek pension reform. Managing the pension crisis against social insurance values

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## Εφαρμόζοντας "αυτόματους πιλότους" στην ελληνική συνταξιοδοτική μεταρρύθμιση. Η διαχείριση της συνταξιοδοτικής κρίσης εις βάρος των αρχών της κοινωνικής ασφάλισης

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### ABSTRACT

Automatic Adjustment Mechanisms have increasingly been seen as both a way in which to depoliticize unpopular pension cuts and as a mechanism to restore social insurance principles, such as generational equity and actuarial fairness in the Greek pension system. An overview of the features of AAMs for main and auxiliary pensions in Greece is followed by an analysis of their implementation in the decade 2010-2020. It is shown that the attempt at the sudden imposition of an AAM during a period of severe economic crisis undermines and prevents the functioning of AAMs.

**KEY WORDS:** Automatic adjustment mechanisms, actuarial fairness, budgetary discipline, Pension reform

### ΠΕΡΙΛΗΨΗ

Οι Μηχανισμοί Αυτόματης Προσαρμογής αντιμετωπίζονται σε αυξανόμενο βαθμό ως μέσο αποπολιτικοποίησης των αντιδημοφιλών περικοπών συντάξεων και ως μηχανισμό αποκατάστασης των αρχών της διαγενεακής και αναλογιστικής δικαιοσύνης στο ελληνικό σύστημα κοινωνικής ασφάλισης. ύστερα από μία επισκόπηση των Μ.Α.Π. στις κύριες και επικουρικές συντάξεις στην Ελλάδα, αναλύεται η εφαρμογή τους κατά την δεκαετία 2010-2020. Αναδεικνύεται ότι η απόπειρα ξαφνικής επιβολής Μ.Α.Π. κατά τη διάρκεια μίας περιόδου οξείας οικονομικής κρίσης δεν επιτρέπει τη λειτουργία τους.

**ΛΕΞΕΙΣ-ΚΛΕΙΔΙΑ:** Μηχανισμοί αυτόματης προσαρμογής, αναλογιστική δικαιοσύνη, δημοσιονομική πειθαρχία, συνταξιοδοτική μεταρρύθμιση

## 1. Introduction

Since the 2000s, Automatic Adjustment Mechanisms (AAMs) have increasingly been seen as both a way in which to secure the costs of demographic ageing, budgetary discipline, actuarial fairness and intergenerational equality, providing a new basis of legitimization of social security reforms and as a mechanism to manage smoothly the need for unpopular reforms, through de-politicization (Queisser & Whitehouse, 2006; Sakamoto, 2013). They stem from a tradition of established automatic adjustments that initially protected the purchasing power of pensions (Weaver, 1988; Fernandez, 2012) but which are now used to secure the financial sustainability of social security institutions as well (Capretta, 2007, Hohnerlein, 2019).

AAMs are being promoted to pension systems throughout the world as “best practices” (Holzmann et al., 2013). Such automatic mechanisms accompany the reconfiguration of public pension protection. As such, the introduction of AAMs depends upon the broader direction taken by reforms with a parametric or even a structural nature (Palier, 2005). The international scholarship on the subject has pointed to the advantages and disadvantages of AAMs – depending on their individual characteristics – in comparison to the ad hoc political initiatives undertaken to reform pension systems (Börsch-Supan et al., 2003; Sakamoto, 2008; OECD, 2012).

The introduction of AAMs in 2010 was part of a broader reform of the country's pension system. During the decade 2010-2020, a period during which the pension system in Greece was struck by the severe financial crisis, the labor market crisis and the fiscal crisis of the Greek state and the policies of internal devaluation (Sakellaropoulos, 2019).

## 2. The adoption of Automatic Adjustment Mechanisms

As a rule, governments are very reluctant to reform pension systems, given the great political cost this involves (Gannon et al., 2014). The political controversy that is generated very often leads to serious political and social disagreement, even conflict (Marier, 2008; Weaver & Willen, 2014; Wisensale, 2013). For this reason, governments do not often undertake such initiatives, preferring to defer any measures that will ensure the sustainability of pension systems. As a consequence, action is taken only once the sustainability of the system has reached a critical point (Blanchet & Legros, 2002). As Turner notes, ad hoc pension reforms “have a high degree of political risk because their timing and magnitude are unknown” (Turner, 2009). In order to avoid such political cost or ineffective political handling, governments have adopted AAMs in order to depoliticize the decision to reform (Vording & Goudswaard, 1997; Gannon & al., 2014).

The analysis of AAMs in the international scholarly literature since 2000 (Bosworth & Weaver, 2011; Gannon et al., 2014; OECD, 2012) suggests that the direction of future adjustments is prescribed in such a way that the manner of adjustment can be foreseen. Their triggering depends upon a variety of quantifiable measures in the form of “governance by numbers” (Supiot, 2015). AAMs ensure greater transparency and predictability in the development of pension plans. At the same time, however, the right to a pension, its level and the factors that determine eligibility become the key factors of adjustment. A drop in GDP, an increase in life expectancy or in prices, a fall in overall income or a rise in expenditure ultimately leads to a predefined adaptation of various pension protection parameters (Konberg et al., 2006). Parametric changes are adjusted over time without any further legislation being necessary, in line with changes in real or projected economic or social indicators.

Automatic adjustments embody social security principles and values, adapting public pension systems to 21st century challenges. With AAMs, institutional parameters are adjusted according to predetermined rules and a predetermined procedure that is triggered in response to quantified indicators. Otherwise, the changes are seen as isolated and ad hoc reforms of a political nature that the government has deliberately selected and for which reason they tend to aim at avoiding political costs (Bosworth & Weaver, 2011).

AAMs clarify the direction of the changes by predetermining the reform decision, thus “locking in” the political decision which might otherwise be avoided due to its unpredictable character. The AAM can therefore be understood as an instrument with which to depoliticize

the management of the fiscal sustainability of unfunded Pay-As-You-Go public pension plans. This gives the decision to adjust a technical nature, by making apparent the need for certain measurable changes that will affect the accounting balance of the pension system without the accompanying need for a political judgment (Anderson, 2005) that is regularly accompanied by political controversy and dispute as to whether this adjustment is suitable, necessary or unavoidable. AAMs are therefore essential when “routinizing decision-making” (Korpi, 2001). Adopting these kinds of mechanisms also provides an element of social fairness, by ensuring a stable relationship of actuarial equity for the burden of contributions across generations (D’Addio & Whitehouse, 2012).

Automatic adjustments may be directly linked to income, benefits and the retirement age. They may respond to adjustments to the level of income, an increase in the salary on which the contribution is paid, an increase in the rate of contribution, or increases in the taxation of social security benefits. As for benefits, there may be adjustments to the level of these benefits and one option could be an automatic change in their level. By introducing adjustments as to how benefits are calculated, in cases involving the cost of living, an automatic mechanism may be applied either to all pensioners or only to future pensioners or to a subgroup of pensioners. Changing the retirement age is another way of adjusting the levels of benefits.

Research into AAMs has focused on their adoption and implementation rather than on their resilience. Despite this, they have not quite succeeded in “lashing politicians to the mast” of automatic cutbacks (Weaver, 2016) and building a system bound to last “until the next ice age” (Lundberg, 2009). According to Weaver’s (2016) categorization, there are four modifications to AAMs that one can consider: abolition, weakening, strengthening, and fine-tuning. The most obvious change to the parameters of an AAM is its weakening because of the changes that are continuously made to it and in such a way as to neutralize its effects. Weakening can occur because of the time threshold on which sustainability projections are made. These adjustments may also impact the end result: a reduction in pension taxes, for example, can mean that the net pension remains the same even though the gross pension has been cut (Sundén, 2009). Implementation of AAMs may temporarily be suspended or their effects delayed for an unspecified or specified period. An economic recession may result in an AAM being weakened in order to avoid the immediate political losses from its triggering. Consequently, an economic crisis can lead to a financial crisis, such as a reduction in payments to a pension system, which poses a challenge for the AAM that has already been implemented (Weaver, 2016).

Within this context, the mechanisms that are being introduced in Greece, their purpose and the application problems will be examined.

### **3. The values and orientations of Social security reforms in Greece and the role of AAMs**

**T**he extensive reforms undertaken in the period 2010-2020 have not been limited to parametric reforms but they also contribute to the regulatory reframing of social security in Greece towards a multi-pillar model (Sakellariopoulos, 2012). Since 2010, the Greek pension system has been undergoing a structural redesign, aiming at the gradual adoption of a new social insurance system, with fundamentally different rules, a new balance between rights and obligations, a new architecture for the pension system and new principles for legitimization and justice. The Greek

public debt crisis has been the catalyst for overcoming social and political resistance (Stergiou, 2015) and facilitated a radicalization of the reforms that had begun in the 1990s (Venieris, 2013).

The restructuring of the Greek pension system in the period 2010-2020 took place on multiple pension policy levels. The first reform level consisted of immediate and drastic benefit cuts of a parametric character (Palier, 2005) that aimed at fixing the urgent sovereign debt crisis. The parametric changes in 2010-2020 consisted of freezing pension indexation and reducing pensions, raising the retirement age and the number of required contribution years, reducing replacement rates and introducing early retirement penalties. The reforms of 2010, of 2012 and of 2015 raised the retirement age for all insured persons, men and women, to 67 or 62 for those with 40 years of insurance. The adequacy of public pensions has been significantly reduced by the extension of the insurance period for a full pension from 35 to 40 years, while for the same pension category the statutory age has shifted from 58 to 62 years of age. The accumulation of pension reductions since 2010 has led to a medium-term reduction in pensions by 40%, at approximately 20-25% for low-income pensioners and up to 50% for higher pensions (Nektarios et al, 2018).

The second level of pension reforms aims at the restructuring of the system on the basis of intergenerational actuarial fairness. An important role in the redesigning of the pension system is played by both the structural reforms to public pensions and the introduction of AAMs. The full reform is based upon the intergenerational and intragenerational fairness of the pension system (Report, 2015). The backbone of the restructuring of public pensions in Greece lies in the reestablishment of the contributory principle. The contributory part is designed to function linking tightly contributions and pensions. At the same time, since 2012 auxiliary pensions, that is supplementary public pensions of the 1st pillar and under state guarantee, have operated on the basis of notional defined contributions and using computable individual accounts to calculate the pension as an annuity.

**Table 1. Comparison of the contributory principle in the 1st pillar. Main and auxiliary pensions**

Comparison	Main Pension	Auxiliary Pension
Pension part	Contributory part	Total Auxiliary
Link between contributions/benefits	Close link between contributions/benefits	Equal value of pension capital with future payments (annuity)
Vertical redistribution mechanism	National Pension mechanism	No prospect of vertical redistribution
Base salary for pensionable earnings	Entire working life	Entire working life
Calculation of replacement rate	DC approach but without the same contribution performance within the year	DC
Goal of pension protection	Closer to working life earnings	Closer to working life earnings
Individualized pension capital	No individual account	Notional Individual account
Protection from increase in life expectancy	Link with life expectancy through external AAMs	Mechanism incorporated into the calculation of the notional annuity

Additionally, a new architecture was introduced within the first public pensions pillar. The existing main and auxiliary pensions have been transformed to create a distinction between contributory pensions that are “as close as possible to the level of a worker’s income throughout his or her working life” (Law 4387, article 2) and non-contributory (national) retirement benefits. In terms of the institutional distinction between main and auxiliary pensions, the 2010-2016 reforms (inspired by the different pension functions in multi-pillar pension systems) established an internal distinction of roles, which distinguishes between the contributory part of pensions and the non-contributory part. This has been achieved through the compartmentalization of the main pension into two different segments, the national (solidarity) pension and the contributive part. The social solidarity functions are clearly restricted to a so-called “national pension” that is state financed and intended to alleviate pensioner poverty. The system is made more comprehensible and fully transparent, while the close and transparent link between contributions and benefits is based on the fairness of actuarial equality (Report, 2015). Establishing actuarially fair rules in public pensions is not fully accomplished yet (Leventi & Matsaganis, 2020).

In order to ease political opposition and reduce public protests as well as to ensure its acceptance, the reforms to the new Greek pension system have attempted to depoliticize the decisions regarding public pensions. In the explanatory report of 2010, it is stated that “prescribing the level of the contributory pension ceases hereafter to be an object of government retirement policy and is prescribed in an objective way” and through “a new regime [of Greek public pensions] workers become guardians and co-regulators of the level of their own pension” (Explanatory Report, Law 3863/2010).

The financial viability of the new structural and parametric reforms has been guaranteed since the 2010 reform by Automatic Adjustment Mechanisms (AAMs) (OECD, 2012). All AAMs were included in the MOUs agreed with the troika, under the close supervision of IMF technical support. These mechanisms are indexed to central features of the economy such as GDP growth and demographic trends, so as to avoid any future deficits and to ensure the core principles established with the structural reforms.

## **4. Design and function of AAMs in the Greek pension system, 2010-2020**

**F**or the first time in the Greek social insurance system, with Article 11 of Law 3863/2010 a series of AAMs was foreseen. Different AAMs in Greece aim to face different risks. Statutory retirement age is automatically adjusted to changes in life expectancy. Since 2012, auxiliary pensions operate according to a NDC system assuring actuarial fairness between generations, whereas main pensions are linked to evolution of GDP/CPI restraining pension expenditure growth. Budgetary restrictions are set by a “break” in public pension expenditure (main and auxiliary) connected to the projected evolution of GDP and by an automatic balance mechanism on auxiliary pensions.

These mechanisms were intended as an integral part of the continuous reform of the system, in particular the second level of establishing long-term mechanisms for actuarial fairness. The institutional framework of the AAMs was completed with the 2012 Reform, which reformed the regime for auxiliary pensions, established defined contributions on the basis of notional capitalization and introduced the so-called “zero deficit clause”. As a result, there are now four clauses

in Greek laws pertaining to automatic mechanisms intended to ensure the economic balance of the pension system in Greece. The 2016 reform kept intact the principles of AAMs for main pensions and the integrated AAMs for auxiliary pensions but amended the zero-deficit clause and replaced it with a “sustainability clause”. Since 2010 and until today, modifications to the social insurance system have been made gradually and with, as a rule, automatic adjustments to the benefits of pensioners. An exception to this in this case is the new sustainability clause for auxiliary pensions, which imposes a temporary rise in contributions in order to avoid a reduction in auxiliary pensions in subsequent years.

AAMs indicate also a guide to exiting the crisis. Mitropoulos points to this logic as the principle by which the social security system can be rescued “from within” (Mitropoulos, 2018). This in practice indicates a long-term plan to address future challenges by reducing pension costs. Stergiou sees the guiding idea behind these mechanisms in the introduction of the financial self-regulation of the system and its “immunization” from politics, because “according to the originators of these mechanisms, the imposition of sacrifices can often not be carried out by politicians” (Stergiou, 2016).

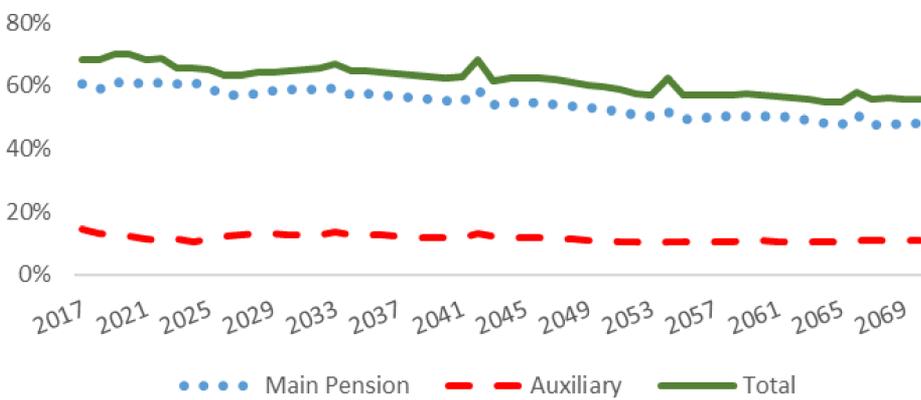
It should be noted that in most countries such mechanisms were introduced after extensive public and democratic debate and they were the result of a broad political consensus (Turner, 2009; Konberg et al., 2006). In contrast, in Greece the policy to ensure the sustainability of the pension system through AAMs was adopted without any prior public debate. The adoption of AAMs and their specific function was made in 2010 without them having first been the subject of a public dialogue and of dispute or consensus and no mention of AAMs is made in the Report on the 2010 reform (Stergiou & Sakellaropoulos, 2010). Right from the start, AAMs in the Greek pension system have not been part of a wide social dialogue, they have lacked the necessary legitimization, and the wider public is not even aware of their existence or their precise function. Although in principle accepted by consecutive governments, no one claims for the political ownership of Greek pension AAMs, since they are the result of the imposed “Troika” agenda under the rules of EU governance and surveillance through MoUs (Clarke & Newman, 2011; Petmesidou & Glatzer, 2015).

### *The automatic mechanism linking retirement age with increases in life expectancy*

Since the 2010 reform, the retirement age was supposed to adjust in line with a rise in life expectancy, based on data from the Hellenic Statistical Authority (ELSTAT) and Eurostat, so as to be implemented for the first time in 2021. As regards the AAM that relates to changes in statutory retirement age, the law of 2010 states that “the pension ages of all insured persons are determined according to changes in the life expectancy of the country’s population, with 65 years as the reference age. This stipulation will come into force on January 1, 2021 and during its first implementation, the change in the decade from 2010 to 2020 is to be taken into account. From January 1, 2024, the above thresholds will be reassessed every three years. The adjustment to pension age thresholds is to be implemented by a joint decision of the Minister of Finance and the Minister of Labor and Social Affairs, which will be issued in the final year of each period on the basis of indicators prescribed by ELSTAT and Eurostat and which concern the next period” (Article 11, par. 3 of Law 3863/2010). This position does not allow for a political assessment of the rise in life expectancy and its potential consequences for the economy or society and is to be issued in the form of a joint ministerial decision by the Minister of Finance and the Minister of Labour and Social Affairs.

This kind of AAM is found in most countries with AAMs (Turner, 2009). The increase in life expectancy, to the extent that this can be observed, is a financial cost for the social security system and for this reason a higher burden is foreseen in advance, burdening future pensioners. This will require them to work longer and wait longer to reach retirement age and they will certainly receive a smaller pension than the one they anticipated before the triggering of the mechanism. Economic, demographic and social projections are not optimistic and forecast a gradual fall in replacement rates.

**Graph 1. Projection of replacement rates of old-age pensions in Greece, 2017-2070**



Source: NAA, 2019

The Greek life expectancy AAM foresees an adjustment that is highly automatic in that the decree authorizes the competent ministers to issue a joint ministerial decision implementing a predefined adjustment formula. Moreover, this mechanism is triggered on the basis of real data, not simply on projections in life expectancy. The European Commission has shown that life expectancy in Greece increased by 10 years between 1960 and 2015 and is expected to increase by a further 6.4 years between 2016 and 2070 (European Commission, 2017). From the Actuarial Study of 2018 (NAA, 2019) it is estimated that, in line with actuarial projections, in 2040 the country's population will have fallen to approximately 9.4 million from 11.75 million in 2016. Men's life expectancy will be 82.6 years (in contrast with 78.8 years today) and that of women will be 88.2 years (as opposed to 83.9 today).

It is thus anticipated that from 2021 there will be an automatic rise in pension ages with the triggering of the AAM, in line with the effective increase in life expectancy, as this will be reported on by ELSTAT in late 2020. The 2020 projections indicate that workers are expected to work and contribute more, retire later (NAA, 2020). As a result, the projections of the Greek National Actuarial Authority (NAA, 2019) estimate a continued rise in effective retirement age for men (from 63 years in 2020 to 67,8 years in 2070) and women (from 62,85 years in 2020 to 68,3 years in 2070) and a continued decrease in time spent at retirement for men (from 32,3 years in

2017 to 29,8 in 2070) and for women (from 35,8 years in 2017 to 32,1 in 2070). Labour force participation rate in the age group of 55- 64 is designed to rise from 45,2% in 2016 to 75,3% in 2060 and in the age group of 65-74 participation rates are projected to rise from 5,4% in 2016 to 33,6% in 2070 (NAA, 2019).

In practice, however, the link between retirement age and life expectancy could not be triggered as planned. Although the relevant AAM was adopted in 2010 and its activation was planned for 2021, the retirement age was significantly increased in 2012 and 2015 without reference to any real, projected, planned or unforeseeable increase in life expectancy. The retraction of the legislative reforms, very often by the same government, in the period under examination reveals why these reforms cannot work in truly urgent and critical conditions.

The increase in the retirement age, deviating from the rule of this AAM, can be explained by the pressing need to make immediate savings in public funds. These increases, however, undermined the apparent credibility of the system that AAMs achieve. The predictability of these changes has already been made devoid of purpose but, most importantly, the legitimizing principle of the mechanism has been irreparably damaged. The link between age threshold and life expectancy is based on the notion of intergenerational equal contribution and the close link between individual contributions and pensions. The constant increase in the age limit (in combination with an increase in period of insurance), however, sacrifices any concept of legitimization on the altar of immediate budgetary savings.

### *The adjustment mechanism for main pensions in line with developments in Gross Domestic Product and the Consumer Price Index*

The 2010 reform introduced an AAM that links adjustments to main pensions with economic developments and changes in the cost of living. In particular, it is foreseen that from January 2016 pensions are to be adjusted each year with a joint decision of the Minister of Finance and the Minister of Labor and Social Affairs on the basis of a coefficient calculated at 50% of the change in GDP and 50% of the change in the Consumer Price Index for the previous year and which does not exceed the annual change in the Consumer Price Index.

This mechanism means that the total pension costs would be adjusted to the new average of the increase in GDP and the CPI, which cannot exceed the increase in the latter. As a result, the purchasing power of pensions will remain stable when GDP is greater than inflation, but will fall if the opposite were the case (Matsanganis, 2011). This will mean that as long as economic growth is higher than salaries, the purchasing power of pensions is secure, but if inflation is greater than growth then the purchasing power of pensions falls. The underlying rationale is to link indexation to financial sustainability considerations (Hohnerlein, 2019). In practice, with the deflationary policy that has been pursued since Greece joined the European Monetary Union in 2001, pensions have to boost anemic markets in times of recession.

Based on the decrees that govern it, this mechanism is annually triggered on the basis of real data and not estimates of the future development of GDP or the CPI. Superficially, it resembles Automatic Wage Indexation, to the extent that this was implemented in Greece, but in a way that is linked to fluctuations in GDP, meaning that the preservation of purchasing power is always subject to the state of the economy. When the economy is booming the adjustment to pensions is limited by the threshold placed on the increase to the CPI. The link to GDP and the CPI thus

creates a double restriction, with a limit on the level of the rise but also with a reduction in pensions. This principle, although it has been adopted, remains unimplemented a decade after it was legislated for. This adjustment was originally planned to operate from 2015, but the date of its implementation was moved to the 2016 Reform. The increase should not exceed the annual change in the CPI. This AAM was not implemented in 2017 and was instead postponed to 2023.

### *The Automatic Balancing Mechanism in the Notional Defined Contributions model of auxiliary pensions*

The 2010-2012-2016 reforms established the principle of the neutrality of the auxiliary pensions budget which meant that the budget of the Unified Auxiliary Social Security and Lump Sum Benefits Fund (ETEAEF) is not funded in advance, nor the state retrospectively guarantees to cover the ETEAEF annual deficits. In order to secure auxiliary pensions, the new insurance system foresees an AAM integrated in the calculation of pensions in combination with an Automatic Balancing Mechanism (ABM). The AAM integrated in pension calculation, following the Notional Defined Contributions (NDC) model, incorporates an increase in life expectancy and "actuarial justice", while the ABM is triggered if the first AAM is not sufficient to ensure a balanced budget. The Unified Auxiliary Insurance Fund (EAEA, before the creation of ETEAEF), as this is defined in its Regulations applies to those who were insured for the first time from January 2001 on the basis of a PAYG System of Defined Contributions with Notional Capitalization.

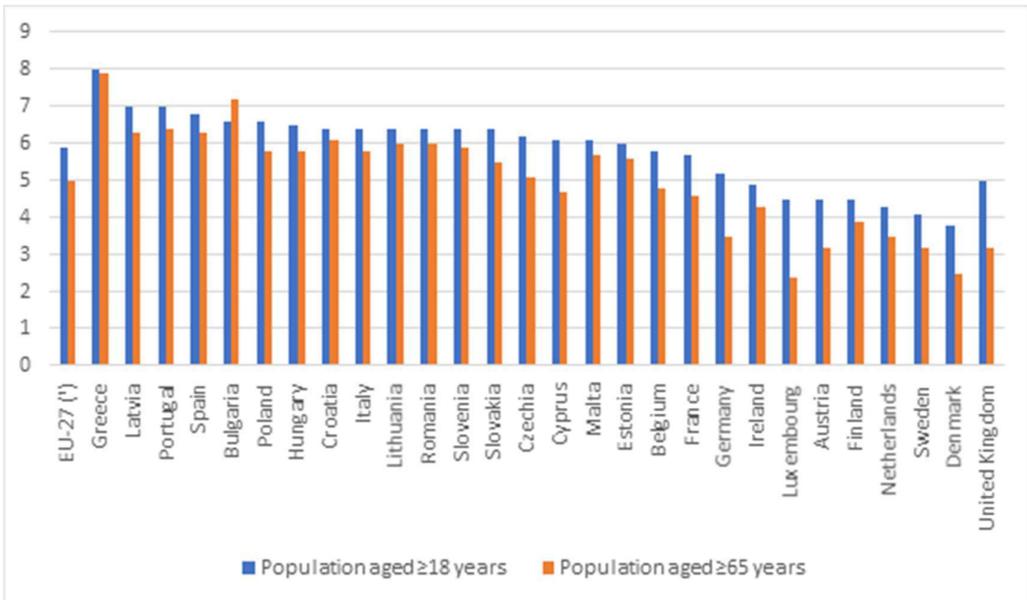
In order to prevent auxiliary pensions from posing a budgetary risk, the zero-deficit clause was stipulated in 2012, as an Automatic Balance Mechanism (ABM). The adjustment of the auxiliary pension was to be implemented after the application of a sustainability coefficient, adjusted on an annual basis according to contributions paid, with a decision of the Minister of Labor and following a proposal by the National Actuarial Authority. In particular, with the creation of the EAEA in 2012, the auxiliary pensions would become a continuously changing amount that depends on the amount of the notional pension capital, that is total contributions, changes in life expectancy, the option of transferring to a widow/widower, fluctuations in GDP and the sustainability factor.

The zero-deficit clause for auxiliary pensions was based on the principle that the sustainability problems of the insurance funds are borne by the insured on an annual basis so as to avoid deficits and burdening the state budget (Angelopoulou, 2016). This method for balancing auxiliary pensions budget had two goals: (a) to establish a pension with an actuarial equal contribution; and (b) to remove the state guarantee for the pension level (Zambelis, 2013). In practice, these two goals cancel each other out, especially given the continuing crisis in the Greek social insurance system. State funding was excluded in advance, without taking into account pension adequacy or other factors and the state is not obliged to take over social security precludes an automatic burden on pensioners for the sake of ensuring sustainability anymore. According to the Plenary Decision of the Council of State, was a violation of the state's obligation to guarantee the provision of social security, and implied the suspension of the logic of individual contribution upon which the model of notional capitalization was based (Decision 2287/2015).

The auxiliary pension is theoretically strictly calculated on the basis of the actuarial equity between pensions and contributions and this pension was to be adjusted annually in line with changes in the total contributions, namely the development of employment and wages. This tension between individual contributions and the withdrawal of the state guarantee is an issue

that can arise in the NDC model that has an integrated Automatic Balancing Mechanism (ABM) (Brooks & Weaver, 2003; Gannon et al, 2014). The Greek application of the model diverges from the general characteristics of such a system (Börsch-Supan, 2003; Palmer, 2003) in that there is no reserve fund which in times of crisis can absorb budgetary shocks. In all cases, the integration of an ABM into a pension plan can function effectively in times of unimpeded economic growth. Otherwise, mistrust and lack of confidence is spread along all generations, cultivating a climate that does not favor the implementation of pension reforms.

**Graph 2: Concern over not having sufficient income in old-age, by age class, (average, scale of 1-10)**



Source: Eurostat, 2016

Consequently, the 2012 reform of auxiliary pensions, which foresaw an integrated AAM (NDC) in combination with an ABM, could have provided an adequately functional pension system that would operate within a stabilized economy and which would not be continuously in deficit, because its annual income would as a rule cover annual payments, and it would be suitably equipped with a reserve fund to cover unforeseen funding shortfalls.

The reform of 2016, which replaced the zero-deficit clause, foresees that the ABM will automatically be triggered if there are shortfalls, but this will prevent any readjustment to pensions. The adjustment to the auxiliary pension is now based on an ABM that excludes any adjustments to the auxiliary pension during the period of increased contributions, namely 2017-2022. In the event of a shortfall, despite increased contributions, the fund's assets will be used, instead of an automatic cutback to benefits.

### *The ceiling on pension expenditure in correlation with Gross Domestic Product*

As part of the fiscal adjustment of the Greek State, a “golden rule” limit to public pensions expenditure was established. Public pension expenditure is believed to be the largest reason for the rise in public debt and annual public deficits (Tinios, 2010). The institutional limits to total public pensions expenditure ensure that the “hand-break” of the Stability Pact can kick in.

As with all forms of AAMs, the triggering of the cap on public pensions expenditure is based on the development (projected development, not real data) of quantitatively countable measures. From January 2017 and every three years, the National Actuarial Authority (NAA) has been obliged to produce actuarial studies, which are ratified by the Economic Policy Committee of the European Union, to enable the continuous monitoring of changes in national pension expenditure. These studies provide economic data on the state support for pensions expenditure and in general monitor the main factors that impact upon the social insurance system. Finally, the anticipated special law aims at setting long-term sustainable pension levels. For this reason, a limit has been placed on expenditure on national, contributory and auxiliary pensions, projected up to the year 2060, with a maximum rise of 2.5% of GDP and with 2009 as the reference year, that is 16% of GDP.

The clause establishing a limit on public pensions expenditure at 16% of GDP means that, even though estimates suggest that by 2040 the number of pensioners will have risen by 70% (OECD, 2019), “in the present and the future, the level of the social efficacy of social insurance will be subject to the goals and substance of fiscal discipline” (Robolis, 2012). This subjection to the needs of the public debt, through successive legislative initiatives, has resulted in a “mechanism for adapting to the orientations and policies of internal devaluation” (Robolis, 2012). The pension expenditure ceiling is a fixed target that is regularly monitored by the Ministry of Labor and the National Actuarial Authority, not only in order to establish that it is being complied with but to ensure that projected pension costs by 2060 are to be kept in check as a precaution. Therefore, this AAM is triggered in advance, relying on projections of pension expenditure and economic growth.

The fiscal golden rule for limiting public pensions expenditure to 16% of GDP is confirmed by linking social insurance with economic productivity and the competitiveness of the economy. On this expenditure ceiling, Stergiou notes the tendency to “seal off the state budget in the face of the escalating social security question”, pointing to the depoliticization of policy responses (Stergiou, 2016). Such an institutional limit transfers the risk of unsustainable public budgets to the individuals’ risk of inadequate pensions. In the event of an economic downturn, pension expenditure is set to fall. This audit is to be repeated every three years, will be carried out by the National Actuarial Authority, as part of the continuous monitoring of the growth of national pension expenditure. Contrary to all other AAMs of the greek pension system, the golden rule on public pensions is constantly reaffirmed during a decade of crisis. All actuarial studies accompanying pension reforms examine whether the proposed measures are liable for infractions of this golden rule and all reformers accepted the necessity of the public expenditure ceiling.

## 5. Conclusion

**A** AMs are designed so as to function effectively during periods of economic stability, not during a recession or economic crisis. Actuarial equity, neutrality and fairness are legitimized, reforms are depoliticized, public budgets are stabilized, workers are motivated to stay longer in the labor market to assure an adequate pension. During a recession or an economic crisis, AAMs are financially insufficient and politically unfit to manage the challenges to a public PAYG pension system.

In Greece, during the period 2010-2020, the choice was made in the midst of an economic and financial crisis to implement a combination of AAMs and an ABM, which resulted in the continuous triggering of automatic mechanisms. The auxiliary pension was diminished year after year and the effective guarantee provided by the state (safeguarding extrinsic factors for the sustainability of the social security system) as well as the formal guarantee of the state to secure the deficits of the Auxiliary Fund were abolished.

The life expectancy AAM was also a relative failure before it had even been implemented. This was legislated for in 2010 and it had already been reversed, in 2012 and 2015. It is expected that it will be triggered in 2021 so as to absorb the increase in life expectancy and, if implemented, will be added to the ad hoc increases in retirement age already being made with derogations from the mechanism. Similarly, the formula and procedure for adjusting main pensions on the basis of GDP and CPI have not been discarded but have been postponed by successive amendments, which defer the implementation of this regulation for the future, when, in other words, it is envisaged or hoped that normality will be restored to some degree. In contrast with these three AAMs, the "fiscal golden rule of pensions" is the only one that has been politically and legally binding.

**Table 2. Introduction and resilience of AAMs in Greece**

Category of Automatic Adjustment Mechanism	Introduction	Deferral	Weakening	Abolition	Implementation
Main pensions and evolution of GDP/ CPI	L.3863/2010	L.4024/2011; L.4472/2017; L.4583/2018			
Automatic index for life expectancy	L.3863/2010		L.4093/2012; L.4336/2015		
Ceiling of 16% of GDP	L.3863/2010				L.4336/2015; L.4387/2016; L.4670/2020
Zero deficit clause for auxiliary pensions (ABM)	L.4052/2012			L.4387/2016	

Source: Author

Consequently, the introduction of one or a combination of AAMs may not be a simple process, while even more complex is maintaining an AAM and ensuring its proper functioning. The eventual success or failure in the application of an AAM over time can be explained through a number of factors such as the economic conjuncture, political hegemony or institutional framework. Adopting a social security reform becomes the beginning and not the end of a reform (Schoyen & Stamati, 2013). The attempt at the sudden imposition of an AAM during a period of severe economic crisis is a recipe for failure, of which the Greek social security system during the crisis is one typical example. In particular, it can be seen that in periods of the urgent crisis management of a public pension system the priorities of the first level of immediate interventions undermine and prevent the functioning of AAMs. A tension is created among measures of an urgent fiscal nature and methods of long-term, sustainable governance. AAMs are designed to operate in normal economic and fiscal conditions and have a low resilience to crises, as seen in the case of Greece. The first decade of their implementation saw the logic upon which they are based being completely overturned; in other words, they were implemented case-by-case and not automatically triggered. The recent assessment of the National Actuarial Authority (NAA, 2020) has already been overtaken by negative economic forecasts as a result of the measures taken to confront the public health crisis in Greece from the COVID-19 epidemic and it remains to be seen in the period that follows if the fiscal golden rule will be triggered for public pensions and to what extent.

Examining the implementation of AAMs in Greece during a decade of financial crisis, it is worth stating that the underlying principles of AAMs related to demographic trends and actuarial fairness are clearly violated deferring, weakening or postponing their triggering. Unlike the rest AAMs, the expenditure ceiling on public pensions remains so far the only AAM in full operation, emphasising the prevalence of budgetary discipline over pension reform values.

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