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"An insight look on the Social Security reforms"

WITH THE GROUP FUNDING RATIO INDEX

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INTRODUCTION

OUR DECISION TO compose this report started from the anguish for our role as Actuaries, on the difficult task of the country to overcome the problems revealed by the financial crisis. Maybe one of the biggest thorns was social security treatment. The pathogenesis and the distortion were already known from years ago, but no Government wanted to drink the bitter remedy of political cost, leaving the system in an uncontrollable way towards the cliff of deficits. From this point of view the fact that the European Union was forced to intervene- however not because they were so much concerned about us, but due to their determination to protect the common currency - was positive. Ex member partners became our lenders today and the country entered into long-term supervision through memorandums of understanding. Member states lenders, who some of them were poorer than us, primarily are interested to return money deprived from their budgets to their citizens- lenders. So as expected their negotiating tactics were dominates by cash logic, not neglecting it in any phase of the negotiations, discussing everything else but giving away the loan to Greece. On the other hand, the Greek side was trying to soften the impact of the multifactor crisis, created by the restrictive policy dictated to us by the representatives of the lenders.

It is not the intention of this report to repeat the causes that brought us here. Our aim is to get straight to the point, which is to clarify our role as actuaries specialists on social security. Governments negotiate and ultimately reconcile at some point, which describes how they will be able to share the limited revenues of the system. The State, in its haste to close the various assessments, is obliged to take political decisions, without having the luxury of time. To the extent that government actuaries, in this case the National Actuarial Authority (NAA), the statutory insurance agent of the State, has prepared with clarity the impact of every policy decision, the Government is facilitated getting better and fairer decisions.

The actuarial science has the tools to present with clarity the situation that involves every policy decision. This obligation bounds all members of NAA, much more those who have dealt in particular with the setup of parameters produced by the measures on pensions. This work is complex and requires a collective effort and a considerable amount of time. It is not the intention of this report to analyse the activities required for the implementation of this plan, but the selective presentation of some specific numbers reveal hidden aspects indicative of the social security system and therefore please excuse the improper choice of the term "radioscopy." We have a duty to inform the Government, social security schemes’ managers, political and social institutions, the possibilities offered by our Toolkit, in order to create a future of continuous improvement of the Greek system of public pensions. This feature is particularly important, because any operation that does not necessarily imply economic burden may satisfy citizens if they find out the persistent concern of the State to restrict the effects of the inevitable reduction of pensions.

THE RECENT INSURANCE REFORM

All main and auxiliary pension funds were merged in a single social security institution (EFKA) by the REFORM of the PENSION SYSTEM by law 4387/2016, also uniform rules for all principal or supplementary pension funds were established. Since 2016, for both new and existing pensioners, the calculation of pensions is done uniformly. The difference, between the old formulae and the new one, remains as a "personal difference" for the pensioners' stock and might be cut gradually, if problems of sustainability of the system insist.

The recent reform was an important step in how contributory pensions are calculated (pensions financed through contributions), as they pertain to a common set of parameters such as, the career length, the retirement age, the wage bases of contributions and the proportionate percentage of contribution on the wage base for each insurance sector. The new pension formula, consists of two parts, A and B.

A. The "national pension," a fixed amount equal to €384 a month, for over 19 years' career. The "national pension" is based on the country specific "poverty threshold" for 2014, produced annually by the Greek and the European statistical authority and measures the risk of getting poor between the population. The rational of this kind of connection is that all pensioners, regardless of previous employment profile, will have to live in conditions above the poverty line.

B. The (so called) "reciprocity pension". The latter is calculated proportionally according to the percentage of contributions and years of insurance and it is the product of: (1) the average employee's pensionable salary, between 2002 and the last year of withdrawal from the labour market, valorised accordingly with the consumer price index. (2) the replacement ratio, in accordance to the length of careers and the percentage of contributions on salary.

However, because the system of main pensions remains distributive (PAYG) financial link between accumulated contributions and discounted pensions at retirement age is not directly provided. This happens because one of the principles that govern the PAYG is social solidarity, namely the redistribution from higher income earners to the lower income class, otherwise called as social justice. The system i.e. the main pensions must be structured in a way to prevent the undignified living, even when there are not enough contributions for specific insured people due to circumstances, or even bad personal choices. Solidarity towards the lower income strata means that those originally entitled to very small pensions according to the law or to their respective contributions, will eventually receive higher amounts. Normally the social policy is an obligation of the State, which must cover from the public budget the difference between the amount obtained by contributions (often referred to as organic amount) and the amount resulting from the poverty line. Because the country is virtually bankrupt and the insurance "bubble" popped first, due to the explosion of unemployment and the unofficial occupation, the State rolled over its social responsibility to the sturdiest pension funds. This means that part of the difference between the contributions and the threshold of poverty, will be covered by the budgets of special funds, “ETAA”, “TAPDEH”, “TAPOTE” and “Banks”. In this case, the social justice prevails over actuarial fairness.

In contrast, in the light of the perception of what is fair that considers that every 1 euro levy at the same time to be able to account for the same amount of pension at the same retirement age, when benefits significantly exceed the poverty threshold, the principle of actuarial fairness prevails over that of social solidarity. Actuarial fairness, for one person or for a group of people exists when accumulated-otherwise deposited, gathered or capitalized- contributions throughout the individual's or the groups’ working life form a capital amount which at the time of retirement will be sufficient to finance the pension for the whole retirement life.

THE GFR INDEX

The MEASURE of ACTUARIAL JUSTICE of MAIN pensions for groups of people, can be monitored through the “Group Funding Ratio” (GFR), we have worked out in Brussels in 2014, by a special working group in the Social Security Subcommittee. This indicator can provide special information to political leaders and social institutions of the EU Member States.

The GFR for the group, is the corresponding percentage rate of the fraction with numerator the current total value of all future pension payments (present value) of the average pension of the group, and denominator the value of all past contributions on average (accumulated value) at retirement age, calculated for a group of insured persons with similar characteristics, who belong for example in the same Fund and retire at the same year, as happens in this approach. Thus, the numerator is the present value of the average pension at the average retirement age. The denominator is derived from the average contribution during the average career. For an actuarial fair amount GFR shall be equal to 100%, which means that, with the assumptions considered for the group, the present value of pensions (the amount that would be equivalent to all the lifetime pension withdrawals in the form of a lump sum at retirement) is equal to the accumulated contributions of the group. Instead, the groups of policyholders with immediate retirement with GFR more than 100% have on average pension benefits financed from the society. GFR is less than 100% means that the amount of the pension shall be actuarially unfair, in the strict sense of the term, and that the specific group pays more to support other groups, for the sake of social solidarity. In accordance with this philosophy of pay-as-you-go basis, we expect that the GFR of lower income pensioners' groups to be higher than that of higher income pensioners' groups, even amounting above 100%, under certain circumstances. Still GFR with values above or below 100% remain an issue to be considered and justified, even within a PAYG system. To this end the accumulation of contributions throws light on this aspect, if we want to examine how much fair a pension system might be.

For new retirees of the year 2008, as presented in the Aging Working Group with the first study conducted in Greece in cooperation with the ILO, the GFR appeared outrageously high, with an average retirement age of 61, an average career length of 25 years and an average monthly pension of 1,246 €, more than two times the poverty threshold which was at the time €573.25. We have the impression that this phenomenon was even more pronounced for the year 2005, (greater GFR), where there were no pensions Report was tabled by the Greek State, and equal or slightly lower in 2002, when filed for the first time aging study, with the assistance of the British Government Actuaries. From 2008 till 2011, through pension age threshold reforms, a trend of increasing the career length had began being embedded without however succeeding in making people stay on average over the age of 62 in the labour market.

Table A : GFR for main pension funds years 2011 and 2014.

Fund to EFKA	GFR 2011	AVERAGE PENSION	AVERAGE RETIREMENT AGE	AVERAGE CAREER LENGTH	GFR 2014	AVERAGE PENSION	AVERAGE RETIREMENT AGE	AVERAGE CAREER LENGTH
OGA	268%	378	65	19	214%	474	68	24
IKA-ETAM	133%	882	61	27	141%	744	61	28
OAEE	83%	1224	65	32	54%	1012	69	32
PUBLIC SECTOR	186%	1225	56	31	148%	1189	58	32
ETAA	143%	1459	64	36	76%	1273	67	37
BANKS	97%	2282	57	31	77%	1386	57	34
TAPDEH	123%	2606	56	36	93%	1570	58	29
TAPOTE	99%	2031	56	31	86%	1570	57	34
WEIGHTED AVERAGE	**150%**	1082	60	30	**121%**	996	62	31
% DIFFERENCE	**-67%**	-11%			**-19%**	-8%		

- Source: author's Calculations based on Ageing Working Group Greek reports for 2009, 2012 and 2015.

Table A reveals that in 2011 only OAEE, Banks and TAPOTE were financed on average solely by contributions from insured persons and bear GFR slightly less than or almost equal to 100%. All remaining funds with GFR more than 100% were overfunded by taxpayers or by new retirees of the above three funds. The public sector Fund was also overfunded, with GFR at 186%. The GFR of OGA was 268% for 2011, and the average OGA pension was €378.1, below the poverty threshold of, € 598.17 in 2011. Next to a PAYG system, solidarity in some way "legitimize" this huge divergence of the indicator, without being considered too generous for OGA. Conversely, the average pension of the Public Sector is about twice the poverty threshold and even within the context of a PAYG system such deviation is not easily to be explained. Much more GFR over 100% is not justified for the TAPDEH with an average pension amounting to € 2,606 in 2011. High enough is the IKA – ETAM GFR moved to 133%. But IKA-ETAM, includes the majority of pensioners in the country where the average pension was lower than all the other funds, except OGA. A great mass of people had minimum pension levels and were supported by the social solidarity. The deviation of the indicator from 100% cannot be considered easily too generous and might be supported by the principle of solidarity. The table above shows that a soothing myth of lost contributions for most categories of pensioners (excluding OAEE, Banks and TAPOTE) has fallen and a bitter truth of negative redistribution was confirmed, which cannot be easily supported by any system's architecture neither the PAYG nor the funded. The average GFR in 2011 was 150% and the average main pension € 1,081.5, only two thirds of which was covered by contributions and the remaining one third was supplemented by the Public budget. So the system was to be actuarially fair, the average main pension amount should have been 1,082/1.5 = 721 Euros.

A different situation arose after the reforms of 2010. In 2014 Banks, TAPOTE, TAPDEH -former special funds- as well as the OAEE and the ETAA have been overloaded by pension costs of new retirees of other funds and existing retirees. The earlier privileged status for the TAPDEH in 2011 improved enough for the fairer, pushing yet still lower the GFR of other fairly financed funds (Banks and TAPOTE), which already bared GFR just under 100% from 2011. On the other hand, the OGA continued to be overfunded by 114% (214%-100%), although for the 2014 the average OGA pension rose above the threshold of poverty. In terms of capacity, this situation of overfunding would again be justified if all the pensions of OGA were amounting above the poverty threshold of € 384. With GFR over 100% remained the Public Sector and the IKA-ETAM funds. For the Public Sector such a reform was in a fairer direction, although its GFR remained quite over 100%, at 148%, without apparent reason, or a targeted approach. As far as the IKA-Etam concerns, the GFR rose (from 133% to 141%), if the extra funding for lowest pensions is considered it is not unfair, with the average pension falling by 15.63%. The overall GFR in 2011 decreased by 19%, to 121% and the average pension by 8%. The increase in the average retirement age by two years, from 60 to 62, between 2011 and 2014 had no corresponding effect on the duration of working life, which only increased by one year, from 30 to 31 years.

Table B below examines the impact of the pension reform in 2016 at groups of main funds of 2014 with a working assumption that in 2016 the funds carry exactly the same features as in 2014. So, the calculations are carried out with exactly the same salary, retirement age and career of 2014, since we have no clear picture yet via new items. The effects on the average GFR indicate that generally reforms still not picked up almost no care for the actuarial fairness, or otherwise for the return of contributions.

Table B : Effects on parameters of 2014 from the reform in 2016 for the years 2016 to 2019.

Fund to EFKA	GFR 2016	PENSION 2013 UNDER 2016 REFORMS AT 2016	GFR 2017	PENSION 2013 UNDER 2016 REFORMS AT 2017	GFR 2018	PENSION 2013 UNDER 2016 REFORMS AT 2018	GFR 2019	PENSION 2013 UNDER 2016 REFORMS AT 2019
OGA	201%	446	201%	446	201%	446,3	203%	450
IKA-ETAM	121%	640	121%	640	121%	639,7	121%	640
OAEE	49%	913	49%	913	49%	913,0	49%	913
PUBLIC SECTOR	115%	922	104%	832	99%	789,3	82%	656
ETAA	67%	1112	64%	1057	62%	1.031,5	57%	951
BANKS	58%	1048	52%	933	49%	878,4	39%	709
TAPDEH	69%	1162	61%	1023	57%	957,6	45%	754
TAPOTE	63%	1159	56%	1019	52%	953,7	41%	748
WEIGHTED AVERAGE	**101%**	703	**97%**	678	**95%**	666,4	89%	631
% DIFFERENCE	**-17%**	-29%	**-4%**	-4%	**-2%**	-2%	**-6%**	-5%

❖ Source: author's Calculations

The OGA remains the most overfunded Fund for 2016 and 2019, while the poverty threshold is already from the year 2014 lower than average pension, €376.0 for 2015 with slight downtrend from 2017 and onwards. The former special funds will suffer progressively larger cuts, resulting in completely reversed their situation, have been treated actuarially unfairly in relation to the IKA-ETAM, OGA and Public Sector. For 2016, the average new pension reduced by 29% compared to 2014 and the total average GFR stands at 101%, 17% less than in 2014, so already by 2016 the general system, becomes actuarial fair. However, a distortion for 2016 is that the Public Sector with GFR 115% and average pension € 922 higher than that of the OAEE, € 913, bears GFR 49% below that of the Public Sector, though this should be vice versa. The same unnecessary distortion applies to Banks and other special funds and mainly the TAPDEH. For the 2017 the distortion is corrected in OAEE and Public Sector but still retained between ETAA, OAEE, Banks and other special funds. The general GFR falls in 2018 at 97% and finally in 2019, when the law of 2016 will be in full force, at 89%, noting a historically negative return record. For 2019, Banks will have the lowest GFR and one of the lowest average pensions.

It is clear that the GFR is a valuable indicator that helps us to assess the concept of the actuarial fairness of pensions and within each Fund, so that we can restore the distortions. For example IKA-ETAM within various insured classes emerge different GFRs. In the Public Sector, different GFR will have judges and other officials of the ministries, but also within judges, different GFRs will have the various specialties, etc.

The index cited above belongs to the Group of indices of actuarial fairness. There are also other groups of indices that help us to form a complete picture of the public pension system, such as:

A second group of indices are those that consider the dependency of the elderly. One of them is the indicator of economic dependency ratio that equals the ratio of the number of pensioners, divided by the number of active workers.

Third group of indices is the pension replacement rates. Examine the relationship of first syntax usually with the last wage or the average pensionable earnings. This group includes indices relevant competency comparing replacement rates different generational peers (cohorts) in the past, now and in the future.

Fourth category indices examines to what extent the rise of statutory retirement age eventually leads to an increase in the average retirement age and whether the reforms eventually backed out of the job market.

Fifth category group indices are those that address the intergenerational solidarity (or fairness), i.e. whether current employees support the existing retirees but also the extent to which it will continue with the same cost for future generations of young people and children, when they will join the labour market and current employees become in turn retired.

ASSUMPTIONS AND PARAMETERS

TABLE of MORTALITY: EVK 2000 with customizing active population by closing age 76

TECHNICAL INTEREST RATE: 2%

Weighted Annuity and for both sexes: 40% Male, 60% Female without offspring, payable 12 times a year

Inflation rate: 0%

Wage escalation due to age –promotions etc.: 1%

General wage increase: geometric average productivity 1995-2014:1.11%, convex ascending curve

Career: Full years before retirement

Cases for salary contributions are shown in the following table and relate only to insured people before 1993 (“old” insured people):

Table C : Contributions as a percentage (%) the salary for "old” insured people

Fund	Until 1992	Since 1993
OGA	7%	7%
IKA-ETAM	20%	20%
OAEE	20%	20%
PUBLIC SECTOR	20%	20%
ETAA*	22%	22%
BANKS*	37%	33%
TAPDEH*	33%	33%
TAPOTE*	36%	32%

* With some slight approximation and smoothing

EPILOGUE

Without LONG-TERM planning changes in the main pension system, for generations of retirees for the first time, led from outrageous GFR in 2008, to GFRs of 150% in 2011, 121% in 2014 and 101% in 2016, and are expected to fall to 89% on average by 2019. We see a progression from one extreme end to the other, i.e. from overfunded pensions in 2011 to 2019 underfunding. Unfortunately even today no one can guarantee that the system will be viable from now on, when the income of the funds are still prohibitive, because of unemployment and the working uninsured. Reforms in the social insurance system must be done from now on on a schedule that will be properly prepared. In this direction we will be preceded by adequate time organising a perhaps painful public debate and consultation, provided that specific questionnaire will be drawn up to facilitate this process, so the opinions of operators filed on specific questions for each topic. Fundamental parameters of this questionnaire should be the social solidarity, the return, the solidarity of generations, replacement rates (first draft by media service or salary), as well as a fair distribution of the of reforms' transition costs between insured persons, pensioners, children, grandchildren and society general.