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FINANCING PUBLIC PENSIONS IN GREECE

By

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Abstract

The Greek public pensions system is essentially unfunded and it operates on a pay-as-you-go (PAYGO) basis. Serious financial problems are expected after the year 2010, and this is mainly due to adverse demographic trends. The same problem is faced by most European countries. Reform options range between fully funded schemes that will replace PAYGO systems in the long-run, and mixed (two-tier) systems where a basic provision for old age is financed by pay-as you-go and pensions insofar as they exceed this level have to be covered by capital funding. We adopt the second alternative for Greece, and we prove that the proposed two-tier public pension system is actuarially sound for the period 2000-50. Also, it will have positive side-effects on capital formation, and eventually (after 2010-15) will result in a decrease in social insurance contributions (JEL Classification: G 23).

1. Introduction

The Greek public pension system is highly segmented and complex, containing over 300 funds, with many different regulations for pension rights. Most of the **primary pension funds** can be classified by employment category into five groups: wage earners, farmers, non-agricultural self-employed, civil servants, and employees in public enterprises and state-owned banks. The large number of **supplementary funds** (over 200) were mostly created after the second world war to supplement the low level of primary pensions.

The segmentation and complexity of the public pension system, in conjunction with poor administration, has led to a lack of transparency and inadequate monitoring. As a result, pension fraud is difficult to detect and contribution evasion is sizeable. Many studies have demonstrated the lack of an adequate organization of the system and the inequity of insurance

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conditions and pension rights involved in the resulting **intragenerational** and **intergenerational transfers** (Center for Economic Planning and Research, 1976; Ministry of Social Services, 1981; Provopoulos, 1987; Nektarios, 1996; OECD, 1997). Overcoming the serious organizational problems of the public pension system would require the successful implementation of medium-term projects, which, however, are not considered in this paper. The focus of the analysis will be placed on the long-term financial problems of the system.

The Greek Public Pension system is essentially unfunded. Although some of the pension funds do have some assets, they are in the aggregate insignificant when compared with the level of pensions and accrued entitlements of current workers. In considering the way forward, it can be assumed that effectively the current system works on a pay-as-you-go-basis.

The future finances of any pay-as-you-go pension system depend critically on:

- Demographic changes, and specifically the trend in the number of workers relative to the number of pensioners.
- The changes in the average amount of pension relative to average earnings.

In the next section we review the demographic trends that dictate the long-run financial situation of the public pension system in Greece, and we estimate the future costs. In section 3, we review the relevant literature concerning the financing alternatives of public pensions, especially during the transition period when the PAYGO system is transformed, partially or totally, to a fully funded system. In section 4, we adopt the option of a two-tier system for Greece, and we estimate its actuarial solvency under various assumptions.

2. Demographic Trends and Projected Costs

The discussion on demographic ageing has been most active in industrialized countries (OECD, 1996; Franco and Munzi, 1996; Roseveare et al. 1996; Chand and Jaeger, 1996; McMorrow and Roeger, 1999).

The demographic trend of social security pensioners relative to contributors will be similar to that of the population as a whole. The number of contributors is not the same as the number at working ages whilst the number of pensioners is not the same as the number over "pension age". However, the likely changes in future of the pensioners and contributors are inevitably close to the change in the corresponding population groups.

The only reason why the trends might differ in a significant way would be if there were significant changes in the proportion of the population at "working ages" who are actually working.

One of the main factors affecting the poor finances of the Greek pension system is the level of early retirement and the corresponding withdrawal of workers from the labour market. If the effective retirement age (not necessarily the legal one) could be raised and people work longer, the future position would be greatly improved.

The attached Table 1 shows the projected trend in the numbers in the population at the ages critical for pension fund finances. Table 2 shows the impact on the critical factors of changing the effective pension ages.

The figures in Table I are based on the latest population projection for Greece made by Eurostat (1996). All such projections are subject to uncertainty, which increases into the future. Future fertility rates and the rate of improvement of mortality are inevitably subject to margins of error. Migration is particularly uncertain. However, the general trend is unlikely to be misleading when used as a basis of planning pension arrangements.

Table 1 shows that, with an assumed effective retirement age of 60, which is the standard age for international comparison and in practice not far from the effective average retirement age in Greece at least for men, the numbers over that age will rise steadily over the next 40 years, to some 70% more than now. At the same time, the numbers at working ages will remain relatively stable. As a result, the numbers at working ages relative to those at pension age fall dramatically, from about 2.5 at present to under 1.5 by 2040.

Table 1 also shows the corresponding figures if the effective retirement age were 65. The general results are of course the same - large increase in the numbers over the retirement age and a stable number at working ages - with again a sharp fall in future in the projected ratio of those at working ages to those at pension age. It is worth noting in particular that the ratio of "working age" to "over retirement age" in 2030 with a retirement age of 65 is close to but less than the ratio for the "Pension Age 60" at present. This implies that even if the effective pension age could be increased from around 60 to 65 by 2030, the burden of financing the pension system, as represented by the ratio of the working age population who pay for it to the pension age population who receive it, is not improved from the

current position. And of course at present a substantial part of the cost of current pensions is met by payments from the government budget.

Table 2 shows the impact of different effective retirement age in more detail. For the purpose of this table, it has been assumed that the "retirement age" of women is always on average 5 years younger than that of men. The figures are therefore not exactly the same as those in Table 1. However the general picture remains. It must again be emphasized that the ratios are simply those of this population of Greece and not the members of the pension system. However as long as we concentrate on the trends and the relative figures and do not focus unduly on the precise level, the conclusions will be valid.

At present, the ratio of pensioners to contributors in the Greek Pension system is close to the figure in Table 2, of 2.16 in the year 2000. In Table 2, that corresponds to an average pension age of 56 for women and 61 for men. Using the figures in Table 2 for later years, if that ratio is to be maintained, never mind increased, it would be necessary to raise the effective pension age to about 59 for women and 64 for men by 2020 and to 61 for women and 66 for men by 2030. In order for the ratio to continue at that level thereafter, it would be necessary to raise these ages by about another 4 years, or to equalise the effective retirement ages of men and women at about 67.

These few comments and Tables 1 and 2 show the scale of the demographic pressures in future. It must be emphasized that they are fundamental. If the system is left unchanged then either contribution or government payment (i.e taxes) must be higher or pensions must be lower.

The dramatic increase in future is mainly a reflection of the increase in the number of pensioners. Table 3 shows estimates for the future costs of the public pension system. The figures are based on the data for estimated provisional expenditure on pensions by the main social security funds in 1999 (unpublished data), adjusted for the demographic changes and the estimated changes in the level of pensions as the current rules phase in future.

The costs roughly double in future. Given the relative stability of the numbers at working ages, it is reasonable to assume that the contribution rates would have to double (or even more than that if the government

reduced its financing relative to the total). Alternatively, pension levels would somehow have to be reduced.

It must be emphasized that the estimates are not based on detailed calculations taking account of the detailed rules of the various funds and detailed data on the membership of each fund. The figures in Table 3 are therefore only a guide to the future costs rather than a precise projection. They should, however, be adequate for the basis of illustrating the future trend and to consider, in general, options for different ways of financing the future pension costs.

Though the dark long-run perspective of the public pension system is no secret (Commission for the Long-Run Economic Policy, 1997; Nektarios, 1996; OECD, 1997), there is a reluctance to confront the issue. The guiding concept for the government amendments to the system in recent years has been to keep the contribution rate at about the current level and split the burden of demographic change among the pensioners (reduce the relative benefit level gradually) and the tax payers (raise the subsidy from the government budget).

However, that approach will not do after 2010 when the dependency ratio will start rising sharply. By then a fundamentally reformed public pension system needs to be in place. Small repairs of the existing system will not be sufficient.

3. Reform Options: The International Dimension

In most European countries today, the retired depend largely on state pensions, which are usually unfunded; pensions of those in retirement are financed from contributions by current workers. Table 4 shows European pension replacement rates (the ratio of state pension to average earnings)and current contribution rates. The Table shows that, in mainland Europe, state pensions are typically 50-80% of average earnings. UK and Irish pensions are much less generous. The UK basic state pension rate is currently less than 20% of average earnings, and will decline steadily if the basic pension continues to be indexed to prices not average earnings. Because the retired in mainland Europe get relatively generous (unfunded) state pensions, funded systems have been much less significant there than in the UK or the USA. Table 4 shows the stock of pension assets, as a proportion of GDP, in the major European countries. The UK and the Netherlands have substantial

stock of pension assets, around 80% of GDP. However, the European average is only 20%.

The message from Table 4 is familiar: European governments will either have to increase contribution rates very sharply, raise retirement ages or substantially reduce the generosity of state pensions (or some combination of the three). Running huge deficits for long periods is unattractive: in many European countries it breaches limits in the Growth and Stability Pact; more fundamentally, since the shift in demographic structure is long lasting, running deficits to pay state pensions is probably not consistent with long-run solvency. Nor can contribution rates easily be raised. They would need to double in some countries to keep state pension systems in balance.

There is now a strong sentiment, particularly in the USA, that greater reliance on funded pensions is not just the least bad response, but would actually generate substantial benefits (see Feldstein, 1996a, b; Feldstein and Samwick, 1998; Kotlikoff, 1995, 1996). Feldstein has argued that a switch from a PAYGO system to funding will keep taxes lower and promote more efficient capital markets (Feldstein, 1998).

During the transition, if contributions by existing workers are accumulated in a fund, they are not available to pay pensions to the current retired. Using contributions to accumulate funds and phase out the unfunded pensions poses a problem for existing workers in the second half of their working life. Having expected to receive relatively generous pensions financed from the contributions of future workers, such workers now have little time to accumulate a fund for their own pension.

If the rate of return on assets is high relative to the rate of growth of productivity and wages, could the transition be costless, without any losers? Miles and Timmerman (1999) argue that this assertion is mistaken; no matter how high the return on assets, there is no way to move from an unfunded to a funded system without making some people worse off (see also Breyer, 1989; Geanakoplos et al., 1998a, b). Without some other benefit from switching, such as lower distortionary taxes on labor supply (Breyer and Straub, 1993) or an increase in the poor's access to enquiry investments (Geanakoplos et al., 1998a), the initial accumulation of funds will require some generation to have lower consumption. How that burden of lower consumption is allocated across generations matters.

In a series of highly influential papers, Martin Feldstein has suggested that the transition should respect the implicit liabilities that the state owes citizens from past contributions, but devise a funded scheme that does not run large deficits or issue a huge stock of government depth to recognize the accumulated rights of existing workers. All workers would pay an overall contribution which is the sum of two components. One component is a contribution to a fund of assets, at a contribution rate set to generate a given retirement income for someone making a full work history of such contributions; the other contributions is whatever extra payment is needed to continue paying residual unfunded liabilities.

The Feldstein proposal is a specific strategy for handling transition. Because it avoids deficits, it places any burden primarily on the generations alive at the start of reform. However, there are an infinite number of alternative transition paths that allow future entitlements to build up, by letting governments issue bonds to finance parts of the transition costs. But in Europe, where government debt levels are already high relative to limits prescribed by the Growth and Stability Pact, there are good reasons to focus on the self-financing route where deficits do not increase along the transition.

Neumann (1977) has shown that the transition process, under certain conditions, might satisfy the more demanding Pareto Criterion. He examines two alternative models of financing the pension obligations during the transition period. The first model is a general buy-out of the pensioners who are of age 65 or older in the (reform) year 2000. The second model keeps the contribution rate of the PAYGO system from exceeding a certain benchmark and finance the revenue forgone by debt.

Miles and Timmermann (1999) argue that the fully funding of public pensions will result in a costly transition process; unless this cost is substantially funded by depth, it will fall on current generations. In addition, they show how sensitive the costs and benefits of such a move are to the risk and return characteristics of portfolios of assets; large-scale reform might affect mean asset prices themselves. Miles (1999), drawing on the approach in Auerbach and Kotlikoff (1987), estimates how European returns on capital are affected by the phasing out of European unfunded state pensions and the consequent rise in private savings and the demand for capital.

Due to the above reservations, much research has been devoted to piecemeal reform. Roseveare et al. (1996) estimate that increasing retirement age by just one or two years reduces the scale of accumulated deficits on public pension systems. Boldrin et al. (1999) also propose solutions to the pension deficits based on liberalization of European labor markets, especially improvements in female labor force participation and reduction in unemployment. Robert Merton (1983) made the point long ago that, because a claim upon human capital is not readily available in financial markets, and because pensions paid out of contributions from current workers represent such a claim, a mixed pension system is in principle optimal for standard portfolio reasons. Such a mixed system might combine a known minimum pension provided by the PAYGO component with a funded portion whose value would depend on the risk market returns. We have a good deal of sympathy with these arguments, and we proceed to examine such a scenario for the Greek public pension system.

4. Funding Pensions in Future

One way to reduce the sharp rise in the contributions, needed in the medium and longer term future to finance pensions, would be to pay lower pensions from the current social security system, but to replace this reduction by funded pensions.

In order to illustrate the possible impact, for this article it has been assumed that the funded pension system would aim to provide a pension of 35% of final earnings averaged over the last 5 years of contributions. It is assumed that widows would receive 70% of the member's pension. This is roughly one-half of the typical retirement pension at present.

For the purpose of this example, it is assumed that people in effect contribute from age 20 until retirement. Table 5 shows estimates of the contribution needed, as a percentage of salary, to provide this pension. Figures are shown based on an assumed retirement age of 60 or 65. This illustrates the very great difference in cost of funding pensions starting at different ages.

It the new pensions from the funded New Saving system provided pensions of around 35% of final average salaries, it is reasonable to assume that the pensions paid from the social security system could be halved in future.

Table 6 illustrated the estimated effect on the expenditure in Table 3, if the New Savings Pensions were introduced now for all current workers.

Current pensioners would not be affected; so pension costs would start at the same level as now. However there would be an immediate increase in the costs, which would have to be faced by employees and / or their employers of paying contributions to the new pensions. Over time, the cost to be met from the social security pension system would fall relative to the figures in Table 3 as new people retiring receive more pensions from the New Savings system and less from the current PAYGO Pension system. Table 6 shows the estimated cost of the new savings contributions and of the PAYGO Pensions and compares them with the pension costs in Table 3.

It can be seen that the total pension cost is initially higher, reflecting the need both to pay for current pensions and to finance the future pensions. In the long run, however, the total costs are significantly lower than if the present system had continued. In effect, the investment income received on the investments built up from the New Savings would meet the extra costs of actually paying the current pensions.

Table 6 is based on the assumption that the effective retirement age continues to be as now and the New Savings Pensions are based on the contribution rate needed to finance 35% pensions at age 60. (The assumed rate of investment return in Table 6 is 2% in excess of salary inflation).

Table 7 shows some alternative estimates based on assuming that the effective pension age is increased to 65 and the New Savings Pension contribution rate is set assuming that the 35% pensions commence at age 65. As would be expected, the initial costs are lower as the New Savings Pension contribution rate is lower. In the medium term, the costs are significantly lower as all the costs, including the current Social Security Pension costs, are reduced by the assumption of the later effective retirement age.

5. Conclusions

The present system of public pensions in Greece, is expensive because people retire at too young an age when compared with the period they are likely to be retired. And the average level of social security pension is high relative to salaries. This position will worsen in future as a result of the ageing of the population. The very low fertility rate in Greece will make the ratio of workers to pensions very low, which must result in very

much higher contributions or much lower pensions in future unless radical changes are made.

The above sets out one simple option for introducing some funding into the Greek social security pension system, viewed as a whole. Such funding gives the workers clearly visible and easily understood rights as a result of their contributions. If the savings are used to make profitable investments, they can act to encourage economic growth, thereby making the economy better able to meet the costs of pension in future, apart from obvious ther benefits.

The initial costs of pensions are higher as current pensions must be paid as well as workers paying contributions towards their future pensions. It is a matter of political judgement how these extra costs should be financed. For example, the government might decide to pay a suitable level of contribution into the current social security system to meet the overall increase. However the extent to which this is possible or desirable depends upon the overall government financial stance.

APPENDIX

TABLE 1

Projected Population of Greece by Age Group (millions)

Year	Total Popu-lation	"Pension Age 60"			"Pension Age 65"		
		Age 20-59	Age 60+	Ratio 20-59/60+	Age 20-64	Age 65+	Ratio 20-64/65+
1995	10.4	5.6	2.2	2.51	6.3	1.6	3.91
2000	10.6	5.8	2.4	2.38	6.4	1.8	3.53
2010	11.1	5.9	2.7	2.19	6.6	2.1	3.15
2020	11.3	5.8	3.0	1.93	6.5	2.3	2.81
2030	11.3	5.7	3.4	1.68	6.5	2.6	2.49
2040	11.4	5.4	3.7	1.44	6.2	3.0	2.09
2050	11.2	5.2	3.7	1.40	5.9	3.1	1.89

Source: Eurostat (1996)

TABLE 2

Ratio of Number in Population at "Working Ages" to those over "Pension Age"

	Year						
Age Ratio	1995	2000	2010	2020	2030	2040	2050
20-54(f)59(m)/55(f)60(m)+	2.06	2.02	1.84	1.61	1.40	1.22	1.22
20-57(f)60(m)/56(f)61(m)+	2.22	2.16	1.97	1.72	1.51	1.30	1.29
20-56(f)61(m)/57(f)62(m)+	2.40	2.31	2.10	1.85	1.62	1.39	1.37
20-57(f)62(m)/58(f)63(m)+	2.60	2.47	2.25	1.99	1.75	1.49	1.45
20-58(f)63(m)/59(f)64(m)+	2.82	2.64	2.42	2.14	1.88	1.60	1.53
20-59(f)64(m)/60(f)65(m)+	3.07	2.85	2.59	2.30	2.03	1.73	1.62
20-60(f)65(m)/61(f)66(m)+	3.36	3.08	2.78	2.48	2.19	1.86	1.73

m=male, f=female
Source:Eurostat (1996)

TABLE 3

Projected Expenditure of Pension System

Year	Current System Pension Costs (Drs. Trillion)	% of GDP
2000	4.14	11.3
2010	5.2	13.2
2020	6.1	15.9
2030	7.1	18.8
2040	7.6	21.5
2050	7.6	21.8

Source: own calculations

TABLE 4

Public and Private Pensions in the EU

	Social Security Pensions in the EU		Private Pension Financing in the EU
Country	Gross Replacement Rate (%)	Contributions Rate (% of carnings)	% of CGP
Austria	70-70	36-36	1
Belgium	58-45	46-47	4
Denmark	93-37	10-9	22
Finland	60-59	31-32	14
France	67-51	63-63	5
Germany	45-43	42-42	6
Greece	70-48	43-25	3
Ireland	53-21	18-16	43
Italy	78-75	61-58	3
Luxembourg	87-76	21-21	0
Netherlands	76-31	24-20	89
Portugal	74-74	35-35	11
Spain	94-63	37-27	4
Sweden	63-50	37-37	33
UK	35-14	18-17	76
EU	-	-	21
USA	71-45	15-15	62

Source: Davis (1998), Watson Wyatt (1997)

TABLE 5

Contribution Rate needed for pension of 35% of final salary

Rate of Investment Return (% net of Salary Inflation)	Retirement Age	
	60	65
1.5%	15.6	10.6
2.0%	14.2	9.6
2.5%	13.0	8.6
3.0%	11.8	7.7
3.5%	10.7	6.9
4.0%	9.7	6.1

Source: own calculations

TABLE 6

Projected cost of New Pension System (Drs. Trillion / current prices)
Assuming affective retirement age remains as now

Year	Reduced PAYGO Pension Costs	New Saving Pension Contributions	Total Cost New System	Current System
2000	4.4	1.8	6.2	4.4
2010	5.0	1.8	6.8	5.2
2020	5.1	1.8	6.9	6.1
2030	3.7	1.8	5.5	7.1
2040	3.8	1.7	5.5	7.6
2050	3.8	1.6	5.4	7.6

Source: own calculations

TABLE 7

Projected cost of New Pension System (Drs. Trillion / current prices)
Assuming affective retirement age increases to 65

Year	Reduced PAYGO Pension Costs	New Saving Pension Contributions	Total Cost New System	Current System
2000	4.4	1.2	5.6	4.4
2010	4.2	1.2	5.4	5.2
2020	4.1	1.2	5.3	6.1
2030	3.0	1.2	4.2	7.1
2040	3.0	1.1	4.2	7.6
2050	3.0	1.1	4.1	7.6

Source: own calculations

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