Pension Reform and Individual Responsibility

Maria Teresa Medeiros Garcia[1]

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Abstract

Population ageing is challenging social security systems financial sustainability. Recent reforms rely on the diversification of the sources for retirement income and the development of private pensions as a complement to public schemes. The paper presents these reforms in Portugal and analyses the role that individuals are supposed to assume. Additionally, the paper considers the problem of individuals' capacity to protect themselves adequately in the absence of proper financial education and consumer regulation.

Maria Teresa Medeiros Garcia

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1. Introduction

Ageing is challenging social security systems functioning in many industrial countries. To overcome potential financial sustainability problems, many economists and policymakers subscribe reforms that rely both on the capitalization[2] and on individuals.

European Union is debating these issues (European Commission (2003)). At the same time, in many countries, some reforms are taking place which include the raising of the legal age of retirement, the amendment of the formulae used in calculating pensions, which leads to a benefit decrease, and the creation of reserve funds. The role of the private pension funds is also enhanced.

This paper analyses individuals' capacity to provide adequate retirement income, given the growing responsibility that they are suppose to take. The education and the regulation issues are considered. Additionally, it describes the main features of Portuguese social security system, including the creation of a trust fund and of conditions to the development of the complementary schemes.

Section 2 reviews the life cycle model as well as the contributions from behavioral finance and psychology to understand saving behavior. Section 3 addresses the importance of education and regulation, given the growing importance of occupational and personal private pensions. Section 4 presents Portuguese social security system taking in to account recent reforms and pension funds industry. Section 5 concludes.

[2] Or funded systems.

2. Life cycle Model and the Psychology of Saving

Life cycle theory, due to Modigliani, has had a wide influence on economists' thinking about the timing of retirement as well as the determination of saving. Modigliani's basic hypothesis was that far-sighted workers will rationally plan their consumption over a full lifetime. Accordingly, they take account of the likely path of their labor earnings as they age and then prudently accumulate savings in anticipation of their retirement (Modigliani, 1986). In this manner, it will be possible to maximize the worker's lifetime well-being, subject to the constraint that lifetime consumption cannot exceed the worker's lifetime wealth[3]. Rational and far-sighted workers will plan to avoid situations in which all of their lifetime wealth has been consumed long before they expect to die.

In simple versions of the life cycle consumption model, an individual is well informed about the path of his future earnings, his age at death, and the interest rate he is able to earn on his savings. If the worker has stable preferences throughout his life, his planning problem is formidable but tractable (Burtless, 2004).

The life cycle model emphasizes the sharp drop or complete cessation of labor earnings at retirement, meaning that individuals must find another way to pay for their consumption, namely personal saving. Hence, individuals who do not expect to retire until shortly before they die do not need to save much for retirement. Thus, retirement and saving decisions are interrelated.

Some evidence supports the theory (Burtless, 2004 and Browning and Lusardi,1996). However, some critics have been made because it is not very successful in accounting for important aspects of personal saving. Many individuals reach old age with very little savings (Diamond and Hausman, 1984). Even considering the effects of uncertainty, when people decide when to retire or how much to save for retirement, their choices may be poorly informed, short sighted, and less than rational. The crucial problem is that unlike other economic choices, which may be repeated many times throughout the life period, the decision of when to retire is made only once. The opportunity to improve on

[3] Lifetime wealth consists of the worker's initial assets and the present discounted value of anticipated labor earnings and other kinds of income.

the decision making through experience, as is the case when consumers learn how to budget and shop for groceries, clothing, or apartments, for example, is inexistent.

The existence of social security systems as well as mandatory occupational pension schemes means that the optimal amount of savings depends on individual circumstances, although it affects the lifetime trade-off between consumption and retirement in a complex way. The impact of social security systems on retirement depends on the contributions individuals must make and on the benefit formula (Gruber and Wise,1999). Additionally, the effect of occupational pension plans on retirement depends on the plan type: defined-benefit or defined-contribution. Individuals who can expect pensions that replace a large percentage of their net earnings have much less need for savings than workers who do not anticipate pensions.

Social security reforms that rely on individuals to make their own decisions about retirement must take in to account that too many individuals base their retirement and saving choices on herd behavior, faulty logic, or defective information. Moreover, a majority often shows astonishing ignorance of the most basic provisions determining future retirement incomes (Burtless, 2004).

3. The Role of Education and Regulation

In order to make retirement systems more effective in providing sustainable and adequate protection for their ever growing elderly populations, greater attention should be putted on education and regulation issues. Otherwise the effects of a planning error would be catastrophic for the well-being of the aged.

The replacement of state pensions with individual investment accounts implies that workers might have to decide on four important questions:

- the age when they will retire;
- how much savings to place in their accounts;
- how to allocate their savings across different investment options; and
- how fast to make withdrawals from their accounts.

The reforms that rely on individuals responsibility to make their own decisions about retirement saving and investment seem acceptable if individuals make these choices rationally and competently. Big mistakes do not have the opportunity to be corrected.

The decision to save, the investment decision and the decumulation decision are far more complex than what is supposed by the life cycle theory. Although consistent with fundamental economic proposition that individuals can and do try to maximize their self-interest, often those decisions have less-than perfect outcomes. Hence, this new perspective regarding how "real" people make economic decisions must be considered in the design and in the management of retirement systems (Mitchell and Utkus, 2003).

Understanding why people save and what they invest in are questions of great importance in this context. If the lifecycle analysis is true, households should have some demonstrated skill at estimating their needs for retirement. This requires accurate estimates of uncertain future processes including lifetime earnings, asset returns, tax rates, family and health status, and longevity. In fact, survey and empirical research suggest that individuals are not particularly good at the retirement savings problem. Only few people feel they are able to plan effectively for retirement (Lusardi 2003, and EBRI, 2003). On the other hand, DeVaney and Chiremba (2005) found that obtaining more education, being more willing to accept risk, and enhancing past savings behavior were among the factors that were most influential in having a larger amount saved for retirement, when comparing the retirement savings of the baby boomers and other cohorts in U. S.. Their findings supported the lifecycle hypothesis that household savings tends to increase with age and the theory of planned behavior (Wärneryd, 1999): retirement savings behavior was shown to be influenced by attitude, subjective norms, perceived control, and past experience.

Behavioral economists rely on a psychological explanation called "lack of willpower" or "bounded self-control" to explain the lack of retirement preparation. That is, individuals try to save for retirement, but too often prove to be limited in their capacity or desire to execute intentions (Thaler and Shefrin, 1981), as it happens in other behavior modification programs such as exercising, dieting, or quitting smoking. The recognition of this problem gives support to the use of commitment devices or mechanisms that help foster desirable changes in behavior. Concretely, pension plans should be formulated

such that contributions are automatically deducted from workers' pay before the money can be spent. Withdrawal restrictions on individual retirement accounts and other retirement plans also appear to be commitment devices, imposing a psychological and financial hurdle on accessing money, helping to counteract lapses in personal willpower.

Often, individuals also deviate from standard economic theory because they are easily influenced by decision framing, which means that responses to a question vary based on how it is asked. Additionally, when confronted with difficult decisions, individuals tend to adopt heuristics that simplify the complex problems they face, for example accepting the available default option. Inertia and procrastination also have an important impact on decision making (Mitchell and Utkus, 2003).

The investment decision has been widely explored by the modern portfolio theory (Francis, 1986). The question is: do investors in general and plan participants in particular understand and act on the predictions of mean-variance theory? Much research clearly is against mean-variance behavior among investors. Weak preferences for the portfolio elected were found (Benartzi and Thaler, 2002). Framing effects and inertia are also detected (Mitchell and Utkus, 2003).

Finally, the last phase of financial decision making for retirement, the decumulation decision, confronts many sources of risk. The most important of these are longevity risk, inflation risk, health risks (leading to unexpected expenses and costs), and capital risks, contributing to experiencing consumption shortfalls during retirement.

Retirement plan design in the future should incorporate these results. Retirement saving decisions are complex, meaning that individuals need help. Plan sponsors, benefit plan consultants, consumers associations, and policymakers should give that help. The OECD has especially focused its work efforts on the regulatory and policy issues arising from the growing importance of private pensions. Its mission is to assist countries in the development of an adequate regulatory and supervisory framework that protects the rights of members and beneficiaries and ensures the financial security of pension plans and pension funds. In fact, delivering pension promises is an objective shared by all private retirement systems, but the ways of doing this are complex. The OECD has approved a set of fifteen basic principles and two specific guidelines, considering

regulation, governance and the protection of rights of members and beneficiaries (OECD, 2003).

4. Provision of Retirement Income in Portugal

The prospect of rapidly aging populations is likely to lead to insolvency of state pension schemes unless contributions are raised and benefits cut.

The proportion of the young in Portugal is declining dramatically, -44.64% in the period 1960-2001, corresponding to 40.8% of the total population in 2001. Moreover, the projected figure of 41.9% for 2020 gives no cause for optimism. The overall trend for the 60-year period 1960-2020 shows a decline of -43.15% (table I).

Table I: Dependency Ratio of Young People (0-19 over 20-59)

	1960	1970	1980	1990	2000	2001	2020	Growth 60-2001	Growth 60-2020
EU-15	60,2	63,8	57,7	46,6	41,4	41,7	38,1	-30,73%	-36,71%
Portugal	73,7	76,6	70	56,1	41,5	40,8	41,9	-44,64%	-43,15%

Source: "Demographic Statistics 2002", EC

Additionally, the proportion of Portuguese aged 60 or over increased by roughly 76.5% between 1960 and 2001 and it is estimated that this age-group will constitute 45% of the country's population by 2020. Even so, this scenario is better than the projection for the EU-15 average (table II).

Table II: Dependency Ratio of the Elderly (60 and + over 20-59)

	1960	1970	1980	1990	2000	2001	2020	Growth 60-2001	Growth 60-2020
EU-15	29,4	34,8	34,2	36,3	39,2	38,9	51,2	32,31%	74,15%
Portugal	22,1	28	31	35,5	38,8	39	44,9	76,47%	103,17%

Source: "Demographic Statistics 2002", EC

There are two determinant factors in the disequilibrium depicted: the fertility rate and life expectancy. As can be inferred from the table below, the ratio of 1,42 in 2001 is insufficient to replace the population, while the projection for 2020, despite some recovery, is also insufficient.

Table III: Fertility Rate

	1960	1970	1980	1990	2000	2001	2020	Growth 60-2001
EU-15	2,59	2,38	1,82	1,57	1,48	1,47		-1,12
Portugal	3,1	2,83	2,18	1,57	1,52	1,42	1,69	-1,68

Source: "Demographic Statistics 2002", EC

Maybe the arrival of immigrants into the active age-groups will be able to compensate for the declining numbers of workers.

The phenomenon of increasing longevity in Portugal is not only observed from birth – in which gains of approximately 20% were registered between 1960 and 2001, both for males and females - but also at age of 60 years, with gains of 12.4% and 16.2% respectively for males and females over the period 1960-1999 (Tables IV and V).

Table IV: Life Expectancy at Birth

Men	1960	1970	1980	1990	2000	2001	2020	Growth Years	Growth %
								60-2001	60-2001
EU-15	67,4	68,4	70,5	72,8	75,3				
Portugal	61,2	64,2	67,7	70,4	72,6	73,5	75,4	12,3	20,10%

Women	1960	1970	1980	1990	2000	2001	2020	Growth Years	Growth %
								60-2001	60-2001
EU-15	72,9	74,7	77,2	79,4	81,4				
Portugal	66,8	70,8	75,2	77,4	79,6	80,3	82	13,5	20,21%

Source: "Demographic Statistics 2002", EC

Table V: Life Expectancy at Age 60 years

Men	1960	1970	1980	1990	1999	Growth Years	2002	Growth %
						60-1999		60-1999
EU-15	15,9	15,9	16,8	18,2	19,6	3,7		23,27%
Portugal	16,2	15,5	16,3	17,5	18,2	2	19,43	12,35%

Women	1960	1970	1980	1990	1999	Growth Years	2002	Growth %
						60-1999		60-1999
EU-15	19	19,8	21,2	22,5	24	5		26,32%
Portugal	19,1	18,9	20,6	21,3	22,2	3,1	23,45	16,23%

Source: "Demographic Statistics 2002", EC

This evidence has driven to a course of action that enhances workers responsibility to save for their retirement. In many countries, the raising of the standard age of retirement is being advised in order to minimize the effects of increased longevity. Additionally, the combination of pay-as-you-go with funded systems is enhanced as well as the responsibility of private occupational pension funds (Garcia, 2006).

This section presents the main features of Portuguese social security system accordingly with the New Law of 2007, which emphasis the principles of capitalization and the role of the complementary system, and the characteristics of the pension funds industry.

4.1 Social Security

The Portuguese Social Security system has been through several legislative reforms in the last years: in the year 2000; in the 2002; and in the year 2007[4], In accordance with the terms of the present Law, which regulates the social security system, the system comprises three other systems:

- The social protection of citizenship system;
- The providential system; and
- The complementary system.

The social protection of citizenship system includes the welfare provisions system, developed by public institutions, namely autarchies, and by private institutions without profit purposes, the solidarity system, and the family protection system. The providential system is an insurance-based system, which offers earnings-related pensions aiming to provide a standard of living similar to that obtained during working life, financed by earning-based contributions. Finally, the complementary system comprises legal regimes, contractual regimes and optional schemes.

The objective of the providential system is to provide compensation for the loss or reduction of occupational earnings in the event of:

a) Sickness;

[4] The Law Nr. 17 / 2000, August 8th, the Law Nr. 32/2002, December 20th, and the Law Nr. 4 /2007, January 16th.

b) Maternity, paternity and adoption;

c) Unemployment;

d) Work accidents and occupational sickness;

e) Disability;

f) Old-Age; and

g) Death.

Those legally entitled to benefits under this system are either employees or self-employed, constituting the general regime. In addition, the unemployed as well as non-working individuals have the option of subscribing to the sub-system, constituting the special regimes.

The financing of the system must obey the principles of diversification of the sources of income and of selective taxation criteria. More specifically, the financing of pecuniary benefits, which replace occupational earnings, is a twofold process, namely through the contributions of employees; and through the contributions of employers. Furthermore, the Law stipulates that there must be transference into the Social Security Trust Fund (FEFSS), created in 1989, of an amount between two and four percent of the contributions of employees, up to the point at which it the total expenditure on pensions for a minimum period of two years is ensured. In addition, any annual surplus in the benefits system, as well as profits on asset sales and the gains from financial investments, flow into the reserve fund, to be managed under principles of capitalization. In fact, the public social security system must consider the pay-as-you-go technique as well as the funded one to its financing. The return on the investments will serve to reinforce the financial reserves sufficiently to help absorb the expected rising costs as more and more members of the active population go into retirement and long term unemployment remains high. The simulation of the fund's assets was made by Silva et al. (2004) concluding that the fund's assets will reach a peak in 2012 and will run out in 2026.

In addition, the Law of 2007 introduces a sustainability factor defined as the ratio between the average life expectancy in 2006 and the average life expectancy in the year before the pension benefit is required. This sustainability factor applies to the pension benefit reducing it.

The complementary system is regulated specifically, although it must obey to some criteria. It includes a funded public regime and complementary regimes of collective and individual adhesion.

4.2 Occupational and Personal Private Pension Schemes

Pension funds have been in existence in Portugal for about twenty years now. Decree-Law Nr. 323/85, 6th August, is the first legislation document governing the area, establishing the juridical regime of pension funds and empowering the Insurance Institute of Portugal to control and supervise such funds. In this period of twenty years, the growth registered since then is significant. Accordingly, pension funds, currently constitute (collectively) one of the largest institutional investors, channeling into productive investment ever-increasing volumes of savings from households and companies and occupying a prominent position in the organization and functioning of the capital market.

There are diverse factors which have determined the evolution of pension funds in Portugal. In common with what was taking place in many other countries, the prognosis of the difficulties which the public social security system will experience in fulfilling the expectations for which it was created[5] (Silva et al., 2004); on the other hand, the somewhat alarming phenomenon of ever-decreasing levels of saving. Naturally, in addition to these two factors, which support the legal framework, there are other, circumstantial aspects which have contributed substantially to the development of pension funds: firstly, private pension plans have been in existence for several decades, having been set up by certain enterprises which financed them on a book-reserve basis[6]; secondly, it should be noted that contributions made by companies enjoy substantially favourable fiscal treatment[7], with a particularly attractive situation in the initial phase.

[5] As has been highlighted by various studies, at the root of these difficulties is the decline in the conditions of equilibrium which are necessary for the logic of PAYG on which the Portuguese social security system is based, above all, linked to demographic and economic factors.

[6] Associated above all with large commercial/industrial groups from before the Portuguese Revolution of 1974. The plans were integrated into the strategy to retain executives as virtual captives. In addition, most of the pension funds are found in the banking sector and they finance plans which are independent of the social security system.

[7] They are entitled to present double the amount of their contributions as tax-deductible expenses.

The establishment in 1989 of the retirement savings plans (PPR) and the retirement savings funds (FPR) was an additional measure intended to attenuate the preoccupations mentioned earlier. The savings plans involving shares (PPA) were launched, Decree-Law Nr. 204/95, 5th August, above all, as a means to achieving the development of the stock market. There was a clear intention to stimulate individual, long-term saving, thereby reinforcing the third pillar of guaranteed retirement income.

The Decree-Law Nr. 475/99, November 9th, integrates into a single body a whole series of aspects that previously were dispersed throughout a range of legal documents. This legislation has provided the backbone to revisions of the juridical regime of the pension funds in Portugal. The fundamental objective is to achieve the consolidation of the funds' role as the privileged vehicle of the private, complementary financing of the costs of covering the social risks associated with retirement, as well as to respond to the needs of the fund-managing institutions in their various functions and to the preoccupations of all those involved in the process. Nevertheless, this revision constitutes, as mentioned earlier, merely a "first step on the road". From a long-term perspective, several issues should be considered, such as the design of the private pension plans[8], the financing of the liabilities of companies and other entities with pension arrangements coming within the second pillar of social protection, the fiscal treatment of the contributions, the returns and the benefits[9], or the question of what should happen to the surplus in the event of over-funding resulting from a drastic reduction of the number of participants without acquired rights. Within this context, the revision clarifies and modifies formal aspects and introduces alterations, not only with a view to "the reinforcement of the protection of contributors, participants, beneficiaries and also of member-companies", but additionally to "the qualitative perfecting of the functioning of the pension funds".

Pension funds industry is currently regulated by the provisions of the Decree-Law Nr. 12/2006, January 20th, in accordance with the Community Directive 2003/41/EC of the European Parliament and of the Council, of 3 June of 2003, on the activities and supervision of institutions for occupational retirement provision.

[8] Specifically the possible obligation to consecrate acquired rights into these pension plans.
[9] For which it will be necessary to consider a definition of the concept of qualified pension plans.

A detailed characterisation of pension funds market can be found in Garcia (2004). Pension funds can be managed either by specialist enterprises created for this exclusive purpose, and which operate under the designation pension fund management companies, or by insurance companies which are legally authorised to carry out life insurance activities in Portugal. The great majority of them, about 65 per cent, are managed by specialist pension fund managers. This represents 96 per cent of the amounts under management, enhancing the role of pension funds management companies.

Closed pension funds are prominent among the various types of pension funds.

Table VI: Distribution of the number of pension funds by type

Pension funds	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Total	217	226	237	237	233	238	244	236	231	229	221	223	227	224
Closed	204	208	213	211	204	203	205	195	187	183	173	171	173	168
%	94%	92%	90%	89%	88%	85%	84%	83%	81%	80%	78%	77%	76%	75%
PPR	8	9	11	11	14	15	17	17	20	21	22	20	20	20
%	4%	4%	5%	5%	6%	6%	7%	7%	7%	9%	10%	9%	9%	9%
PPA	0	2	2	3	3	4	5	5	5	5	5	4	4	4
%	0%	1%	1%	1%	1%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Open excluding PPR & PPA	5	7	11	12	12	16	17	19	19	20	21	28	30	32
%	2%	3%	5%	5%	5%	7%	7%	8%	8%	9%	10%	13%	13%	14%

Source: Boletins de Fundos de Pensões, 1995-2003, ISP

A closed fund is one in which there is only one member/sponsor, or, should there be more than one member, this is on the condition that a connection of a corporate, associative, professional or social nature exists among the members and that the consent of all of the existing members must be given before new members can be included. This, as well as open funds are occupational. In an open fund there is no requirement for any connection whatsoever among the different parties adhering to the fund, adhesion to the latter depending solely on the acceptance into it being granted by the fund's managing institution[10]. PPR and PPA type are personal funds.

Table VII: Amounts in pension funds by type of fund

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Total	8231896	10060399	11577827	12911158	13766550	14807899	15879563	16282580	15.186	18.982
Closed	788967	9580942	10952028	12273479	13141864	14176842	15225175	15562906	14.387	18.011

[10] Open funds can be constituted on the initiative of any institution authorized to manage pension funds. The global net value of the fund is divided into whole or partial participation units, which can be represented by certificates.

	1									
%	96%	95%	95%	95%	95%	96%	96%	96%		
PPR	305534	414980	516964	473462	436450	411445	401204	411991	430	446
%	4%	4%	4	4%	3%	3%	3%	3%		
PPA	2015	6225	10375	13214	14403	14719	13803	15887	17	17
%	0.0%	0.1%	0.1%	0.1%	0.1%	0%	0%	0%		
Open excluding PPR and PPA	36801	60833	101406	151002	173833	204893	239380	291797	351	508
%	0.4%	0.6%	0.9%	1.2%	1.3%	1%	2%	2%		

Unit: thousands euros (since 2004: millions euros)
Source: Boletins de Fundos de Pensões, 1995-2003, ISP

The weight of beneficiaries over participants is increasing in closed pension funds, revealing the maturity of these funds.

Table VIII: Number of participants and beneficiaries in closed pension funds

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2007
Participants	197.600	190.933	192.164	190.156	18.8043	184.075	178.940	174.355	161.171	154.570	148.266	155.683
Beneficiaries	71.994	62.171	75.561	88.652	92.202	99.391	105.627	110.039	101.869	109.740	115.629	107.821
Beneficiaries/Participants	36%	33%	39%	47%	49%	54%	59%	63%	63%	71%	78%	69%

Note: the number of participants in 1995 is related to 212 funds, whilst the figure for 1996 concerns 206 funds
Source: Boletins de Fundos de Pensões, 1995-2003, ISP

Table IX: Number of participants and beneficiaries in personal pension funds (PPR)

	2001	2002	2003	2004	2005	2006	2007
Participants	61.565	64.593	65.579	65.279	63.230	71760	75.988
Beneficiaries	-	-	-	-	-	-	5.687
Beneficiaries/Participants	-	-	-	-	-	-	7%%

Contributions to closed funds have decrease on average. In contrast, the amount of contributions to PPR and PPA funds grew, as well as to open funds excluding PPRs and PPAs.

Table X: Contribution inflows by type of fund

	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2205	2006	2007
Total contributions	955033	1797638	1161017	1081045	1136800	1189926	1364479	2170046	2646255	1440903	1.704	3.912	1.758	1.077
Closed	91151	17521	10897	96968	10131	10790	12694	20575	25333	13195	1.583	3.714	1.521	892

	8	42	59	3	58	35	14	39	05	36				
%	95%	97%	94%	90%	89%	91%	93%	95%	95%	92%				
PPR	41420	33429	59307	97824	94348	73358	62718	71448	46346	51648	55	39	70	55
%	4%	2%	5%	9%	8%	6%	5%	3%	2%	4%				
PPA	0	619	1267	3222	3701	2082	2368	2824	1540	1274	2	1	2	2
%	0.0%	0.0%	0.1%	0.3%	0.3%	0.2%	0.2%	0.1%	0%	0%				
Open, excluding PPR and PPA	2095	11447	10684	10315	25593	35451	29979	38235	65063	68445	65	158	71	56
%	0.2%	0.6%	0.9%	1.0%	2.3%	3.0%	2.2%	1.8%	2%	5%				

Unit: thousands euros
Source: Boletins de Fundos de Pensões, 1995-2000, ISP

Another important aspect to take into account is the distribution of members of closed and open pension funds by sector of activity. The majority of members are found to belong to the financial sector and to sponsor a pension plan that represents the first pillar of social security.

The dominance of defined-benefit plans (DBP) is still in evidence, despite their declining trend (Table 5).

Table XI: Number of closed pension funds by type of pension plan

Closed pension funds	1995	1996	1997	1998	1999	2000	2001	2002	2003
Defined-Benefit	200	204	199	191	190	188	178	168	157
Complementary to Social Security	100	94	79	77	74	70	67	63	53
Integrated	77	75	62	60	57	54	51	47	40
Non-Integrated	23	19	17	17	17	16	16	16	13
Independent of Social Security	100	110	120	114	116	118	111	105	104
Defined-Contribution	7	7	8	9	8	9	8	8	12
Mixed	1	2	4	4	5	8	9	11	14
Of which Contributory Plans	11	12	14	16	17	22	21	21	19

Source: Boletins de Fundos de Pensões, 1995-2000, ISP

Table XII: Types of closed pension funds by type of pension plan – Total amounts

Unit: million euros

Closed Pension Plans	1999	2000	2001	2002	2003	2004	2005	2006
Defined-Benefit	12.231	13.005	14.033	15.045	15.322	14.126	17.717	19.650
S.S. complementary	*2.174*	*2.095*	*3.374*	*1.826*	*1.594*	*1.632*	*1.925*	*2.068*
Integrated	2.093	2.042	3.319	1.771	1.545	1.581	1.872	2.014
Non-integrated	80	53	55	54	50	51	53	55
S.S. independent	*10057*	*10,910*	*10.659*	*13.220*	*13.723*	*12.494*	*15.792*	*17.581*
Defined-Contribution	14	17	20	21	31	35	30	83

Mixed	28	120	124	159	210	227	264	282
Total	12.273	13.142	14.177	15.225	15.563	14.387	18.011	20.015

Source: ISP

Only about half of them are complementary to social security, which signifies that much remains to be done before the pension funds fully perform their intended second-pillar role. Furthermore, the potential for integration should be realised. The funds' third-pillar role could also be reinforced, as long as the proportion of PPR and PPA funds is correspondingly increased. The number of funds that finance a contributory plan is small, meaning that the majority of sponsors are the ultimate responsible for bad pension investment policy results.

About 50% of the pension funds have a value size lower than 2500 thousands euros. Nevertheless, this percentage does not represent more than 1% of the total of funds under management. The phenomenon of concentration is equally visible in the distribution of pension funds by members/sponsors: approximately three-quarters of the funds have only one member, yet this corresponds to more than three-quarters of the total of funds under management and to 25% of the total number of members. The biased structure is maintained, although less pronounced, in the distribution of pension funds according to the number of participants.

In Portugal, there is no available data on the rates of return by pension fund under management[11]. Only aggregated data is available.

Table XIII: Rate of return of pension funds

Nominal rate of return[12] (%)	1999	2000	2001	2002	2003	2004	2005	2006	2007
Total pension funds	7.9	3.1	-2.2	-3.4	8.2	7.2	9.1	8.8	6.3
Closed pension funds	8.1	3.3	-2.2	-3.5	8.3	7.3	9.2	9.0	6.5
Open pension funds	3.5	0.7	-1.0	-1.1	6.0	4.8	6.0	5.3	3.1
Retirement saving pension funds	1.92	1.20	-0.20	-0.36	4.30	3.6	4.3	4.2	2.6

[11] Except for PPR/Es and PPAs.
[12] According to ISP management costs are negligent.

Stocks saving pension funds	9.33	-5.11	-13.05	-13.9	21.1	17.3	18.2	29.1	14.0

Source: Relatório do Sector Segurador e Fundos de Pensões, 2003, ISP

These results reflect either the investment strategy as factors as the type of pension fund, the nature of benefices allowed by the pension plan, the characteristics of the population involved, the term structure of liabilities, the funding status, the intervention of plan sponsors, and the pension funds' asset portfolio composition. The later is available, showing the large proportions held in government securities, bonds and shares[13] and reflecting the ceilings and rules of legislation.

Table XIV: Asset composition of pension funds

Type of Assets (%)	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Government securities & equivalent	44,4	39,5	34,3	30,4	21,7	22,37	27,6	26,1	21,0	24,3	25,3	21,7
Bonds & other debt stocks	29,8	29,4	28,2	26,6	26,3	24,31	22,7	24,0	19,4	17,8	15,3	12,6
Shares	8,5	10,5	17,9	24,6	28,6	23,72	19,8	17,0	19,2	21,6	21,3	29,8
Trust units in FIM & FII[14]	3,3	6,4	8,5	8,0	8,4	11,82	13,33	12,0	17,6	23,0	21,7	22,0
Real estate & property	3,8	3,8	3,5	3,9	4,3	5,05	5,87	8,8	9,8	10,8	8,1	7,8
Deposits	9,8	10,2	7,5	6,3	10,5	11,25	10,45	12,2	8,3	8,2	1,8	4,8
Other assets	0,3	9,2	0,1	0,2	0,2	1,48	0,25	0,0	4,8	-5,2	6,5	1,4
Value of funds (million euros)	6.670	7.926	9.645	11.060	12.437	13.766	14.826	15.331	16.265	15.186	18.982	21.185

(a) Including bonds quoted and non-quoted on OECD Member-States' stock exchanges
(b) Including venture capital funds
(c) agr (95-98)
Source: Boletins de Fundos de Pensões, 1995-2000, ISP

5. Conclusion

Underlying the global movement of the social security reforms, spurring individual choice, is an implicit assumption about behavior, namely that the individual-citizen to whom the responsibility of choice has been handed is a well-informed economic agent who acts rationally to maximize his self interest.

However, in the real world, peoples' decisions are subject to several restrictions:

[13] The former are viewed as an important component, both as an appropriate instrument with which to guard against inflation and as a source of growth in the fund's value, while the latter enjoy advantages of diversification of systematic risk.

[14] Investment funds.

- bounded rationality, in the sense that certain types of decisions and problems may be simply too complex for individuals to master on their own;
- bounded self-control, in the sense that individuals have the right intentions or beliefs, but they lack the willpower to carry out the appropriate changes in behavior; and
- bounded self-interest or bounded selfishness, in the sense that many individuals do seek to maximize their personal welfare, yet they prove far more cooperative and altruistic than economic theory predicts they will.

The recognition of theses constraints are very important for the design, the management and the regulation of retirement systems. Plan sponsors and policymakers are getting more aware of these issues taking actions toward consumer education and regulation.

The development of pension plans, either occupational either personal, in Portugal, justifies a deep look to the problem of individuals' capacity to protect themselves adequately in the absence of proper financial education and consumer regulation. Further research is needed on this issue.

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