

Public Pensions and the Welfare State in Europe: An Impossible Relationship since the 2008 Crisis

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Abstract

The economic and financial crisis that began in 2008 has raised the need to review the economic feasibility of what we know as the welfare state, as the State now has difficulty assuming the economic cost of keeping the services running, together with the fact that over many years of social struggle the citizens have gained what society considers as rights, which should not be terminated by any governments, independent of their political ideology. As a result of the crisis, one of the aspects with most impact has involved pensions and their viability. Pension policy has suffered phenomena such as falling birth rates, increased life expectancy, and labor markets modified by the decline in employment. This report starts by reviewing the concept of pensions and then looks at pensions in Europe over recent years as well as how the crisis has affected their feasibility. (141 words)

Keywords: Public Pension. Welfare State Crisis

Introduction

The pensions system should consider the following items (Barr and Diamond, 2010):

- Mechanisms to distribute consumption throughout life to prevent the lowering of income and ensure adequate resources for older people, and
- Redistribution of income to alleviate poverty.

In order to achieve these objectives it must also consider the costs of achieving them. As a useful guide:

- The main objective of a pension is economic protection in old age, achieved through the distribution of consumption, insurance, poverty relief and redistribution.
- The main objective of a pension design is to optimize protection during old age, including the cost of providing this protection

The purpose of pensions is to maintain well-being throughout life and provide shelter when income decreases. Therefore the pension's objective is distribution of consumption during an individual's life, so that people transfer some of their income from maturity to retirement, enabling a reasonable rate of substitution when the individual leaves work and it becomes retires. The objectives of pensions are based on 3 fundamental points: the first is to prevent poverty and achieve a minimum standard of living, in other words it is redistributive; the second is allows consumption to be distributed between the working stage and active or passive retirement; and the last is to increase pension revenue through the existence of private plans. Redistribution is when pension systems can redistribute income over a lifetime, complementing the role of progressive taxes on annual income. Lifetime redistribution can be achieved by paying pensions to low earners that are a higher percentage of their previous earnings (i.e., a higher replacement rate), thus subsidizing the consumption smoothing of lower earners.

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Since life-long earnings are uncertain from the perspective of an individual, such a system provides some insurance against low earnings. There can also be redistribution towards families, for example paying a higher pension to a married couple than to a single person, even though both families have paid the same contributions. On the other hand, consumption allows people to try to maximize their well-being, not at a single point in time, but over time. Someone who saves does so not because extra consumption today has no value, but because he values that extra consumption in the future more highly than extra consumption today. A teenager who saves for an aero plane ticket is making a judgment that they will get more enjoyment from the trip than from spending the money now. Similarly, most people hope to live long enough to be able to retire. Thus a central purpose of retirement pensions is consumption smoothing – a process which enables a person to transfer consumption from their productive middle years to their retirement, allowing them to choose their preferred consumption trajectory over their working and retired life.

And finally, poverty relief targets resources at people who are poor over their lifetime, and who are therefore unable to save enough. On a practical note, poverty relief must also address transient poverty. Such programs may target all the elderly or concentrate on those who have contributed to the pension system. Nowadays, in the OECD many countries use the PAYG (Pay-As-You-Go) system, where (Navarro, 2010) today's workers finance the pensions of those who no longer work. However, in the capitalization system, used in the USA, there is no such transfer between generations. Therefore, the question that we should ask is who pays the pensions of those who are retiring now, and who will be retiring for the next few years. The answers are the state. This means enormous expense, very high transition costs, both from the purely economic point of view as well as administrative one. Furthermore it is a socially very difficult process to accept, which would necessarily lead to a much wider social debate to the extent that the proposal was more radical.

In addition, any process towards pension privatization is seen socially as a loss of profits, forcing the government to give sufficient coverage to this issue to ensure conviction legitimacy and acceptance. However, experiences in countries like Chile show that it is a very difficult process because the social costs are very evident, and the number of people who do not have a pension or who have lost their rights is very high. For this reason, the main target of compulsory pensions programs has been, and still is (Hotzmann 1999), to provide income support during retirement, focused on individuals, not people, with a general uncertainty about the future evolution of mortality, volatile income and prices, a lack of instruments in the appropriate financial market, and political reference to poverty alleviation and income redistribution.

Traditionally it has been considered that public intervention was important the welfare state compared to the result of individual decisions in a world of asymmetrical and distorted information. Historically, the pensions system in Europe has not been homogeneous (Rubio 2013). In the case of the liberal regime, pensions were intended to alleviate poverty through lump-sum benefits (flat-rate), i.e., consisting of a determined-amount. In the first states, access to pensions depended on the applicant. Later on, some countries established a universal pension financed by general taxation of wage, but their amount was not generous, because of the main goal driving these systems. This is the reason private schemes developed, and why so often the basic pension is topped up with individual and professional pensions.

On the other hand the Bismarck model sought to ensure a similar level to working life income. Consequently, the idea is not only to maintain living standards but also ensure a good level of income. The financing depends on the contributions made by employers and employees, so that the pension is conditional on the quantities made by each. Its connection with wages meant the exclusion not only of social groups not integrated into the labor market, but also of employees with high wages and self-employed workers.

Finally, I would like to comment on other types of pensions (Barr and Diamond, 2006):

Fully-Funded Schemes are based on savings – contributions are invested in financial (or possibly physical) assets, the return on which is credited to the scheme's fund. Funding is thus a method of accumulating financial assets, which are exchanged for goods at some later date. While fully-funded schemes can take many forms, in principle they always have sufficient reserves to pay all outstanding financial liabilities (or equivalently, liabilities are defined by available funds). If there is no redistribution across generations, a generation is constrained by its own past savings and a representative individual gets out of a funded scheme no more than he has put in.

If, in addition, there is no direct redistribution across individuals, when an individual retires, the pension fund will be holding his past contributions, together with the interest and dividends earned on them. This accumulation finances the person's consumption in retirement, through an annuity or in some other way.

Defined-Benefit Schemes: In a defined-benefit (DB) scheme, a worker's pension is based not on his accumulation, but on his wage history, possibly including length of service. A key design feature is the way wages enter the benefit formula. In a final-salary scheme, pensions are based on a person's wage in his or her final year, or few years. Alternatively, the pension can be based on a person's real or relative wages over an extended period, including an entire career. In either case, a person's annuity can be, in effect, wage indexed until retirement. The worker's contribution is generally a fraction of his or her wage; thus the sponsor's contribution is conceptually the endogenous variable in ensuring the scheme's financial balance. DB schemes can have assets held in a central pool.

Defined-Contribution Schemes: In a defined-contribution (DC) scheme, also called funded individual accounts, each member pays into an account a fixed fraction of his or her earnings. These contributions are used to purchase assets, which are accumulated in the account, as are the returns earned by those assets. When the pension starts, the assets in the account finance post-retirement consumption through an annuity or in some other way. In a pure DC scheme (i.e., one with no redistribution across individual accumulations), a person's consumption in retirement, given life expectancy and the rate of interest, is determined by the size of his or her lifetime pension accumulation, preserving the individual character of a person's lifetime budget constraint.

European pensions in recent years

Following the debate that has taken place in recent years about the necessary pensions reforms in order to assure pension financing in the coming years in Europe, an analysis has been undertaken of the future of pensions in the upcoming decades. Governments and social partners disagree on possible future solutions, but the magnitude of the problem requires the implementation of appropriate initiatives for the future.

The basic pension scheme is based on the three keystones of Leuven (European Parliament Committee, 2014)

- The first keystone serves as a means for avoiding old-age poverty; the second focuses on adequate pensions in terms of the replacement rate, whereas the third is meant to provide an opportunity for individuals to save towards increasing their retirement income.
- The first aspect is mostly defined by the progressivity of its distribution and its social security and poverty-prevention aspects. Defined benefits and a minimalistic approach to adequacy therefore prevail, with pay-as-you-go (PAYG) schemes being the rule. The level implies the necessity to cover all the population's basic and essential needs. It is financed by State Budget, its management is public and basic services include healthcare, family support, disability, orphan hood, unemployment and basic retirement.
- Second-keystone schemes, whether PAYG or funded occupational pensions, are designed to ensure a greater proportionality to income and ensure a higher replacement rate for middle- and high-income individuals; these have been subject to reform in recent years.
- Voluntary funded schemes (third keystone) present a set of challenges to policy-makers even in terms of their mere definition. Voluntary occupational schemes form part of these under the classical denomination, the distinction from semi-mandatory occupational schemes is narrow and often presents no conceptual differences, and the overlap with other financial products and policies is strong. Due to the pressure on PAYG and increasingly also on second-keystone schemes, these have gained in relative importance, but their development remains low.

The following European geographical areas can be distinguished:

Northern Europe: countries such as Denmark, Finland. Great Britain, Holland. Ireland and Sweden have a basic level, but the system is orientated towards greater capacity for free choice by the people, and there is a universal benefit system, which is covered by State Budget and a widespread mandatory professional system but with private management based on capitalization.

Eastern Europe: the pensions system has move from PAYG to capitalization.

Southern Europe: Spain. Greece, Italy and Portugal have a system based on public funding through the PAYG system, but private supplementary schemes are developing rapidly.

Central Europe: These countries are in the middle ground between a capitalization and distribution system.

Germany has developed reserve accounting systems in companies for pension commitments, and in France there is a public system together with the private system, in recent years, the problem of pension has not ceased to be serious problems in the most European countries, since their populations are among the longest-lived in the world. In 2008, the first year of crisis, this problem exacerbated short-term viability and long term sustainability. With this in mind, in the European Union's 97th plenary session, from 8 to 10 October, 2012, the Committee of the Regions wrote the White Book; Agenda for Adequate Safe and Sustainable Pensions, which gave a series of recommendations to secure pensions in the future.

It also establishes the necessity to balance increasing life expectancy and rise in retirement age. Perhaps is the first time there has been correlation between the two variables, and establishes that people do not have the obligation to leave the labor market at the fixed retirement age, and seeks to promote the participation of workers aged between 55 and 65 years old. Furthermore it establishes the need to develop the private pensions system to allow long-term adequacy of pensions and consequently enhance the sustainability of public finances, since the replacement rate will decrease over time. Nowadays the current rate in Spain is 80% of salary average, representing a 20% loss in purchasing power. In Italy this drop is 30%, in Germany 60%, while in Great Britain the public pensions system covers 30% the last payroll listing.

However, the European Commission does not want capitalization plans or pensions to be free of regulation. It acknowledges the fact that the legal framework should be strengthened, with three important points: the first being the need for worker participation to monitor the rights, expectations and profitability of investments, the second is the promotion of tax incentives, and the third is restricting the mobility of workers. In conclusion (Suarez 2014), the initiatives set out in the White Book represent a commitment for achieving mixed model as the ideal solution for ensuring the sustainability and adequacy of pensions of an ageing population and the solution to the economic crisis that began in 2008. This growth in pension spending through demographic change brings with it the need for tightening access requirements, such as delayed retirement age and an enhanced complementary private mechanism to take up the slack left by public pensions, and partially substitute these.

As a result of this process, the European Union urged governments to undertake structural reforms in order to contain public expenses with the aim that public expenses must not exceed 3% in the coming years. These reforms led to the liberalization of markets with reduced labor costs for increasing economic productivity and competitiveness of European countries. The Commission recommended that the countries began to develop systems of capitalization, which allowed additional response to the progressive aging of the population, allowing greater financial resources and efficient European Markets. Pension reforms between 2009 and 2013 have sought sustainability by ensuring adequate minimum levels, combined with the need to increase the proportion of private pensions to complement the promotion of a longer working life, by offering the possibility of working beyond the legal retirement date and improving the administration system in order to reduce administrative costs.

Moreover, many European Countries pensions are based on defined contributions, which ensure the pension amount and the risk of is falling on workers, employers and in many cases the State, but the intensity of the crisis and the demographic challenges did not available the defined contributions system, affecting the risk of them pensioners. The mechanism used involved delaying the legal retirement age in the coming years, rising to 68 in the next decade, in cases including Great Britain, the Netherlands, Germany, France, and Spain. In the case of other countries such as Italy and Sweden, voluntary retirement was established as 62 and 61, respectively. The following table shows the overview of the reforms made by European Countries between 2009 and 2013

Table 1: Reforms in the European union 2009-2013

	Coverage	Adequacy	Sustainability	Work Incentives	Administrative Efficiency	Diversification/ Security	Other
Austria	X	X	X				x
Belgium				X			
Czech Republic			X	X		X	
Denmark				X	X		
Estonia		X	X	X	X	X	
Finland	X	X	X	X		X	
France	X	X	X	X			X
Germany		X	X	X			
Greece		X	X	X	X		
Hungary		X	X	X		X	X
Iceland							X
Ireland	X		X	X		X	X
Italy		X	X	X	X		
Luxembourg	X		X	X			
Netherlands						X	
Norway		X	X	X			
Poland	X		X	X		X	
Portugal	X	X	X	X		X	
Slovak Republic			X		X	X	
Slovenia	X	X	X	X	X	X	X
Spain		X	X	X			
Sweden		X	X	X	X	X	
United Kingdom	X	X	X	X	X	X	X

Source : Pensions at a Glance 2013 (OECD)

It can be seen that the countries have reforms to their pension systems in the period under scrutiny. In some countries, the reforms entail phasing-in measures under the terms of legislation passed in the previous five years. Since then, reform has increasingly focused on improving financial sustainability and administrative efficiency in response to the consequences of the economic crisis and aging populations. Countries, like Greece and Ireland that have revised the way in which they calculate benefits On the other hand (Díaz-Giménez 2014) the globalization and intensifying competition in the most commercial and intensive labor activities' threaten the traditional European welfare state, which is unable to compete with much lower labor costs in many emerging countries. The industrial relocation brought about by globalization, has concentrated unemployment in certain activities, shortening many careers and, therefore, reducing the pensionable rights of many workers.

The following table shows the percentage evolution of pension expenses during this period.

Table 2: % Pension expenses in % GDP 2008-2013

	2008	2009	2010	2011	2012	2013
EU (28 countries)	11.3 (p)	12.3 (p)	12.3 (p)	12.3 (p)	12.5 (p)	:
EU (27 countries)	11.3 (p)	12.3 (p)	12.3 (p)	12.3 (p)	12.5 (p)	:
Euro area (18 countries)	11.7 (p)	12.7 (p)	12.7 (p)	12.8 (p)	13.1 (p)	:
Euro area (17 countries)	11.8 (p)	12.7 (p)	12.8 (p)	12.8 (p)	13.1 (p)	:
Belgium	11.1	11.9	11.8	12.1	12	12.4
Bulgaria	6.7	8.3	8.8	8.2	8.1	8.6
Czech Republic	7.8	8.7	8.8	9.2	9.4	9.3
Denmark	11.7 (p)	13.1 (p)	12.7 (p)	12.8 (p)	12.8 (p)	13.6 (p)
Germany	12	12.8	12.4	11.9	12	11.9 (p)
Estonia	6.9	8.9	8.7	7.8	7.6	7.5
Ireland	5.9	6.8	6.9	6.7	6.9	6.8
Greece	12.3 (p)	13.1 (p)	13.7 (p)	15 (p)	17.7 (p)	:
Spain	9.2	10.1	10.6 (p)	11.1 (p)	11.8 (p)	12.6 (p)
France	13	14.3 (b)	14.3	14.5	14.8	15 (p)
Italy	14.3	15.4	15.5	15.5	16.1 (p)	16.5 (p)
Cyprus	6.2	6.7	7.5	8	8.6	9.8
Latonia	5.7	8.3	10.1	8.7	8.3	8.2 (p)
Lithuania	7.3	9.5	8.4	7.6	7.6	7.2 (p)
Luxembourg	8.7	9.7	9.3	9.4	9.7	9.6
Hungary	10.8	10.9	10.7	10.8	9.3	9.4
Malta	8.7	9.2	9.4	9	9.2	8.9
Netherlands	11.2	11.9	12	12.1	12.4	13.3 (bp)
Austria	13.6	14.5	14.6	14.3	14.5	14.8
Poland	11.5	12.2	11.6	11.2	10.9 (p)	:
Portugal	12.7	13.6	13.7	14.4	14.5	15.7
Romania	7.5	9.2	9.3	9.1	8.7	8.3
Slovenia	9.5	10.7	11	11.2	11.4	11.7 (p)
Slovak Republic	7	8.3	8.2	8.1	8.3	8.5 (p)
Finland	10.4	12	12.2	12	12.5	13
Sweden	11.1	12.2	11.3	11.1	11.6	11.9 (p)
United Kingdom	10.3	11.2	11.2	11.2	11.5 (p)	11.3 (p)
Iceland	6.9	7.8	7.5	8.3	8.5	8.7
Norway	7.5	8.6	8.3	8.3	8.5	8.8
Switzerland	10.9	11.5	11.4	11.5	11.6	11.7

Source: Eurostat 2016

From my point of view there has been stability in pension expense in most countries, but this has not been uniform, with some asymmetry between northern and southern countries, with strong increases in Greece, Italy, Spain or Portugal and minor northern countries such as Sweden, Austria, and Norway. For 2014, OECD data shows that Spain's pension expense 10, 5% of the GDP is almost 8% in the OECD average. Countries that spend the highest percentages on public pensions were Italy with 15.8, Greece with 14.5 %, France 13.8%, Austria 13.2%, Portugal 13%, Slovenia 11.4%, Poland 10.8%, and Germany with 10.6%. Another point to consider is the current retirement age in different countries, since it is different from official date and this means the pension expense may be greater than one might expect since the life time of each retiree is increasing

Table 3: Effective retirement age versus theoretical retirement age in 2014

Countries	Men		Years	Women		Years
	Effective	Official	Retired	Effective	Official	Retired
Germany	62.7	65.0	19.4	62.7	65.0	22.8
Austria	62.2	65.0	19.9	60.2	60.0	25.4
Belgium	60.0	60.0	21.1	59.3	60.0	25.8
Denmark	63.0	65.0	18.3	60.6	65.0	23.3
Slovenia	62.3	58.7	16.5	59.5	58.3	23.8
Slovak Republic	61.1	62.0	18.0	58.2	62.0	25.4
Spain	62.2	65.0	20.4	63.1	65.0	23.7
Estonia	63.7	63.0	14.9	62.9	62.0	20.9
Finland	61.9	65.0	20.0	62.3	65.0	23.6
France	59.4	61.2	23.0	59.8	61.2	27.2
Greece	61.3	62.0	20.5	60.0	62.0	24.6
Netherlands	62.9	65.2	19.2	61.9	65.2	23.5
Hungary	62.6	62.5	15.4	60.1	60.0	22.0
Ireland	65.4	66.0	17.3	62.6	66.0	22.9
Iceland	69.4	67.0	15.3	68.0	67.0	18.6
Italy	61.4	62.5	21.1	61.1	62.0	25.4
Luxemburg	61.9	60.0	19.7	60.8	60.0	24.3
Norway	65.2	67.0	17.9	64.3	67.0	21.8
Poland	62.1	65.3	16.6	59.5	60.3	23.9
Portugal	67.0	66.0	15.6	66.2	66.0	19.4
United Kingdom	64.1	65.0	18.5	62.4	62.5	22.7
Czech Republic	63.3	62.7	16.5	60.5	61.3	22.8
Sweden	65.2	65.0	18.2	64.2	65.0	21.9
Switzerland	66.3	65.0	17.8	64.5	64.0	22.6

Source: Pensions at a Glance 2015 (OECD)

The average effective age of labor market exit was 64.6 for men and 63.1 for women across all countries in 2014. Across all OECD countries, the average effective age of labor market exit for men is six months higher than the average normal retirement age, while for women it is the same as the average normal retirement age for women. The lowest effective exits are found in France for men and in the Slovak Republic for women at 59.4 and 58.2 years old, respectively. On the other hand there is a notable distortion in both legal and effective retirement ages in countries such as Portugal and Iceland, which have the highest effective retirement ages, and Belgium and France, which have the lowest. Also the difference between the legal and effective ages is wide in countries like Spain, Greece, Italy and Finland. This has led to the need to restrict early retirement more in most European countries, resulting in reforms to reduce the gap between the legal retirement age and the actual one.

This encourages private pensions for the coming decades because, as discussed, public pension replacement rates are dwindling. In this sense, we can see whether private pension systems are really becoming important to ensure an adequate pension support in the future. We should analyze the behavior of pension replacement rates, both from public point of view and a private one, and compare these with % Public Pension Expenditure 2015.

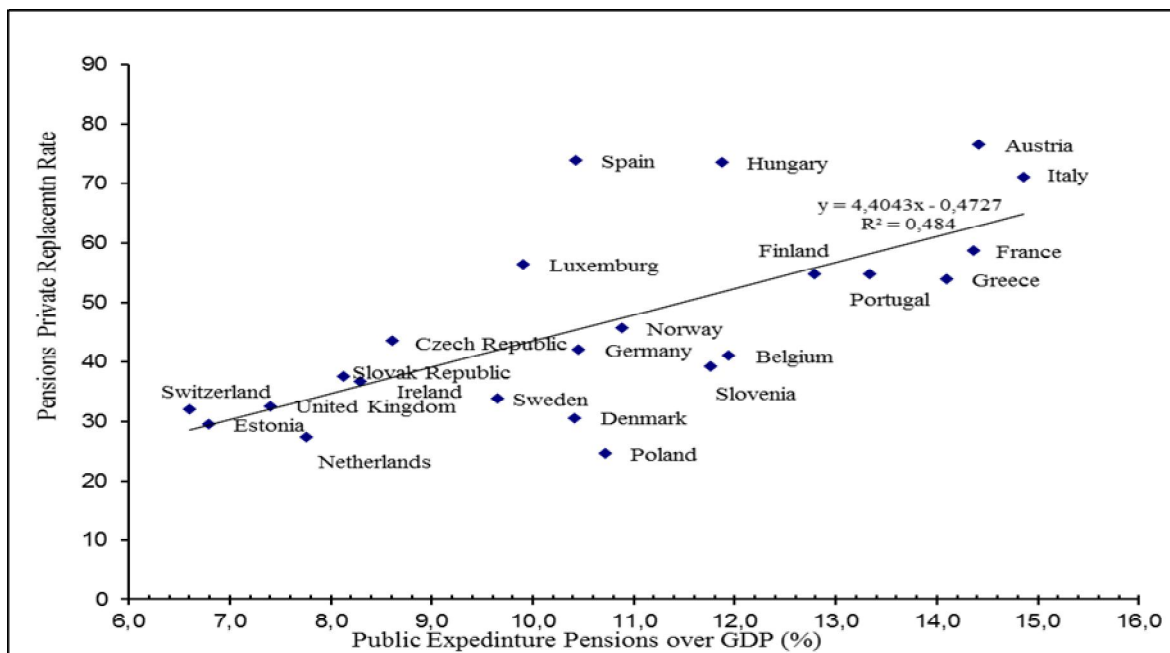
Table 4: % Public pension expenses in GDP 2015 versus replacement rate pensions

Countries	GPP/GDP	Public	Private	Total
Austria	14.4	76.6		76.6
Belgium	11.9	41.0	15.1	56.2
Czech Republic	8.6	43.5	39.2	82.8
Denmark	10.4	30.6	47.9	78.5
Estonia	7.8	27.4	24.8	52.2
Finland	12.8	54.8		54.8
France	14.4	58.8		58.8
Germany	10.5	42.0	16.0	58.0
Greece	14.1	53.9		53.9
Hungary	11.9	73.6		73.6
Ireland	8.3	36.7	43.0	79.7
Italy	14.9	71.2		71.2
Luxemburg	9.9	56.4		56.4
Netherlands	6.8	29.5	61.1	90.7
Norway	10.9	45.7	18.1	63.8
Poland	10.7	24.5	24.3	48.8
Portugal	13.3	54.7		54.7
Slovak Republic	8.1	37.6	28.3	65.9
Slovenia	11.8	39.2		39.2
Spain	10.4	73.9		73.9
Sweden	9.7	33.9	21.7	55.6
Switzerland	6.6	32.0	23.1	55.2
United Kingdom	7.4	32.6	34.5	67.1

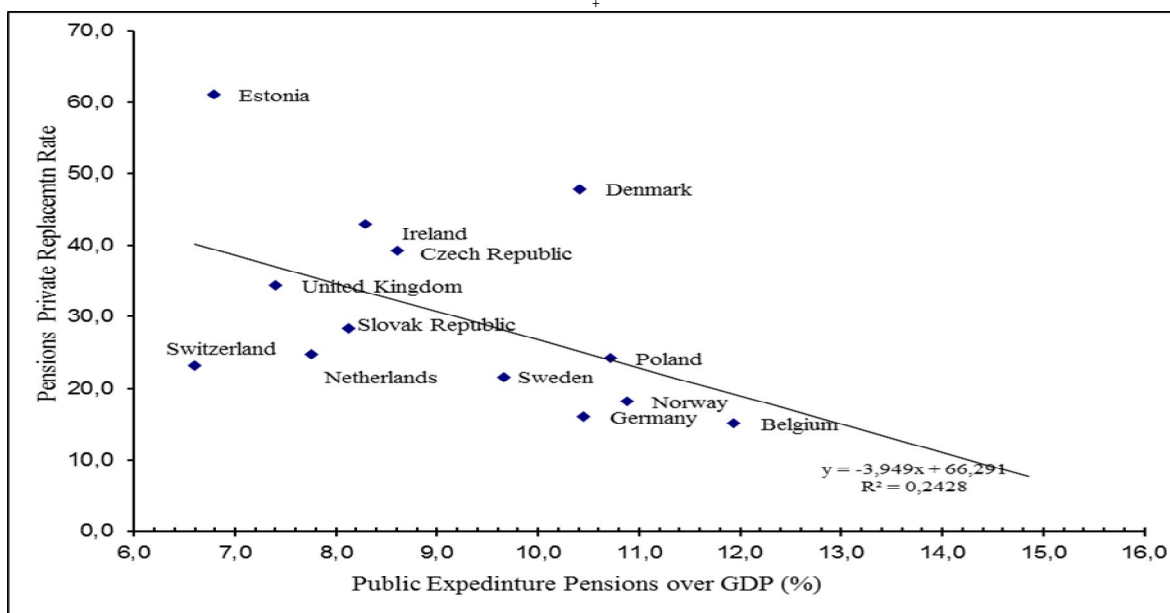
Secondary Source: Pensions at a Glance 2013 (OECD):

Original Source: OECD Pension Models

The GPP/GDP is higher, from 6.6 in the Switzerland to 14.9 in Italy. The replacement rate, which is the ratio of dividing the average pension and the average salary, shows significant variation from 76.6 in Austria to 29.5 in the Netherlands this shows that countries in Europe have very different ways of organizing their pensions. For example Spain lets the greatest burden fall on the State and the amount is determined by historical employment contributions. Pensions in Great Britain and the Netherlands are independent of a worker's contribution history and are designed to support only basic welfare, with workers voluntarily contributing to private pensions. As can be seen in Figure 1, the regression reveals that the slope of the line is positive 4.40, but with a determination coefficient of 0.48, which may explain the large dispersion in spending and pension replacement rates among the countries in the European Union. The asymmetry of their economies could be the cause of these distortions, suggesting a need to reform not only pensions, but also true convergence between countries

Figure 1: Correlation between Public Pension Expenditure in GDP with replacement rate of Public Pensions

Source: Proprietary work, 2016

Figure 2: Correlation between Public Pension Expenditure in GDP and replacement rate of Private Pensions

Source: Proprietary work, 2016

However, the correlation between pension's expenditure and the replacement rate of private pensions is negative with a negative slope of 3.49 and a low determination coefficient, which may imply that private pensions are not really seen as replacing public pensions and still the latter are key for the citizens. The negative slope does not allow us to say whether public pensions are currently discouraging private pensions or if the low level of savings has not allowed citizens to generate resources for private pensions.

European Pensions: Future Viability

One of the greatest challenges facing the welfare state and pensions in particular in developed countries is demographics. Economic growth is possibly one of the main causes of reduced birth rates. This phenomenon is known as the demographic-economic paradox and points to the existence of an inverse correlation between improved living conditions and the number of children born per woman, in other words, the birth rate. This demographic challenge over the coming decades can be seen in the evolution of the population distribution from 2010 to 2050. The following table shows the average percentages of the population for age groups.

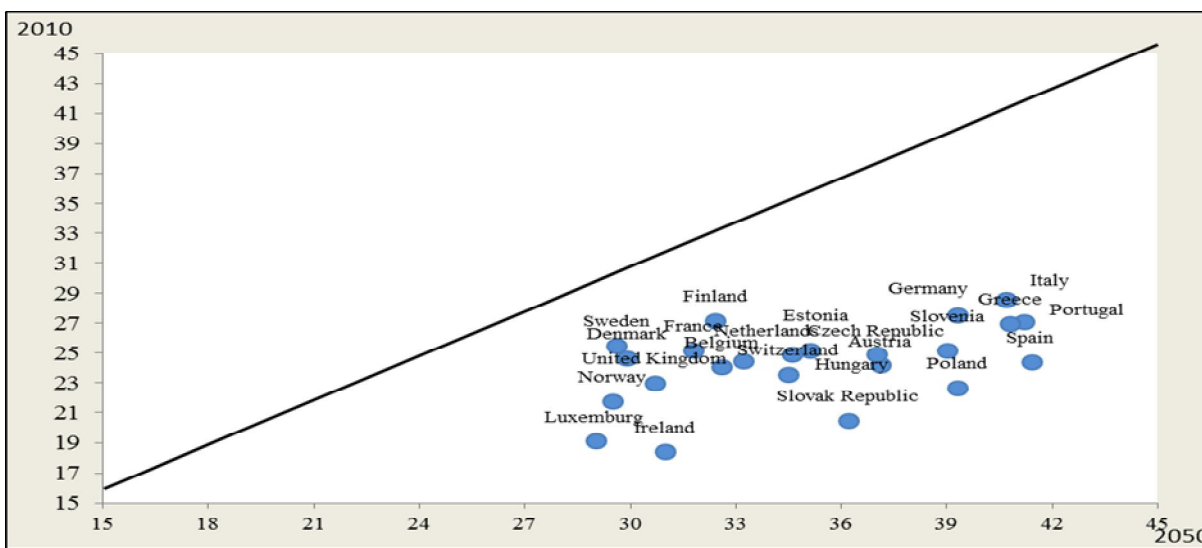
Table 5: Averages percentages of the population by age groups 2010-2050

Countries	2015				2050			
	0-14	15-59	60+	80+	0-14	15-59	60+	80+
France	18.5	56.3	25.2	6.1	16.8	51.4	31.8	11.1
Spain	14.9	60.7	24.4	5.9	12.7	45.9	41.4	14.0
Italy	13.7	57.7	28.6	6.8	13.0	46.3	40.7	15.6
Switzerland	14.8	61.7	23.6	5.0	14.6	50.9	34.5	11.7
Austria	14.2	61.6	24.2	5.1	13.5	49.4	37.1	12.9
Finland	16.3	56.5	27.2	5.1	15.6	52.1	32.4	10.7
Portugal	14.1	58.9	27.1	5.9	11.7	47.1	41.2	13.8
Sweden	17.3	57.2	25.5	5.1	17.4	53.0	29.6	9.5
Luxemburg	16.4	64.5	19.1	4.0	16.1	54.9	29.0	8.8
Belgium	16.9	58.9	24.1	5.5	16.2	51.3	32.6	10.6
Germany	12.9	59.5	27.6	5.7	12.4	48.3	39.3	14.4
Norway	18.0	60.3	21.8	4.2	16.8	53.7	29.5	8.8
Ireland	21.8	59.9	18.4	2.9	17.6	51.4	31.0	8.5
Greece	14.6	58.4	27.0	6.4	12.4	46.9	40.8	13.0
Slovenia	14.8	60.0	25.2	4.9	14.5	46.5	39.0	12.2
Netherlands	16.5	59.0	24.5	4.4	15.1	51.6	33.2	11.8
United Kingdom	17.8	59.2	23.0	4.7	16.6	52.7	30.7	9.7
Denmark	16.9	58.4	24.7	4.2	16.1	54.0	29.9	9.6
Poland	14.9	62.4	22.7	4.0	12.4	48.2	39.3	9.7
Czech Republic	15.0	60.0	24.9	4.1	14.5	48.5	37.0	9.1
Estonia	16.1	58.7	25.2	5.2	15.4	49.5	35.1	9.1
Hungary	14.6	60.5	24.9	4.4	13.8	51.6	34.6	7.4
Slovak Republic	15.1	64.3	20.5	3.0	13.7	50.1	36.2	7.6

Source: United Nations. World Population Prospects- The 2015 Revision

The 2015 United Nations review expects the population of Europe to grow from 738 million in 2015 to 734 M in 2030 and 707 M in 2050. Some countries are expected to experience a population decrease of more than 15% and the birth rate is currently below a level sufficient to maintain a stable population in the long term (about 2.1 children per woman on average); in most cases, for decades the birth rate has been below the level of replacement. As can be seen in Figure 3, the percentage increase in population aged 60 and above by 2050 will be very important, although not all countries will see the same increases.

In countries like Italy, Portugal and Spain the increase will be higher than in the northern countries, such as Denmark and Norway, as these countries are already suffering the effects of an aging population and the percentage of people aged more than 60 year is quite significant. This makes it likely that asymmetries in pension's expenditure in the various European countries will continue, and the convergence requested by the European Commission does not take into consideration the demographic asymmetry in the different countries. In addition, all these elements should be correlated with the labor market, as in European countries labor reforms have allowed contracts labor with reduction in the social security contributions causing the fall in income that as a result they have impact on expenditure and one of their games is spending on pensions.

Figure 3: Comparison of populations aged 60 and above in 2010 and 2050

Source: Proprietary work, 2016

All the countries studied will face a number of challenges in the coming decades: an increase in the expected age of retirement; an increase in the percentage of the population over the age of 60; and a birth rate below the replacement rate, defined as the birth rate that allows the population of a particular place to remain stable. These changes will increase dependency rates because the aging population increases the numerator of the rate and the population decrease reduces its denominator. The lengthening of the expected retirement duration increases the number of years that people are paid their pensions, and leads to an expensive system, which ever the form is employed by a country.

As can be seen in Table 6 the increase in the expected retirement duration varies according to sex and country, but for most countries the difference by 2060 -2065 will be around 5 years, with a maximum of 5.7 years longer in Portugal for women and 4.9 in Ireland for men. On the other hand the minimum is found in Estonia for women, with 3.6 years, and in Hungary for men, 3.7 years. Nevertheless, Italy shows the largest, in the case of women, with 25.1 %, while 29.3% for men this is seen in the Czech Republic, with 29.3%. The least increase is seen for Hungary: 21.0% for women and 21.5% for men.

The increased expected duration, together with a decreased birth (or fertility) rate from 2045 to 2050, with stabilization below the replacement rate, will lead to negative population. As we have mentioned, the European population is expected to go from 738 million in 2015 to 707 M in 2050, meaning that between 2010 and 2050 the dependency rates, defined as the number of people older than 65 divided by the number of people aged between 15 and 64 years, which in theory are the contributors and underpin the public pension system, will increase in all countries,

Table 6: Expected duration of retirement 2010-2015 versus 2060-2065 (years). Distribution by sex

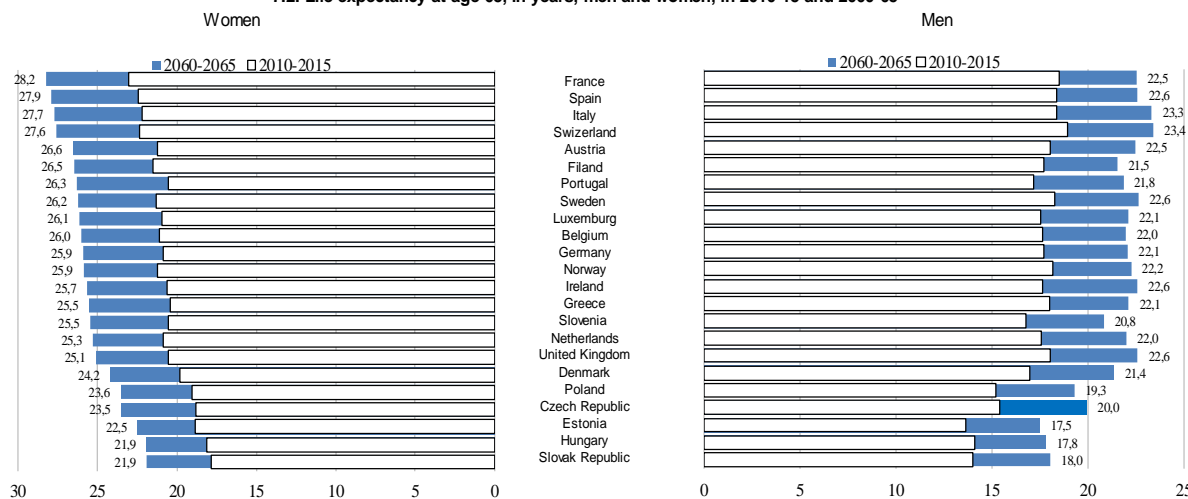
Countries	Women				Men			
	2010-2015	2060-2065	Difference 2015-2065	%	2010-2015	2060-2065	Difference 2015-2065	%
France	23.04	28.25	5.2	22.6	18.54	22.53	4.0	21.5
Spain	22.46	27.91	5.5	24.3	18.34	22.60	4.3	23.2
Italy	22.16	27.72	5.6	25.1	18.38	23.32	4.9	26.9
Switzerland	22.37	27.60	5.2	23.4	18.95	23.42	4.5	23.6
Austria	21.22	26.55	5.3	25.1	18.04	22.46	4.4	24.5
Finland	21.53	26.51	5.0	23.2	17.69	21.54	3.8	21.7
Portugal	20.54	26.29	5.7	28.0	17.17	21.83	4.7	27.1
Sweden	21.34	26.24	4.9	23.0	18.28	22.64	4.4	23.9
Luxemburg	20.97	26.14	5.2	24.7	17.53	22.10	4.6	26.1
Belgium	21.12	26.03	4.9	23.2	17.64	21.96	4.3	24.5
Germany	20.89	25.92	5.0	24.1	17.68	22.09	4.4	24.9
Norway	21.28	25.87	4.6	21.6	18.16	22.25	4.1	22.5
Ireland	20.60	25.66	5.1	24.6	17.64	22.59	4.9	28.0
Greece	20.46	25.54	5.1	24.8	17.99	22.12	4.1	23.0
Slovenia	20.54	25.46	4.9	23.9	16.77	20.83	4.1	24.2
Netherlands	20.86	25.28	4.4	21.2	17.61	22.01	4.4	25.0
United Kingdom	20.58	25.08	4.5	21.9	18.05	22.61	4.6	25.2
Denmark	19.79	24.21	4.4	22.3	16.99	21.36	4.4	25.7
Poland	19.04	23.56	4.5	23.7	15.21	19.31	4.1	26.9
Czech Republic	18.79	23.49	4.7	25.0	15.43	19.95	4.5	29.3
Estonia	18.87	22.46	3.6	19.1	13.64	17.49	3.9	28.2
Hungary	18.10	21.91	3.8	21.0	14.10	17.81	3.7	26.3
Slovak Republic	17.85	21.90	4.1	22.7	14.02	18.05	4.0	28.8

Secondary Source: Pensions at a Glance 2013 (OECD):

Original Source: United Nations. World Population Prospects- The 2012 Revision

Figure 4: Expectation Duration of retirement 2010-2065

7.2. Life expectancy at age 65, in years, men and women, in 2010-15 and 2060-65



Source: Pensions at a Glance 2013 (OECD):

The next step is to compare the increase in expected retirement duration with the increase for spending on pensions as a percentage of GDP in the same period. Table 7 shows the difference between the periods 2010 and 2060.

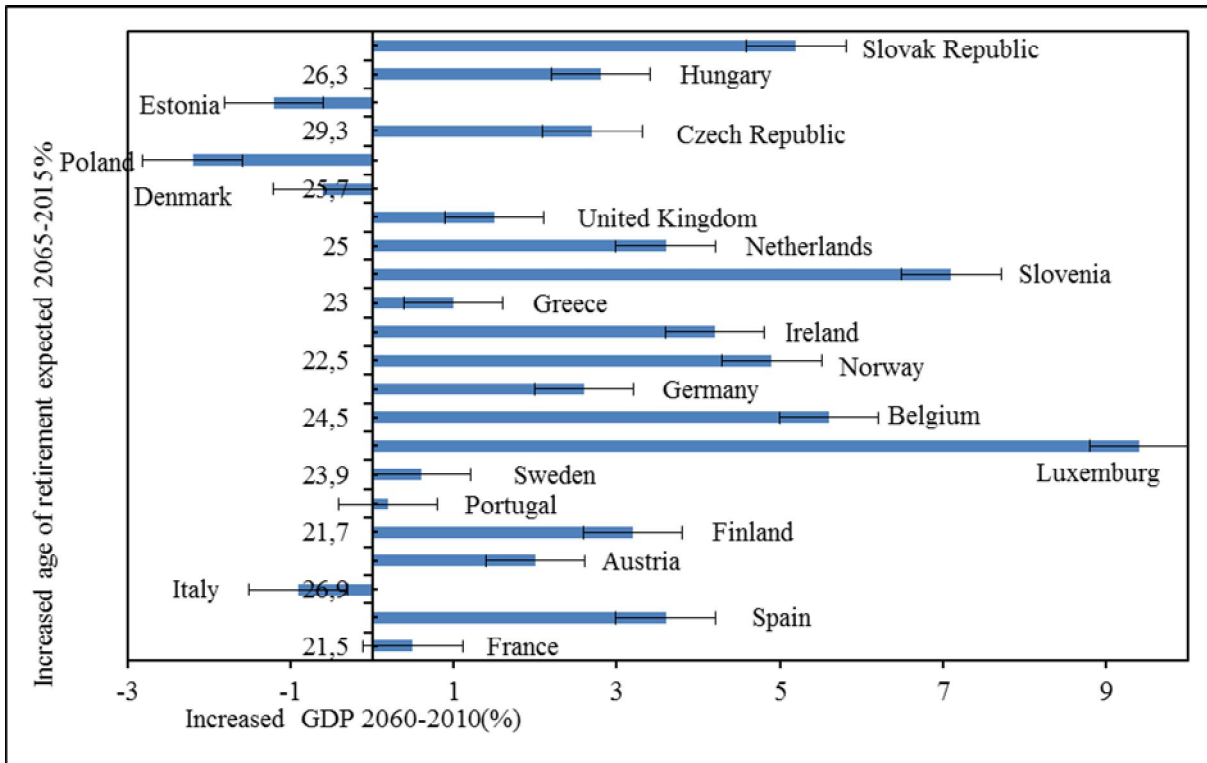
Table 7: Difference between 2010 and 2060 for spending on pensions as a % of GDP

Countries/ Years	2010	2015	Difference 2015-2010	2060	Difference 2060-2010
EU (27 Countries)	11.3	11.2	-0.1	12.9	1.6
Euro area (17 Countries)	12.2	12.1	-0.1	14.1	1.9
Belgium	11	11.9	0.9	16.6	5.6
Czech Republic	9.1	8.6	-0.5	11.8	2.7
Denmark	10.1	10.4	0.3	9.5	-0.6
Germany	10.8	10.5	-0.3	13.4	2.6
Estonia	8.9	7.8	-1.1	7.7	-1.2
Ireland	7.5	8.3	0.8	11.7	4.2
Greece	13.6	14.1	0.5	14.6	1
Spain	10.1	10.4	0.3	13.7	3.6
France	14.6	14.4	-0.2	15.1	0.5
Italy	15.3	14.9	-0.4	14.4	-0.9
Luxemburg	9.2	9.9	0.7	18.6	9.4
Hungary	11.9	11.9	0	14.7	2.8
Netherlands	6.8	6.8	0	10.4	3.6
Austria	14.1	14.4	0.3	16.1	2
Poland	11.8	10.7	-1.1	9.6	-2.2
Portugal	12.5	13.3	0.8	12.7	0.2
Slovenia	11.2	11.8	0.6	18.3	7.1
Slovak Republic	8	8.1	0.1	13.2	5.2
Finland	12	12.8	0.8	15.2	3.2
Sweden	9.6	9.7	0.1	10.2	0.6
United Kingdom	7.7	7.4	-0.3	9.2	1.5
Norway	9.3	10.9	1.6	14.2	4.9

Source: Data from the United Nations: World Population Prospects- The 2012 Revision

To this effect it can be seen that in none of the cases can the increase of GDP offset the percentage rise in retirement age, so the conclusion is clear: in the long-term European countries need to find public or private mechanisms to ensure a minimum level of spending on pensions, but they may experience future social problems in areas such as social cohesion or intergenerational justice.

Figure 5 shows the differences between countries if percentage variation in expected age of retirement and spending on pensions are correlated. Although the data for expected age of retirement is for 2065-2015 and GDP is for 2060-2010 these both cover a 50 year period, so any possible deviation in years of the time horizon is therefore not relevant, and error bars have been used to compensate for this possible deviation. It can be seen that the behavior between countries is different; some countries such as Italy, Poland and Denmark even have negative increases in GDP. It may be that a forecast over such a long period for both ages of retirement and GDP is risky, but it does give us an idea that we may have a problem in the future, and there must be changes or solutions if these effects are seen.

Figure 5: Correlation of variables in % of the expected duration of retirement and expenditure of GDP

Source: Proprietary work, 2016

An expanding welfare state and maintenance of the pension levels wanted by the citizens of European countries requires a full-capacity, growing economy, something that has been endangered by the demographic dynamics of the last decades. Birth rates in most European countries are very low and their populations are rapidly aging. The average age in the European Union in 2030 is expected to be 45, with the proportion of young people between 15 and 24 years of age declining. The generation of baby boomers, i.e., those that were born approximately between 1945 and 1970 will account for more than 25 per cent of the total population. All these parameters mentioned must be closely monitored in the following years, since we are now speaking of predictions, without forgetting the combination of two crucial elements when determining the pension systems and that, in my point of view, are important: economy and people. The first should not be imposed over the second, but rather should be an incentive to search for creative and economically effective measures that will ensure the viability of the pensions system in the coming decades.

Perhaps more efficient distribution systems must be generated, but capitalization systems should also be encouraged, not to be seen as an element of more liberal capitalism, but as a complement to a dignified old age after a person's working life. Finally there is a need for maximum transparency on the part of the actors, including the companies, trade unions and governments involved in the decisions, in order to avoid, as far as possible, unnecessary panic in the citizens, as this issue is very sensitive in their daily lives.

Conclusion

In the next few decades, as the bulk of the population transforms from young cohorts to mature ones, major demographic changes will be produced, and the economic crisis will increase the pressure for pension reforms in many countries of the European Union. The reforms have so far focused on the public pensions system with modifications retirement age, increasing this in order to have more years to compute the amount of pensions, restriction of early retirement and the implementation of measures to reconcile work and retirement, and mitigate the possibility of a decline in the rate of public pension's replenishment. Although many countries had already initiated reforms before the financial crisis, the reforms have gained momentum in recent years. Around 20 countries have increased the age of retirement since 2010.

There has also been legislative support, encouraging private pension plans, as well as the freedom to choose the type of investment and manage the risk associated with the pension that enables different forms of pensions, as financial income, lifetime or single repayment at the beginning of the age of retirement. The basic concept of pensions, the first keystone, is as a means to avoid poverty in retirement, and many countries have considered this entirely the responsibility of state pensions. This concept has evolved due to the financial crisis. The second keystone is important for compensating for the reduction or freezing of public pensions and ensuring an adequate replenishment rate that allows retirees to live a dignified life. The last keystone allows people who save to have a series of extra revenues once retirement age is reached.

However, we must consider the fact that currently the public system and distribution remains the key source for most countries. Capitalization systems are relatively recent or immature, so that their scope is marginal, but governments have promoted or created the foundation so that in the coming years they become a fundamental aspect of the pension system, although this may lead to a blurring of the boundaries between the private and public sectors. Many of the reforms are economic, although there are approaches that take into account the social dimension. Reducing expenditure is a recurring theme, modifying all parametric elements and not an increase in income, which could compensate for an increase in the number of future pensioners. Moreover, in many cases little attention is paid to the negative effects of this aspect, which can generate poverty and exacerbate social inequality. In addition there is a clear commitment to the promotion of private plans, and although the legislation is becoming more demanding, the crisis has left their weaknesses in the air. In this context, the crisis year of 2008 demonstrated the volatility of investment in pension funds. The OECD (2012) calculates that in 2008 pension funds lost an average of 22.5 per cent of their earnings. In rich countries, shares and real estate values dropped 40 percent in the same year (Burtless, 2012). On the other hand, public funds have been able to withstand the crisis better since they are less exposed to the vagaries of the market, but in contrast the budget deficit for unemployment has raised their viability.

Perhaps the future should see a change in the culture of the welfare state with regard to pensions, and we must consider the need for the capitalization systems to compensate for the possible deficits as normal, but this is no less true of the need to establish taxation systems on income, or perhaps capital, transforming this fund into a decent income for retirees, since most of them will still depend on the public system. However, this system must not discourage savings and should demonstrate a secure pension system. In the end we need an economic view and generator of efficiency in the market with compression to the social elements, since an unjust and uneven society does not advance the whole of society in a uniform manner, a key point in twenty-first century society.

It is therefore necessary that all these elements are applied if governments and society intend the people to have two retirement systems: one of distribution funded by the state and another of capitalization to compensate for the expected decline in the first.

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