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Contributory pension systems: the Spanish case.

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ABSTRACT: In the context of an increasingly aging population, the sustaining of public pension systems becomes more and more challenging. The growing number of pensioners together with the recent slowdown in the entire world -and thus, the decrease of contributions to the schemes-, forced the economies to review their pension systems and carry out reforms that assures their sustainability.

This project aims to give a basic knowledge of how the world is currently dealing with pension systems and what is the case of Spain, overviewing to the possibilities that the country has in order to avoid the system failure. Lastly, the Spanish pension system is assessed using the Melbourne Mercer Global Pension Index, so the weaknesses of the system can be prioritized in future reforms.

KEYWORDS: Pension system, contributory pension, Melbourne Pension Index

Table of Contents

1. INTRODUCTION

The current debate about the sustainability of public pension systems and the unrest of population who fear that they might not be able to receive a pension in the future, makes this topic a perfect choice for those who aim to improve the system and help with some solutions. It is necessary that the issue is constantly reviewed so better systems can be achieved. Thus, the choice of the topic of pension system for this paper is not merely coincidence, but the result of the many debates opened about the Spanish pension system.

The objective of the project is to give the reader a basic knowledge about the contributory pension systems, specially how has it been managed in Spain.

For that, many questions are addressed: What is a contributory pension system? How are they organized? What are the problems that they are facing? What is the particular case of Spain? After answering all these questions, we will have an overview of the entire systems and the particularities of Spain. It will also give us room to answer a necessary question: What can we do to improve the Spanish system?

To answer this last question, the one that can probably contribute something new, two topics have been reviewed: the widow's pension and the comparison of Spanish system to other pension schemes in the world. For this, the Melbourne Mercer Global Pension Index has been replicated for the Spanish system, what implies the most innovative part of the project, as it has not been computed for Spain so far. It has been calculated using the same guide that they use for the rest of countries, which is available in their website, and the data from different websites with Spanish statistics and Spanish regulation. Once that the score is obtained, we can then compare Spanish system to the other states that are included in the Index, finding the Spanish pension weaknesses for which the government should intervene first.

The paper will be structured in the following way: Section 2 will provide us a big picture of the pension systems, including the classification of pension systems and the different schemes used in the world as well as the common challenges that they are facing. In section 3, the Spanish case will be explained, including its origin, its situation and the different contributory pensions that form it. This last point will be important for the forth section, that proposes changes in one of the pensions and then in some issues that affect the entire system, as the personal scores in the Melbourne Pension Index suggests, after its calculation. Section 5 concludes with the main points of the project, as well as some complications that occurred during its developing.

2. OVERVIEW OF CONTRIBUTORY PENSION SYSTEMS.

A pension, as defined by the dictionary, is an amount of money paid regularly by an institution to a person as a financial aid for a particular reason. The origin of a public financial assistance for workers that were unable to work dates back to the Bismarck's welfare programs. As he stated in one of his speeches on 1884, his aim was to "give the working man the right to work as long as he is healthy; assure him care when he is sick". Although this program was created for few groups of workers and moderately claimed, it is now considered as the first modern public pension system.

During the first years of XX century, few support programs alike were introduced in some countries in order to palliate the effects of First World War and Great Depression. However, only certain workers such as firefighters, soldiers, policemen or teachers could benefit from these plans. It is not until the end of Second World War that public pension systems are introduced for majority of the population and in most of the countries. This spread of public pension plans was a consequence of the ever-growing proportion of workers living longer but reaching a certain age with impediments to keep producing as in their previous years. Once working becomes unproductive, limited or even impossible; the risk of poverty due to unemployment is high without the presence of these programs. Thus, governments from many countries have assumed the charge of safeguarding a minimum living standard for that part of the population that cannot work, especially elder people.

1.1 Classification of pension systems.

The government role of providing this financial assistance to people unable to work, evolved in two different pension systems, fundamentally because of the dissimilar saving culture of the geographical areas (Perotti and Scwienbacher, 2009). The main taxonomy of pension systems can be the following:

1. Beveridge system, mainly used in Anglo-Saxon countries. This system provides a flat-rate pension to all the individuals in need (i.e. people unable to work with an income lower than the established minimum) or to all the retired people in general. It is called the non-contributory or care pensions system because it is financed by ordinary taxes. The aim in this system is to avoid poverty in old-age.
2. Bismarck system, spread in mainland Europe, which provides financial support under some circumstances such as old age, death of the family breadwinner, disability… It is a contributory system, so the income under those conditions is contingent on the working earnings during the employment period, and hence, their

> contribution to the public Social Security entities. That means that the pension is related to the person's earnings and paid with the share of worker's income devoted to the Social contributions. The main motive of this scheme was to maintain a standard of living once the worker reaches retirement.

In practice, we seldom find countries with one of the schemes in its pure form. As we will see later in this text, most countries tend to use a mix of both, including non-contributory benefits in a form of flat-rate or means-tested income and a contributory earnings-related scheme, managed by the state or private funds.

Besides, contributory systems can be organized in different ways. First, depending on the money flow, there are redistribution systems in which the current worker's contributions pay for the current pensions (also known as pay-as-you-go or redistributive system); and the capitalization system in which every worker's contributions are invested for the payment of the future benefits (that is, funded system).

Second, the contributory system can be defined-benefit, so the future benefit will be determined according to the contributions made during the working ages; or defined-contribution, meaning that every worker will account for a benefit depending on the capitalized accumulated contributions and the life expectancy. Also, there is another system that can be an intermediary of defined-benefit and defined-contribution systems (Börsch-Supan, 2014): the points system. In this pension scheme, post-retirement benefits are computed according to the points earned during the working ages, differing among countries.

However, it is not always the State that manage the pension system, as there are few countries that rely on the private sector (private insurance companies or private pension funds) and regulate them to provide a broad scope.

Even though classifying the pension systems seems easy, the truth is that there are as many pension schemes as countries. In fact, the limits to separate one system from another are that simple in practice, especially after the latest reforms to guarantee the sustainability of the pension systems. There are several ways of arranging one kind of pension scheme and the diverse tools used within the same scheme, makes it hard to classify it in one specific group, or at least have doubts of which designation would fit better. For instance, consider the case of a country with a contributory system such as Spain. If the government stablishes a maximum, binding for great part of the population (for example, 80%), what would be the limit to call it Beveridge system? What about a pension system like Ireland with a non-contributory flat rate for all retirees and complemented with earning-related income? Is it too different from a Bismarck system with a minimum pension? Of course, there are

different legal and conceptual points that would be able to make us differentiate between both. As a controversial topic, it is discussed that some governments try to convert from one system to another with parametric reforms (such as the "silent Reform" in Spain) (Conde-Ruiz and Gonzalez, 2017) or how defined-contribution schemes can be achieved with defined-benefit systems, with no need of changing the entire formulae (Cichon, 1999).

Leaving this last topic aside, the next subsection will try to provide an overview of the main pension schemes in the world. The aim is to give a big picture of pensions around the world. Due to the probable length that it could take talking about all the countries, the OECD countries are the only ones considered to have more variety (not only European countries, for example) in different continents.

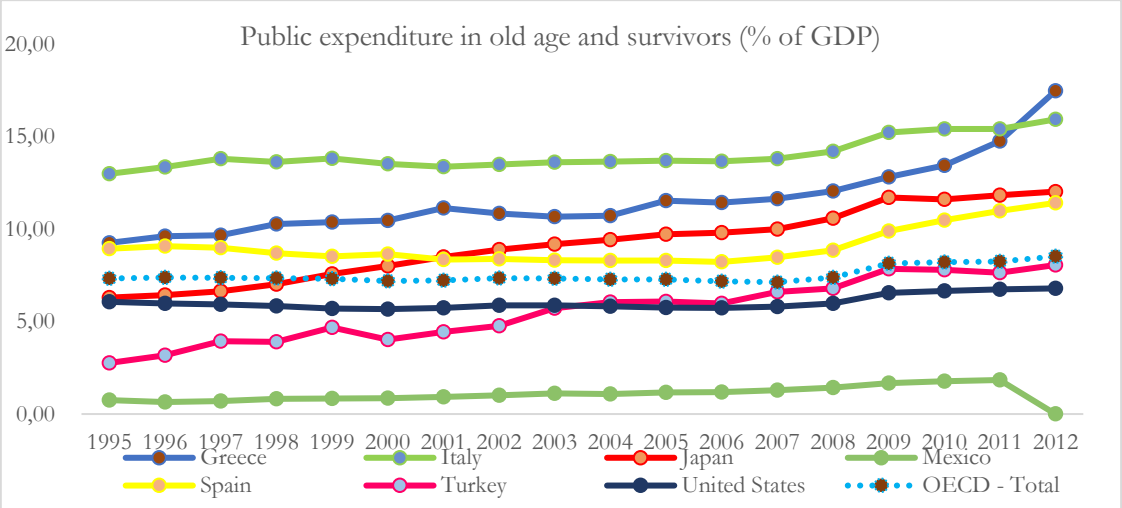
1.2 Pension systems around the world.

Ever since the use of pension system has extended, countries have tried to implement the scheme that better suited its society, economy (particularly the propensity of their inhabitants to save) and situation in general. As mentioned before, it is hard to see a pure system of one kind in any country. A pension system based only in Bismarck ideas has been most widely used, while the Beveredgian scheme was predominant in Anglo-Saxon countries. However, majority of governments have implemented a mix of both, providing a minimum means-tested or flat-rate non-contributory benefit to avoid poverty together with an earnings-related benefit to maintain the standard of living. Also, defined-benefits systems were the most common choice in the origin of pension schemes, related to the level of savings and private funds too; pace that is changing towards a defined-contribution scheme.

In addition, the unfunded version of these schemes is the most widespread. Due to this system, and also because of the aging of population, financial crisis and the increase of public debt, the sustainability and equity of the pension schemes are being the primary study focus by institutions and researchers in the last 30 years.

It is not a subject largely discussed in vain, as the expenditure of old age and survivors' pensions represents the 8 per cent in OECD countries, as shown in the graph below, what can be consider a representative amount and more when we realize that the trend is going upwards (the data for Mexico for 2012 is not provided, so it is shown as 0, however it is increasing, reaching 3% of GDP in 2015). Only the countries with the highest and lowest expenditure rate are shown, to ease the visual perception in the graph.

Graph 1. Public expenditure in old age and survivors in some countries as % of GDP.



Source: OECD Database

As we can see, the biggest increase in this expenditure was in Greece for year 2012, although the country with the highest expenditure was Italy. Spain, in yellow, has an average expenditure in relation with the GDP close to the average. Mexico is the country with the lowest spending among the OECD countries. In general, all the countries have gone through an increase in their public expenditure in the pension system during the last 30 years. That is the main reason why several reforms in the systems of most of the countries have taken place in the last ten years, as the crisis have make it urgent the change to a sustainable system.

The problem is not only the money used for that social concept, but also the risks that it entails trying to cut back. As it ensures the income of people in old age, reducing this quantity of benefits or the eligibility of the programs, can create a serious problem of poverty among elders and, hence, a social issue that can create uproars.

1.2.1 The Five Pillars structure recommended by World Bank

As discussed in the World Bank paper recommendations on pension systems (Holzmann and Hinz, 2005), every pension scheme should be adequate, affordable, sustainable and robust. All these characteristics ensuring that there is no poverty due to increase in longevity, the scheme can be financed with no issue and with no incentive problems (such as quit working) and able to bear adverse economic or demographic situations. To achieve this goal, the same paper proposes a five-pillar structure, arguing that the more diversified is the future benefits, the less risk they will have to face and, hence, the more efficient they will be, as the different pillars are subjected to different risks. The pillars are the following:

- A zero pillar, based in a non-contributory element that provides a minimum income either means-tested or flat-rate benefit. This will reduce the risk of people out of the labor market for some reason or some other liquidity issues.
- First pillar considers the income earned during the life time, being a contributory element. Its objective is to assure the worker some portion of the income he generated during his professional career. This pillar faces the risks that are prominent: demographic and political risks. However, in its absence, many people that do not plan the future or do not have enough income to save, will also have problems when retired.
- Another element that would have this ideal pension system is a mandatory individual pension account, that would promote saving and only be subject to economic and interest risks.
- The third pillar comprises all the voluntary savings for the future that the individual can have. Flexible and free to choose, the future elders would have the chance to adapt to their needs, their expected income and their mobility needs.
- The last pillar, the forth one, is an "informal intrafamily or intergenerational sources of […] support to elderly". This would include all the income or benefits in kind that the elders can have access to (such as family help, home ownership, health…)

This is the point that countries are advised to reach. Nevertheless, there is still a lot to do from most of them to reach that system.

1.2.2 Systems used by OECD members.

When considering the countries of OECD, most of them fall to give a minimal protection, that is the zero pillar. The first one is also broadly used, when the second one is still unavailable in many countries. Besides, there are some countries that lack first pillar for example but have a third one. In Table 1, below, the public systems of countries in OECD has been summarize by defined-contribution or defined-benefit scheme to get a global picture of the pension schemes, including the type of financing (redistributive or funded). It has been also included the private pension system in case of a lack or minimal public contributory system, being the private one compulsory.

Table 1. Public pension system (retirement and survivors') in OECD countries.

	NON-CONTRIBUTORY	CONTRIBUTORY		
		Type	Financing	
			PAYG	*Funded*
AUSTRALIA	MT	DC*		X*
AUSTRIA	MT	DB	X	
BELGIUM	MT	DB	X	
CANADA	FR	DB		X
CHILE	MT	DC*		X*
CZECH REPUBLIC	MT+FR	DB	X	
DENMARK	FR	DC*		X*
ESTONIA	MT+FR	DB	X	
FINLAND	MT	DB	X	
FRANCE	MT	DB+PS	X	
GERMANY	MT	PS	X	
GREECE	MT	DB	X	
HUNGARY	MT	DB	X	
ICELAND	FR	DB*		X*
IRELAND	MT+FR	DB	X	
ISRAEL	MT+FR	DC*		
ITALY	MT	Notional DC	X	
JAPAN	FR	DB	X	
KOREA	MT	DB	X	
LATVIA	MT	Notional DC	X	
LUXEMBOURG	MT+FR	DB	X	
MEXICO	MT	DC*		X*
NETHERLANDS	MT+FR	DB*	X	
NEW ZEALAND	FR			
NORWAY	MT	Notional DC+DC*	X	
POLAND	MT	Notional DC+DC*	X	
PORTUGAL	MT	DB	X	
SLOVAKIA		PS+DC*	X	
SLOVENIA	MT	DB	X	
SPAIN	MT	DB	X	
SWEDEN	MT	Notional DC+DC*	X	X*
SWITZERLAND	MT+FR	DB*	X	
TURKEY	MT	DB	X	
UNITED KINGDOM	FR	DB(opt)	X	
UNITED STATES	MT+DB[1]	DB[1]	X[1]	

(1) → In USA, the pensions are financed through general taxes, taxes on private funds and contributions.
MT → Mean-tested DB → Defined-benefit
FR → Flat-rate DC → Defined contribution
Source: *Own elaboration with data from OECD and European Commission (bibliography)*

From Table 1, we can see that non-contributory pillars are mostly means-tested (27 out of 35), whereas 12 out of the 35 have part or the entire non-contributory system as a flat rate. Also, as previously mentioned, the defined-benefit scheme is used the most, although there is a trend towards the defined-contribution scheme as seen in the latest reforms of many states (OECD, 2016). Out of the 35 countries, 12 of them rely strongly in the private funds, being mandatory. Only France, Germany and Slovakia have pension points system and 5 countries use notional defined-contribution schemes. It is also worth mentioning how New Zealand only have a zero pillar and there is no public or mandatory private earnings-related benefit, though the KiwiSaver voluntary fund is being more and more promoted.

Finally, most of the public programs are unfunded, that is, pay-as-you-go. In recent years, many countries have introduced a special fund that gathers the surpluses of the Social Security accounts in good years and use them in times when the expenses are higher than the collected contributions (such as Spain), to use that fund in poor financial periods, to prevent the increase of contribution rates for firms and workers.

1.3 Challenges of pension systems.

Broadly speaking, pension systems were created under certain circumstances and situations that have changed terribly. For instance, the fertility rate was high, what was favorable to that kind of system and the number of workers was increasing due to the incorporation of women to labor force and the flow of immigrants. However, pension systems have not evolved as quickly. Instead, they have been slightly adapted not because of the change of living conditions, but to financial issues.

Pension expenditure depends on the number of pensioners and their replacement rate (i.e. the amount of the pension benefit regarding their earning during the working life) whereas the income to pay for that spending depends on the number of workers and their contributions (that is their income). Considering this equation, we can easily see how population ageing is one of the main concerns for pension systems.

People that are entitled to a pension is increasing in absolute terms, as life expectancy is increasing; and in relative terms, due to the low birth rate. In Table 2 we can see that, out of 195 countries, there are 33 in where life expectancy at birth for 2015 was above 80 years.

Table 2. Countries in the world with life expectancy at birth above 80 years (2015).

1	Hong Kong SAR, China	84,28	**12**	Korea, Rep.	82,16	**23**	Portugal	81,52
2	Japan	83,84	**13**	Canada	82,14	**24**	Ireland	81,50
3	Italy	83,49	**14**	Norway	82,10	**25**	New Zealand	81,46
4	Spain	83,38	**15**	Liechtenstein	82,07	**26**	Finland	81,39
5	Switzerland	83,20	**16**	Israel	82,05	**27**	Belgium	81,29
6	Iceland	82,86	**17**	Malta	81,95	**28**	Denmark	81,10
7	France	82,67	**18**	Austria	81,84	**29**	Germany	81,09
8	Singapore	82,60	**19**	Chile	81,79	**30**	Slovenia	81,08
9	Sweden	82,55	**20**	Netherlands	81,71	**31**	Bermuda	81,01
10	Australia	82,45	**21**	United Kingdom	81,60	**32**	Macao SAR, China	80,77
11	Luxembourg	82,23	**22**	Greece	81,59	**33**	Cyprus	80,31

Source: *World Bank Database*

The average for OECD countries was 80,3 years at birth for that year. With legal retirement ages of 64 years old as average for OECD countries, a person will enjoy pension benefits for more than 16 years, a considerable longer time compared to the 3 years in 1960 (as life expectancy was 67,4 as average in OECD countries) (OECD, 2015). This is the result without considering the real effective retirement age, that is lower in most of OECD countries due to early retirement; and that in the 60s and 70s the retirement age was higher than the current one. In short, pension plans that were structured to provide income for less than 10 years, have now the burden of a population that receives that benefit for double the years. Besides, this trend of ageing population is expected to increase, as life expectancy increases 16 months every 10 years (Doménech, 2015). Thus, a structural demographic problem is latent in many of the pension schemes. We can use the data in the table to get same conclusions from each country, bearing in mind that the legal retirement age of most of them is 65, 66 for countries such as Ireland and Portugal, 67 for Norway, Israel and Ireland; 62 for Greece, 61 for France and Korea and between 59 and 60 for Turkey, Luxembourg and Slovenia.

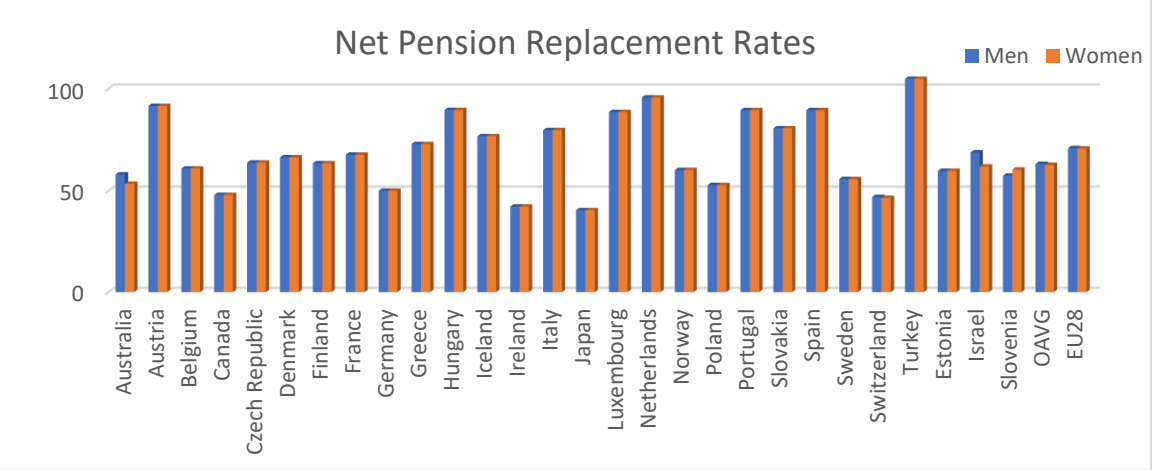
This issue is worsened when we consider the income side that finance the whole system, the workers and employers' contributions. Not only that workers per pensioner are decreasing in number due to the population ageing and low birth rate, but also the last financial crisis made the unemployment to rise in many countries, affecting the number of workers contributing to the system. Hence, this side is constrained by economic and demographic problems that can strive further the sustainability of pension schemes.

Then, we can conclude that the easiest way of controlling the spending in pension benefits is by decreasing the replacement rates (i.e. the ratio of pension benefit to previous earnings). The amount of benefits is the parameter that most countries are changing so as to ensure a

sustainable system. However, it is the most unpopular measure as it decreases the income of a big amount of population and place again the poverty risk debate in the spotlight.

As shown in Graph 2, below, net replacement rates were between 40% and 104,8% in 2015 for the main OECD countries included in the graph. The average for OECD is around 63%, whereas the average for the 28 countries in European Union is 71%. There are slight differences in replacement rates between men and women, but not very significant. Therefore, there might be countries that have room for further reform regarding the replacement rate that might shift most of this replacement rate to the private sector, as many countries already did.

Graph 2. Net replacement rates in different countries by sex.



Source: OECD Database

Therefore, diversifying the income sources after retirement among the pillars proposed by the World Bank (Holzmann and Hinz, 2005) would decrease the replacement rate from the government side but increasing it thanks to private personal funds, rising welfare and decreasing the systematic risk of population ageing and economic slowdowns.

So far, we have gained some knowledge about the notion of contributory pension system and some comparisons between countries. The idea was to see how all the public pension plans are facing difficulties to provide or maintain all the benefits for what they were created. In that way, we can see the context where Spanish public system is situated and where it has developed, facing the same problems as our neighbors. Thus, next sections will be devoted to look further into the Spanish system, including its origin within the country and latest reforms and propose minor changes that might be helpful for assuaging the sustainability problem.

3. SPANISH CONTRIBUTORY PENSIONS SYSTEM.

Spanish pension system has also been hit by these demographic and economic changes. Indeed, it is one of the countries that has been most affected. The reason is that during the time that other countries were extending and reinforcing their Social Security systems, the progress of Spanish social care was blocked by Franco's dictatorship, leading to a different development, especially when demographic and financial crisis erupted.

Besides, population aging is more severe (as we saw in Table 2 is the 4th country with highest life expectancy) and the last financial crisis entailed more unemployment in the country than in most of the European countries, as it popularly known.

2.1 Quick overview of Spanish pension system origin.

The different pace followed by Spain and other European countries was seen during Franco's dictatorship as well as the time when the first contributory pension system was created in Spain. It was because of the unequal spread of the Industrialization process that Spain was left regarding labor rights demand. For this reason, old-age security systems were very unpopular at their origin and they took long to reach a considerable proportion of the population (Arza, 2009).

A first optional old-age insurance was created by the government at the same time as the National Welfare Institute (in Spanish – *Instituto Nacional de Previsión INP*) in 1908, with a free and subsidized enrollment for people earning less than 4000 pesetas per year. It consisted on a defined-contribution plan, as the capital contributed was capitalized and converted to an annuity after retirement (Flores, 2015).

Due to its limited success, questionable sustainability and the social unrest occurring during 1917, the government enforced first compulsory Social Security system as a tool to appease the social uproar and several strikes resulting from the wartime that exponentially increased the cost of living. The system was called in Spanish "el Retiro Obrero Obligatorio (ROO)" and, after many politic issues, was completely introduced in 1921 and its aim was mainly to avoid poverty rather than a mechanism to keep a standard of living after retirement, as its average benefit was received as a big part of the pensioners (Terán, 2006).

After the stagnated period of war regarding political or welfare progress, Franco changed the character of the ROO to an old-age allowance, changing the system from capitalization to redistribution and including it in 1947 to the Compulsory Insurance of Old-Age and Disability (SOVI – Seguro Obligatorio de Vejez e Invalidez). For the first time in Spain, workers were paying the pensions of retired workers at that time.

2.2 Current Spanish pension system

This scheme evolved during the years to reinforce its basis and became a strong Social Security System defined by its contributory, redistributive and defined-benefit character; together with a non-contributory side for the Spanish nationals with the lowest income. It is funded in a mono pillar system, financed by the contributions of employers and employees, that creates the right of financial assistance for retired workers. Also, it has minimum and maximum pension amounts to assure a progressive redistribution.

It has suffered several reforms from 1985, that focused on parametric changes such as an increase in the number of contribution years, longer working period for the computation of the pension benefit, new way of indexing the pensions and incentives to postpone retirement and to join individual private pension funds.

Currently, the Spanish contributory system presents the following main indicators:

Graph 3. Main indicators of Spanish pension system.

MAIN INDICATORS OF SPANISH PENSION SYSTEM 2016

Pension expenditure as % of GDP		10,69%	
Average annual pension expenditure per capita		2.563€	
Average annual pension expenditure per +65-year-old habitant		13.686€	
Theoretical net replacement rate (2015)		89,50%	
Aggregate replacement ratio		55,49%	
Coverage ratio		108,05%	
Old-age poverty risk (2015)	Male	12,20%	13,70%
	Female	14,80%	

Source: Own elaboration using OECD, INE and Eurostat databases.

The figure that we can highlight the most is the theoretical replacement rate. This indicator measures the proportion of income that a pensioner can keep after retirement. It is computed as the pension divided by the salary during the working ages. Comparing this ratio to the rest of countries, we can say that our pension system seems to be generous. However, as discussed in Arza (2009), the theoretical rate does not approach to the effective rate as much as the aggregate replacement ratio. This ratio compares the current average pension to the average income. As argued in the paper, the theoretical replacement rate is computed without taking into account some particularities of the pension benefit formula, what makes it less generous as it may seem. For example, the author explains that to compute the pension amount the salary is not used, but the contribution basis that is lower and subjected to minimum and maximum limits. There are more influential factors that relate to the formula itself, but the early retirement also contributes to the reduction of effective replacement rate.

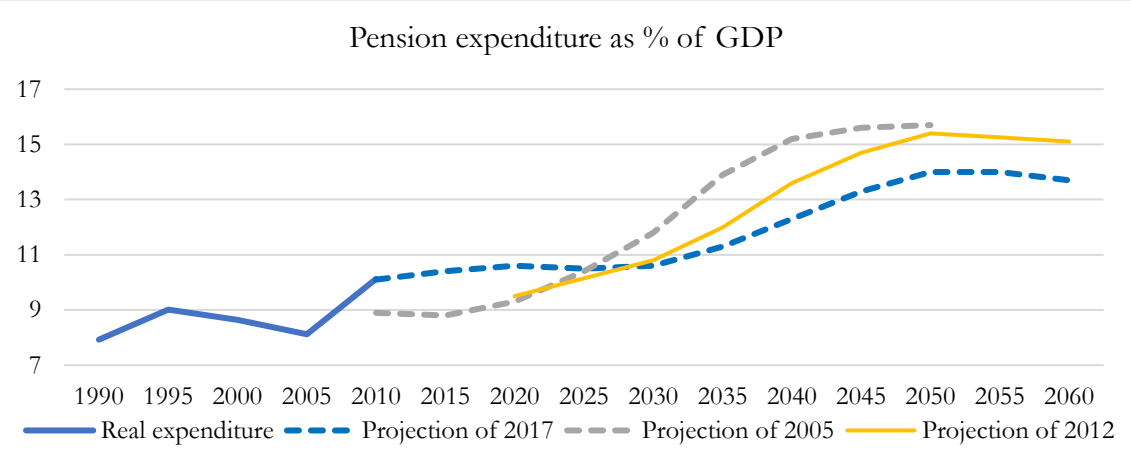
The advantage of having this odd benefit formulation, is the high progressivity of our system, as mentioned by the same author that suggest this issue.

On the other hand, and considering the risk of poverty (in the graph for that population over 65), poverty has been shift from this group to young people (18-24 years), that have now a risk of poverty of 32,5%, 15,5pp higher than 10 years ago (when the group +65 had 15,1pp more than in 2015) (*Eurostat database*)

Coverage ratio is computed as number of pensions to population over 65. The ratio is above 100% due to the possibility of receiving more than one type of pension simultaneously, and also because there are people under that age that can be getting early retirement, survivor or disability pension. If instead of using that data, we compute the coverage ratio with pensions paid for people over 65, the ratio would be 86%. Nevertheless, this data should be carefully considered as we would still face the problem of multiple pension benefits.

In relation with pension expenditure as percentage of GDP, Spain is below the European average (12,8%). However, in the absence of the reforms of 2011 and 2013, it was expected to double in 40 years in the best scenario (full employment and high employment rates). As we can see in the graph below, this projection changed with the introduction of the pension system reforms.

Graph 4. Public pension expenditure in Spain as % of GDP. Data and projections.



Source: Ahn et al (2005), Ageing report 2012 and Eurostat (2017)

The projections made of different years have been gathered in the graph. In 2005, even though the crisis did not reach the economy yet, the projections were a considerable increase in the expenditure with relation to GDP. At that time, it was expected in 2010 an expenditure of 8,9% over GDP, what it became 10,1% in that year because of the recession. Before any change in the pension system (and, as we said without the effect of the crisis) it was believed that the expenditure was going to reach 15,6% in 2045. Once crisis already hit the economy and the first reform of 2011 took place, it was expected almost 1 percentage point less of

pension spending with relation to GDP. The best scenario was embodied in the projections of 2017, once the Sustainability Factor and Revaluation Factor were introduced, reaching 13,3% in 2045.

Also, this indicator is predicted to decrease after 2050. It was expected to be 15,1% in 2060, according to the projections made before the 2013 reform and 1,4 points less thanks to it. This can be compared to the projections of the Spanish Government (2016), who seized that expenditure in 2016 to be 11% of GDP in 2060, whereas the estimations of European Commission pointed out that the expenditure would be 11,4% of GDP.

In any case, with projections of contributions revenue between 9 and 10% (Balmaseda, 2006), the government quickly intervened and implemented two parametric reforms of the pension scheme, that will be briefly summarized in the next subsection.

2.2.1 Pension system reforms of the last decade and their impact.

The reform of 2011 was introduced in the system with Law 27/2011 of 1st August. The main changes were:

- Increase of legal retirement age from 65 to 67 years in a progressive way, reaching the 67 years in 2027.
- Use of the last 25 years instead of 15 to the computation of the pension benefit in 2022, increasing progressively the period.
- Raise the number of years to receive 100% of the regulatory base from 35 to 37, also in a progressive way till 2027.
- Change of criteria for early retirement eligibility, as well as more incentives to postpone retirement decisions.

This law also anticipated the incorporation of a sustainability factor that would link the life expectancy to the parameters of the scheme, with the objective of maintaining a proportionality between the social contributions made to the system and the benefits received during the retirement years. This would increase intergenerational equity, as two retirees with the same contribution record but different life expectancies would be entitled to the same pension benefit in actuarial terms. According to this law, this factor would consider the life expectancy at age 67 and in the reviewed year (expecting to reconsider it every 5 years) in relation with the one in 2027.

As we can see in graph 4, after this reform the forecasts of pension expenditure in relation with GDP decreased (for example, from 15,2% to 13.6% in 2040). It was expected that the changes would appease one third of the expected increase in pension expenditure compared

to the spending with no reforms. (De la Fuente and Doménech, 2013) Hence, sustainability was still not ensured. Fairness would be increased although only for contributory pensions, what would create inefficiency, inequality and inequity for non-contributory pensions, mainly to the lifelong ones.

As expenditure was increasing exponentially, the sustainability factor was introduced in the law 23/2013 of 23rd December with the name of Intergenerational Equity Factor (FEI in Spanish) together with a new formula to compute the annual growth of pensions -the Revaluation Factor (FRA)-.

The first factor was planned to be introduced earlier, in 2019, consisting on an extra factor in the benefits formula of the initial pension that would reduce the future benefits when the life expectancy of population aged 67 increased. This makes the system closer to a notional defined-contribution one. However, the difference (and also an equity problem) (Banco de España,2009) lies on taking into account the projected life expectancy of the age when the individual is retiring (as in a notional DC system) and the life expectancy for 67 years-old population at that time regardless the age of the individual that is retiring, as both ages do not necessarily coincide.

Before the law of 2013, the growth of the benefits every year was in harmony with the Consumer Price Index. Since this new law, the indexation would consider not only the CPI, but also budgetary and economic conditions of the system, reinforcing a balanced system. This automatic factor, would allow to equilibrate the system in the long-run, free of political decisions. Nevertheless, this tool is limited by the maximum and minimum rates that can be applied: pensions will not be increased by more than the Consumer Index Price plus 0,5% and not less than 0,25% if the expenditure is greater than the revenues from social contributions. In this computation of the annual growth of pensions, the real growth of revenues, the one of number of pensions and the substitution effect are taking to the formula (apart from CPI), as well as a deficit corrector. The issue of this new reform is that is subject to forecasts, as it takes in account the indicators of 11 years (five years previous to the base year, the current year and the projections for 5 more years), what creates a risky factor when forecasts are not accurate or overestimated by political groups (in fact, the one ruling that revision year).

According to the Ageing Report (2015), both reforms are expected to decrease the pension benefits 7% and 24% in 10 and 20 years. In particular, the sustainability factor will reduce initial pension a 10% in 2030 and 20% in 2050, causing the highest drop in replacement rates (20pp till 2060) in the world, what would position our pension system as the 9th more

generous, 5 positions below the status in 2013. Hence, the 30% reduce of expenditure by 2011 reform together with 2013 reform will equilibrate the balance of expenditure and revenues. Some authors agree that the only way of decreasing this expenditure is by reducing the generosity of the system or increasing the revenues from workers and companies. (Banco de España, 2009)

In the research field, there are some papers which agree that the reforms make the sustainability of the system feasible as it allows all kind of scenarios except falling into structural deficit (Doménech R. , 2014). Also, the Experts Committee and Spanish Government are that optimistic about the results of both reforms. In contrast, some researchers do not guarantee the solvency of the system, stating that the forecasts of these two parts are too optimistic or inflated. (AIREF, 2015)

In short, in case the sustainability of the system is assured, it is through the reduction of the pensions of future retirees. Therefore, the initial aim of maintaining same standard of living after retirement is going to be deteriorated in pursuit of a scheme that aims to avoid poverty at old-age, like the Beveridge pension systems. Pensioners will have to consider shifting their savings toward private pension funds in order to live a similar life-style as when they were working (same house, recreative activities, spending on descendants, etc…).

Before that, it is worth to mention that contributory pensions do not consist only in the benefits to which pensioners that worked during their life-time are entitled, but also the pensions that are paid to their relatives in case of their decease. This kind of contributions will be analyzed in the next sub-section, with the objective of question their eligibility and lifelong character in comparison with the initial aim of the schemes, so further reforms can be taken regarding this topic in order to cut expenditure for the Social Security system.

2.4 Types of contributory pensions.

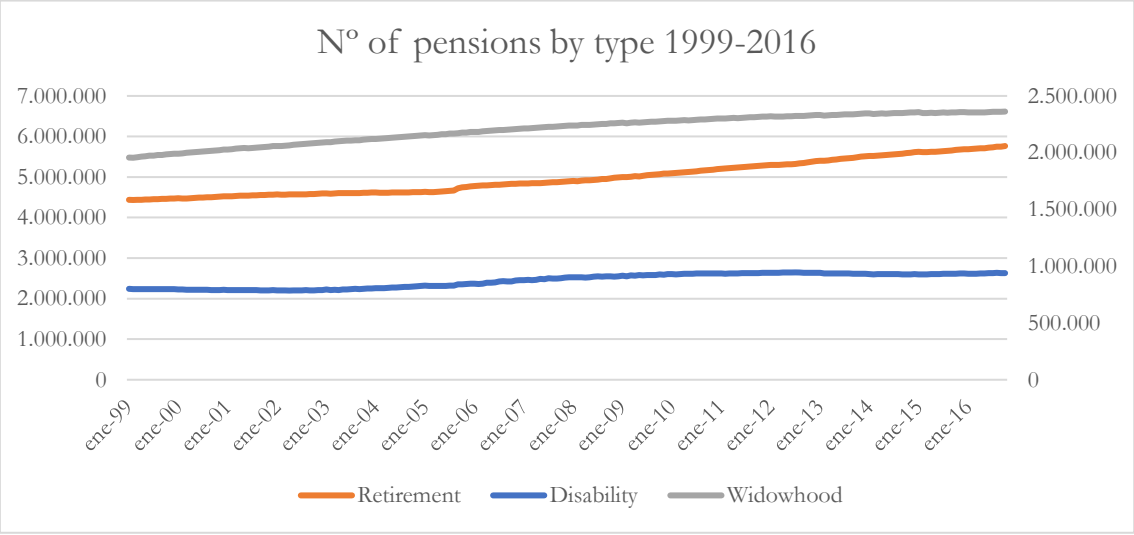
The contributory part of the pension system in Spain comprises not only the pension generated by the working-life contributions, the retirement benefit, but also pensions that are paid in case of death to the relative survivors of the worker (or retiree). These benefits are paid to his partner, the widow; the children, who become the orphans; or other relatives, called the family favor (and specified from now on as other survivors' benefits). Besides, there is one kind of contribution that is permanent disability and it is paid to the worker that generated the right due to his inability to produce in the labor market.

These benefits for survivors were established as a mechanism of replacing income when the breadwinner passed away or was not able to work and sustain the family. For that time when it was introduced, 1900 in Spain, families were structured in a traditional and religious way.

That is, the wife was in charge of taking care of the house, children and elders while the husband's work was the main income of most of families. Due to the Christian view of family, extended to a great part of the population, it was unlikely to find a family where the main components were not married. Women barely worked and if they did so, it was usually until they got married or as a complimentary job that was interrupted any time that she had to take care of a new (or old) member of the family. This patriarchal vision of families was present till late 70s, partially due to the mentality and to some extent because of the conservative ruling of Franco. Although the change in mentality and family structure came late, compared to our homonymous in the rest of Europe; we can firmly agree that this design is not the same anymore.

Not only that women are not limited anymore to non-remunerated job at home (it can be improved, though); but also, that family designs are now multiple: one-parent or homosexual families, whose principal components are not married but registered as a de facto couple or just living together with no legal ties, people that choose not to have kids or to live alone… In short, families have evolved a lot, what has not been matched with the proper legislation regarding family assistance. Instead, these kinds of benefits have been growing all along, influenced also by its easy access and attractive lifelong compensation. We can see in the graph below how the main three pension benefits have increased in a sustainable way from 1999.

Graph 5. Number of pensions by type (1999-2016) – (Retirement left axes, disability and widowhood right axes)



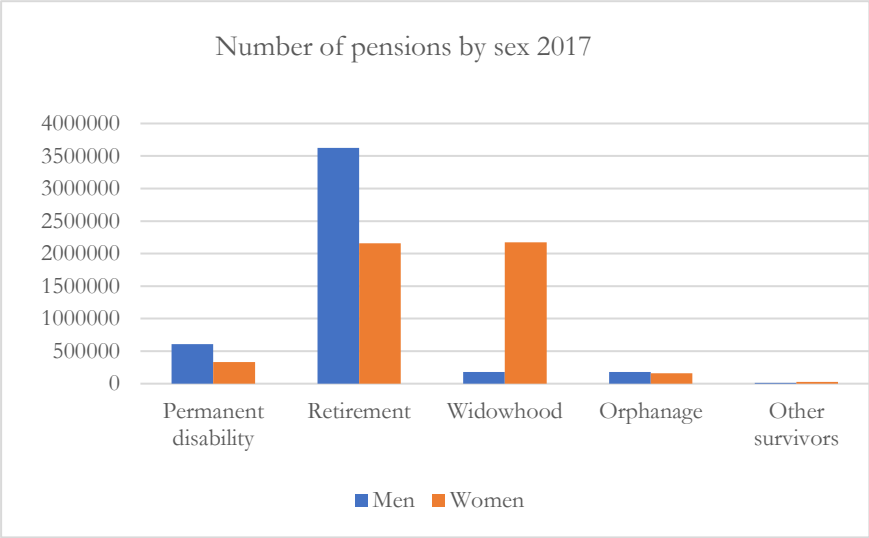
Source: Seguridad Social: Estadísticas de pensiones y pensionistas.

As shown in the graph, the most remarkable growth was in the number of retirement pensions, followed by the widowhood one. However, permanent disability did not increase that much in number. One of the reasons could be that health care and life expectancy

improve in a considerable way during the years, what would restrain the increase of widows and disabled people.

Although the retirement pension is the one with the most weight regarding its number and its expenditure, as seen in the graph 6 below, the widowhood benefit is also one to be considered due to the great number of pensions received by women.

Graph 6. Number of pensions by type and sex in 2017



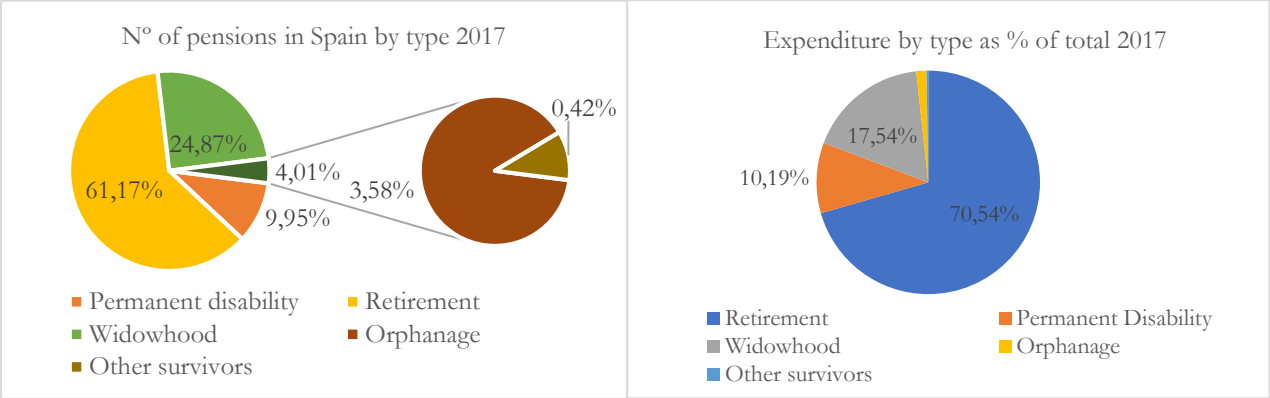
Source: Seguridad Social Estadísticas de pensiones y pensionistas.

The figures show how in January 2017, few more women (around 14000) were entitled to a pension because of the death of the husband than because their own participation in the labor force.

Permanent disability is not very significant, as it collects only 10% of the number of pensions or 10% of the total expenditure of pensions. However, it is worth to mention than the amount of men receiving that pension is almost double than women entitled to it, what could be an interesting topic for further studies, out of the scope of this paper.

Widowhood pensions represent around 25% of the number of pensions in February 2017, although its expense represents only 17.54% due to the lower average pension. We can see these figures in the graph below.

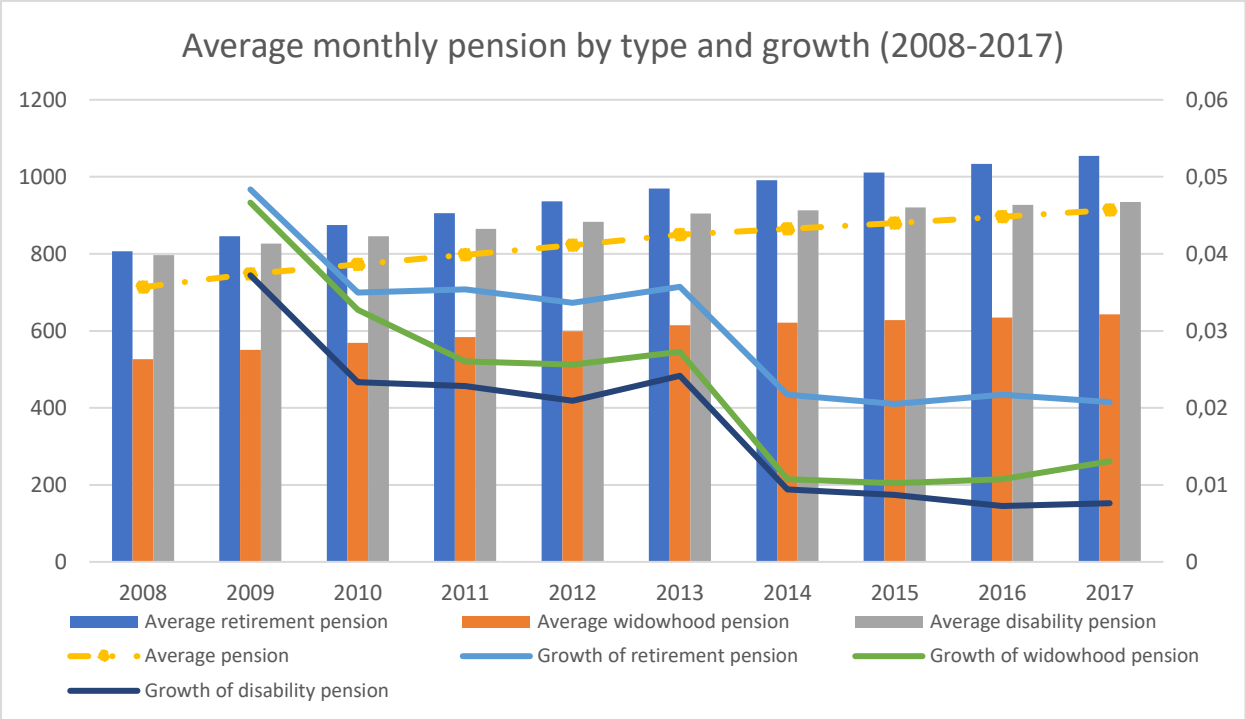
Graph 7. Expenditure and number of pensions by type



Source: Seguridad Social Estadísticas de pensiones y pensionistas.

The lower average pension for widows can be seen in the graph below. The widowhood pension has been the smallest as compared with the other two main ones (retirement and permanent disability).

Graph 8. Growth and avg. monthly pension by type (2008-2017)



Source: Seguridad Social Estadísticas de pensiones y pensionitas.

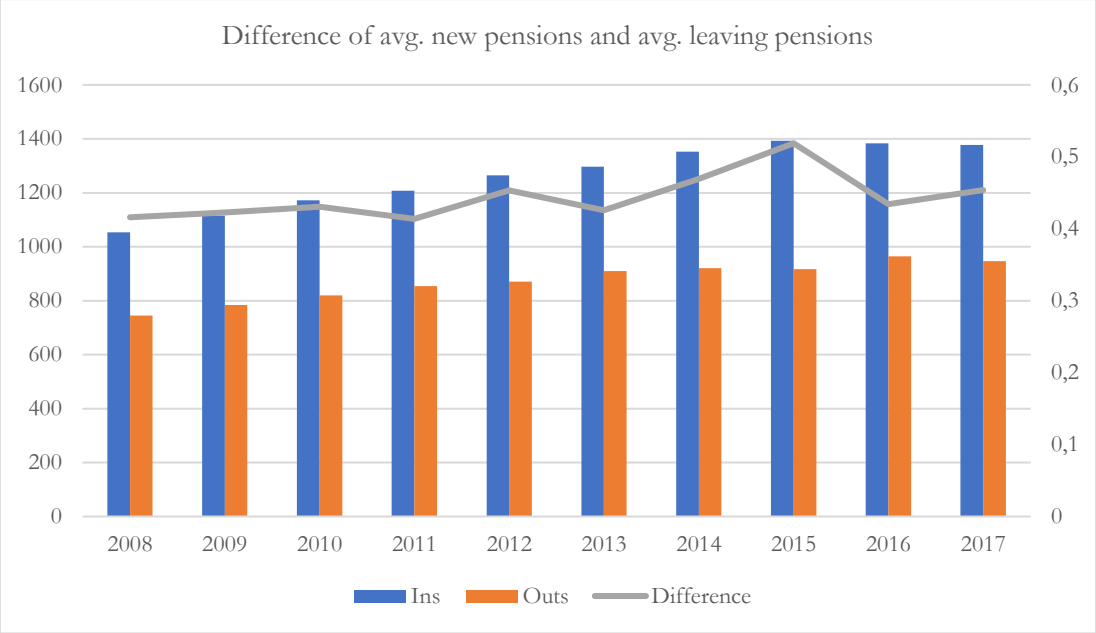
The reason is that widows only received around 52% of the contributory base corresponding to the worker that generated the right. However, the graph shows that those benefits are higher than half of the pensions: this could be because the base for the computation of both is the same, while the rates of replacement are different (can be between 50 and 100% for retirees, while widows can get from the 52% to 70% of cases in extreme need); or because some benefits are complemented to reach a minimum amount.

Concerning the growth of the pensions, we see how during the considered period all pensions have a positive growth. There are two factors that can influence the increase in the average pension over time: the new withdrawals of the retirement benefits are higher than those leaving, due to the increase in productivity and, thus, in the wages; and the indexation of the benefits to maintain purchasing power when inflation is present in an economy.
We can differentiate three different periods:

- The first one, the period before 2010, shows a downwards trend in the annual growth coming from levels between 4 to 5% to less than 3,5% in 2010. We can link part of this increase to the growth of workers' income, and the other part to the CPI that was around 2,4%.
- The second period (2010-2013) is characterized for a CPI around 2 and 3%, but the slowdown of the economy due to the crisis fully spread in the labor market, deteriorating the increase of salaries. Then, we see the growth stagnated around CPI value, as the difference of the entry and exit pensions decreased a little bit.
- Last period starts with the introduction of the Annual Revaluation Factor (FRA) with the pension reform of 2013. As the deficit is a present in the current situation, the limit of the indexation is 0,25%. For this period, difference average pension for those that leave the system and the new pensioners decreases. Altogether, it results in a stagnation of the growth on average pension of around 2%.

This differences in the pensions that are out of the pension scheme in that year, and new entrants are shown in the graph 9 below. The initial pensions are around 40 to 50% higher than the ones finishing in that year. Another point to bear in mind, to compare both averages, is that exiting pensions have been suffered revaluations every year during all the years that have been received. The new ones, instead, did not suffer any revaluation and are subject to increases in the future (well, maybe once the Social Security revenues increase over the expenditures).

Graph 9. Difference of average new pensions and average leaving pensions in Euros and difference in %.



Source: Seguridad Social Estadísticas pensiones y pensionistas.

Once we have the general picture of Spanish contributory system, its challenges, reforms and types of pension that considers; it is time to try to give solutions to assure the balance of the system or at least try to improve the formulation of the entire scheme.

With that purpose in mind, the next section will briefly mention the proposals made by many researchers, institutions and advisers related to the topic. As the papers advising improvements for the current retirement pension system is wide and very complete, we will focus our attention on the survivors' benefits, specially the widowhood ones. This topic has also been extensively researched but not in the same extent as retirement pensions.

Furthermore, although comparisons are odious, there is nothing better as learn from other countries experiences. Hence, we will try to see what Spanish main weakness are in the pension system if we compare to the countries that enjoy the best schemes. We have to bear in mind that comparisons and results have to be taken with caution, as every country is different: can support more or less fiscal policies, economies and culture can have a huge gap, etc…

4. MEASURES TO IMPROVE THE SPANISH PENSION SYSTEM.

There are seldom papers that review the Spanish (or any) pension system and do not propose measures to assure sustainability, increase equity, avoid poverty, influence less in competitiveness, incentive private savings, or any other action that can improve any characteristic of the system and, thus, the standard of living of their citizens.

First, we will see a review of the main proposals in some literature, then we will suggest further reforms by looking at the widowhood pension, and in the last part the main weaknesses of the Spanish pension system will be assessed, being the ones that the changes should focus on.

3.1 Proposed improvements in Spanish pension system by many literatures.

In the pensions field, there is still a lot to do, not only regarding the sustainability of the system but also other principles such as equity, transparency and adequacy. It has been already more than three decades of several reforms in almost every country with a minimum public pension coverage.

As explained in section 2.2, the latest reforms in the Spanish pension system increased the retirement age, the contribution years to be entitled to 100% of the base considered for the computation of the pension benefit as well as the working ages included in that base. Also, the reforms included a formula for indexation of the benefits and the link of retirement age to the amount of the initial pension.

However, many authors agree that the reforms are not enough or can be improved. Some argue that some parametric reforms should be taken further in order to postpone retirement age or disincentive early retirement as life expectancy keeps increasing, such as increase retirement age or contribution years (Gaya, et al., 2013; European Comission, 2012; OECD, 2017; Banco de España, 2009). Some of the authors propose, as it is already the norm in other neighbor countries, to use the entire work history to compute the regulatory base used to calculate the benefits (Ayuso, et al., 2013; Hernández de Cos, et al., 2017).

Regarding the growth of the benefits every year, there are alternatives to our new system, the Annual Growth Factor (FRA). Some papers give the alternative of linking the indexation with economic factors such as GDP or the ratio of contributors and pensioners (Gaya, et al., 2013), whereas using our own system, there are also recommendations to improve its transparency and adequacy regarding the estimations used for the calculations (AIREF, 2015; Conde-Ruiz, 2017). Another interesting measure is to create a maximum limit of purchasing power loss during the retirement period due to the current tool that implies for the next four decades at least, a quasi-halt of pension growth. (Conde-Ruiz, 2017)

From the side of the generosity of the benefits, there are multiple advises that have in common the decrease of the future benefits of the pension. These are the reduction in the replacement rate, especially for the minimum contribution years that entitled the recipient to 50% of the regulatory base, together with the reduction of the percentage-point increase with

per contribution extra year (Banco de España, 2009; Hernández de Cos, et al., 2017; Conde-Ruiz, 2017).

There is no such an agreement when it comes the revenue side. Some authors are in favor of increasing the contribution rate or removing the limits of maximum and minimum contributions, despite the problems that would generate as for employment incentives and productivity of workers with the highest salaries (Banco de España, 2009; Hernández de Cos, et al., 2017). While other institutions believe that contribution rates are high enough, so the solution could be decrease them for low-wage workers (OECD, 2017), or decrease them in general to boost hiring (Doménech, 2015).

In line with this last point, many researchers highlight the importance of stimulating the labor market in order to improve the finances of the Social Security system. Measures such as increase of participation rate, improve learning, adaptation and conditions for old-age workers, decrease unemployment rate and, in general, simplify and strengthened the labor market to receive more contributions and facilitate a longer stay for people close to retirement (Ayuso, et al., 2013; European Comission, 2012; Doménech, 2015)

Besides, it is contemplated the option of increasing general or indirect taxes (Doménech, 2015; Conde-Ruiz, 2017) or change some of the survivors' benefits to the non-contributory side of the system (Hernández de Cos et al., 2017); even reducing them to cases of need or temporary (Ojeda, 2008; OECD, 2010).

Finally, a structural reform has been recommended by several literatures, in the way of a notional defined-contribution system such as the ones in Italy or Sweden (Hernández de Cos et al., 2017; Conde-Ruiz, 2017) and even adding a new second pillar, based on private funded pension plans (Banco de España, 2009; Ayuso et al., 2013, Doménech, 2015)

3.2 Review of the survivors' spouse benefit in Spanish system: the widowhood pension.

With the aim of maintaining the standard of living of a family whose breadwinner have deceased, the survivors' benefits came into place around the 50s. The typical Spanish conception of family structure was the man, in charge of economically finance the household of which he was the head; and the wife that had to take care of the housework and take care of elders and children, dedicating her life to the non-remunerated work. It was not only on the social conception but also in the regulations and policies that usually discriminated between men and women, usually with less rights and subordinated to the male society.

Hence, the loss of the head of the family was a tragedy as no person working meant no income coming in in that household. That benefit sustained its foundation in the tragedy that

it was to have a family composed only by people not able to produce in the labor market. Also, part of its reasoning was the obligation of the partner of assuring a provision of food to the other side (in that era, mainly to women).

At that time, and considering the composition of the family that was mostly married, did barely divorced due to religious matters and conceived the marriage as the union to procreate; survivors' benefits were a great support as this contingency -the death of the breadwinner- originated in most of cases a situation of need for the family.

All reasons mention above to justify the intervention of the government with survivors' benefits, can be now questioned due to the change and evolution of Spanish society, the structures of households and specially the introduction of women to labor market. Thus, as Spain has progressed from a patriarchal country to a multi-structured one, Spanish regulation should have evolved consequently. Instead, we have gone backwards from providing this assistance in cases of need with its introduction in 1946 to any case where the marriage status (or later the de facto couple) was fulfilled.

Spain is considered as "pensioners" country, as the access to them are relatively easy compared to other countries and not only that but also the generosity of the programs. Therefore, the foundation and the largess should be reconsidered with more emphasis when the demographic and economic crisis in making the entire contributory system unstable. By learning from other experiences and adapting to the ever-changing society, a more equal and efficient system can be achieved.

3.2.2 Widowhood pensions in our neighbors' pensions schemes.

Regarding the survivor spouse benefit, most of European countries require the recipients to provide economic dependence reasons to be entitled to that kind of pension. These requirements usually include being in charge of children under 18, disability problems or the reach of certain age that their introduction to the labor market could be difficult or impossible. Besides, many countries differentiate between a pension paid during a period of time (pre-defined or till one of the conditions change) and another one that will last her entire life for exceptional cases.

Following this line, Germany and United Kingdom have two different pensions one of lifelong character, in case of being older than 45 years old and a temporary one, when the survivor has to take care of under 18 years-old children. Netherlands, also have the same requirements offering only the lifelong pension as well as Belgium, in which the possible benefits are means-tested. Temporary benefits exist in Sweden in case of having a child and expires when he turns 12 years old.

If we take a look to France's widowhood pension system, its difference lies in a limit of maximum income that the benefit can provide. Also, they only offer this program for survivors who are between 50 and 55 years old.

Nevertheless, we can find survivors' pension schemes in different extremes. On the one side, Denmark and Iceland do not provide this kind of benefit, but tried to disperse it in different assistances or orphanage benefits.

On the other hand, and closer to the Spanish system, Norway and Italy offer widowhood benefits for life. Both require a minimum of contribution years (5) or having a child in the case of the Nordic country. Our closest neighbor, Portugal, has a replacement rate for widows of 60%.

In short, most the mentioned systems require the condition of economic dependency on the death member to provide the survivor a pension, either temporary or lifelong.

3.2.1 Current situation and the evolution with social progress.

Currently, the requirements for being entitled to a widowhood pension system in Spain are:

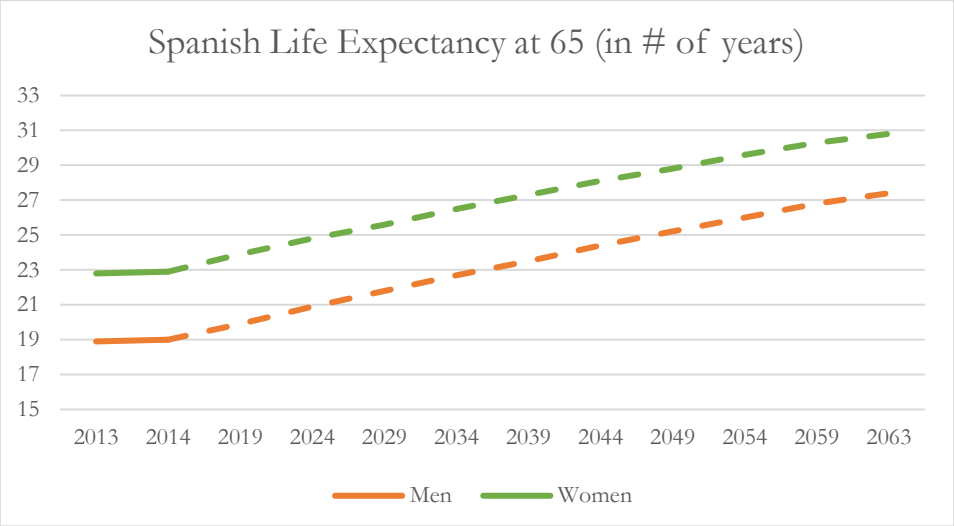
a) A minimum contribution days by the death spouse of 500 days in the last 5 years.
b) A period of cohabitation before the death for marriages or de facto couples (1 or 6 years, respectively) or a food compensation in cases of divorce or marriage nullity.

If both conditions are fulfilled, the widow will receive 52% of the contributory base generated by the deceased spouse for life. This rate can be increased in case that the situation of the spouse is special; that is, having kids in her care, being older than 40 or being disabled to work. Furthermore, this benefit can be perceived regardless other sources of income, including other pensions.

Sustainability of contributory pensions is a challenge per se, to some extent because of the increase in life expectancy (retirees getting the benefit for longer periods). The problem is worsened when it is link more to female life expectancy that the one of men. This is the case when once a retiree died, the widow starts receiving his pension or part of it.

We see in the graph 10, how women's life expectancy at 65 is higher in around 4 years and projected to keep that distance.

Graph 10. Life expectancy for Spanish people in number of years by sex.



Source: INE

Using the data of Spanish Statistics Institute (*Instituto Nacional de Estadística*), we see that average marriage age is 3 years higher for men than for women (37,2 vs 34,15 years on average). Together with the 3 years of difference of life expectancy, we can conclude that for that retired population, the widowhood pension will be paid for 7 years more on average.

It is also remarkable that due to the change in family structures and female participation rates (as we will see later), more survivors' will incur in two different pensions at the same time, both of them subject also to minimum pension benefits. Female pensioners that were entitled at the same time to retirement and widowhood benefits were 13,79% of the total women receiving a pension in 2013, whereas this number was only 2,44% for men. The growth of this collective is also increasing, as the annual variance went up from 1,85% in 2003 to 2,97% in 2013. In the coming decades, it is expected to have concurrence rates of almost 53% among women and 23% among men. (Alaminos and Ayuso, 2015)

More and more households whose women are participating more in the labor market see their structure changing towards a more equalized one.

Table 3. Evolution of household composition.

	1991	2001	2011
TOTAL OF HOUSEHOLDS	11852075	14187169	18083690
1 member	13,34%	20,28%	23,19%
2 or more members	*10270768*	*11310597*	*13890370*
	86,66%	79,72%	76,81%
2 to 5 members	*9321658*	*10774789*	*13569350*
	78,65%	75,95%	75,04%
2 members	*2754017*	*3582177*	*5441840*
	23,24%	25,25%	45,91%
Households with more than 1 member working	*3236990*	*4803195*	*4990405*
Over household total	27,31%	33,86%	27,60%
Over households with 2 or more members	34,73%	44,58%	35,93%
Households with 2 to 5 members with more than one working	*2723113*	*4375700*	*4824775*
Over household total	22,98%	30,84%	26,68%
Over households with 2 to 5 members	29,21%	40,61%	35,56%
Households with 2 members with both working	*385520*	*770882*	*1624680*
Over household total	3,25%	5,43%	13,71%
Over household with 2 members	14,00%	21,52%	29,86%

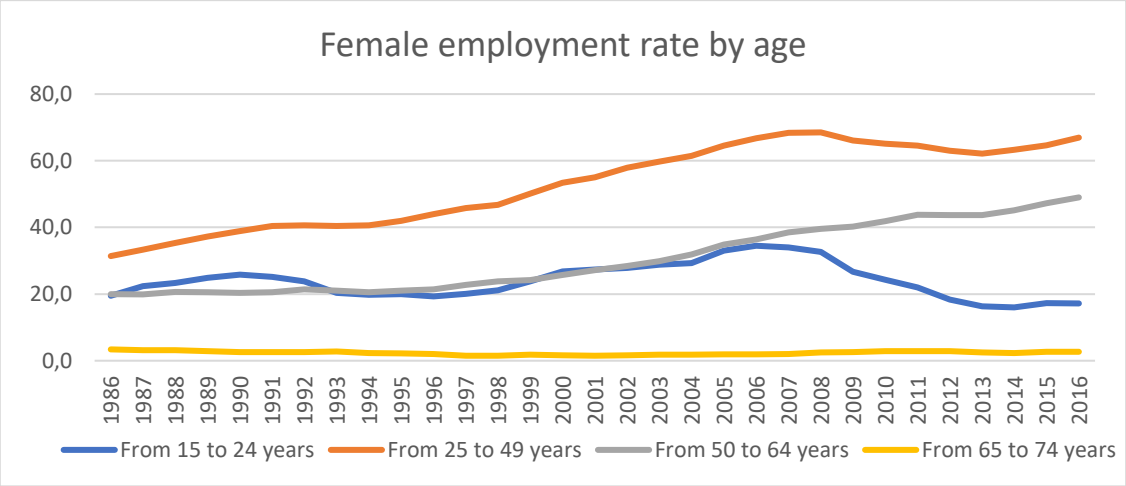
Source: INE – Censo de Hogares y Viviendas

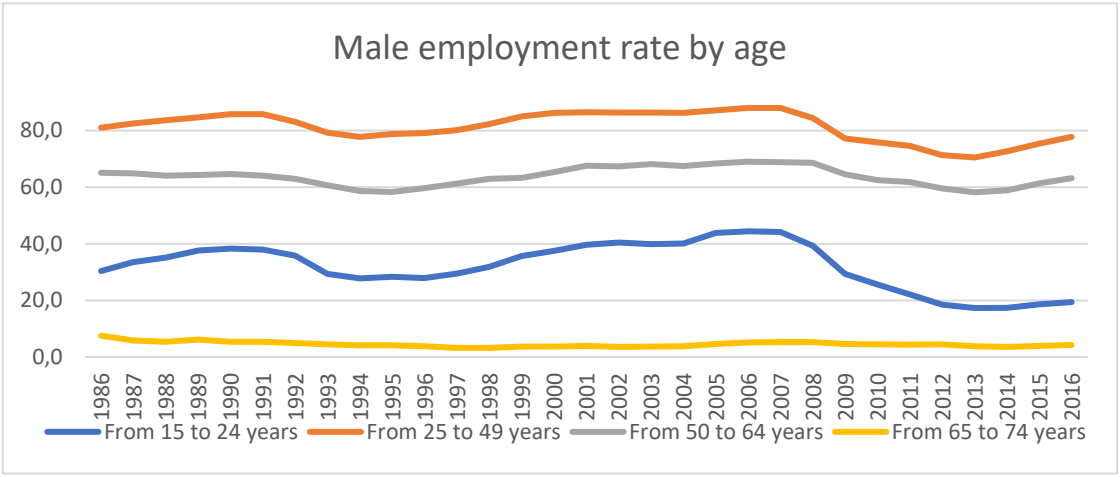
Although the number of households with one member is increasing, so is the number of them with only 2 members. The reason can be associated to the decrease of fertility rates, the more opened society to divorces and in case of the bimembral families, the decrease in fertility rates (and thus families that decide not to have children). We can see in the data that in general from 1991 to 2011, the proportion of households in which at least 2 members work have increased (although there is a decrease from 2001 that can be sustained in the high unemployment in 2011, as one of the worst years during crisis). In special, households with 2 people where both of them work have increased till almost 30%. Therefore, we can see an upwards trend to the houses where both main members are in the labor market, reducing the situation of need in case that one passes away.

The increase comes from the growth of female employment rate all along. It was not till Franco died, that the ruling and economy opened up towards the introduction of women in the labor force and the equalization of rights in many aspects. Also, laws and cultural factors were changed to promote their participation (maternity leave, the change of the vision of women as homemakers, acceptance of contraceptive methods…).

In the following graph, we can see this increase in women's employment rate:

Graph 11. Female and male employment rates by age.





Source: Eurostat

Although there is still a gender gap, women employment rates have grown quickly and seem to keep that upwards trend in the nearest future. The only exception we can appreciate is the fall in this growth or even the decrease of participation rate from year 2008, the beginning of the crisis. It is a slower growth for women between 29 and 49 years old but a decrease for those younger ones. Their smaller participation can be because of: i) the financial crisis that started in 2008, youth employment has been the worst affected, making them to decide to keep study longer or discouraging them to keep looking for a job; ii) the choice of studying to more advanced levels has increased over the years, not only because of the crisis but also because they want to be better prepared, hence, they stay out of the labor force for longer periods.

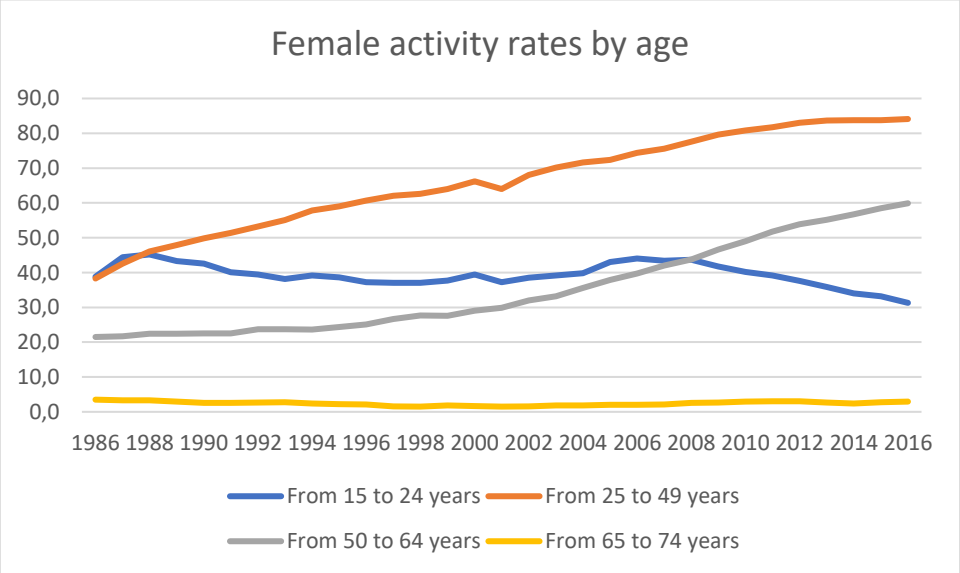
Men's participation has been stagnated instead, suffering a decrease from the financial crisis due to the discouraging effect mentioned before. The difference of their employment rates and women's ones was big (around 30 and 50 percentage points in 1986) at the beginning of the considered period, whereas the difference has decreased to around 10 percentage points.

Analyzing the graph, let's consider the women who are going to retire soon (group of 50 to 64 years old). Their employment rate is almost 50%, and fifteen years back, in 2001, their employment rate was also around 55% and again 15 years back, more than 30% of them were working. This can mean that half of them will probably have at least a minimum contribution period of 15 years, and it is likely that for many of them the contribution years are more.

Therefore, we see that in the same generation employment rates are lower at the beginning of the working period but increases quickly, maybe due to the mentioned education factor, and drops a bit again after certain age. If we take a look of the next generation that will retire, the group of women between 25 to 49 years old, more than 60% of them are already working, contributing already to the Social Security system and probably generating higher retirement benefits as contribution years are likely to be higher.

These people working is not always the same, as workers combine employed, unemployed and inactive periods. If instead of taking a look to employed people (what is hard in a society where unemployment is above 20%), we rethink that active people -working or at least looking for a job- we can see how many women are at least active in the labor force, so it is likely for them that they do not completely depend on the husband's income, as it used to happen before.

Graph 12. Female activity rates by age.



Source: Eurostat

The activity rater trend is more or less similar to those on employment rates. For obvious reasons, activity rates are higher than employment rates due to the unemployed part of the

female labor force. In fact, the average difference is around 20 percentage points, figure around the unemployment rate that we have faced these last decades.

Again, between 60% to 80% of the female Spanish population are looking for a job or working, and thus likely to have right of pension benefit by themselves (and not through a partner). In case the widowhood is not revised, we have seen that it is easy to reach the expected 53% of multiple pensions.

Accordingly, it is important and urgent to adapt the system to this new reality and avoid an unsustainable system that overprotects only a part of the population (with no apparent reason) whereas strives to provide a basic coverage to that people that will need it the most.

3.2.3 Change proposal and possible outcome.

As explicitly say in the section 14th of Spanish Constitution: "Spaniards are equal before the law and may not in any way be discriminated against on account of bith, race, sex, religion, opinion or any other personal or social condition or circumstance". It is striking, then, that a marital status can be decisive for the right of getting a benefit instead of the condition of need.

Different authors have proposed to introduce a system such as the German one, with two different benefits (Lopeza Lerma and Pozuelo, 2009) or only in the case that the survivor depended on the spouse income for living (Ahn and Felgueroso, 2007), other proposal was to reduce the benefit in relation with the years that the worker already received the retirement pension (Sanabria and Hernández, 2010). This two measures just try to reduce either the eligibility or the amount of survivors' benefit.

To boost this principle of equality, one of the best options is to replicate the Danish system and dissolve the benefits to different means-tested financial assistance. This would assure an assistance based in the condition of need of the population. This would reduce the discrimination against single people and single parents and the penalty of not formalizing a family in front of a State authority (either Registry office or Couples census).

Usually there are three cases that countries consider special to be eligible for a widowhood benefit: a certain age where employment incorporation gets harder, usually around 45 and 50 years or older; a disability that precludes the person to join the labor force; and the care of children that cannot work. For the first case, we have seen in employment rates that the figures of women not working are lower and lower over time, what will make this problem only for a small part of the population. In cases where these people do not have other income, the zero pillar of the Spanish system should provide them a minimum income to avoid the risk of poverty. The second requirement can also be integrated in the disability

pensions that are paid by the government. As this population can be also in risk of not having contributed to the system, a minimum financial assistance should be assured.

The third condition is having children under their care. Lone-parent families should be eligible for assistance either if one of the parents passed away or just is not part of the family. Orphanage pensions can be reinforced to compensate the loss of a deceased parent.

Reinforcing all these benefits, the financial risks that a family can face when one of the main members is no longer alive disappears, as it does when there is no marriage but the problem is faced anyway. Also, the system would assure that the pensions are not received indiscriminately, but only by those families that need them.

Although the burden would shift to the non-contributory (although in a smaller extent), the contributory system would decrease the expenditure by 17,54% (the proportion of expenditure for this kind of benefit), corresponding to a 1,88% of the expenditure in pensions over GDP. It does not seem to be a big amount, but a relief for the system that is facing the worst years and a help for the indexation of pensions, that would start growing before than expected so the pensioners will not lose purchasing power for such a long time. This measure would be one of the options, in one extreme of the balance. However, if the government still tries to palliate that sudden loss, another option is to provide a temporary pension for those widows that are more vulnerable.

To see how much this would be the cost, let's consider that in January 2017 only the pensions that started on 2015 (from 1st of February), 2016 and January 2017 will be paid. Let's consider that those pensions do not finish within that period, so all of them will be paid during the two years. Also, as the requirements for vulnerability would make some of them be out of the eligibility, let's consider that that amount of people is counterbalanced with the extension of the pension eligibility to those families that were not married but live together also for one year. The assumption that both groups will have approximately the same number of people is far from real, but will simplify the study and allow us to see the difference of the current spending and the one of the new model.

The number of pensions to be paid in January 2017 would be 260.391. Using the average widowhood pension for that the new beneficiaries (678,67€), the total spending would be 176.720.262,5€. The current figures for the widowhood pension in that month was over 2 million pensions, an average pension of 642,85€ and, hence, an expenditure of 1.516.528.150€. Comparing both scenarios, the expenditure with a temporary pension would be 11,65% of the current one, that is a decrease of the widowhood expenditure of 88,35% in that month. If this proportion is stable over time, the expenditure over GDP would be

decreased a 1,66%, not far from the removal of the entire widowhood pension system. (*Seguridad Social Estadísticas pensiones y pensionistas*)

In conclusion, either if the system changes to rely more on zero pillar benefits, or a pension for a transitional duty is paid -transitional as it prepares the beneficiary to a new life-; widowhood benefits should be reconstructed and channeled to the real aim of preventing poverty and social exclusion.

3.3 Lessons from other countries.

We have seen that every country has a way of addressing the pension problem. There is no perfect scheme, as all of them are threatened by common problems such as population ageing and old age poverty to some extent. Nevertheless, there are specific issues that some countries are managing better than others, and also the opposite: weaknesses of every country, that should be a priority for them to change.

In order to benchmark the strong and weak points of different pension systems, the Melbourne Mercer Global Pension Index has been published from 2009 with new revisions every year. It measures adequacy, sustainability and integrity of different pension schemes, thus allowing governments to see what areas they should prioritize to improve as compared to other countries. The index observes more than 40 issues that affect the pension systems and then give a score to every country depends on a score frame that it established. "Compared to other countries" means that this frame of scoring is made by considering the situation of many countries with regards to an issue, and then give a maximum score or minimum score depending of the countries' observed values.

It would be perfect to see Spanish pension system's weaknesses and strengths, so reforms can be channeled in first place to those issues. Nevertheless, Spain has not been included in this index so far.

As the index provides all the questions and score guide in its publications, the same study has been performed in this paper for the year 2015 (the time of the last publication) in Spain, using data from different websites such as OECD, Eurostat, INE and BOE publications for all related to regulations. All the results as well as the score given to each of the questions are shown in Annex A, at the end of this paper.

We should bear in mind, that even if the same questions have been answered, there might be differences in the data they used and the used here, and also in the legislative questions, in which a score between 2 and 0 was provided subjective to the researchers opinion, what will be definitely impossible to imitate. Thus, the final score might vary from the one that the Melbourne Index's specialist would provide and the one here.

In the next table, we can see the score that we have prepared for Spain, together with the current scores of Denmark and Netherlands, which are the best positioned countries in the index:

Table 4. Melbourne Mercer Global Pension Index for Spain (hypothetical), Denmark and Netherlands.

		Spain	Denmark	Netherlands
Adequacy sub-index	40%	*77,88*	*75,80*	*78,2*
Sustainability sub-index	35%	***21,12***	*85,30*	*77,00*
Integrity sub-index	25%	*71,78*	*81,40*	*87,70*
Melbourne Mercer Global Pension Index		***56,49***	***80,53***	***80,1***

Source: Own elaboration of Spain index and Mercer (2016) for Denmark and Netherlands.

As we can see, the worst score goes to the sustainability sub-index, which involves the coverage and size of the private pension and the demographic issues of the country. Let's take a further look to this part of the index:

Table 5. Substainability sub-index questions-

			Spain	Denmark	Netherlands
S1	What proportion of the working age population are members of private pension plans?	**20%**	2,68	10,0	10,0
S2	What is the level of pension assets, expressed as a percentage of GDP, held in private pension arrangements, public pension reserve funds, protected book reserves and pension insurance contracts?	**20%**	0,82	10,0	10,0
S3	What is the current gap between life expectancy at birth and the state pension age? What is the projected gap between life expectancy at birth and the state pension age in 2035? (This calculation allows for mortality improvement.) What is the projected old-age dependency ratio in 2035? What is the Total Fertility Rate (TFR) averaged over the last seven years?	**20%**	2,99	6,3	5,5
S4	What is the level of mandatory contributions that are set aside for retirement benefits (ie funded), expressed as a percentage of wages? These include mandatory employer and/or employee contributions towards funded public benefits (ie social security) and/or private retirement benefits.	**15%**	0	10,0	6,7
S5	What is the labor force participation rate for those aged 55-64? What is the labor force participation rate for those aged 65+?	**10%**	3,65	5,7	5,6
S6	What is the level of adjusted government debt (being the gross public debt reduced by the size of any sovereign wealth funds that are not set aside for future pension liabilities), expressed as a percentage of GDP?	**10%**	0	7,0	5,5
S7	In respect of private pension arrangements, are older employees able to access part of their retirement savings or pension and continue working (eg part time)? If yes, can employees continue to contribute and accrue benefits at an appropriate rate?	**5%**	9	10,0	10,0

Source: Own elaboration for Spain and Mercer (2016) for Denmark and Netherlands.

We can see that Spanish system main problems are the life expectancy, old-age participation rate and the private plans.

Regarding the first one, the score (and thus the system) can only be improved by increasing the state pension age or carrying out policies to increase the fertility rate. Also, it is important to assure that old-age population has access to jobs in the labor market. Thus, policies towards the conditioning of the market should be taken, so the physical conditions are not an impediment for them to keep working and employers do not discriminate because of age. Besides, private pension plans are scarce in Spanish society. The public protection has made seen them as a unnecessary extra income, that actually is needed to sustain the system. For example, Denmark and Netherlands have a system in which private occupational schemes are mandatory, either through State regulation or by the agreements with labor unions. Also, voluntary schemes are popular in those countries, complimenting the public and mandatory systems. The data shown in OECD (2015), proves this: where Netherlands has a coverage of (quasi-)mandatory plans of 88% and Denmark 83,3% and 63,3% for mandatory and quasi-mandatory, Spain has 0%, because it is not compulsory in the country. Voluntary coverage is 28.3% and 22.4% for the first two countries, whereas in Spain is 18.6%.

It is important, then, that Spain either promotes or forces the population to enroll in a private pension plan, so their income in old-age is not threatened and they can maintain a living standard.

5. CONCLUSIONS.

So far, all the questions contemplated at the beginning of the project have been covered, so the objective of the research has been successfully fulfilled. Many problems have arisen during its expounding, as its many literature is in some cases opposing or out-of-date due the constant reforms that countries perform.

We have seen how some of the countries establish their pension system and how all of them are sensitive to demographic and economic changes. Furthermore, we have seen the Spanish system in a deeper way, how it evolved in time and how those demographic issues affect it. Finally, some changes for Spanish pensions have been proposed such as the reassessment of widowhood pension and the need of private pension plans, all of this looking to the way our neighbors deal with them.

The Melbourne Mercer Global Pension Index has been computed for this particular project, in order to benchmark the Spanish pension system and to propose the necessary reforms that the government should carry out. We have discovered that the main problem lies in the sustainability, in which the coverage and size of private pension plans and the demographic characteristics of the Spanish state are contained.

Now that the computation of the scores has been made, future researches can use it to further look to the indicators of the Spanish pension system or to verify that the scores have been adequately computed.

There are many different topics that are out of the scope of this paper, and would be interesting to review: survivor's and disability pensions, the other sub-index of Melbourne Mercer Global Pension Index, the possible benefits of a Beveridge system in Spain…

Researchers and politicians should expand their view towards new structural changes, rather than small reforms that help temporarily to maintain the system. Even though big reforms would have great transition costs, maybe they are the only answer to forget this sustainability problem in the future. This would be another appealing topic for further researches.

6. ANNEX: CALCULATION OF MELBOURNE MERCER GLOBAL PENSION INDEX.

	Question	Question Weight	Score (/10)	Answer
A1	What is the minimum pension, as a percentage of the average wage, that a single aged person will receive? How is the minimum pension increased or adjusted over time? Are these increases or adjustments made on a regular basis?	**17,5%**	9,28	33,90% Not regularly adjusted with inflation (1/2)
A2	What is the net replacement rate for a median-income earner?	**25%**	10	89,50%
A3	What is the net household saving rate in the country?	**10%**	5,43	8,59%
A4	Are voluntary member contributions made by a median-income earner to a funded pension plan treated by the tax system more favourably than similar savings in a bank account? Is the investment income earned by pension plans exempt from tax in the pre retirement and/or post retirement periods?	**5%**	4	Yes No
A5	Is there a minimum access age to receive benefits from the private pension plans (except for death, invalidity and/or cases of significant financial hardship)? If so, what is the current age?	**10%**	10	Yes 60
A6	What proportion, if any, of the retirement benefit from the private pension arrangements is required to be taken as an income stream? Are there any tax incentives that exist to encourage taking up of income streams?	**10%**	3	No Yes
A7	On resignation from employment, are plan members normally entitled to the full vesting of their accrued benefit? After resignation, is the value of the member's accrued benefit normally maintained in real terms (either by inflation-linked indexation or through market investment returns)? Can a member's benefit entitlements normally be transferred to another private pension plan on the member's resignation from an employer?	**7,5%**	6,67	Yes Sometimes Sometimes
A8	Upon a couple's divorce or separation, are the individuals' accrued pension assets normally taken into account in the overall division of assets?	**4%**	5	Sometimes
A9	What is the level of home ownership in the country?	**5%**	8,26	77,80%
A10	What is the proportion of total pension assets invested in growth assets?	**5%**	8,12	30,07%
A11	Are contributions to a funded pension scheme required to be paid if a worker receives income support (or income maintenance) when they are temporarily out of the workforce?	**1%**	10	Yes
Adequacy sub-index		*40%*	***7,78***	
S1	What proportion of the working age population are members of private pension plans?	**20%**	2,68	32,45%
S2	What is the level of pension assets, expressed as a percentage of GDP, held in private pension arrangements, public pension reserve funds, protected book reserves and pension insurance contracts?	**20%**	0,81	14,30%
S3	What is the current gap between life expectancy at birth and the state pension age?	**20%**	2,98	18

	What is the projected gap between life expectancy at birth and the state pension age in 2035? (This calculation allows for mortality improvement.)			20
	What is the projected old-age dependency ratio in 2035?			55,40%
	What is the Total Fertility Rate (TFR) averaged over the last seven years?			1,33
S4	What is the level of mandatory contributions that are set aside for retirement benefits (ie funded), expressed as a percentage of wages? These include mandatory employer and/or employee contributions towards funded public benefits (ie social security) and/or private retirement benefits.	**15%**	0	0
S5	What is the labour force participation rate for those aged 55-64?	**10%**	3,65	57,60%
	What is the labour force participation rate for those aged 65+?			1,90%
S6	What is the level of adjusted government debt (being the gross public debt reduced by the size of any sovereign wealth funds that are not set aside for future pension liabilities), expressed as a percentage of GDP?	**10%**	0	0
S7	In respect of private pension arrangements, are older employees able to access part of their retirement savings or pension and continue working (eg part time)?	**5%**	9	Yes
	If yes, can employees continue to contribute and accrue benefits at an appropriate rate?			Sometimes
Sustainability sub-index		*35%*	***2,11***	
R1	Do private sector pension plans need regulatory approval or supervision to operate?	**7,5%**	10	Yes
	Is a private pension plan required to be a separate legal entity from the employer?			Yes
R2	Are private sector pension plans required to submit a written report in a prescribed format to a regulator each year?	**10%**	7,6	Yes
	Does the regulator make industry data available from the submitted forms on a regular basis?			Yes
	How actively does the regulator (or protector) discharge its supervisory responsibilities?			Ocasionally active
R3	Where assets exist, are the private pension plan's trustees/executives/fiduciaries required to prepare an investment policy?	**12,5%**	8,6	Yes
	Are the private pension plan's trustees/executives/fiduciaries required to prepare a risk management policy?			Yes
	Are the private pension plan's trustees/executives/fiduciaries required to prepare a conflicts of interest policy?			Sometimes
	Are the private pension plan's trustees/executives/fiduciaries required to have: · an independent member included in the governing body? · equal member and employer representation on the governing body?			No/Yes
R4	Do the private pension plan's trustees/executives/fiduciaries have to satisfy any personal requirements set by the regulator?	**5%**	7	Yes
	Are the financial accounts of private pension plans (or equivalent) required to be audited annually by a recognised professional?			Sometimes
R5	What is the government's capacity to formulate and implement quality policies and to promote private sector development?	**15%**	5,12	7,68
	What confidence do citizens have in the rules of society and the institutions that exercise power?			
	How free are the country's citizens to express their views? What is the likelihood of political instability or politically-motivated violence?			

P1	For defined benefit schemes, are there minimum funding requirements? What is the period over which any deficit or shortfall is normally funded? For defined contribution schemes, are the assets required to fully meet the members' accounts?	**10%**	7	Can be/15/Yes
P2	Are there any limits on the level of in-house assets held by a private sector pension plan? If yes, what are they?	**5%**	0	30%
P3	Are the members' accrued benefits provided with any protection or reimbursement from an act of fraud or mismanagement within the fund? In the case of employer insolvency (or bankruptcy), do any unpaid employer contributions receive priority over payments to other creditors, and/or are members' accrued benefits protected against claims of creditors?	**5%**	6	No Yes
P4	When joining the pension plan, are new members required to receive information about the pension plan?	**5%**	10	Yes
P5	Are plan members required to receive or have access to an annual report about the pension plan? Is the annual report required to show: i. The allocation of the plan's assets to major asset classes? ii. The major investments of the plan?	**5%**	7	Yes Yes
P6	Are plan members required to receive an annual statement of their current personal benefits from the plan? Is this annual statement to individual members required to show any projection of the member's possible retirement benefits?	**7,5%**	9	Yes Yes
P7	Do plan members have access to a complaints tribunal which is independent from the pension plan?	**2,5%**	2	No
Costs	What percentage of total pension assets is held in various types of pension funds? What percentage of total pension assets is held by the largest ten pension funds/providers?	**10%**	9	83,61%
Integrity sub-index		***25%***	***7,18***	
Melbourne Mercer Global Pension Index		***100%***	***5,65***	

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