# AGEING POPULATION AND SPANISH PENSION SYSTEM REFORMS: EFFECTS ON AVERAGE PENSIONS AND INEQUALITY AMONG PENSIONERS**

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**Abstract**

An ageing population is prompting the reform of pension systems. The Spanish pension system has undergone two consecutive reforms and a third one is currently being taking into consideration. All three involve the lengthening of the period used to calculate the size of pensions. This paper offers an estimate of the impact of each system on average pensions and inequality among pensioners. The paper also explores the applicability of the conclusions to the generation of workers now in the middle of their working life, that is considering the characteristics of new working lives.

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## 1. INTRODUCTION

Europe has entered a period of relative demographic decline. Its share of the world population has fallen from 12.5 per cent in 1960 to 7.2 per cent at present. According to current projections it will fall to just 5 per cent by 2050 (UN, 2004). This trend has been accompanied by a much more worrying demographic phenomenon: the ageing of the population. Population ageing is set to affect all OECD countries over the coming decades. Demographic projections are uncertain but, according to middle-of-the-road assumptions, the ratio of people over 65 to those between 20 and 64 could double between now and the middle of the present century. And, in some countries, such as Japan, Italy and Spain, this ageing will be much stronger (OECD, 2003). The World Bank predicted in July 2007 that half of Spain's population will be older than 55 by 2050, giving Spain the highest median age of any nation in the world. Most assessments of Europe's demographic outlook take a deeply pessimistic view of the continent's future. Many commentators warn that Europe's changing demographic make-up threatens to blow a hole in government budgets, derail national economies, and leave European countries enfeebled in the face of competition from younger countries elsewhere.

Apart from economic and social elements, two main demographic changes have contributed to this ageing of the population: decline of total fertility rate (TFR) and increase in life expectancy. On the one hand, Europe's relative demographic decline has been driven by a sharp fall in fertility rates, which are now among the lowest in the world. The average fertility rate in the EU-27 stood at 1.5 children per woman in 2005, compared with 2.7 in 1965. As the fertility rate declines, the average age of the population will rise rapidly. Taking the case of Spain, in 1970, Spain's TFR, 2.9 children per woman, ranked second in Western Europe after Ireland´s 3.9 children per woman. By 1993 Spanish fertility declined to 1.26 children per woman, the second lowest after Italy. On the other hand, European Commission projections on the ageing of the population and an increase in life expectancy point to an increase in the number of pensioners due to retirement and permanent disability.

These developments will be challenging for public budgets and pension systems. Indeed, the falling share of the population at traditionally productive ages means relatively fewer people will pay taxes and social contributions at a time when the rising share of older persons implies that more people will receive pensions and costly health services, etc. Lower working (and contribution) careers combined with longer periods of enjoyment of the public pensions pose an evident threat to the financial sustainability of 'pay-as-you-go' pension systems (whereby those currently in employment pay for the pensions of those currently in retirement). Perhaps the most realistic gauge to measure this relation between contributions of tax-payers and receptions of pension-receivers is the old-age dependency ratio – i.e. the population aged 65 and over as a percentage of the working age population (aged 15-64) - as this takes into account relationships of dependence and the falling birth rate. According to the European Commission (2003), in Spain the size of the 65+ population was 20.2% of that of the working-age population in 1990, and this is predicted to rise to 26.8% by 2010, similar to the figure for France but higher than that for the UK and lower than that for Italy. The number of pensioners in Spain is expected to rise from 7.6 million in 2000 to 9.7 million in 2020 and to 12.5 million in 2040, which will involve a major economic burden for the state. A forecast by the Ministry of Labour (Ministerio de Trabajo, 2000), regarded as optimistic in some quarters, estimates that expenditure on pensions will rise from 8.4% of Spanish GDP in 2000 to 12% in 2040. A more pessimistic forecast is that offered by the European Commission (2003), which estimates that pensions expenditure will rise from 9.4% of GDP in 2002 to 17.7% in 2050.

Nevertheless, the current public pension system is widely regarded as unviable and many believe that it must be modified to favor individual saving initiatives. Given the current uncertainty over the future, some are promoting pension schemes based on individual 'capitalisation' (whereby individuals save for their own retirement) as an alternative to the current 'pay-as-you-go' model. This has met with criticism, for example from the Trade Union Confederation of Workers' Commissions (Comisiones Obreras, CC.OO, 2004). Several studies have analyzed the pension system and the need for it to be reformed in most developed countries. The report of the World Bank, "Averting the Old Age Crisis: Policies to Protect the Old and Promote Growth (2003) is considered as the cornerstone of this group of studies.

In the case of Spain the system has undergone two successive reforms, the first one in 1985, the second one in 1997, and a third reform is currently being discussed. This paper aims firstly to analyze the effect of those reforms in the amount of mean pensions, secondly to calculate whether the effect differs across pensions intervals, occupations and gender, thirdly whether each system increases or decreases inequality across retired workers, fourthly to explore the applicability of the conclusions to future generations. In order to reach that goal, the paper is organized as follows: section 2 describes the Spanish pension system and its reforms; section 3 describes the data used to make the calculations, the way they were carried out and presents the results obtained; section 4 reflects on the impact a policy in this line would have on generations still working with different past and future labour records. Section 5 concludes.

## 2. Spanish current, future and past legislation to calculate pensions.

### 2.1 The current legislation

The current system was established in 1997 by the Popular Party government that agreed the reform with trade unions. From that date pensions are calculated as follows. Firstly, a regulatory base (*base reguladora*, BR) is calculated using the formula below, which takes into account the last fifteen years (BR15) before retirement:

$$BR15 = \frac{\sum_{i=1}^{i=24} BC + IPC \sum_{i=25}^{i=180} BC}{210}$$

where BC is the monthly contribution and *i=1* the month before retirement. Monthly contributions are equal to salaries but truncated by a maximum and minimum; that is, if the salary is below the minimum monthly contribution it is considered to be the minimum and, if the salary is above the maximum monthly contribution it is considered to be the maximum. These two limits are decided annually by Social Security authorities. Amounts are indexed, only before month 24, using the Spanish Index of Consumer Prices (IPC). The resulting pension is a percentage of the calculated BR, and this percentage is a function of the number of years that the pensioner has worked and

paid contribution; the higher the number of years paying contribution the higher the percentage. To receive a pension equal to the calculated BR it is necessary to have paid contribution during 35 years. The minimum number of years necessary to receive a pension is 15 and, in that case, the pension received amounts to fifty percent of BR. Percentages are summarized in table 1.

Table 1.- Percentage of BR received.

| Number of years contributed | % of BR recieved | Number of years contributed | % of BR recieved |
|---|---|---|---|
| 15 | 50 | 26 | 82 |
| 16 | 53 | 27 | 84 |
| 17 | 56 | 28 | 86 |
| 18 | 59 | 29 | 88 |
| 19 | 62 | 30 | 90 |
| 20 | 65 | 31 | 92 |
| 21 | 68 | 32 | 94 |
| 22 | 71 | 33 | 96 |
| 23 | 74 | 34 | 98 |
| 24 | 77 | 35 | 100 |
| 25 | 80 | | |

**2.2 The Future reform**

The current discussion about future reform deals with an increase in the number of years used to calculate the Regulatory Base (BR). On the one hand, it is postulated that an increase in the number of years would reduce the amount that retired workers receive, which would in turn imply a loss of purchasing power of the elderly which, at the same time, may involve an increase in individual saving initiatives. On the other hand, it is assumed that a reform will be necessary sooner or later to reduce the pressure that the aging population is going to put on the government's budget. An increase in the number of years from 15 to 20 is currently being considered. Furthermore, future reforms might consider calculating BR taking into account the 35 years that are needed to receive a pension. Because of the lack of data, in the calculations below we consider only an increase to 20 years following formulas from table 2.

Table 2.- BR calculation in a possible pension system reform

| | |
|---|---|
| $BR15 = \frac{\sum_{i=1}^{i=24} BC + IPC \sum_{i=25}^{i=180} BC}{210}$ | $BR16 = \frac{\sum_{i=1}^{i=24} BC + IPC \sum_{i=25}^{i=192} BC}{224}$ |
| $BR17 = \frac{\sum_{i=1}^{i=24} BC + IPC \sum_{i=25}^{i=204} BC}{238}$ | $BR18 = \frac{\sum_{i=1}^{i=24} BC + IPC \sum_{i=25}^{i=216} BC}{252}$ |
| $BR19 = \frac{\sum_{i=1}^{i=24} BC + IPC \sum_{i=25}^{i=228} BC}{266}$ | $BR20 = \frac{\sum_{i=1}^{i=24} BC + IPC \sum_{i=25}^{i=240} BC}{280}$ |

**2.3 Former legislation**

It is not the first time a reform in the pension system has increased the number of years used to calculate BR. Before the 1985 reform, BR was calculated taking into account only two years before retirement. In 1985, the main political parties signed the Toledo Pact to reform the system. This Pact was followed by several reports concerning the ageing population and reform of pensions for the case of Spain: the Herce report (1995), the Ministry of Labour report (1996), the Barea report (1996) and the Group of Entrepreneurs report (1996). The same year, 1985, the Socialist government of the time increased the period of employment on which BR was calculated from 2 to 8 years within the agreement reached in the so-called Toledo Pact (see table 3). In 1997, the PP government and the trade unions agreed to extend the calculation period progressively from eight to 15 years, thus giving birth to the current system.

Table 3.- BR calculation before and after 1985.

| | |
|---|---|
| $BR2 = \frac{\sum_{i=1}^{i=24} BC}{28}$ | $BR8 = \frac{\sum_{i=1}^{i=24} BC + IPC \sum_{i=25}^{i=96} BC}{112}$ |

One of the main changes included in those successive reforms was, as Rodriguez (2002) called it, the “Contributivity” of system, that is, the rising ratio between contributions and resulting pensions. Two main elements determine the degree of this

"Contributivity": first, the number of years of contribution and, second, the number of years used to calculate the BR.

Within the context of the debate about social security reform and in order to fulfil the goal of calculating the effect of different legislations on the sum received on average by retired workers, section 3 is going to calculate mean pensions received by retired workers in 2005 using the current legislation, the possible future reform and the two former regulations. For that purpose we used data from Muestra Continua de Vidas Laborales (MCVL), an administrative data set based on a random draw from the Spanish Social Security Archives from which the Ministry of Labour calculates pensions.

## 3. Pensions perceived by the generation retired according to the general regime in 2005 implementing different legislations.

### 3.1 The Data: MCLV

The impact of successive increases in the number of years to calculate BR on average pensions has been done using the data from the MCLV that contains 4% of affiliated workers and pensioners, which means information from more than a million persons. We have selected those that had retired during 2005 according to the General Regime, which means that they were 65 years old, born in 1940, were not self-employed at the end of their careers and had not worked in agriculture, fishing or forestry. Although the amount of people with those characteristics in the sample is very big, the resulting sample that we use for the below calculations amounted only 1800 cases. The process of extracting a subsample from the MCVL is very complex[1] and in many cases, individual records are incomplete. Because of that, although we have completed information when it was possible, we have also rejected a big amount of individuals.

First, the MCLV is composed of different files, one file about personal characteristics, several files about different labour relations during the individual's working life and

[1] Complete and detailed information about the process followed to extract the sample is available by request.

monthly contributions and files about the amount and kind of pensions received, such as retirement and disability pensions. Each individual has an ID number that makes it possible to merge folders and put together the information available for one individual. We eliminated from the sample those individuals whose information about monthly contributions was incomplete and could not be completed using consecutive months.

Secondly, once we had the information necessary to calculate individual pensions we did so by implementing current legislation that is, the system explained in section 2.1. Then we compared the calculated pensions with the pension they started to receive after retirement. We selected individuals for which we are able to predict a real pension, those for whom the difference between the pensions calculated and the pension received was below 5%.

The resulting number of individuals in the sample was 1010. We then calculated the amounts that these individual would have received if future legislation, using formulas from table 2, had applied. Finally, we calculated pensions implementing former legislations, using formulas from table 3. After making calculations for BR, the percentages in table 1, according to the number of years contributed, were implemented. Sections 3.2 and 3.3 show the results obtained.

### 3.2 The effect of future legislation on average pensions

According to the results obtained using a sample of 1010 individuals, an increase from 15 to 20 in the number of years used to calculate the BR implies a reduction of 5.5% in the average pension. An increase of one year in the calculation of BR implies, approximately, one percentage point reduction in the average pension.

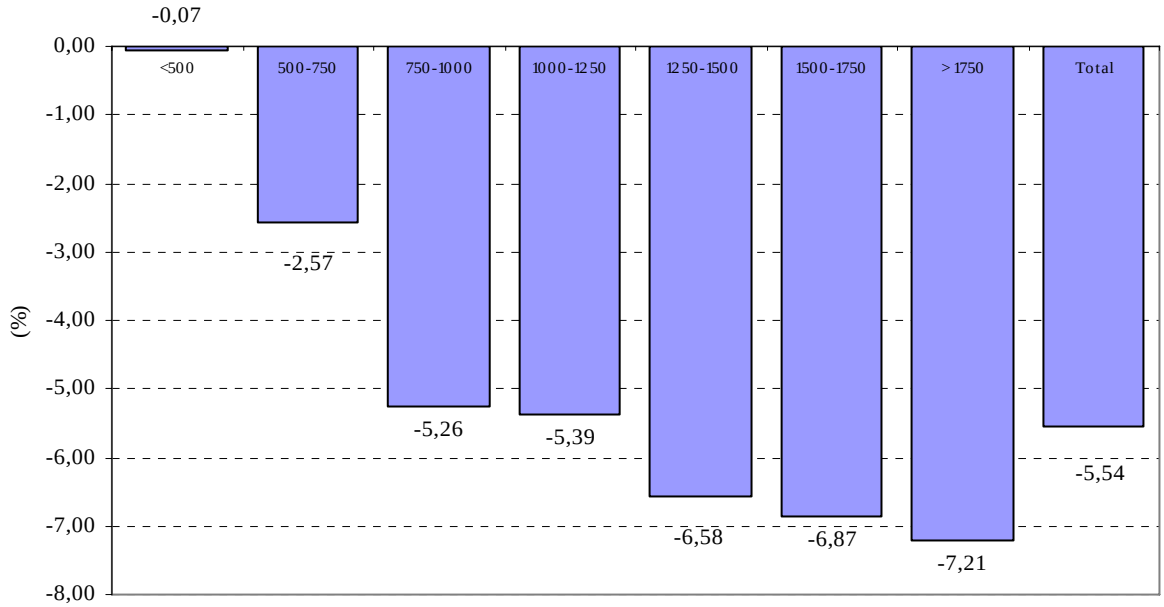
Table 2 shows the results by intervals or pensions received. It shows that the impact is stronger in the higher intervals, those receiving a higher pension. According to labour economics, increases in salaries as a result of experience acquired along one's working life are higher in groups with higher salaries. Because of that, higher pensions would undergo a stronger decrease when the number of years used to calculate BR increases. Chart 1 shows the effects in percentages; the greater impact on higher intervals is clear.

Table 2. Average pensions as a result of an increase in the number of years used to calculate BR from 15 to 20 by perceived pension intervals.

| N. of years | <500 | 500-750 | 750-1000 | 1000-1250 | 1250-1500 | 1500-1750 | > 1750 | Total | % variation |
|---|---|---|---|---|---|---|---|---|---|
| 15 | 431.4 | 625.6 | 881.5 | 1113.9 | 1362.1 | 1609.8 | 2006.8 | 1061.4 | |
| 16 | 430.8 | 622.5 | 872.7 | 1103.2 | 1345.7 | 1588.3 | 1976.9 | 1050.1 | -1.06 |
| 17 | 430.4 | 619 | 863.3 | 1091.6 | 1328.4 | 1565.1 | 1947.34 | 1038.2 | -2.19 |
| 18 | 429.8 | 616 | 854.1 | 1079.3 | 1310.4 | 1542.9 | 1918.15 | 1026.3 | -3.31 |
| 19 | 430.1 | 612.5 | 844 | 1066.6 | 1292.2 | 1520.6 | 1890.3 | 1014.3 | -4.44 |
| 20 | 431.1 | 609.5 | 835.1 | 1053.9 | 1272.5 | 1499.2 | 1862.19 | 1002.6 | -5.54 |
| N. obs. | 116 | 181 | 213 | 195 | 120 | 78 | 107 | 1010 | |

Source: the authors, using data from the MCVL.

Chart 1.- Porcentage impact by pension intervals




Source: the authors, using data from the MCLV

Table 3 shows the results by gender. It can be observed that the impact on women pensions is slightly lower. It can be interpreted in terms of table 2 because women's average pensions are lower. In our sample, women pensions are 25% below that for men, which corresponds approximately to the wage gender gap in the Spanish labour market.

Table 3. Average pensions as a result of an increase in the number of years to calculate BR from 15 to 20 by gender.

| N. of years | women | % variation | men | % variation |
|---|---|---|---|---|
| 15 | 868.8 | | 1146.7 | |
| 16 | 860.5 | -0.96 | 1134.0 | -1.11 |
| 17 | 851.0 | -2.05 | 1121.1 | -2.23 |
| 18 | 841.5 | -3.14 | 1108.1 | -3.37 |
| 19 | 831.9 | -4.25 | 1095.1 | -4.50 |
| 20 | 822.2 | -5.36 | 1082.4 | -5.61 |
| nº obs. | 310 | | 700 | |

Source: the authors, using data from the MCLV

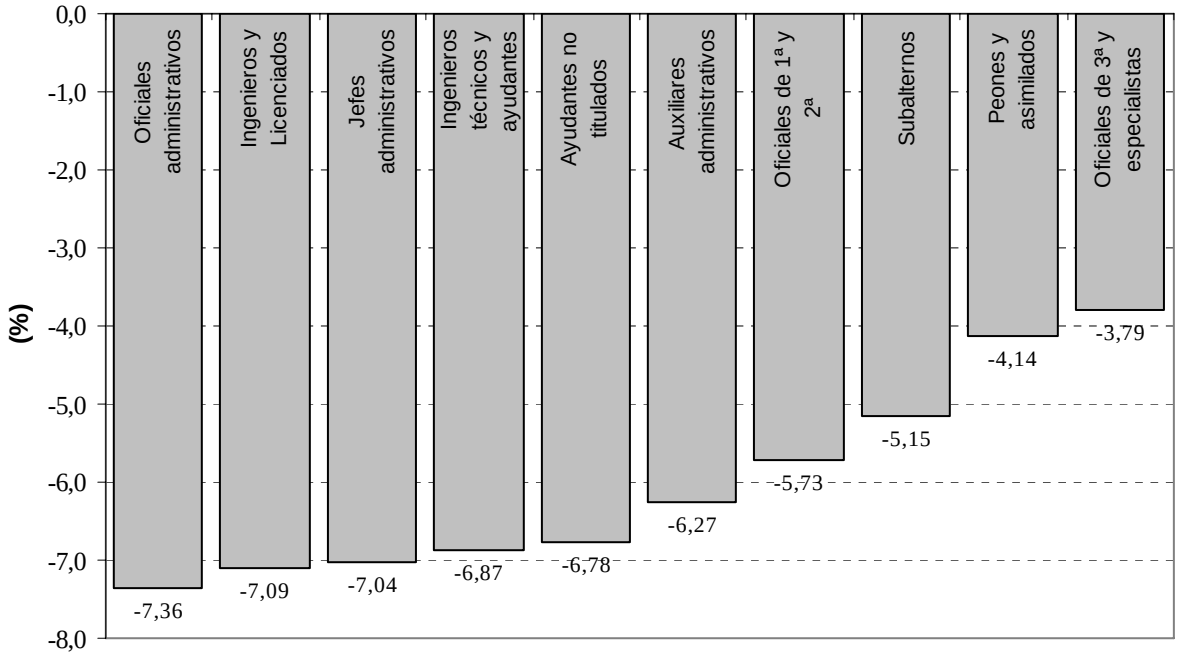
Finally, table 4 and chart 2 show the results by contribution groups, which can be considered a classification that combines educational levels and occupation. MCVL data about educational levels are of very poor quality, and because of that we decided to use this classification. As could be expected, the effect is stronger in groups whose contributions are higher.

Table 4. Average pensions as a result of an increase in the number of years to calculate BR from 15 to 20 by contribution groups.

| Contribution groups | Number of years | | | | | | Obs. |
|---|---|---|---|---|---|---|---|
| | 15 | 16 | 17 | 18 | 19 | 20 | |
| Engineers and graduates | 1667.5 | 1647.4 | 1624.6 | 1601.6 | 1578.9 | 1557.1 | 55 |
| Engineering associate professionals | 1648.0 | 1634.0 | 1614.8 | 1589.9 | 1564.5 | 1542.0 | 40 |
| Administrative managers | 1416.0 | 1397.3 | 1375.1 | 1357.1 | 1340.4 | 1322.9 | 48 |
| Non graduate assistants | 1476.7 | 1456.0 | 1436.2 | 1418.1 | 1400.7 | 1383.0 | 48 |
| Administrative workers | 1099.8 | 1084.4 | 1069.6 | 1054.1 | 1038.8 | 1024.4 | 110 |
| Auxiliaries | 954.2 | 945.6 | 936.1 | 926.9 | 916.8 | 907.5 | 130 |
| Numerical Clerks | 902.0 | 892.1 | 881.2 | 870.6 | 860.1 | 848.8 | 65 |
| Craft and related workers | 995.1 | 984.4 | 973.6 | 962.9 | 952.0 | 941.2 | 270 |
| Elementary occupations I | 931.6 | 924.7 | 918.7 | 911.8 | 904.9 | 897.6 | 111 |
| Elementary occupations II | 754.6 | 749.2 | 742.7 | 737.0 | 730.0 | 724.6 | 131 |

Source: the authors, using data from the MCLV.

Gráfico 2. Impacto sobre la pensión de pasar de 15 a 20 años

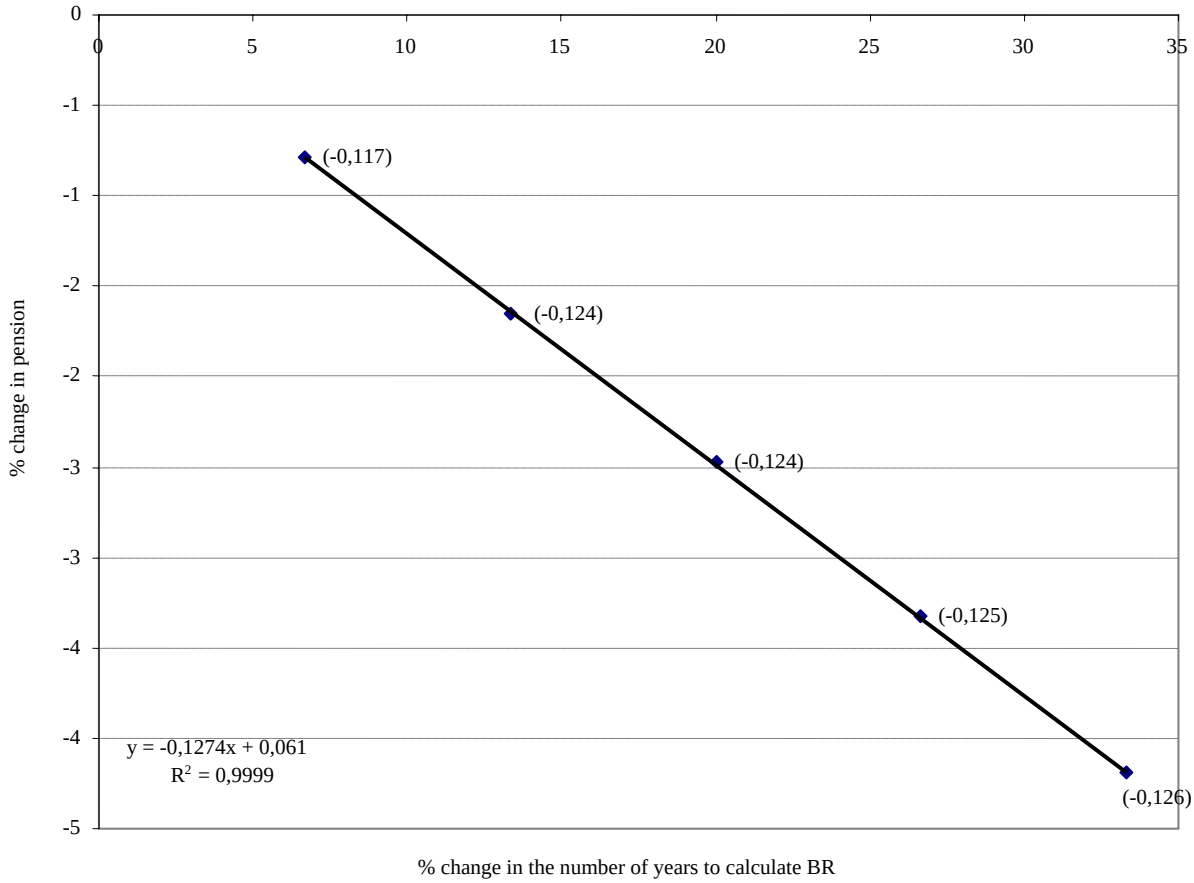



Source: the authors, using data from the MCVL

Summarizing, according to a sample obtained from the MCVL of workers retired in 2005 according to the General Regime, an increase in the number of years used to calculate BR from 15 to 20, that is a 33% increase in the number of years, would produce a 4-5% decrease in the average pension. The impact is stronger the higher the pension and there are no considerable differences between genders.

Since missing values in MCLV increase when observations refer to years before 1985, it is not possible to make reliable calculations of the effect of a further increase in the number of years, from 20 to 35. Chart 3 shows the relationship between the number of years used to calculate BR and the resulting average pension. The estimated parameter equals 0.127. This result means that, assuming that the relationship found for an increase from 15 to 20 is the same as the relationship of an increase between 20 and 35, an increase in the number of years to 35 would imply a 17% reduction in the average pension. Taking into account that salaries increase faster at the early stage of professional careers it can be stated that the above reduction could be even higher.

Chart 3.- % change in pensions as function of a change in years to calculate BR




Source: the authors, using data from the MCVL

### 3.3 Average pension under former legislation

Using formulas from table 3 we have calculated the average pension that the generation retired in 2005 would have received if the former legislation had been in force that year. The scenario in force before 1985 and 1997 established, respectively, 2 years and 8 years to calculate BR. Table 5 shows that implementing legislation in force before 1985 with our sample would imply a 10% increase in the average pension with respect to the average pension calculated in accordance with current law. Running calculations using 8 years would imply an increase close to 6%. Table 5 also shows the impact on men and women because, although in the previous sections we could not appreciate significant differences, the impact for men in now clearly stronger. Chart 4 shows the results by

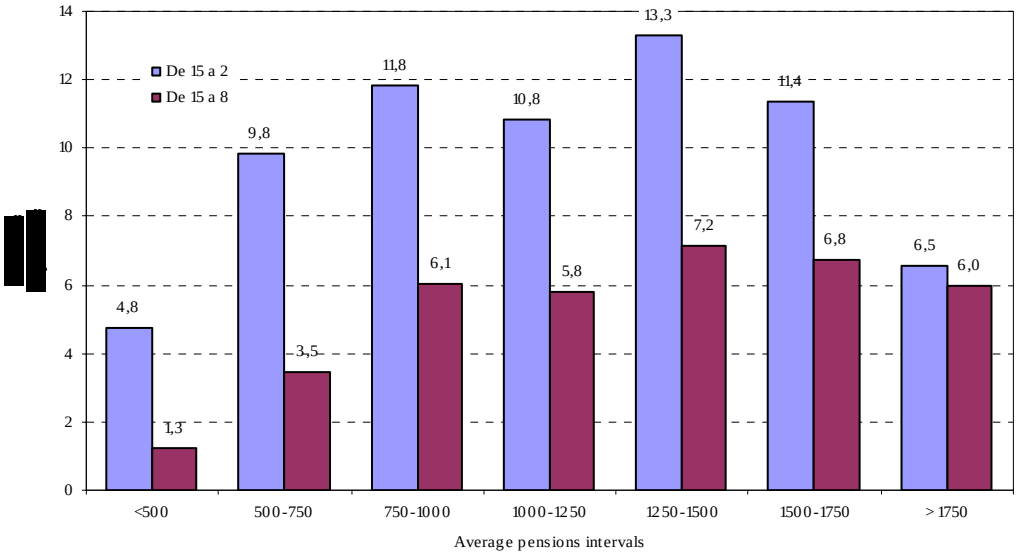
received pension intervals, and a stronger impact on intermediate pensions can be observed.

Chart 5 Average pensions as a result of implementing former legislations

| N. of years | Women | % variation | Men | % variation | Total | % variation |
|---|---|---|---|---|---|---|
| 15 | 868.8 | | 1146.7 | | 1061.4 | |
| 2 | 947.6 | 9.07 | 1267.9 | 10.57 | 1169.6 | 10.19 |
| 8 | 911.9 | 4.96 | 1215.4 | 5.99 | 1122.3 | 5.74 |

Source: the authors, using data from the MCVL

Chart 4 Impact of implementing former legislations by pension intervals.



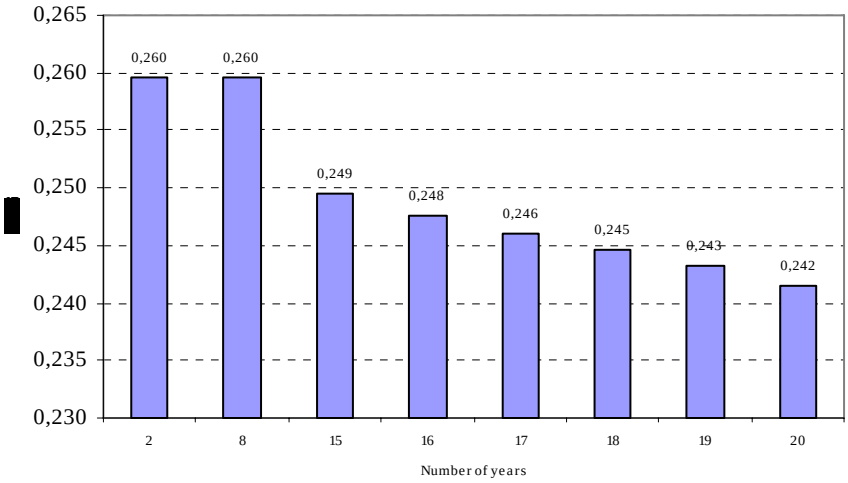

Source: the authors, using data from the MCVL

### 3.3 Gini indexes

All of the above is in line with findings in inequality calculations. As a result of the higher impact in higher intervals, an increase in the number of years to calculate BR slightly reduces inequality among pensioners. The fact that contributions are censored wages means that Gini indexes are quite low in any of the legal scenarios examined; the Gini index for Spanish wages in 2005 was 0.31. However, if reforms reduce average pensions and that reduction entails individual saving initiatives, real GINI indexes that take into account private funds are likely to increase among pensioners and exhibit

numbers closer to those that can be found among wages. The lack of individual data on private saving retirement funds makes this calculation impossible.

Chart 5. Gini indexes of calculated pensions calculated




Source: the authors, using data from the MCVL

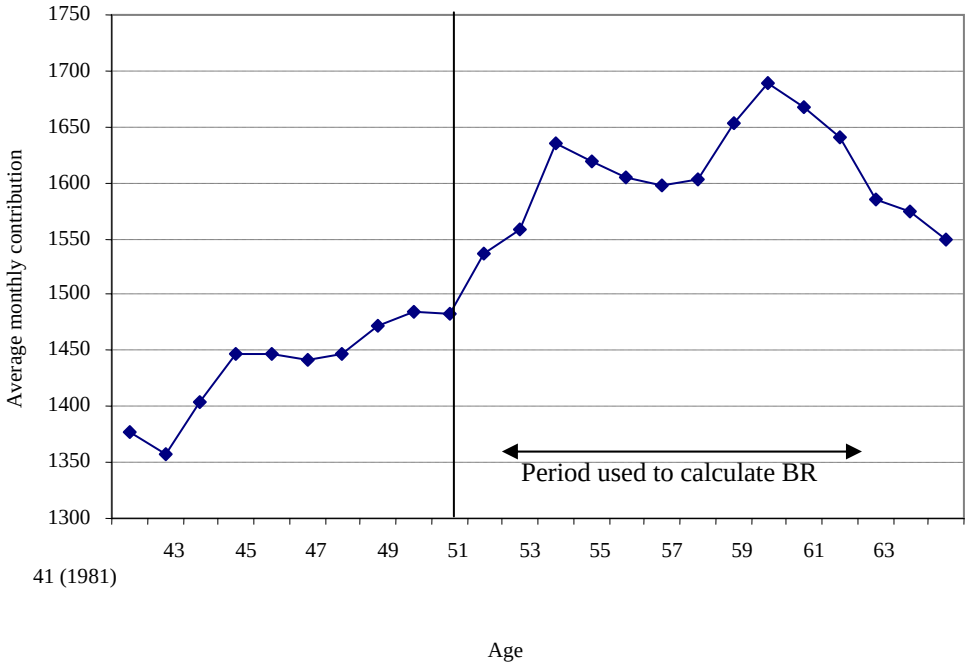
### 4.- An approach to the effects on the current generation

May we apply the results obtained to generations still working? There are two main elements that determine the impact on pensions when changing the number of years used to calculate the average pension: wage performance throughout the working life of workers and the number of periods of contribution.

With respect to wages, no availability of time series of salaries covering all the labour cycle makes calculation of the typical average wage difficult. An indirect way to approach this problem involves comparing wages belonging to workers of different ages at the same moment. Application of this approach to the Encuesta de Estructura Salarial (Wages Survey) 2002 (Muñoz de Bustillo, 2007) shows the existence of a continuous growth of wages until 50-55 years and a subsequent decline until retirement age. Taking into account slight differences, this profile is common for most OECD countries (OECD, 2005, p. 66). MCVL proposes, and makes available, an alternative source to study the performance of wages. That sample, drawn up by the Spanish administration,

records data related to monthly bases of active workers. In this case, the information reproduces the authentic professional career of each worker and not, as in the previous case, fictitious ones built with a mixture of the wages of workers of different ages at the same moment. In Chart 6, we reproduce the profile of the monthly average contribution base (BC) considering the 25 years before retirement of workers in the General Regime who retired at age 65 in 2005. We observe a similar profile to that obtained in the cross-sectional analysis.

Chart 6 .- Evolution of average monthly contribution in euros 2005.
(sample of workers retired in 2005.)




Source: MCVL and the authors

Therefore, handling the available information confirms the existence of a growing profile throughout the working life; finally, it would stabilize during the last decade[2]. This means, in aggregate terms, that the longer the period used to calculate the average pension, the more periods associated with a lower average pension are introduced into the calculation. Therefore an extension of the period entails a lower average pension.

[2] Vid. Muñoz de Bustillo (2007).

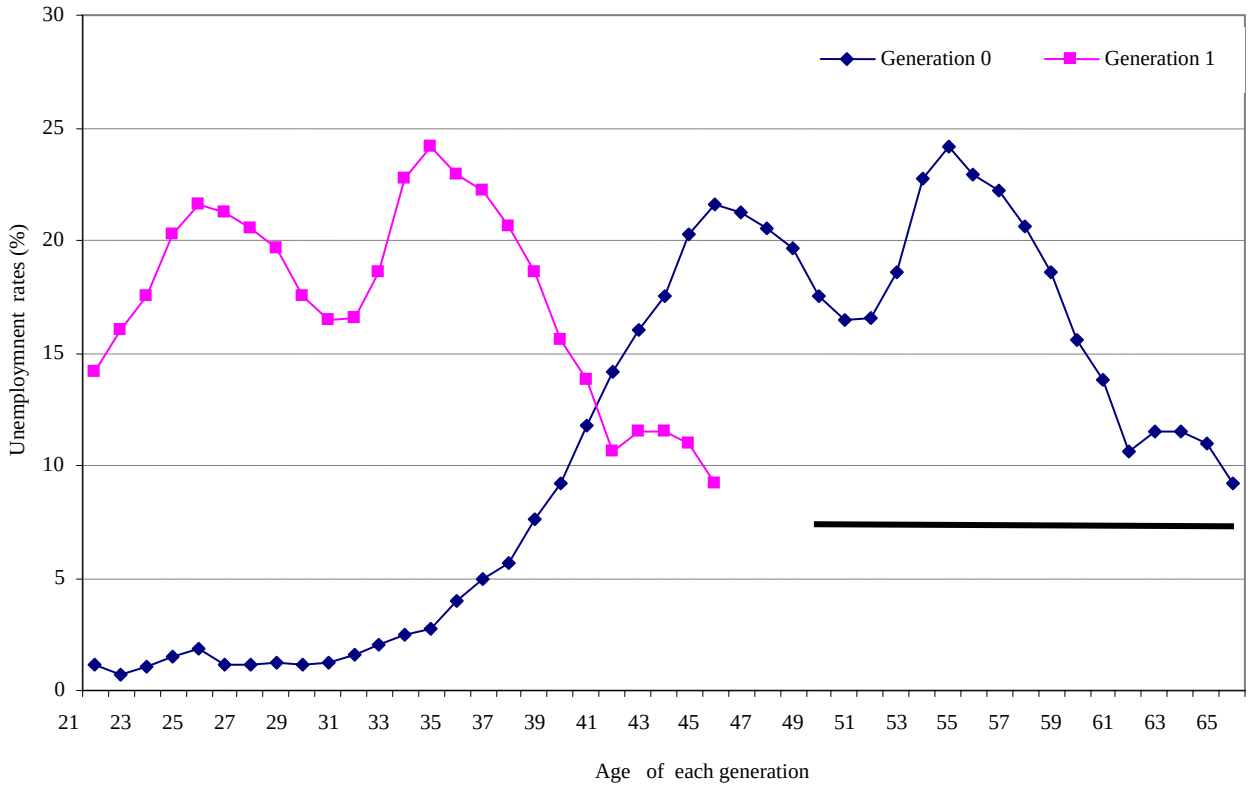
Second, extending the period used to calculate the average pension will have a direct impact on pensions due to the addition of new years back in time. New no-contribution gaps (temporal observations with no available data) will appear as a consequence of the existence of higher rates of unemployment and/or periods of temporary leave from work (for example, due to maternity). Extending the period of contribution, *ceteris paribus*, will entail lower levels of average pensions and, therefore, lower pensions when using periods of high rates of unemployment and will entail higher levels (or even be neutral) when using periods of lower rates of employment.

Now that we have identified the variables explaining the effects on pensions of extending the period of contribution, we proceed to compare both generations: the one that is in the central part of their working life (we call it generation 1) to the one just retired in 2005 (generation 0), the one we considered as a reference in previous sections of this paper. With respect to the wage path, there is no element that leads us to conclude that wage profiles have changed over the last few years. With respect to the second factor, the number of non-contribution gaps associated with situations of unemployment, the comparison between these two generations shows very clear differences. Generation 0 (retired in 2005) underwent three different periods of unemployment in their working life; the first third is characterized by a very low rate of unemployment; the second, by a massive rate of unemployment and the third, by a decreasing rate of unemployment (still high), with the sole exception of rising unemployment during the 1993 crisis. On the contrary, generation 1 is facing the lowest rate of unemployment in its whole working life.

In Chart 7, a thick line represents the last 15 years of working life which, as the law in force indicates, are used as a reference to determine the average pension. In the case of generation 0, changing the period from 15 to 20 years entails considering additional years with a higher rate of unemployment. In the case of generation 1, whatever happens in the last 15 years will have the same impact on pensions whichever way we choose to calculate that figure so we omit it in our analysis. Therefore, currently, all the information needed is available to know what the impact would be on this cohort when extending the period of calculation of the average pension (period 2008-2010 is not

available). As can be seen in Chart 9, the whole working life of this generation has taken place in a context of high level of unemployment. This means that, if we raise the number of years used to calculate the average pension, there will be growing number of non-data gaps in contribution record. Indeed, it is known that during high unemployment times in Spain, unemployment was concentrated in young workers.

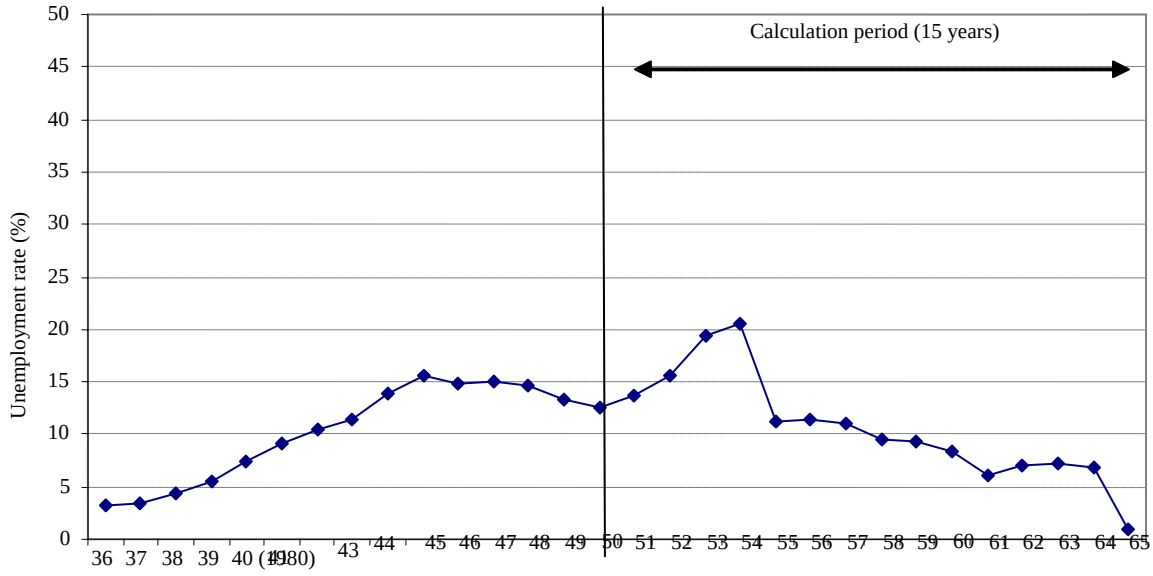
Chart 7.- Spanish unemployment rates and ages of generation 0 and 1 .




Source: EPA and the authors.

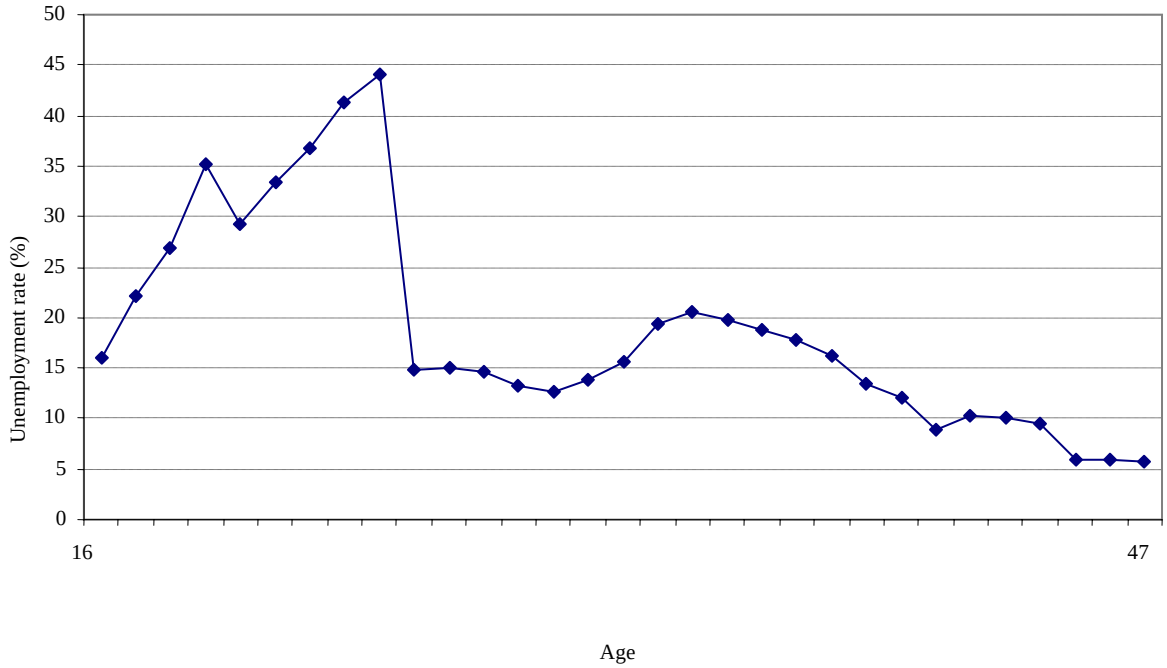
The previous reasoning, that is, the comparison between both experiences of unemployment in the case of generation 0 and 1, can be enriched if we replace the average unemployment rate with the corresponding rate every generation goes through in each moment of time. Charts 8 and 9 show this perspective and reproduce unemployment rates for the age groups that generations 0 and 1 have belonged to during the last 3 decades. It can be clearly seen in those charts how, in the case of generation 0, the higher rate of unemployment period matches up, partially, with the period used to calculate the average pension. In the case of generation 1, the result is completely different.

Chart 8.- Generation 0 unemployment rates




Source: INE and the authors

Chart 9.- Generation 1 unemployment rate




Source: INE and the authors

For the case of generation 1, the first two decades of work experience match up with a context of massive unemployment in that age group (around 50%). That means that, extension of the period used to calculate the average pension beyond 25 years would have an important impact on the average pension *via* a greater number of non-contribution gaps in the record of their working career.

Another important element, different from unemployment, is the existence of periods in which temporary workers stop working. These periods are left out when considering the period for calculating the average pension but, in the case of extending that period, they might be considered (for instance, a woman who temporarily leaves the labour market to become a mother). Another special case is women who choose to work part-time to make family and job compatible; in this case, if we took into consideration these periods within the reference period, the average pension would be lower. Therefore, the extension of the period taken into consideration to calculate the amount of the average

pension would have a deeper impact on workers around 45 years old (generation 1) than on recently retired workers (generation 0). The main reason is that generation 1 has historically faced higher rates of unemployment in the case of Spain. In a parallel way, that enlargement would have important negative effects on those women who decided to temporarily give up working due to, for example, maternity.

## 5. Concluding remarks

First, extending the contribution period from 15 to 20 years would render a lower level of pensions, around 5%. The effect would be stronger in the case of the highest pensions and *vice-versa*. Gender does not explain the negative impact on pensions caused by the extension of the period used as reference to calculate them. This result is explained by the lower level of pensions received by women (25% below men's level of pensions, which is the salary gap between men and women).

Second, with respect to the hypothetical pensions that retired workers in 2005 would have received if the system used to calculate pensions in force before the 1997 reform (8 years) and until the 1985 reform (2 years) had been applied to them, there are two main results: first, changing from 15 to 2 years entails a growth of 10% in the amount of pensions received and, second, from 15 to 8, a growth of 6%. Although there is not a significant difference between the results obtained when extending the period used to calculate pensions considering gender, if the period is reduced, the impact will be greater on women.

Third, the extension of the period used to calculate the average pension would reduce the inequality in the distribution of pensions contained in the General Regime. This finding is the result of the higher slope in most qualified workers' work history. In this finding, it is not the effect that the overall reduction on pensions could have on individual saving initiatives. However, assuming higher savings for higher salaries,

private fund increases would boost inequality among retired workers. The effect of private funds may compensate the initial reduction in inequality. It would mean that inequality among pensioners would move upwards in the direction of that of salaries (Gini=0.31). The existence of a minimum contribution base works as a threshold that limits the impact on pensions caused by the extension of the calculation period. The existence of minimum and maximum pensions explains why the level of inequality is greater in wages than in pensions.

Fourth, if we use values of estimated elasticity obtained when changing from 15 to 20 years in order to calculate the impact that the extension of the period of reference till 35 years of working life will have, we obtain a reductive effect on average pensions of 17%.

Fifth, once we analyse the implications that the extension of the reference period would have on the average pension of workers just at the zenith of their working life (*circa* 45 years old), we can deduce that the extension might entail more severe consequences in the case of workers just retired. The cause of that heavier impact on this group may be explained by the fact that it was this generation that suffered the highest unemployment rates during the roughest years in Spanish economic history. In a parallel way, the extension might have important consequences for women, especially those who temporarily leave the labour market (for example, due to maternity).

Sixth, and last, we must point out the limitations that researchers have to face when working with a sample like the MCVL. On the one hand, there is the problem of incomplete information about the contribution base. On the other hand, the more we go back in time, the more errors and omissions can be found, limiting the reliability of the research. In any case, we are grateful for the effort on behalf of Spanish public administration employees to make information available and gradually improve it.

**References**

Bandrés E., and Cuenca A. (1996): "Capitalización y transferencias en las pensiones de la Seguridad Social", *Las políticas redistributivas*, Fundación Argentaria, Visor, Madrid.

Barea J., and J. M. González Páramo (Dir.) (1996): Pensiones y prestaciones por desempleo, Fundación BBV. Bilbao.

Blanco F. (1997): "Los efectos de la Ley 24/1997 sobre la proporcionalidad del sistema de pensiones de jubilación", Presented at the II Asamblea de la Asociación Española de Economía Pública. Madrid, 18-19 December.

CC.OO-commissioned report, *El sistema español de pensiones*, F Serrano et al,

Barcelona, Editorial Ariel, 2004

Durán Heras A. (2007): "La Muestra Continua de Vidas Laborales de la Seguridad Social**"** Revista del Ministerio de Trabajo y Asuntos Sociales, Nº 1, 2007, pp. 231-240.

Durán Heras A. (1995): "Rentabilidad de lo cotizado para pensiones", *Economistas*, 68, pp. 10-18.

Durán Heras A. and García Segovia F. (2006): "Efecto de la extensión del periodo de cálculo de la base reguladora de la pensión de jubilación", Working document. Dirección General de Ordenación Económica de la Seguridad Social. MTAS.

European Commission "The social situation in the European Union 2003", 2003

Gil J. and López-Casanovas G. (1997): "Life-time Redistribution Effects of the Spanish Public pension System", Universidad Pompeu Fabra. Available at: http://www.recercat.net/handle/2072/388

Herce J. A., and Pérez Díaz V. (1995): *La reforma del sistema público de pensiones en España*, La Caixa. Barcelona

Indermit, G. Packard T., and Yermo, J. (2004): *Keeping the Promise of Social Security in Latin America*, World Bank/Stanford University Press. Palo Alto.

Jimeno Serrano J. F. (2003): "La equidad intergeneracional de los sistemas de pensiones", *Revista de Economía Aplicada*, vol. XI, pp. 5-48.

Ministerio de Trabajo y Seguridad Social (1996): *La Seguridad Social en el umbral de siglo XXI: estudio económico-actuarial*. Secretaría General para la Seguridad Social. Ministerio de Trabajo y Seguridad Social. Madrid

Ministerio de Trabajo y Asuntos Sociales, España, *La Protección Social en Europa*,

2000

Monasterio C., and Suárez Pandiello J. (1992): Gasto Social en Pensiones", *Hacienda Pública Española*, 120/121, pp. 119-143.

Monasterio, C., Sánchez I., and Blanco F. (1996): *Equidad y Estabilidad en el sistema de pensiones español*, Documento de Trabajo. Fundación BBV, Bilbao.

Muñoz de Bustillo, R. (dir.) (2007): *Extensión de la vida laboral o inserción temprana de jóvenes. Alternativas al sistema de pensiones*. Ministerio de Trabajo y Asuntos Sociales. Madrid.

Muñoz de Bustillo R., and Antón (2007): "Low Wage Work in a High Employment Growth Economy: Spain, 1994-2004", *Investigación Económica*, vol. LXVI, 261, pp. 119-145.

OCDE (2005): *Employment Outlook*. OECD. Paris.

OECD Observer No. 239, September 2003.

Piñera J., and Weinstein A. (1996). Una propuesta de reforma del sistema de pensiones en España. Círculo de Empresarios Madrid

Rodriguez Cabrero, G. (2006): "La reforma permanente del sistema público de pensiones", en G. Rodríguez Cabrero y otros: *Actores sociales y reformas del bienestar*, Consejo Superior de Investigaciones Científicas, 1ª ed., Madrid, cap. 2.

UN Population Division, 'World population prospects: The 2004 revision', 2004

World Bank (1994): *Averting the old age crisis: policies to protect the old and promote growth. First major study produced on impending pension crisis"* World Bank/Oxford University Press. Oxford.