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AN ACCOUNTING DECOMPOSITION OF THE NET FINANCIAL BALANCE OF THE PUBLIC PENSION SYSTEM WITH AN APPLICATION TO SPAIN, 1985-2017*

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We develop an accounting decomposition of the net balance of the public pension system into a series of components that isolate the contributions of demography, the evolution of real wages and employment, the generosity and coverage of the pension system, the average contribution rate on labor income and the average duration of worker's contribution histories. This decomposition is applied to the Spanish public pension system using data for 1985-2017. The more striking finding is that the stagnation of real wages has played a more important role than demographics in the deterioration of the system's finances. The negative effect of these two factors has been partially offset by a rising employment rate, the gradual reduction in the generosity of the pension system and the increasing contribution of the Central Government to the financing of minimum pension complements.

Key words: pensions, Spain, wage stagnation.

JEL classification: H55.

Accounting decompositions have often been used in the literature to highlight and quantify the impact of different factors on pension expenditure. A standard practice in this area has been to decompose such expenditure, measured as a fraction of GDP, or its growth rate into a series of factors that capture the impact of demography, the evolution of employment and the generosity of the public pension system[1]. In this paper we extend this methodology to take into

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(1) For the case of Spain, see among others Jimeno, Rojas and Puente (2008), Doménech and Melguizo (2008), de la Fuente and Doménech (2010) and Hernández de Cos, Ramos and Jimeno (2018).

account the revenue side in a way that allows us to give a broader view of the immediate determinants of the financial health of the public pension system and use it to analyze the evolution of the finances of the main component of Spain's Social Security system over the last three decades.

After a brief review of the finances of the Spanish public pension system, we begin in section 1 by constructing an indicator of the financial heath of the contributive pension system *(IFH)* that captures the rate of coverage of its expenditure compromises with current revenues. In section 2 we develop a decomposition of the *IFH* into a series of factors that, in addition to the variables mentioned above, capture the effects on the financial balance of the system of the evolution of average labor productivity, the average contribution rate on labor income and the average duration of workers' contribution histories.

This decomposition is then used in section 3 as framework for a retrospective analysis of the evolution of the finances of the contributive pension subsystem of the Spanish Social Security System since 1985. The analysis reveals that the financial situation of the system has deteriorated over time due mainly to two factors. As is well known, one of them is the aging of the Spanish population, which has translated into a gradual decrease in the number of persons of working age that finance each pension with their social contributions. A more unexpected conclusion is that the second factor, which surprisingly turns out to be quantitatively more important than the first one, is the deceleration of the growth of productivity and hence of real wages. The negative impact of these factors has been partially compensated by a rising employment rate, a gradual reduction in the generosity of the pension calculation rules and by an increase in revenues that, among other factors, reflects the rising contribution of the Central Government to the financing of the complements that raise very low pensions to a minimum level set by law.

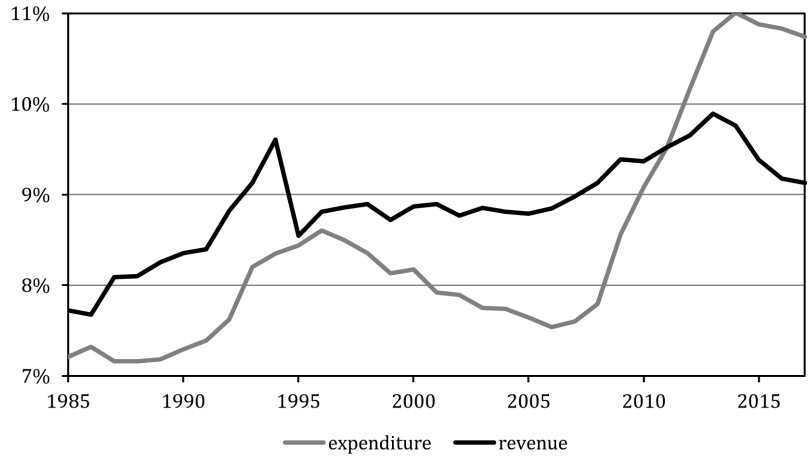
1. The evolution of the finances of the Spanish Social Security's contributive pension system

The accounts of the Spanish Social Security do not clearly separate the revenues of its contributive pension subsystem from those that finance other contributive benefits such as sick leave and medical assistance for professional accidents and illnesses. As pensions, these benefits are financed by the contributions for "standard contingencies and work-related accidents" that are paid by employed workers and their employers and by the Public Employment Service (SEPE) on behalf of unemployed workers who are receiving contributive unemployment benefits or are 55 years of age or older and are receiving non-contributive benefits. In addition to these contributions, the contributive Social Security System (CSSS) has other supplementary revenues that come from fines and service charges, interest income from the Pension Reserve Fund and transfers from the Central Government that finance minimum pension complements.

Since social contributions for standard contingencies finance both pensions and other contributive benefits, we cannot speak of the financial situation of the contributive pension system in a strict sense. But since it is convenient to think in these terms, we have disaggregated both the revenues and the expenses of the CSSS into two items linked to pensions on one hand and to the rest of the system's contributive benefits on the other. We have chosen to attribute to the pension subsystem all

of the revenues of the CSSS that remain after subtracting all observed expenditure on non-pension benefits (including the share of administrative costs that corresponds to them according to their weight in total, contributive and non-contributive, Social Security spending). In this manner, the subsystem formed by all non-pension contributive benefits is always in equilibrium by construction and the net balance of the entire CSSS is attributed in its entirety to its pension subsystem. Although this is certainly arbitrary, given the high weight of pension expenditure in the CSSS, the distortion is only minor in practice.

Figure 1: EXPENDITURE AND REVENUES OF THE PENSION COMPONENT OF THE CSSS AS A % OF SPANISH GDP



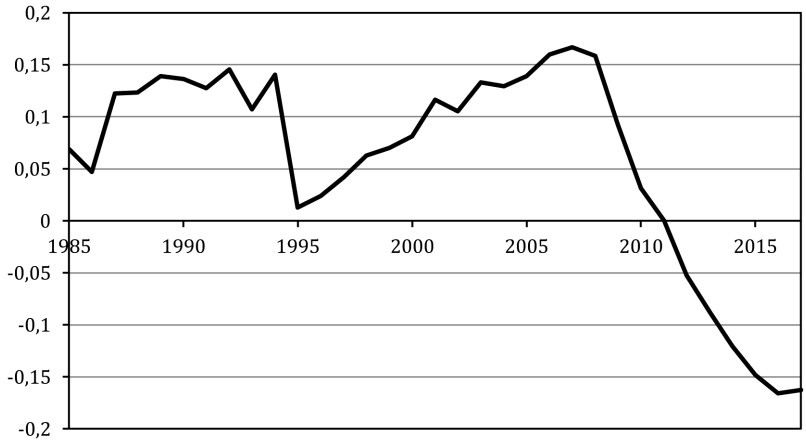
Sources: data on the revenues and expenditures of the Social Security are taken from the *Informes Económicos de los Presupuestos de la Seguridad Social* and the *Cuentas y Balances del Sistema de Seguridad Social*. Both series are normalized by Spanish GDP using the linked historical series of this variable constructed in de la Fuente (2017). Data for 2017 are approximations constructed using the quarterly national accounts of INE (2018a) and provisional estimates provided by the Social Security Administration.

Figure 1 shows the evolution of the revenues and expenditures of the Social Security's contributive pension subsystem, constructed in the way we have just discussed and expressed as a percentage of Spanish GDP between 1985 and 2017[2]. Pension revenues display an upward trend with relatively minor oscillations. Expenditures dis-

(2) The pensions of those civil servants that are covered by the so called *clases pasivas* system are not part of the Social Security System. This system is now closed to new entrants and will gradually extinguish itself over the coming decades. Its benefits are paid directly by the Government and are financed basically with general taxes. In recent years, its expenditure has been around 1,3% of GDP. Non-contributive pensions are also paid with general tax revenues and are not included in our data.

play a steeper upward trend and a greater sensibility to the cycle that comes more from the denominator than from the numerator, that is, from cyclical oscillations in GDP. During most of the period we are considering, the pension system has displayed a financial surplus that has generally risen during upswings and fallen during recessions. In the last few years, however, the system has began to show a deficit after several years in which expenditure has grown much faster than GDP while revenues have increased only at modest rates and have even fallen in absolute terms during the worst years of the crisis.

Figure 2: FINANCIAL HEALTH INDICATOR (*FHI*) FOR THE PENSION SUBSYSTEM OF THE CSSS



Sources: *Informes Económicos de los Presupuestos de la Seguridad Social* and *Cuentas y Balances del Sistema de Seguridad Social.*

The financial health indicator *(FHI)* with which we will work is defined as the log of the ratio between the revenues and expenditures of the pension system during each year, which is roughly the same as the surplus or deficit of the system written as a percentage of its expenditures. Figure 2 shows the evolution of this variable since 1985. Its most striking feature is the rapid deterioration of the situation from the beginning of the current crisis until 2017, when there begin to appear some indications of stabilization.

2. THE IMMEDIATE DETERMINANTS OF THE FINANCIAL HEALTH OF THE PENSION SYSTEM

To analyze the evolution of the financial balance of the pension system, it is useful to construct a decomposition of such balance into a series of factors that capture the impact of different variables on the evolution of its revenues and expenditures. In this section we develop one such decomposition that will then be applied to the data we have briefly discussed in the previous section.

Let *PENSEXP* denote the total expenditure on pensions by the CSSS, including the corresponding share of its administrative expenses, and *PENSREV* the system's revenues. The indicator of financial health we will be using is the ratio between the system's revenues and expenditures,

$$FHI = \frac{PENSREV}{PENSEXP} \quad [1]$$

or the log of this ratio, which we will call, *fhi*, using lower case letters to indicate that we are taking logarithms.

To decompose this ratio, we proceed as follows. Let *W* be the average wage per employed person, *L* total employment measured by the number of employed persons and *NWA* the working age population (defined in what follows as that between 20 and 64 years of age). The system's revenues can then be written as follows:

$$PENSREV = \frac{PENSREV}{W * L} * W * \frac{L}{NWA} * NWA = ACR * W * EMPR * NWA \quad [2]$$

where

$$EMPR = \frac{L}{NWA}$$

is the *employment rate of the working age population* and

$$ACR = \frac{PENSREV}{W * L}$$

would be the *average contribution rate* of employed workers if their contributions were the only revenue of the system. In practice, this variable also includes supplementary revenue items, like the contributions paid by the Public Employment Service on behalf of unemployed workers, interest income from the Pension Reserve Fund and the transfers from the Central Government that finance the minimum complements of contributive pensions.

Let *NPENS* denote the total number of existing pensions and *NRET* the total number of people who have reached the age of retirement (which, for convenience, we will identify in what follows with 65 years during the entire sample period, even though this is not strictly correct as the legal retirement age has changed over time). Then, pension expenditure can be written in the form

$$PENSEXP = \frac{PENSEXP}{NPENS} * \frac{NPENS}{NRET} * NRET = AVPENS * COV * NRET \quad [3]$$

where *AVPENS* is the average pension (or rather, the average cost of a pension since expenditure includes administrative costs in addition to benefits) and *COV* is the system's coverage ratio, i.e. the number of existing pensions per person of retirement age.

Next, we define $\bar{W}$ as the (value in current euros of the) average real wage calculated over the previous 30 years, using the average wage per employed person in each

year deflated with the Consumer Prince Index [INE (2018c)], and then reflated to current period's prices[3]. This variable tries to approximate what may be called the average regulatory base of the currently existing pensions calculated in a standardized way, that is, ignoring the changes that have taken place over time in the rules that are used for calculating starting pensions[4]. Letting *cy* denote the average years of contribution of the current stock of pensioners, the quotient *cy/40* would be the part of the regulatory base that would be paid out as pension to the average pensioner if 40 years of contributions were required for a "complete" pension and all years of contribution were weighted equally in the calculation of the initial pension. This is simply a convenient reference that allows us to define a *generosity factor* for the pension system,

$$GEN = \frac{AVPENS}{\frac{cy}{40}\bar{W}} \qquad [4]$$

as the ratio between the observed average pension and the one that would have been obtained using the hypothetical proportional formula described above to the standardized regulatory based we have defined earlier[5].

Using [2], [3] and [4], the financial health indicator can be written as:

$$FHI = \frac{PENSREV}{PENSEXP} = \frac{ACR * W * EMPR * NWA}{AVPENS * COV * NRET} = \frac{ACR * EMPR * \frac{W}{\bar{W}}}{\frac{AVPENS}{\frac{cy}{40}\bar{W}} * \frac{cy}{40} * COV * \frac{NRET}{NWA}} \qquad [5]$$

$$= = \frac{ACR * EMPR * WEV}{GEN * DUR * COV * DEP}$$

where

$$DEP = \frac{NRET}{NWA}$$

is the *old age dependency ratio*, i.e. the number of people of retirement age (65+) for each person of working age (20-64) and *DUR = cy/40* captures the effect of the average *duration of the working life* of current pensioners.

(3) For more details, see the Appendix. There, we compare the variable used here with a more careful approximation to the average standardized regulatory base for the current stock of pensioners. Since both indicators have a very similar profile, we have used the simpler one.

(4) In Spain, starting contributive pensions are set as a percentage of the so called regulatory base of the pension. This base is an average of reflated past wages over a certain period and the percentage is a non-linear function of the number of years during which the worker has paid social contributions. Details such as the length of the averaging period have changed over time. For most of the sample period, pensions were indexed to the Consumer Price Index but this has changed with the last reform, which links the evolution of existing pensions to the financial situation of the system.

(5) The generosity factor has been defined with retirement pensions in mind. Although these are the main expenditure item, there are other types of pensions (for surviving widows and children) linked to retirement pensions but of smaller amounts that distort to some extent the value of this ratio and require some precaution in its interpretation.

The ratio between the current average salary and a moving average of average salaries over the last 30 years[6],

$$WEV = \frac{W}{\overline{W}}$$

is what we will call the *wage evolution component* of the *FHI*. This factor plays a crucial role in the financial health of the pension system because the system's revenues depend on current wages, *W*, while its expenditures are a function of the wages that were paid during many previous years. Notice that *WEV* depends directly on the growth rate of real wages and hence, ultimately, on the growth rate of productivity. If real wages remain constant over time, *WEV* will be equal to one. If, on the other hand, real wages are growing, then their average value over the last 30 years will be below the current average salary, implying values of *WEV* greater than one and increasing in the rate of growth of average real wages. Hence, the higher the rate of productivity (and wage) growth, the better will be the financial health of the system as the payment of pensions will require a smaller fraction of current wage income, which is the base on which social contributions are levied.

To summarize, we have shown that *FHI* can be decomposed into seven factors as shown in

$$FHI = \frac{PENSREV}{PENSEXP} = \frac{ACR * EMPR * WEV}{GEN * DUR * COV * DEP} \qquad [6]$$

Taking logs of this expression, which will be indicated by the use of lower case letters, we arrive at

$$fhi = (acr + empr + wev) - (gen + dur + cov + dep) \qquad [7]$$

That is, the log of the *FHI*, which approximately corresponds to the current surplus of the pension system written as a percentage of its revenues, can be expressed as the algebraic sum of seven variables. The variables that appear in the numerator of [6] (the average contribution rate, the rate of employment and the wage evolution term) have a positive effect on the behavior of pension revenues or on the ratio between revenues and expenditures, while those that appear in the denominator (the generosity of the pension system, its coverage rate, the old age dependency ratio and the average duration of working lives) have a negative effect on this ratio. For the sake of brevity, we will refer to the variables that appear in the numerator of [6] as the revenue components of the *FHI* and those that appear in the denominator as its expenditure components. Taking log differences over time of [7], we finally obtain an analogous expression that relates the growth rates of the relevant variables and allows us to decompose variations in the indicator of financial health into the contributions of its immediate determinants:

$$\Delta fhi = (\Delta acr + \Delta empr + \Delta wev) - (\Delta gen + \Delta dur + \Delta cov + \Delta dep) \qquad [8]$$

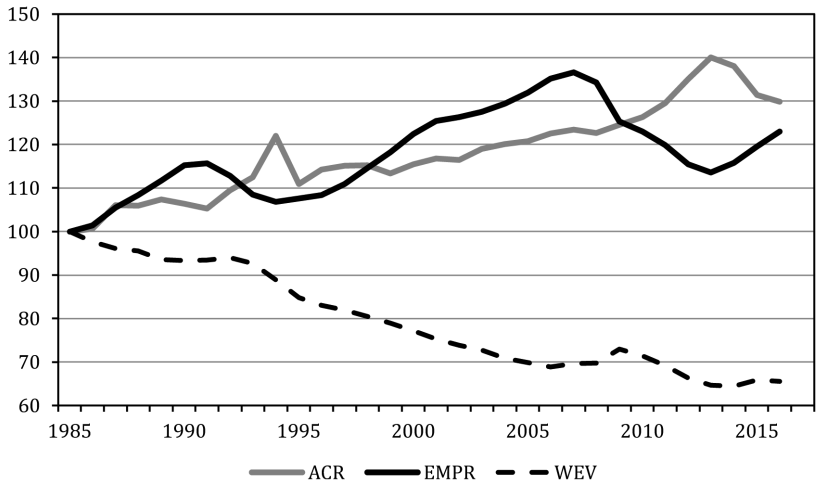
(6) The average wage in any given year is obtained by dividing total labor income by the number of employed persons. Data on both variables come from de la Fuente (2017) where wage income in the strict sense as reported in the National Accounts is adjusted upward to approximate total labor income, including the implicit wages of non-salaried workers. These implicit wages are allowed to differ across sectors and regions and are estimated using data from the regional accounts.

3. Results for the Spanish CSSS in 1985-2016

In this section we analyze the evolution of the different components of the pension system's *FHI* during the last three decades. The revenue and expenditure data have been described in section 1. The rest of the variables are also taken from the Economic Reports of different Social Security budgets and from de la Fuente (2017), which provides long homogeneous series of GDP, employment, population and other variables of interest for Spain and its regions. All population variables refer to July 1st.

Figure 3 shows the evolution of the three revenue components of the *FHI*: the employment rate of the working age population *(EMPR)*[7], the wage evolution factor *(WEV)* and the average contribution rate *(ACR),* defined as the ratio between the system's total revenues and total labor income, which would approximate the theoretical base on which social contributions are levied. The three indicators are normalized by their values at the beginning of the sample period to obtain evolution indices with base 1985.

Figure 3: Evolution of the revenue components of the *IFH,* 1985 = 100



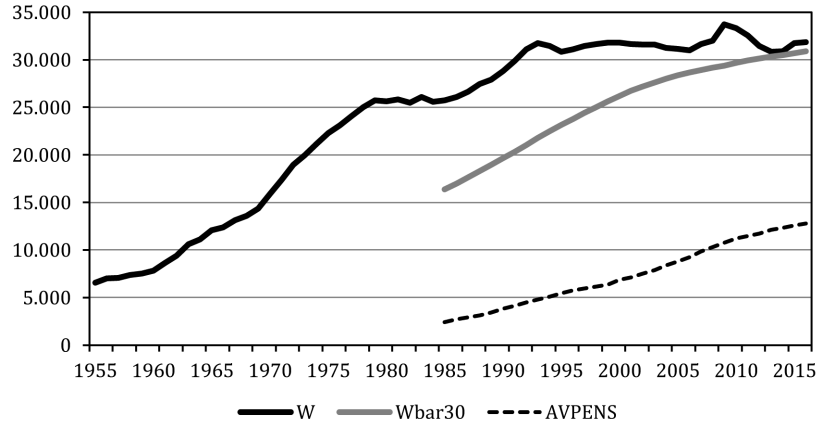
Sources: Economic Reports of the Social Security Budgets, INE (2018b and c) and de la Fuente (2017).

The employment rate and the average contribution rate display an increasing trend with minor oscillations. In the case of *EMPR*, the upward trend is due to a large extent to the increase in women's labor force participation rate and the oscillations reflect cyclical changes in the unemployment rate. The wage evolution factor, *WEV*,

(7) To calculate the employment rate we use the population of working age (20-64) from INE (2018b) and the number of employed persons from de la Fuente (2017).

displays a strong downward trend. Behind this trend there is a sustained deceleration in the growth of real wages, which have been stagnant since the first half of the 1990s until our days. This has allowed the moving average of real wages we are using to approximate the average regulatory base to reach the observed real wage, as can be seen in Figure 4.

Figure 4: Evolution of the average real wage, its 30-year moving average and the average pension, at constant prices of 2014



Note: to calculate $\bar{W}$ we use the CPI to deflate wages, except for the period 1955-61, for which this variable is not available. In its place we use the GDP deflator.

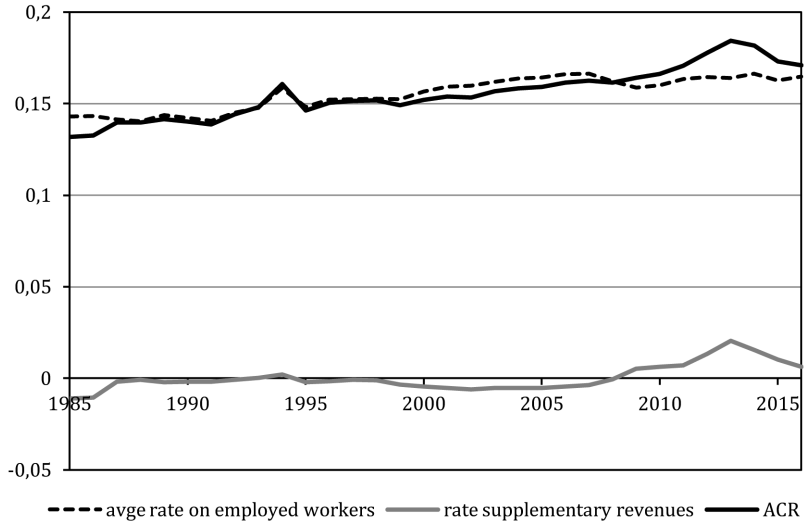
Sources: Economic Reports of the Social Security Budgets, INE (2018a and c) and de la Fuente (2017).

The average contribution rate, *ACR*, can be written as the sum of the average contribution rate of employed workers in the strict sense (social contributions of employed workers/labor income) and of the supplementary revenues of the pension system, also expressed as a fraction of labor income. This second component includes Central Government's transfers to finance the minimum pension complements and other minor revenue items, net of expenditure on contributive benefits other than pensions. As can be seen in Figure 5, both components of *ACR* display a slightly increasing trend. Supplementary revenues display a countercyclical profile, thanks to a large extent to the behavior of the contributions paid on behalf of unemployed workers and of expenditure on sick and maternity leave, which reduce the pension system's net revenues as measure them.

Combining both factors, between 1985 and 2013, the *ACR* has increased by over five percentage points, with 60% of the gain coming form the increase in net supplementary revenues. In the last few years, the *ACR* shows a significant decline that has to do with the negative evolution of interest income due to the reduction of the Reserve Fund and with a cyclical increase in sickness and maternity benefits. The average contribution rate of employed workers displays a slightly increasing trend.

This is not the result of an increase in the legal contribution rates, which have not changed since 1995 (at least in the general regime), but of changes in the minimum and maximum contribution bases and in the contribution pattern of self-employed workers, and of the gradual extinction of the *clases pasivas* system of civil service pensions, which translates into a gradual reduction in the weight in total employment of the group of civil servants who do not pay Social Security contributions.

Figure 5: Components of the average contribution rate on total labor income (ACR)

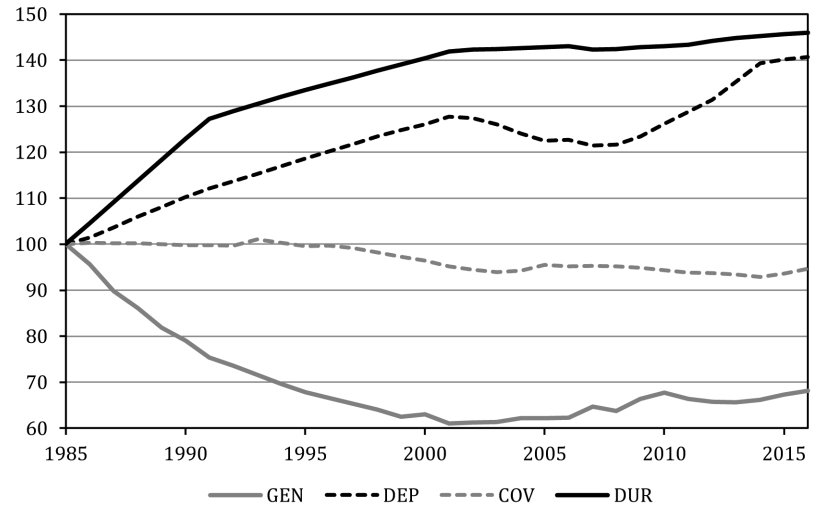


Sources: Economic Reports of the Social Security Budgets, INE (2018b) and de la Fuente (2017).

Figure 6 shows the evolution of the expenditure components of the *FHI*. The generosity factor *(GEN)* and the component that captures the duration of working lives *(DUR)* display opposing trajectories with offsetting effects. Other things equal, pensions would have risen approximately in line with the average years of contribution of the stock of pensioners, but the hardening of the rules for the calculation of starting pensions has had an offsetting effect on the system's generosity**.** On the other hand, the coverage rate of the system *(COV)* has declined over time, although very slowly, contributing modestly to the containment of expenditure. Another important factor that has contributed significantly to increase pension expenditure has been the purely demographic effect that is captured by the rise in the old age dependency ratio *(DEP)*.

As a summary, Table 1 shows the average annual change of the *FHI* of the pension system and the contribution to this variable of each of its components during different subperiods. If we consider the entire period between 1985 and 2016, the financial balance of the system has deteriorated over time at an average rate of 0,76 percentage points per year. This has happened in spite of the fact that the increase in

Figure 6: EVOLUTION OF THE EXPENDITURE COMPONENTS OF THE *FHI*, 1985 = 100



Sources: Economic Reports of the Social Security Budgets, INE (2018b) and de la Fuente (2017).

Table 1: AVERAGE ANNUAL VARIATION OF THE *FHI* FOR DIFFERENT SUBPERIODS AND CONTRIBUTIONS OF ITS DIFFERENT COMPONENTS

	Δfhi	*Δacr*	*Δempr*	*Δwev*	*Δgen*	*Δdep*	*Δcov*	*Δdur*
1985-95	-0.56%	1.04%	0.74%	-1.65%	3.88%	-1.71%	0.04%	-2.89%
1995-2007	1.28%	0.89%	1.99%	-1.64%	0.40%	-0.20%	0.37%	-0.53%
2007-13	-4.24%	2.09%	-3.08%	-1.24%	-0.26%	-1.80%	0.33%	-0.29%
2013-16	-2.61%	-2.51%	2.66%	0.47%	-1.22%	-1.28%	-0.46%	-0.27%
1985 to 2016	**-0.76%**	**0.84%**	**0.67%**	**-1.36%**	**1.24%**	**-1.10%**	**0.18%**	**-1.22%**

Note: The first column is equal to the sum of the rest of them, which capture the contributions of the different components of *FHI* to its annual variation.

Source: Authors' own calculations.

the first two revenue components of the *FHI* (the average contribution rate and the employment rate) have contributed positively to the financial health of the system, improving its net balance at the rate of 1,51 percentage points per year. However, this improvement has been compensated almost entirely by the negative behavior of the wage evolution component, which captures the effects of the sharp decrease of the growth rate of productivity. With an annual contribution of -1,36 points, this turns out to be, surprisingly, the component of the *FHI* with the strongest negative effect on its

evolution. As for the expenditure components, there is a noteworthy negative demographic effect of -1,10 points per year that is due to the decrease in the old age dependency ratio *(Δdep)*. On the other hand, the gradual decline of the generosity of the system has been compensated almost exactly by the increasing duration of working careers.

Looking at Table 1 and Figure 2, it is clear that the financial balance of the pension system is very sensitive to the cycle. During recessions the employment rate falls rapidly, pulling down the *FHI*. It is also worth noting the important contribution of the demographic and wage evolution factors to the sharp decline in the *FHI* that has taken place during the recent crisis. It seems likely that the worsening of the demographic problem that we observe during the period 2007-13 may have been due in part to the strong outflow of relatively young population, including not only immigrants returning to their home countries but also young Spaniards going abroad to look for work. On the other hand, during the crisis there has been a sharp drop in wages that has worsened the revenue situation. During the last period, which marks the beginning of the recovery, the employment and wage evolution effects reverse their sign and the demographic effect continues to be negative but becomes considerable smaller. During this last few years of the sample period, the strongest negative effect has been the drop in the system's supplementary revenues captured by *Δacr*.

4. Conclusion

In this paper we have analyzed the evolution of the finances of the contributive pension subsystem of Spanish Social Security during the last three decades. After a brief descriptive review of the system's revenues and expenditures, we have constructed an indicator of its financial health that approximates the rate of coverage of its expenditure needs with current revenues. Next, we have developed a simple accounting decomposition of this indicator that can be used to quantify the impact of demographics, the evolution of employment and productivity, the average duration of working careers, the generosity and coverage of the pension system and the average rate of contribution on labor income, taking into account supplementary revenues.

Our analysis of the period 1985-2016 reveals that the financial situation of the Spanish public pension system has deteriorated over time, due mainly to two factors. As one would expect, one of them has to do with rapid population aging, which has translated into a gradual increase in the old age dependency ratio, that is, a decline in the number of persons of working age that have to finance each pension with their social contributions. The other one, which surprisingly turns out to be quantitatively more important, is the sharp deceleration of the growth of productivity, and hence of real wages, that have stagnated during the last few decades. The negative impact of these factors has been partially offset by an increase in the employment rate that is due to a large extent to the incorporation of women to the labor market, by a gradual reduction in the generosity of the rules for calculating initial pensions and by an increase in the system's supplementary resources including among other things the increasing contribution of the Central Government to the financing of the complements for minimum pensions.

Appendix

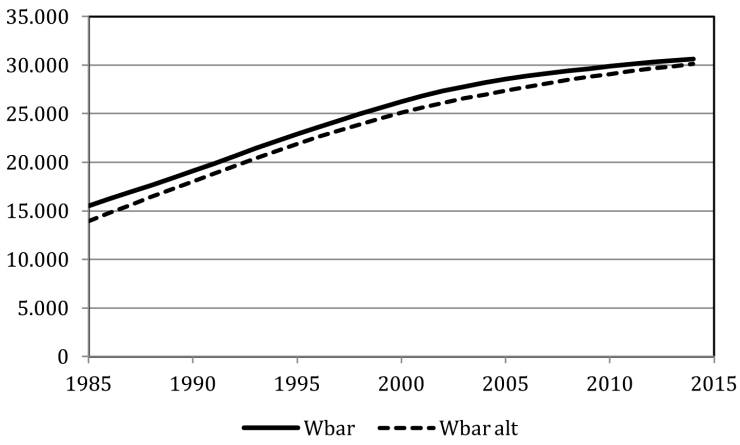
A1. The calculation of $\bar{W}$

In the text we have used a 30-year moving average of the average salary deflated with the CPI, $\bar{W}$, and reflated so as to be expressed in current year prices as an approximation to the standardized regulatory base of the average pension. In this section we construct a more careful approximation to this magnitude, which will be denoted by $\bar{W}_{alt}$. Since the profiles of both variables are very similar, we have used the simpler one in our calculations.

We proceed as follows. First, for each year from 1970 onward, we calculate the standardized regulatory base for the pension of an average retiring worker as a moving average of average real wages (deflated with the CPI) over the last 15 years (which is the number of years that has actually been used for such calculations over most of the relevant period). Next, the average regulatory base of the existing stock of retirees in each year, $\bar{W}_{alt}$, is calculated as a weighted average of the regulatory bases of those cohorts retiring in previous years. The regulatory bases of each cohort are weighted according to the cohort's weight in the total population 65 and over, grouping the very old into a single open interval at the upper end of the distribution. For lack of sufficiently long series, at the beginning of the period the group of very olds starts at 79 years of age and then rises until 85+.

Figure A1 compares $\bar{W}$ with $\bar{W}_{alt}$

Figure A.1: Comparison of two alternative ways to calculate the standardized average pension base, $\bar{W}$ vs $\bar{W}_{alt}$

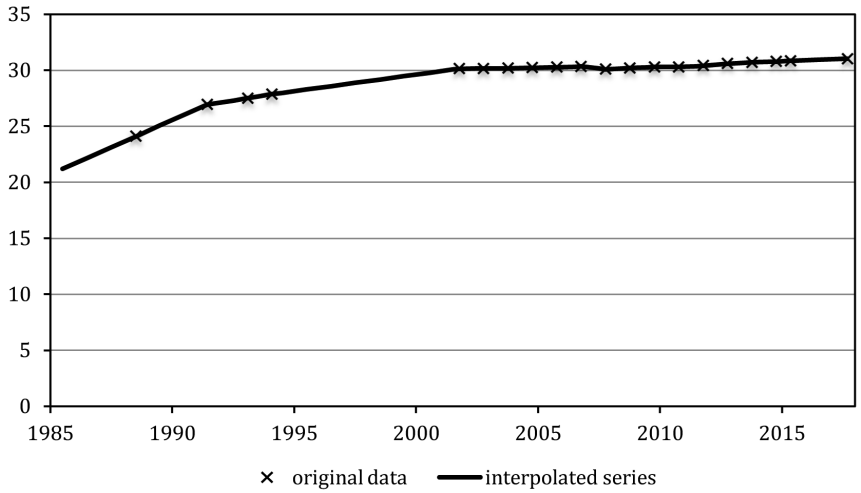


Sources: INE (2018b and c) and de la Fuente (2017).

A2. Construction of the series of average contribution years of the stock of retirees

The Ministry of Employment and Social Security has provided us with partial information on the average number of years during which the stock of retirees has paid social contributions. As illustrated in Figure A2, in order to complete the series we have interpolated linearly between available observations, taking into account the month to which the available data refer. To arrive to 1985, it has been necessary to extrapolate the series backwards. The series used in our calculations refers to July 1st of each year.

Figure A.2: Construction of the series on the average number of years during which the existing stock of retirees has paid Social Security contributions



Sources: Ministry of Employment and Social Security and authors' calculations.

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RESUMEN

En este artículo se desarrolla una descomposición contable del saldo neto del sistema público de pensiones en una serie de factores que permiten aislar la incidencia de la demografía, la evolución del empleo y los salarios reales, la generosidad y cobertura del sistema de pensiones, el tipo medio de contribución sobre las rentas salariales y la duración media de las carreras laborales. La descomposición se aplica al componente contributivo del sistema público de pensiones español utilizando datos para el período 2985-2017. El resultado más llamativo es que el estancamiento de la productividad y los salarios reales ha jugado un papel más importante que el envejecimiento de la población en el deterioro de las finanzas del sistema. El impacto negativo de estos dos factores se ha visto compensado parcialmente por una mejora de la tasa de ocupación, por una gradual reducción de la generosidad de las normas de cómputo de la pensión y por la creciente aportación del Estado a la financiación de los complementos de mínimos de las pensiones.

Palabras clave: pensiones, España, estancamiento salarial.

Clasificación JEL: H55.