Pension Wealth in France: An Assessment on Panel Data

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Abstract:

This contribution proposes a measure of pension wealth in the French public PAYG schemes (first and second pillar schemes) and of its distribution among the population of retirees in 2008 using the *Echantillon Inter régimes de Retraités* (EIR) panel data. We show that aggregate pension wealth amounts to around 4 765 billion Euros assuming a 2 percent discount rate. There are significant differences in the amount of individual's pension wealth between the pension schemes of the private and public sector. Moreover, there is more inequality in the distribution of pension wealth among private sector retirees than public sector ones.

Codes JEL : G23, H31, J32.

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Introduction

Pension reforms in Europe raise two concerns which may be perceived at odds but which are indeed intricate. In the last decades of the previous century the major concern was to ensure the sustainability of pension reforms defined as the long term balance between contributions and benefits of the PAYG reformed systems. The main motive for such reforms was to come up with population ageing induced by the retirement of the baby boom generation and the overall increase in life expectancy. Sustainability can be reached through different ways, from pension expenditure cuts to increases in payroll contributions, combined with more stringent eligibility requirements (legal age of retirement, length of contributory period, earnings measure used to calculate pension entitlements, valorization and indexation rules…). Assessment of sustainability rests on macroeconomic measures such as expected public pension spending per GDP.

For two decades, France has been adopting several reforms of its Pay-As-You-Go pension system, in order to preserve its long-term sustainability. Unlike other countries that have opted for systemic reforms (implementation of notional accounts e.g.), reforms in France were characterized by parametric adjustments (length of contributory period, indexation rules, legal age of retirement, pension rebates or bonuses ...) that may have affected the generosity of the PAYG system. This generosity is measured by various indicators (average pension level, replacement rate, relative income of retirees with respect to working population…). Recently, the literature has focused on pension wealth as a relevant indicator to compare the generosity of pension systems in intertemporal, interpersonal and international dimensions.

In a pure PAYG pension system, pension benefits are financed by contributions levied on contemporary incomes, so that there is no accumulation of financial assets to meet the commitments towards future retirees. However, these commitments exist and will be honored by future generations of contributors. Therefore, we can estimate their value, even if they are not binding but contingent to potential regulatory changes. The actuarial value of these commitments is called "implicit debt" or "social debt" from a macroeconomic perspective and "pension wealth" in a microeconomic viewpoint. In seminal contributions (see Feldstein (1974), for example), pension wealth was conceived to assess the degree of substitution between pension savings on a private and voluntary basis and implicit savings made through mandatory contributions. More recently, the notion of implicit liabilities of PAYG regimes has been used to analyze the overall sustainability of public spending, particularly in Europe within the Stability and Growth Pact. Thus, pension wealth is a long-term viability indicator of a PAYG system from a macroeconomic perspective, but also an indicator of the pension adequacy in a microeconomic perspective.

Part of the latter, this paper proposes a measure of pension wealth in the French public PAYG schemes (first and second pillar schemes) and of its distribution among the population of retirees in 2008 using the *Echantillon Inter régimes de Retraités* (EIR) panel data. In the first section, we define the pension wealth indicator. In the second section, we present the EIR panel and give some basic statistics on the characteristics of retirees in France. In a third section, we comment the results of our computations. A final section concludes.

1. Pension wealth: definition and measure

Replacement rate at retirement, defined as the value of pension benefits at retirement as a proportion of pre-retirement earning, provides a simple measure of pension adequacy. Nevertheless it has a main drawback since it fails to account for changes in the indexation rules of pension benefits along with the increase in life expectancy (Grech, 2013). Therefore there is a growing strand of literature that uses the

lifetime value of pension benefits as an alternative measure of pension adequacy. Pension wealth can be defined from two perspectives:

- At the macro level, pension wealth measures the burden of current and future pension commitments (generally expressed as a percentage of GDP at a given horizon), and thus contributes to assess the long-term sustainability of pension schemes or the sustainability of the overall public debt integrating this implicit debt;

- At the micro level, pension wealth measures the present value at time t of current and expected pension benefits for a given individual (or or different types and categories of individuals) assuming that the rules governing the pension system are not modified. Given that value it is therefore possible to assess the impact of a pension reform.

The literature identifies three methods to compute pension wealth, based on different assumptions:

- The open system approach which computes all the present and future flows of benefits (net of contributions) to be paid by the pension system, including the benefits of the to-be-born generations;

- The closed system approach which assumes that the regime continues to exist until the death of the last contributor and does not account for new entrants to the scheme;

- The accrued-to-date liabilities approach which calculates the present value of benefits (net of contributions) to be paid to the past and present contributors, based on the accrued rights.

The first method is clearly appropriate to assess the steady-state sustainability of a PAYG system (Blanchet and Le Minez, 2012). The last two methods are particularly relevant when assessing the closing conditions of a pension scheme. They assess the amount of reserves required for the system to be balanced if it were to be fully funded. By assumption, these methods require few prospective assumptions. In counterpart, the estimates are very sensitive to the discount rate and generally lead to extremely high debt/GDP ratios, not necessarily meaning that the is unbalanced in the long run. The scenario of an abrupt termination of a public PAYG pension scheme seems unrealistic even if it has been observed in several countries (see Chile e.g.): it may nevertheless provide interesting orders of magnitude.

In a microeconomic perspective, the accrued-to-date liabilities approach is suitable since it aims at measuring, for an individual or a population, the notional wealth representing the overall amount of pension contributions. For an individual, we define pension wealth as the expected present value at the date of retirement of the pension benefits flows received from the age of retirement until death. Formally, for a population of individuals:

(1)

Where denotes the population of age in the year , the survival probability of an individual aged until age , pension paid at age , (maximum) age at death, the age at retirement, and the discount rate (assumed to be constant).

Equation (1) can be used to compute the total amount of pension benefits, or only parts of them (direct benefits or survivors' benefits). It can be used for the overall pension system, or for some specific schemes (first pillar, second pillar, or integrated schemes such as the civil servants' scheme). In equation (1), the pension benefits are indexed on inflation: for the past years, the coefficient of indexation is set by law, for the future years the expected inflation rate is set to 1.5% in our estimations.

In equation (1), the series of pensions is discounted over the expected residual lifetime. The above age limit

is set to 100 (no individual is expected to survive over 100). Consequently the series of pensions is discounted over an average period of 30 years. [2] The choice of a discount rate is a crucial, and controversial, issue in the literature. Two approaches are available:

- A macroeconomic approach, from the point of view of a pension scheme manager. In this context, the objective of the fund manager would be to calculate a prudential reserve and he could use a yield curve to adjust the discount rate over time (see, for example, the Solvency 2 recommendations);

- A microeconomic approach, from the point of view of the individual who discounts the sum of the pension benefits he receives until his death. If there is a relatively large, though not conclusive, literature on the choice of a social discount rate, few studies are devoted to how individuals discount their own future earnings (for a review of the literature, see Frederick, Loewenstein, O'Donoghue, 2002). The most recent contributions are based on behavioral and experimental economics and emphasize the difficulty to "purge" the pure perception of time from other variables (uncertainty, distortion of preferences, self perception, habits ...).

For our study, the microeconomic approach seems the most relevant. The related literature says little on how to set an individual discount rate. Vernière (1992) suggests a real rate of 4%: "For comparison, the pre-tax return of financial assets held by households, measured by the ratio of interest and dividends received on financial asset […] has averaged 4.7% in real terms over the 1970-1988 period "(Vernière, 1992, p. 90). Buffard-Girardot (2010) points out that "the value of the pension wealth strongly depends on the present value of the total pension benefits received and thus on the discount rate. This rate should reflect the real interest rate, but also the evolution of the price index on which the revaluation of pensions is based." She compares the values of pension wealth for three discount rates: 0%, 2% and 4%; and finds that retiree's pension wealth pensioners from € 166,000 for a 0% rate to 113 100 for a 4% rate. She retains a 4% rate for all of her simulations, justifying it by the fact that "the long-term interest rate was around 4% in 2004". More recently, Blanchet and Le Minez (2012) have assessed the impact of pension reforms in France with the DESTINIE microsimulation model, and have retained a 3% discount rate to calculate the accrued-to-date pension liabilities (ATDPL), with variants ranging for 2 to 4%. They have also derived the sensitivity of ATDPL to the discount rate at steady state (for a constant age structure of the population and unchanged pension legislation) which shows that the more distant the ages at benefits perception and contributions payment the larger the impact of discounting is (which is intuitive). They find that the semi-elasticity of ATDPL with respect to discount rate is equal to -18, i.e. an increase of one percentage point of the discount rate reduces the ATDPL by 18%.

In their literature review, Frederick, Loewenstein and O'Donoghue (2002) note a wide range of individual discount rates estimated by various experimental studies. These rates vary from negative values to values close to 100 000%, very different and much higher than observed market rates.

Eventually, the relevant discount rate in order to analyze the impact of pension reforms on pension wealth is probably the rate of return on retirement savings. Since the savings vehicles dedicated to retirement in France, namely the PERP and the PERCO, are too recent to provide a long term series of interest rates, one can use the rate of return on life insurance contracts, which are used as close substitutes to retirement savings. This rate of return has followed the general decline in long-term interest rates over the past decade, and given the sluggish growth prospects expected in the coming years, a 2% discount rate is plausible (with alternative scenarios ranging from 0 to 4%).

Another important component in the computation of pension wealth concerns the survival probabilities

[2] Some individuals start to retire at the age of 20 (mostly military servants) in our data base, but they are rare.

since the pension benefits received by a retiree are conditional on her survival each year. To estimate survival probabilities, two options are possible:

- The first (also the simplest) option is to assign to each individual in the sample the average survival probability of her generation, taken from official cohort life tables and differentiated by gender;

- The second option is to infer, from the waves of EIR, the "in sample" survival probability. Indeed, since the same retirees are surveyed in each wave of the EIR panel, "exit" between two waves is essentially attributable to death. The sampling technique in the EIR, however, raises a detrimental difficulty. Some generations have been "over-sampled" in few waves (for reasons linked to the preparation of the Government reforms), so that, from one wave to another, some individuals of these "over-sampled" generations have been removed from the base, not because they died, but because the next wave included again the same representation as the other ones (see the various operating guides EIR published by DREES).

To compute the pension wealth in 2008, we proceed in three steps:

- Step 1: calculating and assigning survival probabilities

Survival probabilities come from the life table provided by Blanpain and Chardon (2011) which gives the average survival probabilities at each age over the period 2000-2008. For each of the retirees in the sample (pensioners in the sample in 2008 are aged from 34 to 99 years), we estimate the annual survival probabilities up to 100, conditional on age in 2008. For example, for an individual aged 34 in 2008, the annual conditional survival probability at age 65 is equal to the ratio of the survivors of age 34 at age 65 over the survivors aged 34. Each individual in the database is thus assigned 67 annual survival probabilities between 34 and 100, differentiated by gender.

- Step 2: computing pension wealth in a given regime

For each individual in the EIR sample in 2008, we get a set of series of monthly pension benefits paid by all the *caisses*[3] in which the individual contributes. Let us denote the pension wealth of an individual aged in 2008, receiving a pension benefit (excluding bonuses for children or survivor's benefits) in a *caisse* . Individual's pension wealth is thus equal to:

(2)

The monthly pension is multiplied by 12 to get the annual pension.

- Step 3: computing the aggregated pension wealth

The last step consists of aggregating the individuals' pension wealth according to their weight in the overall population.

(3)

2. The data and basic statistics

The EIR samples allow for relatively comprehensive information on the population of retirees: the amount of pension benefits and the conditions for pension claiming (age at retirement, length of the contributory period etc.) in all pension schemes. The EIR samples gather administrative data and as such contain only information relevant for the management of the *caisses de retraite*. Therefore some useful information

[3] The French pension system is complex and made of different schemes, for workers in the private sector, in the public sector, or for independent workers. Each scheme is managed by a *caisse.*

about the socio-economic characteristics of the retirees is missing (marital status, number of children, earnings, financial assets, residential location, and so on).

In this section, we present some raw statistics on three crucial variables that influence individuals' pension wealth, namely the age at retirement, the reference wage or income and the value of the (direct) pension benefit. This analysis allows us to identify to what extent different pension rules among the major regimes (private sector, public sector, and self-employed workers) affect pension entitlements.

- Average age at pension claiming

Age at pension claiming is a critical determinant of pension wealth. Early retirement has two opposite effects on pension wealth (see Figure 1). On the one hand, it increases the duration of pension perception and thus pension wealth for a given life expectancy. On the other hand early retirement may affect the number of years of contributions, such as the retiree is no longer eligible to full pension benefits and suffers from a haircut on pension. The trade-off between early retirement and postponed retirement is driven by the conditions at which each retiree receives pension benefits, eventually depending on generation and regime of affiliation (former worker of the private sector, the public sector, or former self-employed). The comparison between private and public sectors reveals significant differences (see Table 1).

Insert <Figure 1>

Insert <Table 1>

Workers in the public sector claim pension benefits at 58 years and a half, earlier than those in the private sector (62 years). Women retire later than men in the private sector, while it is the opposite in the public sector. When considering the second pillar, senior management staff (*cadres)* claims pension benefit later than ordinary workers (*non cadres)*. Against intuition since the recent reforms were expected to give incentives to postpone retirement, workers of the recent generations tend to retire earlier than workers of the remote generations in the private sector. This fact is not observed in the public sector.

The recent pension reforms of 1993 and 2003 have tightened the age conditions at which workers are entitled to full benefits, depending on their status (private or public sector workers) and on their generation: the length of contributory period has been progressively extended from 150 quarters to 160 quarters, starting from 1994 for the private sector workers and from 2004 for the civil servants. Table 2a shows the proportion of beneficiaries of full rate pension, pension with haircut (*décote)* or premium *(surcote).*

Insert <Tables 2a and 2b>

As civil servants retire earlier than private sector workers on average, it is not surprising that the proportion of civil servants getting a full-rate pension is low (respectively 15.3% if they have contributed only to the civil servants' scheme, and 6.1% if they have been affiliated at other schemes). The majority of civil servants retire with a haircut on pension. On the opposite, 90% of the private sector workers get a full-rate pension. In any case, men are more likely to claim full-rate pension benefits than women.

When focusing on generations, it is noticeable that in the public sector, remote generations had to substantially postpone their retirement after 60 to get full-rate pension, while 90% the 1943 generation claimed full-rate pension at the age of 60 or less. In the private sector, generation effects are less clear, except for the proportion of those benefiting from a premium pension: earlier generations get a premium pension at lower retirement age than later generations. (See Tables 3a and 3b)

Insert <Tables 3a and 3b>

- Average reference wage

The reference wage is a key element for the calculation of pension wealth. Until the 1993 the reference wage was the average wage of the best 10 years of career; with the reform the number of best years has been progressively raised to 25, people born in 1948 being the first generation fully concern by the 25 best years rule. In 2008, all the retirees (whatever their generation) have a reference wage computed on the 25 best years (with some specificities for some schemes, namely schemes covering self-employed affiliated).

Among the beneficiaries of a normal pension in the general scheme in 2008, men have a higher reference wage than women: on average, 16 031 Euros for men against 10 585 Euros for women. When they retire at 60, both men and women have a reference wage slightly above the average: 16 369 Euros for men against 12 906 for women. The average reference wage decreases along with the retirement age. The beneficiaries (men or women) who claim their pension benefits between 55 and 59 have on average a higher reference wage than the older ones. (See Figure 2a)

As the average reference wage has been increasing over time due to better education and labor productivity (and more generally, a secular improvement of social and economic conditions), the average reference wage increases with generation. (See Figure 2b)

Insert <Figures 2a and 2b>

- Monthly pension benefit (retirees' own rights)

The calculation of the pension wealth is decomposable by schemes (first pillar, second pillar or integrated for the public sector[4]). In this paper we only take into account the direct pension received by the retirees excluding the extra (non contributory) rights (disability benefits, bonuses for children, survivor's pension…). The data reveal significant differences between pension benefits served by the schemes, and between men and women. (See Table 4a)

In private sector schemes (including first and second pillars) the average pension benefit is less than 1 000 Euros in 2008. In contrast in the public sector (civil and military servants), the average pension benefit amounts to 2 035 Euros. Moreover the difference between men's and women's pension is weaker in the public sector than in the private sector. (See Table 4b)

In all schemes, the average pension benefit increases along with the generations, which is consistent with the above observation on reference wage.

Insert <Tables 4a and 4b>

3. Results

Table 5a displays the aggregate retirees' pension wealth in 2008 under different assumptions regarding the discount rate. When discounting at a 2 percent rate (resp. 4 percent), aggregate pension wealth is equal to 4 765 billon Euros (resp. 4 757) which represents 23.46 years (resp. 23.42) of benefits and 2.46 years of 2008 GDP.

We have split the aggregate pension wealth into two components, to take into account that retirees (at least the oldest ones) have already consumed part of their wealth. Table 5b and 5c

[4] In the public sector (civil and military servants), the scheme is integrated in the sense that the retirees get a unique benefit, covering the first and second pillar pension.

show the amounts already consumed and to be consumed (the residual pension wealth). The results are sensitive to the chosen discount rate: the higher the discount rate, the lower the estimation of the residual pension wealth. Roughly, at a 2% discount rate, the aggregate pension wealth already consumed by the retirees is equal to the residual pension wealth to be consumed in the future. Of course, the lower the discount rate, the lower is the estimated residual wealth.

Insert <Tables 5a, 5b, 5c)>

If we turn to pension wealth per capita, table 6a shows that on average, pensioners of the public scheme receive a pension wealth nearly twice higher than those of the private sector (remind that the pension wealth encompass both the first and second mandatory pillars for the private sector, which makes the comparison relevant). Self employed workers get a significantly lower pension wealth from mandatory schemes.

Insert <Tables 6a and 6b>

Finally we have proceeded to an analysis of the inequality of pension wealth among the retirees in 2008. Table 7 displays the Gini coefficient by generation and pension scheme. The higher the Gini index, the less equal the pension scheme is. Pension wealth concentration is higher in the private sector (first and second pillar pension), especially within the second pillar scheme for top managers, compared to the public sector. There is no clear evidence that pension wealth inequality increases among the recent generations.

Insert <Table 7>

Conclusion

This contribution aimed at providing a measure of retirees' pension wealth in France using the 2008 EIR sample data. First, as expected, we found that the pension wealth indicator crucially depends on the choice of the discount rate, ranging from 4 757 billion Euros (2.46 years of 2008 GDP) for a 4 percent discount rate to 5 022 billon Euros (2.6 years of GDP) with a 0 percent rate. Second we found that the average pension wealth in the public sector schemes (civil and military servants, employees of national firms) is twice higher than in the private sector schemes (basic and supplementary). This result is explained by several facts: on average employees in the public sector have higher wages, are more likely to have full careers and retire earlier than employees of the private sector. Finally, our study shows that the distribution of pension wealth is relatively more concentrated among the public schemes (civil servants and employees of public firms) than among the private schemes, especially the complementary schemes of the second pillar.

Our study could be improved in several ways. First we have assumed a zero inflation rate for the future; this assumption is consistent with the choice of a real discount rate, but we could use alternative inflation rates to index the pension benefits and the discount rate. Second, we could use in-sample life tables to account for differences of survival probabilities between pension schemes. Measuring retirees' pension wealth is a first step towards the estimation of the impact of the recent pension reforms on individual levels of pension wealth among retirees.

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Figure 1. Age at pension claiming by gender and generation

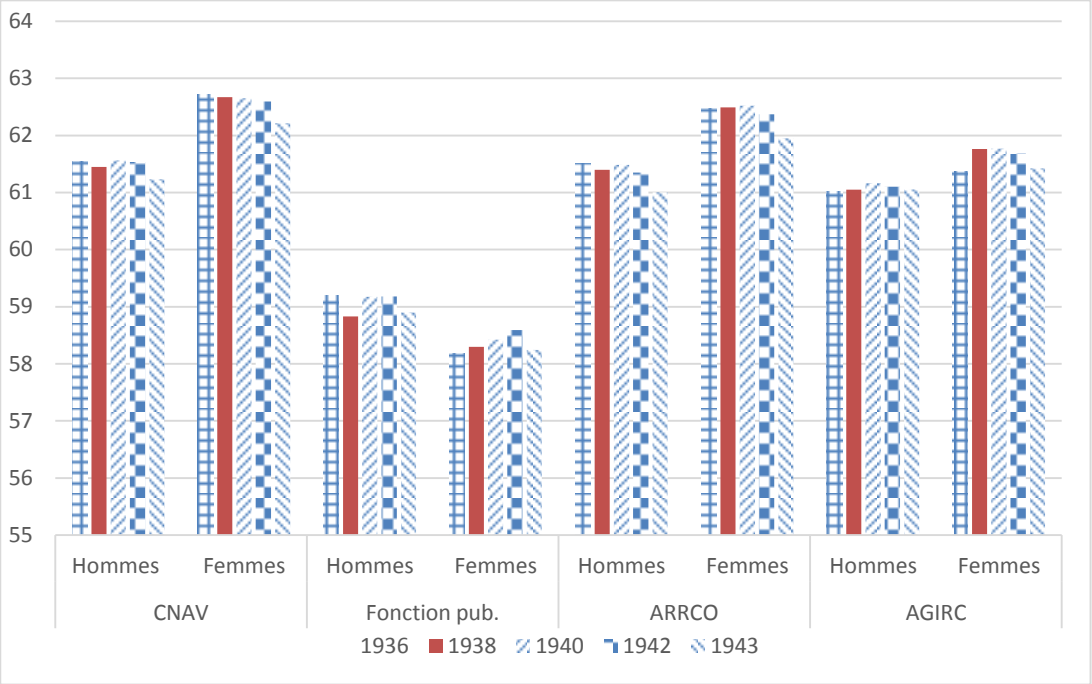


Table 1a. Proportions of beneficiaries of a normal pension in the basic private sector scheme, by age, gender and generation

Age	1936		1938		1940		1942		1943	
	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women
Under 55	0	0	0	0	0	0	0	0	0	0
55-59	0	0	0	0	0	0	0	0	0	0
60	68.11	45.29	69.12	45.57	64.96	45.73	64.26	45.38	68.84	51.27
61	4.2	3.27	3.96	3.55	5.07	3.29	5.33	3.53	6.55	4.63
62	3.31	2.59	2.81	2.11	2.95	1.73	4.04	2.9	4.12	3.62
63	2.21	2,0	2.23	1.93	3.38	2.31	3.48	2.34	3.73	2.61
64	1.91	1.52	1.8	1.07	3.3	1.95	2.92	2.33	3.34	2.06
65	16.31	41.86	16.9	42.46	18.29	42.37	19.33	42.75	13.41	35.81
66-69	3.12	2.75	3.15	3.2	2.05	2.62	0.63	0.76	0	0
70 and over	0.82	0.73	0.03	0.11	0	0	0	0	0	0

Source: DREES, EIR, 2008

Table 1b. Proportions of beneficiaries of a normal pension in the public sector scheme (state civil servants), by age, gender and generation

Age	1936		1938		1940		1942		1943	
	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women
Under 55	3.99	12.01	4.26	10.56	5.19	13.49	5.23	9.15	5.89	11.11
55-59	32.96	28.22	36.77	29.44	31.45	22.36	28.97	25.4	31.62	25.08
60	43.12	41.69	42.52	44.83	43.48	46.78	44.8	49.02	44.84	49.58
61	5.01	6.2	5.92	5.56	6.4	6.34	6.83	5.51	5.56	4.79
62	3.69	3,0	2.45	2.04	2.35	3.31	2.88	2.48	3.46	3.33
63	4.17	2.39	0.97	2.69	2.12	1.87	2.24	2.15	2.5	2.09
64	0.9	2.1	0.59	0.95	2.15	1.24	1.88	1.63	1.85	1.78
65	3.65	4,0	4.64	2.75	4.91	3.43	6.17	4.14	4.28	2.23
66-69	2.52	0.4	1.88	1.19	1.94	1.19	1.01	0.514	0	0
70 and over	0	0	0	0	0	0	0	0	0	0

Source: DREES, EIR, 2008

Table 2. Proportions of beneficiaries of a normal pension at different rates (haircut, full, premium) by scheme, gender, affiliation

Rate of pension	CNAV (basic private sector scheme)						Civil servants					
	Only CNAV scheme			CNAV and other affiliation			Only Civil servants scheme			Civil servants and other affiliation		
	Men	Women	All	Men	Women	All	Men	Women	All	Men	Women	All
Haircut	7.22	12.68	10.22	7.74	11.75	9.35	45.58	56.84	51.71	65.60	74.50	70.23
Full rate	90.42	85.60	87.77	90.25	86.97	88.94	22.93	8.82	15.25	10.39	2.07	6.06
Premium	2.36	1.72	2.01	2.00	1.28	1.71	31.50	34.33	33.04	24.02	23.43	23.71

Table 3a. Proportions of beneficiaries of a normal pension in the basic private sector scheme by age, gender, generation and rate of pension

Age	Generation 1936			Generation 1938			Generation 1940			Generation 1942			Generation 1943		
	Haircut	Full rate	Premium	Haircut	Full rate	Premium	Haircut	Full rate	Premium	Haircut	Full rate	Premium	Haircut	Full rate	Premium
Under 55	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
55-59	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
60	83.06	54.29	0,0	82.94	55.53	0	78.45	54.97	0	77.45	56.16	0.09	78.17	62.47	7.68
61	7.32	3.36	0,0	8.55	3.28	0	7.14	4.04	0	9.63	4.06	3.33	9.67	4.1	22.47
62	5.12	2.73	0,0	3.68	2.36	0	6.26	2.04	0	5.24	2.51	19.8	6.39	2.66	18.09
63	2.38	2.08	0,0	2.4	2.06	0	5.05	2.6	5.39	4.47	2.07	17.18	3.12	2.36	15.83
64	1.89	1.71	0,0	2.11	1.39	0	2.86	2.1	25.79	3.06	1.88	16.82	2.44	1.85	16.23
65	0.22	31.97	0,0	0.32	32.31	4.84	0.24	31.99	54.22	0.15	32.68	39.91	0.21	26.57	19.7
66-69	0	3.11	58.35	0	2.99	94.78	0,0	2.26	14.6	0	0.65	2.86	0	0	0
70 and over	0	0.8	41.7	0	0	0.4	0	0	0	0	0	0	0	0	0

Table 3b. Proportions of beneficiaries of a normal pension in the public sector scheme (civil servants) by age, gender, generation and rate of pension

Age	Generation 1936			Generation 1938			Generation 1940			Generation 1942			Generation 1943		
	Haircut	Full rate	Premium	Haircut	Full rate	Premium	Haircut	Full rate	Premium	Haircut	Full rate	Premium	Haircut	Full rate	Premium
Under 55	11.42	5.49	4.83	10.86	2.34	5.3	12.43	6.26	7.39	10.45	6.37	3.66	12.86	6.24	4.11
55-59	30.52	24.72	32.61	35.28	26.01	32.22	27.75	29.89	23.26	31.57	25.68	21.29	30.13	33.93	21.98
60	42.11	47.41	40.86	40.52	52.55	44.72	44.28	47.06	45.92	44.33	58.96	45.34	45.61	58.63	44.67
61	5.16	5.62	6.25	5.82	7.5	4.89	6.17	10.02	5.07	6.22	7.44	5.28	4.42	1.2	8.11
62	2.99	4.25	3.44	1.73	4.62	1.98	2.21	3.9	3.36	2.16	0,0	4.63	2.28	0	6.67
63	2.46	5.61	3.4	1.34	3.07	2.18	2.06	2.3	1.74	1.3	0.18	4.38	1.38	0	4.7
64	0.55	3.18	2.2	0.52	1.81	0.73	0.7	0.56	3.46	0.88	0.18	3.7	1.04	0	3.83
65	4.08	3.73	3.54	2.73	2.1	5.45	3.32	0	6.97	2.55	1.19	10.36	2.29	0	5.93
66-69	0.71	0	2.87	1.2	0,0	2.54	1.07	0	2.83	0.54	0	1.37	0	0	0
70 and over	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

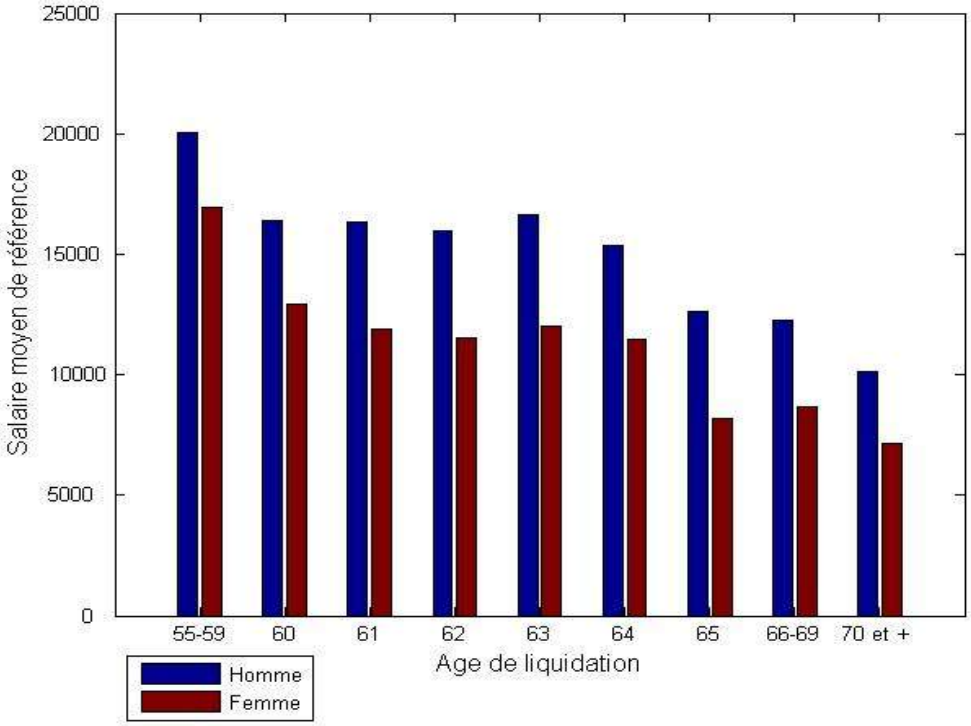
Table 4a. Average monthly pension benefits (in Euros) by gender and generation in the private schemes

Scheme	Generation	Men	Women
CNAV	1936	602.94	425.96
	1938	618.00	437.15
	1940	626.77	458.72
	1942	645.41	485.86
	1943	672.40	500.98
ARRCO	1936	372.34	202.08
	1938	380.56	211.38
	1940	372.38	217.35
	1942	383.16	235.79
	1943	397.93	247.13
AGIRC	1936	893.45	287.19
	1938	897.89	293.07
	1940	888.51	280.37
	1942	888.02	294.14
	1943	882.86	314.77

Table 4b. Average monthly pension benefits (in Euros) by gender and generation in the public schemes

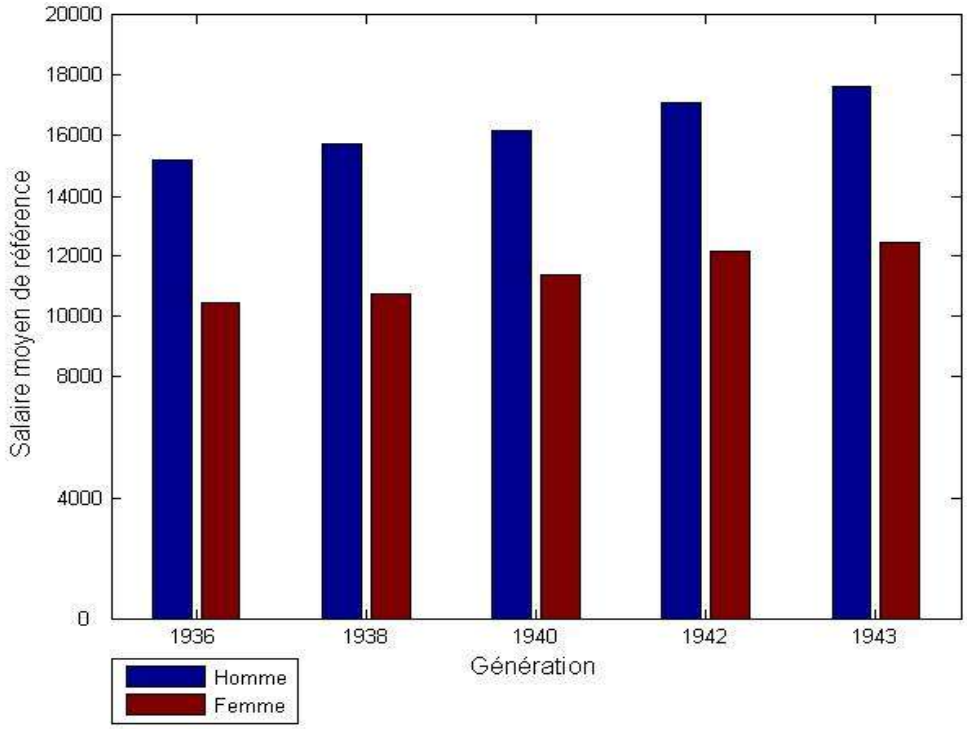
Scheme	Generation	Men	Women
Civil servants	1936	2101.34	1743.7
	1938	2160.09	1796.43
	1940	2178.8	1849.08
	1942	2216.6	1901.35
	1943	2169.12	1908.34
SNCF (railways)	1936	1685.50	1590.39
	1938	1755.06	1855.18
	1940	1824.28	1730.45
	1942	1889.86	1599.10
	1943	1914.82	1770.45
RATP (Paris bus & metro)	1936	1971.10	1374.34
	1938	2074.06	2483.79
	1940	2417.58	1460.34
	1942	2164.92	1461.58
	1943	2289.17	1492.75
IEG (electricity, gaz)	1936	2561.81	1901.10
	1938	2614.67	1678.10
	1940	2637.56	1780.52
	1942	2612,54	1712,67
	1943	2597.20	1834.18

Figure 2a. Average reference wage by age at pension claiming



Source : DREES, EIR 2008

Figure 2b. Average reference wage by generation at pension claiming



Source : DREES, EIR 2008

Tableau 5a. Aggregated pension wealth of retirees receiving a pension from a compulsory scheme as of 2008

	Discount rate		
	0%	2%	4%
Pension wealth in 2008 (bn €)	5 022.20	4 765.08	4 756.94
Pension wealth as a number of years of 2008 benefits	24.73	23.46	23.42
Pension wealth as a number of years of 2008 GDP	2.60	2.46	2.46

Tableau 5b. Consumed pension wealth of retirees receiving a pension from a compulsory scheme as of 2008

	Discount rate		
	0%	2%	4%
Pension wealth in 2008 (bn €)	1 954.27	2 273.80	2 682.01
Pension wealth as a number of years of 2008 benefits	9.62	11.20	13.21
Pension wealth as a number of years of 2008 GDP	1.01	1.18	1.39

Tableau 5c. Residual pension wealth of retirees receiving a pension from a compulsory scheme as of 2008

	Discount rate		
	0%	2%	4%
Pension wealth in 2008 (bn €)	3 067.94	2 491.28	2 074.93
Pension wealth as a number of years of 2008 benefits	15.11	12.27	10.22
Pension wealth as a number of years of 2008 GDP	1.59	1.29	1.07

Table 6a. Average pension wealth of retirees per capita discounted at a 2% rate, by broad categories of schemes in 2008, in Euros

		Average	Median	Standard deviation
Private sector (first and second pillar)	Consumed pension wealth	80 187.7	36 657.7	125 279.1
	Residual pension wealth	160 026.3	114 340.0	160 814.7
	Total pension wealth	240 214.0	185 973.3	230 671.7
Public sector (civil and military servants, employees in nationalised firms)	Consumed pension wealth	176 056.1	126 397.1	178 385.9
	Residual pension wealth	289 304.6	269 014.4	159 847.3
	Total pension wealth	465 360.7	439 088.8	233 344.9
Self employed	Consumed pension wealth	45 191.6	20 467.7	63 769.8
	Residual pension wealth	64 623.0	41 229.9	72 889.6
	Total pension wealth	109 814.6	88 265.7	108 916.8

Table 6b. Average pension wealth of retirees per capita discounted at a 2% rate, by pension pillars in 2008, in Euros

		Average	Median	Standard deviation
First pillar (mandatory) schemes	Consumed pension wealth	90 241.6	50 880.8	117 156.3
	Residual pension wealth	159 850.8	137 190.0	124 262.2
	Total pension wealth	250 092.4	217 634.5	187 076.2
Second pillar (mandatory) schemes	Consumed pension wealth	38 597.3	13 027.3	88 712.4
	Residual pension wealth	77 677.9	42 743.0	112 104.4
	Total pension wealth	116 275.2	66 318.6	170 647.1
Third pillar (optional) schemes	Consumed pension wealth	48 116.5	16 836.3	67 395.5
	Residual pension wealth	83 482.3	62 720.8	65 501.1
	Total pension wealth	131 598.8	102 437.9	99 373.5

Table 7. Concentration indices (Gini) of pension wealth by schemes in 2008

Schemes	Generation (at a 2% discount rate)						All generations (at a 1.5% discount rate
	1934	1936	1938	1940	1942	1943	
CNAV	0.43	0.43	0.41	0.42	0.41	0.41	0.55
ARRCO	0.54	0.54	0.53	0.46	0.46	0.46	0.60
AGIRC	0.59	0.57	0.58	0.60	0.60	0.61	0.71
SRE-Civile	0.25	0.22	0.22	0.23	0.23	0.23	0.44
SNCF	0.34	0.32	0.31	0.39	0.32	0.32	0.49
RATP	0.21	0.19	0.18	0.17	0.16	0.30	0.41
IEG	0.29	0.24	0.27	0.34	0.27	0.29	0.47