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RETIREMENT AND GROWING OLD: WHICH MODEL OF PROTECTION?

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Abstract

The aging of the population and the unfunded financing of retirement plans have combined to jeopardize what some have described as the golden age of the retirement years. We shall show that to avoid increased income inequality and poverty among the elderly it would be desirable for countries such as Belgium, France and Germany whose social protection follows the Bismarckian model to progressively aim at uniform retirement benefits so as to concentrate their efforts on the most deprived. This measure combined with the development of supplementary pensions plans and the postponement of retirement age ought to be able to cope with the threat of a return to the stereotype of deprived elderly.

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RETIREMENT AND GROWING OLD: WHICH MODEL OF PROTECTION?

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1. Introduction

For a long time, old age and poverty went hand in hand, and the largest proportion of poor people could be found among the elderly. For some time now, however, this has no longer been the case. In the majority of industrialized countries, senior citizens are now enjoying an unprecedentedly high standard of living, by comparison both with the past and with other age groups. As a result, pockets of poverty have tended to disappear in these countries¹. In the United States, to take an example of a country where poverty has a major impact on the elderly, the poverty ratio amongst the elderly dropped by half between 1960 and 1990.

It is now legitimate to ask how long the phenomenon will last. Has the stereotype of the deprived elderly been broken once and for all? Or do we have grounds for fearing that it is about to make a comeback in a big way? The position that we shall be developing in this paper is that the ageing of the population and the impact of pay-as-you-go retirement plans on senior citizens' incomes have combined to jeopardise what some have described as the golden age of the retirement years.

We shall demonstrate that the introduction of supplementary retirement plans will not be able to cope with this threat, unless it enables the basic retirement pension plan to be restructured in such a way that it can concentrate its efforts on the most deprived². By way of illustrating the argument in the course of this paper, we shall examine the effect that both growing old and different forms of retirement plan can have on the distribution of the income of senior citizens in the seven OECD member countries for which we have sufficiently recent and comparable data³.

However, it is not just ageing and pay-as-you-go funding; it is also the model of retirement protection underlying the basic plan which is decisive. A model that permits too much proportionality, that is where benefits are closely linked to contributions, could mean the elderly returning to a life of poverty.

We propose that countries which have adopted a system allowing for proportionality should progressively adopt uniform pension benefits at the same time as raising the retirement age, and

¹ See Achdut and Tamir (1990) and Hedstrom and Ringen (1990).

² This argument is also developed in Munnell (1986), Pestieau (1992) and Delhaussse *et al.* (1992, 1993).

³ We wish to thank LIS (Luxemburg Income Study) for making this data available to us.

develop occupational pensions plans in order to ensure an adequate replacement rate for those who enjoy relatively high earnings while working⁴.

2. Factors influencing inequality of income among the elderly

The primary objective of this paper is to reach an understanding of the effect that the ageing of the population is likely to have on the distribution of senior citizens' income. This effect is likely to be influenced by the economic and institutional context in which retirement plans are set up. More precisely, the redistributive impact of ageing will be influenced by the following factors:

- the role played by basic retirement plans in the overall income of senior citizens;
- the proportion of these retirement plans that are funded on a pay-as-you-go basis;
- the model selected to determine the basic scheme - i.e. the Beveridgean (or Atlantic) model, or the Bismarckian (or continental) model⁵;
- the model of protection underlying the occupational pensions plan;
- the capacity to increase payroll tax rates.

We shall be using the Gini coefficient to measure the degree of income inequality. The advantage of this index is that it can be broken down. For example, if senior citizens' income consists of a basic retirement scheme and of income from capital, including supplementary pensions, the degree of inequality can be expressed by the Gini Coefficient, G , as a weighted sum:

$$G = w_1\rho_1G_1 + w_2\rho_2G_2$$

in which the indices 1 and 2 stand for basic retirement schemes and capital income respectively. The breakdown of inequality includes the following terms:

- G_i : the Gini coefficient of each source of income;
- ρ_i : a relative correlation coefficient between this source of income and total income⁶;
- w_i : the share of a given source of income in total incomes.

Let us now take a look at the anticipated value of these three terms:

- (i) $w_1 = 1 - w_2$ reflects the size of basic retirement schemes. Ageing will affect w_1 , particularly as it leads to higher dependence ratios, given that basic retirement schemes rely on the pay-as-you-go principle, and that it might be impossible to alter contributions.

⁴ For an historical debate on the uniform pension principle, see Atkinson (1991).

⁵ For more on this distinction, see Albouy and Kessler (1989) and Nelissen (1993).

⁶ From a technical point of view, ρ_i is the ratio of two other correlations: the coefficient of correlation between factor income amount and total income rank and the coefficient of correlation between factor income amount and factor income rank. See Fields (1983).

- (ii) $G_1 < G_2$: the inequality of capital income including supplementary pensions is generally greater than that of basic pensions. The inequality of basic pensions will be greater when the benefits structure follows a Bismarckian or continental social insurance model rather than a Beveridgean or Atlantic welfare model. In the former, pension rights are linked to employment and are based on the contributions record. In the latter, pension rights are linked to the fact of being retired, and benefits are rather uniform. The inequality of supplementary retirement pensions is brought about by how the plans themselves are structured. For example, there is more inequality if the retirement plan is of the type reserved for managerial grades and for higher-paid staff. Another characteristic is the nature of the tax exemptions; these may have a ceiling and be restrictive to a greater or lesser extent.
- (iii) ρ_1 and ρ_2 : the relative correlation coefficients indicate the way in which income from a given source is distributed in relation to all income. In some countries, supplementary retirement plans, even though they are linked to past earnings, still play a strictly compensatory role in relation to the basic retirement scheme. This produces somewhat weak relative correlation coefficients.

We have assumed that the income of senior citizens consists solely of the basic retirement scheme and income from capital (stocks and shares and property). A number of senior citizens continue to earn money from employment. This income, which is normally more equally spread than income from capital, can paradoxically be a factor promoting inequality amongst senior citizens. Among those earning the highest incomes, it is possible to find 'young senior citizens' who carry on working, often earning more than the amount provided by the basic retirement scheme.

In addition to the Gini Coefficient, we shall also be making use of the poverty indicator, which we shall here define as the percentage of households with an income lower than half the median income, income being adjusted to take into account of differences in the composition of individual households.

3. Structure of the incomes of senior citizens in seven countries

For our sample of seven countries, we have data relating to the breakdown of senior citizens' income around the year 1985, and the growth in the dependency ratio up to 2055. Let us imagine for a moment that the benefit structure has not changed, and that the current distribution of senior citizens' income is maintained into the future. Let us go further, and imagine that public authorities are incapable of responding to the increase in the number of senior citizens by means of an increase in revenue. This last hypothesis proves true if growth were to come to a halt and if the rate of compulsory levy could not be increased. Under these conditions, what awaits us?

From the point of view of inequality, the worst scenario is the country that anticipates the very highest levels of ageing, which relies as much as possible on the basic scheme and pay-as-you-go, and where benefits are linked to previous earnings (the Bismarckian system).

Table 1 incorporates all these characteristics for our seven countries. Note that not one of these countries has the three characteristics that would place it in either the best or the worst position.

TABLE 1

Table 2 summarizes the main factors characterizing the breakdown of the income of senior citizens over the age of 60. Table 2A gives the relative share of each source of income. The share taken by employment income naturally depends on the extent to which the individual in question is capable of gainful employment. As Table 2B shows, this income is unequally spread among the elderly population. Obviously, the Gini Coefficient would be very much weaker if we confined ourselves solely to those in paid employment. Basic retirement schemes, defined as retirement schemes funded on a pay-as-you-go basis, account for the majority of the income of senior citizens, particularly in Belgium and Germany; they are also much less unequally distributed than employment income. If we except the USA, a country noted for its huge disparity of income, it is the countries that operate Bismarckian systems (Germany, Belgium and France) which have the biggest inequalities in retirement plans. As for income from capital which, let us not forget, includes funded supplementary plans, this is significant in the USA, the United Kingdom and the Netherlands, and fairly insignificant elsewhere. Everywhere, it is unequally distributed.

Table 2C addresses the relationship between these sources of income. It will be noted that income from capital in the United States, the Netherlands and the United Kingdom is relatively large and correlates negatively with basic retirement schemes. Here, we can speak of true supplementary systems, as the two sources of revenue compensate one another. The large negative correlation between basic retirement schemes and employment income is not surprising. The true significance of this table of correlations will be revealed later when we look into the possibility of introducing uniform basic pensions schemes.

TABLE 2

4. The effect of ageing on the distribution of the income of senior citizens

Using the data set out in the last section, we now need to try and grasp the implications that the ageing of the population will have on income distribution. We shall look at four scenarios for the years 2020 and 2055. All of them are characterized by the following two hypotheses:

- (i) the total amount of resources available for basic retirement schemes is fixed at its level of the base year; in other words, there is no real growth in the tax base, and contribution rates are constant;

- (ii) the distribution of income and its breakdown, as observed in 1985, only alter as a result of variations in pensions imposed in order to provide for ageing.

The first scenario is the 'reference' scenario and is called REFE. It is based on the hypothesis that benefits under the first 'pillar' will diminish uniformly as a result of growth in dependency ratio. In other words, there is no compensation in this scenario from either an increase in payroll taxes, development of the other two pillars, an extension of working life, or a restructuring of basic retirement scheme benefits.

In the second scenario, which is called EQUA, it is assumed that the total amount of basic pension benefits will diminish as the dependency ratio falls, but that the benefit structure will be altered so as to guarantee for all retired people a uniform pension which is adjusted to the number of pensioners. In the third scenario, called PRIV, it is assumed that income from capital, which includes supplementary, private and collective, retirement benefits, will increase by the same factor as that by which the basic retirement scheme reduces. The benefit structure remains unchanged as in the REFE scenario. Lastly, the RETI scenario is a modified version of the REFE scenario in that retirement age is raised from 60 to 65.

The main results of these extrapolations for the years 2020 and 2055 are set out in Table 3.

TABLE 3

In interpreting this table, we shall stress 2055, a year for which dependency ratios are higher and projections more dramatic⁷. Overall inequality increases in the reference scenario (REFE) as years go by. Broadly speaking, Germany and Sweden are exceptions to this trend because their dependency ratios remain more or less unchanged between 2020 and 2055 (cf Table A.1). The EQUI scenario provides contrasting results: there is a net gain in equality in the three countries that adopt the Bismarckian model (Belgium, France and Germany); this also applies to Sweden. In the other countries (the United States, the United Kingdom and the Netherlands), the result is the opposite. What can we conclude from this? The explanation lies in the correlations between different sources of income (cf Table 2C). These varying sources of income compensate for one another and, if we modify the structure of either of them, it follows that there is bound to be increased inequality one way or another.

To put it in another way, a reform moving in the direction of greater uniformity in basic retirement schemes is not universally desirable. It is only desirable in those countries where the first pillar rests on some proportional link between benefits and contributions, and where the second and third pillars don't have a compensatory role.

⁷ Note that the United Nations demographic projections we use here (Vu, 1984) anticipate moderate immigration flows. The results would be different under more radical assumptions.

As for the PRIV scenario, it predictably produces more inequality compared with the REFE scenario. However, income is higher on average by construction, and it is just possible that social welfare might improve as well.

Lastly, there is the RETI scenario wherein retirement age is raised from 60 to 65. This scenario increases inequality among those aged 65 and over, except in Sweden.

5. Projecting poverty rates

Rather than further examining how income is distributed, let us now highlight a particular section of the elderly population - that section which lives below the poverty threshold. We have projected the poverty rate in the seven countries of our sample, using the different scenarios. This rate depends on the poverty threshold and it is thus affected by the hypothesis made about the general impoverishment of senior citizens. It is hardly surprising that some of the rates are unreasonably high. We are of course talking about an exercise that is based on restrictive hypotheses as far as economic growth is concerned.

That being so, poverty indicators rise under the reference scenario REFE. By comparison with the REFE, the EQUI scenario sees the poverty rate declining except in the United Kingdom (in 2055) and in the Netherlands; in the United States, the improvement is minimal. This is linked to what we have observed in earlier sections, and relates to the interaction between the different sources of income. For the year 2055, in four out of seven countries, the uniform basic pension benefit is below the poverty threshold (cf Table A.2). The effects of the PRIV scenario are identical in all countries. By comparison with REFE, it reduces the poverty indicator particularly in the Netherlands, the United States and the United Kingdom. By contrast, the RETI scenario has the opposite effect. We should remember that senior citizens over the age of 65 have income that relies essentially on the basic retirement scheme, and are therefore more sensitive to any reduction in retirement provision.

6. Conclusion

Most studies examining the effect of ageing on retirement plans emphasize the effect on intergenerational equity. These studies normally forecast that an imminent drop in the standard of living of senior citizens will be brought about by an increase in the dependence ratio, combined with the financing of basic retirement schemes funded on a pay-as-you-go basis. We have adopted a different focus in this paper: the effect that ageing has on intragenerational equity. In effect, we believe that the problem with future retirement lies as much in the way pensions are distributed as in the average level of these pensions.

A corollary is the question of a possible reform of the distribution of benefits. A system in which the structure of retirement benefits is related to that of employment income, could encounter

serious difficulty if the total amount of available resources were to decrease. In practice, under such a system which includes a wide range of pension benefits (from very small pensions to very fat ones), a steady uniform reduction in the level of benefits could prove untenable for 'small' pensioners. In those circumstances, a reform that went down the road of a uniform pensions scheme would lead to a more equitable distribution of income for senior citizens. In order to avoid a steep drop in income after stopping work, a general recourse to supplementary retirement plans could well be considered desirable.

By contrast, in countries where the retirement system is based on solidarity and welfare, these problems do not present themselves with the same urgency, particularly when supplementary funded pensions play a genuinely compensatory role.

This presentation has inevitably been brief. It cannot be compared to papers based on micro-simulation models (e.g. Nelissen, 1993). What is more, it relies on a hypothesis of zero growth which some will find unrealistic. On this point, let us just say that the hypothesis of a stationary economy is not problematic as long as we concentrate on poverty indicators or income inequality, and not on the actual level of income. In other words, in case of economic growth, both contributions and savings would increase. Average income of the elderly would also increase but the poverty trend and the inequality pattern discussed above would remain worrisome.

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Table 1
Income of senior citizens (aged 60 and above)¹

<u>Country</u>	<u>Dependency ratio</u>		<u>Shares of net household incomes</u>		<u>Models of protection³</u>
	1985	2055	Basic pensions	Capital income ²	
Belgium	0.348	0.532	0.80	0.06	BM
France	0.336	0.537	0.68	0.09	BM
Germany (FRG)	0.352	0.532	0.75	0.05	BM
Netherlands	0.298	0.548	0.68	0.24	MI
Sweden	0.437	0.548	0.63	0.08	BV
United Kingdom	0.396	0.522	0.63	0.31	BV
United States	0.299	0.544	0.55	0.20	MI

¹ See also Tables 1 et A.1 (attached).

² Includes funded retirement schemes.

³ BM : Bismarckien; BV : Beveridgien; MI : mixed.

Sources: Luxembourg Income Study (LIS) and Vu (1984).

Table 2
Breakdown of income of people aged over 60

2A. Relative importance of sources of income in net household income¹

<u>Country</u>	<u>Sample</u> <u>Year</u>	<u>Number</u>	<u>Employment</u> <u>income</u>	<u>Basic</u> <u>pensions</u>	<u>Capital</u> <u>income</u>
Belgium	1988	1062	0.14	0.80	0.06
France	1984	3159	0.22	0.68	0.09
Germany (FRG)	1984	1181	0.20	0.75	0.05
Netherlands	1987	1013	0.09	0.68	0.24
Sweden	1987	1908	0.29	0.63	0.08
United Kingdom	1986	2407	0.24	0.43	0.33
United States	1986	3297	0.24	0.55	0.20

2B. Gini coefficients by source of income²

<u>Country</u>	<u>Employment</u> <u>income</u>	<u>Basic</u> <u>pensions</u>	<u>Capital</u> <u>income</u>	<u>Net</u> <u>income</u>
Belgium	0.8408	0.2736	0.8576	0.2232
France	0.8683	0.3432	0.8412	0.2877
Germany (FRG)	0.8607	0.3215	0.8092	0.2653
Netherlands	0.9173	0.2561	0.7166	0.2752
Sweden	0.8522	0.2667	0.6173	0.2437
United Kingdom	0.8537	0.2403	0.6412	0.2651
United States	0.7907	0.3898	0.7286	0.3848

2C. Partial correlations between sources of income²

<u>Country</u>	<u>Basic pensions</u> <u>and</u> <u>net income</u>	<u>Basic pensions</u> <u>and</u> <u>employment income</u>	<u>Employment income</u> <u>and</u> <u>capital income</u>	<u>Basic pensions</u> <u>and</u> <u>capital income</u>
Belgium	0.5815 *	- 0.5447 *	0.0458	- 0.0237
France	0.6156 *	- 0.3392 *	0.0191	0.0362 *
Germany (FRG)	0.2856 *	- 0.5194 *	0.0379 *	- 0.0282 *
Netherlands	0.1291 *	- 0.3283 *	- 0.0931 *	- 0.2438 *
Sweden	0.4793 *	- 0.3655 *	- 0.0219	0.0385
United Kingdom	- 0.2857 *	- 0.6050 *	- 0.0507	- 0.2305 *
United States	0.1504 *	- 0.3739 *	- 0.0712 *	- 0.3739 *

¹ Averages of individual ratios.

² Income by units of consumption.

* Significant to a 1% threshold.

Source: Luxembourg Income Study (LIS).

Table 3
Gini coefficients¹
Projections for 2020 and 2055

3A. Scenarios for 2020

<u>Country</u>	<u>Population aged 60 and more</u>				<u>Population aged 65 and more</u>	
	Base year	REFE	EQUI	PRIV	Base year	RETI
Belgium	0.2232	0.2636	0.1896	0.4267	0.2178	0.2486
France	0.2877	0.3120	0.2001	0.3297	0.2556	0.2957
Germany (FRG)	0.2653	0.3205	0.2252	0.3313	0.2516	0.2862
Netherlands	0.2752	0.3639	0.3662	0.4320	0.2597	0.3561
Sweden	0.2437	0.2659	0.1622	0.2661	0.2316	0.2417
United Kingdom	0.2651	0.2886	0.2941	0.2995	0.2467	0.2680
United States	0.3848	0.4414	0.3987	0.4624	0.3853	0.4439

3B. Scenarios for 2055

<u>Country</u>	<u>Population aged 60 and more</u>				<u>Population aged 65 and more</u>	
	Base year	REFE	EQUI	PRIV	Base year	RETI
Belgium	0.2232	0.2710	0.1994	0.4307	0.2178	0.2544
France	0.2877	0.3221	0.2173	0.3484	0.2756	0.3041
Germany (FRG)	0.2653	0.3167	0.2199	0.3266	0.2516	0.2837
Netherlands	0.2752	0.3672	0.3698	0.4377	0.2597	0.3595
Sweden	0.2437	0.2625	0.1567	0.2626	0.2316	0.2401
United Kingdom	0.2651	0.3107	0.3172	0.3324	0.2467	0.2885
United States	0.3848	0.4547	0.4163	0.4808	0.3853	0.4582

¹ Estimated on the basis of total net income by unit of consumption. The equivalence scale is that used by the EEC and the OECD: head of household = 1.0, other adults = 0.7, children = 0.5.

Table 4
Poverty indicator¹
Projections for 2020 and 2055

4A. Scenarios for 2020

<u>Country</u>	<u>Population aged 60 and more</u>				<u>Population aged 65 and more</u>	
	Base year	REFE	EQUI	PRIV	Base year	RETI
Belgium	6.8	30.2	7.4	27.2	7.0	33.2
France	4.1	21.9	2.8	20.6	2.0	21.8
Germany (FRG)	12.5	44.4	4.3	42.0	13.8	48.6
Netherlands	2.1	47.7	49.8	40.1	1.7	54.9
Sweden	9.6	28.5	0.0	25.2	11.8	33.9
United Kingdom	6.2	16.7	3.9	13.5	6.8	19.4
United State	26.2	40.6	38.6	36.0	29.1	46.9

4B. Scenarios for 2055

<u>Country</u>	<u>Population aged 60 and more</u>				<u>Population aged 65 and more</u>	
	Base year	REFE	EQUI	PRIV	Base year	RETI
Belgium	6.8	36.5	7.5	33.6	7.0	41.0
France	4.1	29.7	5.0	28.1	2.0	31.0
Germany (FRG)	12.5	41.7	4.3	40.1	13.8	46.0
Netherlands	2.1	48.5	50.6	40.4	1.7	55.6
Sweden	9.6	25.4	0.0	22.5	11.3	30.1
United Kingdom	6.2	27.6	34.6	21.5	6.8	32.0
United States	26.2	43.0	41.6	36.9	29.1	48.8

¹ For the construction of poverty thresholds, see Table A.2.

Table A.1
The impact of ageing ¹

People aged 60 and over/Population aged 20-59

<u>Country</u>	<u>Dependency ratio</u>			<u>Variation rate</u>	
	1985	2020	2055	1985/2020	1985/2055
Belgium	0.348	0.504	0.532	0.690	0.653
France	0.336	0.483	0.537	0.696	0.626
Germany (FRG)	0.352	0.546	0.532	0.645	0.662
Netherlands	0.298	0.537	0.548	0.556	0.545
Sweden	0.437	0.568	0.548	0.771	0.798
United Kingdom	0.396	0.458	0.522	0.866	0.759
United States	0.299	0.484	0.544	0.617	0.549

People aged 65 and over/Population aged 20-64

<u>Country</u>	<u>Dependency ratio</u>			<u>Variation rate</u>	
	1985	2020	2055	1985/2020	1985/2055
Belgium	0.219	0.319	0.369	0.686	0.582
France	0.217	0.317	0.373	0.686	0.582
Germany (FRG)	0.232	0.350	0.363	0.663	0.640
Netherlands	0.196	0.346	0.380	0.567	0.515
Sweden	0.292	0.391	0.392	0.747	0.744
United Kingdom	0.259	0.299	0.355	0.864	0.729
United States	0.197	0.299	0.380	0.661	0.520

¹ Based on demographic projections produced by the World Bank (see Vu, 1984).

Table A.2

Poverty thresholds and uniform retirement schemes
Single-person households

(Purchasing power parity in 1986 dollars)

<u>Country</u>	<u>Year</u>	<u>Poverty threshold¹</u>	<u>Uniform retirement scheme²</u>			
			<u>2020</u>		<u>2055</u>	
		(a)	(b)	(b)/(a)	(c)	(c)/(a)
Belgium	1988	4,047	3,893	0.962	3,986	0.911
France	1984	4,239	6,081	1.434	5,467	1.289
Germany (FRG)	1984	5,116	5,362	1.048	5,502	1.075
Netherlands	1987	4,653	3,419	0.735	3,350	0.720
Sweden	1987	5,221	6,270	1.201	6,493	1.244
United Kingdom	1986	4,232	4,234	1.000	3,713	0.877
United States	1986	6,458	4,560	0.706	4,056	0.628

¹ The poverty threshold is half the median income per unit of consumption taking the population as a whole (with weighting to ensure that the samples are representative) and the household's total income. The second adult in the household receives a weighting of 0.7 and others receive 0.5.

² Uniform retirement pension is calculated by dividing the total amount of benefits corresponding to the base year by the number of people entitled to the pension (weighted by 1.7 in the case of both member of a couple being pensioners), and adjusted to take account of the development of demographic dependency. People who are entitled to draw the pension must fulfil the following conditions: employment income coming to less than 25% of total income of basic pension income of more than 25% of total income, or total income (apart from basic pension) below the poverty threshold level.