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ARE WE RETIRING TOO EARLY?

Pierre Pestieau

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To define the second-best retirement age as well as to explain why reasonable reforms are difficult, if not impossible, we use the tools of optimal income tax theory and of political economy.

JEL Classification: E62, H23, H55.

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Are we retiring too early?

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The European population is living longer but retiring earlier. More and more individuals are spending an increasing fraction of their lifetime relying on retirement benefits. At the same time, social security programs face mounting financial difficulties. The purpose of this paper is to explain why people are retiring so young and why it is so difficult to reverse a trend that could turn out to be fatal to social security systems that have worked so well up to now.

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1 Introduction

Like most good questions, the one raised by the title of this paper leads to a number of other questions, namely is this really the case? Are we really retiring so early? If so, what is the problem with retiring early and is there such a thing as an optimal age for retiring? If early retirement is indeed a problem, why not just increase the retirement age? Finally, are we not confusing the people who wish to retire early with those who are simply unable to work any longer?

*CREPP, CORE, CEPR and Delta. This paper presents an overview of a joint research with H. Cremer, J.-M. Lozachmeur, Ph. Michel, G. Casamatta, A. Jousten, S. Perelman, R. Desmet and B. Lipzyck. See in particular Cremer *et al.* (2001) and Casamatta *et al.* (2001).

The purpose of this paper is to try to answer these questions on the basis of recent work on a subject that lately has been drawing the attention of scholars, policymakers and the medias. But before developing these answers at length, let us first sketch them.

Early retirement is currently being observed in most but not all European countries. The average labor participation in the age group 55-64 ranges from 24 per cent in Belgium, to 88 per cent in Iceland, with the bulk of countries closer to Belgium than to Iceland. Early retirement *per se* is a blessing for society rather than a problem, provided that it does not represent a drain. However, as generational accounts show, even though the bulk of the bill for the current generation of retirees is being financed by the retirees themselves within an incentive structure that makes it attractive, the fact is that it is future generations who are paying for the balance.

One can speak of an optimal retirement age that varies across individual features such as wealth, productivity and health, but which also depends on the setting: *laissez-faire*, first-best and second-best optimum. In both the *laissez-faire* and the first-best optimum setting, people retire when the marginal utility of inactivity is equal to their marginal productivity at work. People in poor health and with low productivity will retire earlier than people in good health and with high productivity.

For obvious reasons early retirement puts pressure on the financing of health care and pension schemes. This problem is made worse by growing longevity. In the European Union life expectancy at age 65 has increased by more than one year per decade since 1950. As a consequence, instead of 45-50 years of work and 5-10 years of retirement of half a century ago, a young worker can now expect to work for 30-35 years and retire for 15-20 years.

Since increased longevity is accompanied by better health, the obvious solution would seem to be to reverse the trend towards early retirement by reducing the subsidies inducing it, and increasing the statutory retirement age. Yet, as it turns out, it is difficult to conduct such a reform. The political power of individuals close to retirement, and of those already retired make it is so.

When considering reforms aimed at reversing the trend towards early retirement, it is important to take into account the wide variability in the capacity to work – a variability that is widening as life expectancy increases. The practical issue is how to care for elderly workers who are in poor health without, on the other hand, opening the door of retirement to those who would like to stop working but are quite capable of continuing. In fact, a

reform of social security ought to include a close connection between pensions systems and the system of insurance for the sick, as well as the determination of a more flexible retirement age together with actuarial adjustment of yearly benefits. The ideal outcome would then be to have early retirees because of poor health receive relatively generous benefits while early retirees unwilling to continue working would receive actuarially low pensions.

I will develop these points in the rest of this paper, guided by the following outline:

- Retirement and longevity: facts and causes;
- Optimal retirement ages;
- The politics of early retirement;
- Desire for leisure versus disability.

A point of terminology is in order. In this paper, "retirement age" is most generally endogenous, even though it is indirectly controlled by the social security tax-benefit package. Where there is a direct control of retirement age, it is explicitly mentioned. Retirement age is thus the age at which workers retire and claim benefits. In the reality, however, the concept is much more confusing and it is used in a variety of ways that are sometimes inconsistent. For example, it is possible to claim benefits, partial or full, without retiring, or to retire without claiming benefits right away.

2 Retirement and longevity

2.1 A few facts

The ageing of the population is a general phenomenon in industrialized countries. It results from a drop in fertility, but mainly from a steady increase in longevity. In the European Union the proportion of individuals above 50, 70, 90 was, respectively, .32, .11, .005 in 1995. In 2050 it will be .46, .22 and .17. Table 1 provides detailed data on this for seven countries.

	1995					2050				
	Fraction of people at least aged									
Countries	50	60	70	80	90	50	60	70	80	90
Germany	34.6	20.7	10.5	4.1	0.4	47.9	35.0	21.7	10.6	1.5
Spain	31.0	20.6	10.2	3.3	0.4	48.8	37.1	24.7	10.4	1.7
France	29.7	20.0	10.3	4.2	0.6	44.8	33.0	21.0	10.1	2.1
Ireland	24.4	15.3	8.0	2.5	0.3	46.1	33.0	19.9	8.1	1.3
Italy	34.4	22.2	11.1	4.0	0.4	50.7	38.3	26.0	12.0	1.9
UK	31.2	20.5	11.2	4.0	0.5	44.5	31.7	19.6	9.5	1.7
Sweden	33.6	22.1	12.9	4.6	0.6	41.8	29.1	18.1	8.5	1.5
EU 15	32.2	20.6	10.6	3.9	0.5	46.3	33.9	21.7	10.1	1.7

Table 1: Fraction of people aged 50, 60, 70, 80, 90 in 1995 and 2050 - Source: Calot and Sardon (1999)

From these figures, and on the assumption that people retire at 60 or 65, one derives the expected evolution of the dependency ratio which in some countries doubles in less than four decades. Roughly speaking, what this means for the social security system is that, everything being equal, the average contribution rate has to double as well, or that the average replacement ratio has to be cut by one half. Why not then consider an increase in the age of retirement? Is it not strange to use the same age of 60 or 65 to measure the dependency ratio when the average life expectancy was in 1950 64 and is expected to be 84 in 2050 for the French men (69 and 90 for the French women)?

What is even stranger is to observe that whereas life expectancy is rising, the effective age of retirement has been steadily decreasing over the last 50 years. Table 2 gives the effective retirement age for 1960 and 1995.

From the figures just discussed, we can present a range of dependency ratios that use different benchmarks: (i) age 60 which in France is the statutory age of retirement; (ii) the current effective age of retirement; (iii) an hypothetical age of retirement based on a linear trend extrapolating the past; (iv) another hypothetical age of retirement based on the idea that from now on the expected length of retirement is kept constant. Not surprisingly, one obtains quite contrasted profiles. Alternative (i) is the standard one based on age 60; alternative (ii) is clearly unrealistic as it shows what would happen if the trend towards early retirement were kept unchanged. Clearly, the more

	Men				Women			
	Life expectancy		Retirement age		Life expectancy		Retirement age	
	1960-65	95-2000	1960	1995	1960-65	95-2000	1960	1995
Belgium	67.9	73.8	63.3	57.6	73.9	80.6	60.8	54.1
France	67.6	74.2	64.5	59.2	74.5	82.0	65.8	58.3
Germany	67.4	73.9	65.2	60.5	72.9	80.2	62.3	58.4
Ireland	68.4	73.6	68.1	63.4	72.3	79.2	70.8	60.1
Italy	67.4	75.0	64.5	60.6	72.6	81.2	62.0	57.2
Spain	67.9	74.5	67.9	61.4	72.7	81.5	68.0	58.9
Sweden	71.6	76.3	66.0	63.3	75.6	80.8	63.4	62.1
UK	67.9	74.5	66.2	62.7	73.8	79.8	62.7	59.7

Table 2: Longevity and retirement age in the European Union (1960-1995) - Source: United Nations Population Division, World Population Prospects, 1998. Blondal and Scarpetta (1998)

reassuring scenario is the one wherein the current expected length of retirement is kept constant. As we can observe, the problem seems to be more acute for women than for men.

2.2 Incentive to early retirement

There is no doubt that social security and subsidized health have contributed to the rise in longevity. Yet the main explanatory factors seem to be economic growth. International comparisons also indicate that environmental and dietetic characteristics explain longevity differences much better than health care spending.

The trends towards early retirement has different causes. It can be explained by economic growth — after all, leisure is a normal good — and by change in preferences. However, the bulk of the explanation seems to rest on the incentive structure implied by social protection programs aimed at elderly workers: unemployment insurance, disability insurance, early retirement schemes, pension plans.

Throughout this paper, we use the two-overlapping-generations model wherein each individual i has productivity w_i, works the first period of his

Belgian men: 1970-2050

	I	II	III	IV
	Ratio 60	Ratio based on effective retirement extrapolated after 1995	Ratio based on effective retirement kept at 58 after 1995	Ratio keeping length of retirement constant (17 years)
1970	32.3	24.3	24.3	-
1980	27.7	25.6	25.6	-
1995	32.5	37.6	37.6	37.6
2025	50.1	78.2	58.6	46.1
2050	58.6	105.8	67.4	41.2

Belgian women: 1970-2050

	Ratio 60	Ratio based on effective retirement extrapolated after 1995	Ratio based on effective retirement kept at 58 after 1995	Ratio keeping length of retirement constant (27 years)
1970	43.5	47.1	47.1	-
1980	37.5	47.4	47.4	-
1995	45.7	65.9	65.9	65.9
2025	63.8	130.3	95.6	78.6
2050	78.0	184.5	108.0	70.5

Table 3: Alternative ratios of dependency - Source: Lannoy and Lipszyc (2000)

life with length normalized to 1. He also works a fraction z_i of the second period (also of length 1) and retires for a period $h - z_i$, where $h\,(\leqslant 1)$ denotes his life expectancy. His life thus lasts $1+h$ and his active life $1+z < 1+h \leqslant 2$. In the first period, he consumes c_i and in the second d_i. His lifetime utility is given by:

$$u_i = u\,(c_i, d_i, z_i)$$

or, with the budget constraints,

$$u_i = u\,(w_i - s_i, wz_i + Rs_i, z_i)$$

where s_i is saving and R a financial interest factor. For the sake of simplicity, we will use a separable form with a quadratic disutility of work:

$$u_i = u\,(c_i) + \beta\, u\left(d_i - \gamma z_i^2\right)$$

where $u\,(\cdot)$ is strictly concave, β is a time preference factor and γ measures the intensity of work disutility. Note that z_i cannot exceed $\bar{z}$ (even when $\gamma = 0$); by assumption $z_i < \bar{z} < h$.

In a *laissez-faire* setting each individual chooses z_i such that:

$$\frac{\partial u}{\partial d_i} w_i = -\frac{\partial u}{\partial z_i}$$

or with our particular function:

$$z_i = \frac{w_i}{2\gamma}.$$

As it will appear below, this is also the optimal condition for the retirement age. The more productive the worker, the later he retires. Given the particular nature of our utility function, one notes that there is no income or wealth effect in the choice of z. With a more general utility, one would expect z_i to decrease with a wealth gain such as that a rising from the intergenerational transfers.

Let us now introduce a PAYG pension scheme: a payroll tax of rate τ and a benefit p which may depend on z and w.

Again, to make things easier, we assume that pension benefits are partially related to contributions and partially flat. We then write:

$$p_i = \tau \left[\alpha \left(w_i \left(1 + n + z_i \right) + \left(1 - \alpha \right) \left(\bar{w} \left(1 + n \right) + \overline{wz} \right) \right) \right]$$

where α is the contributory share and n is the population growth rate as well as the return to a PAYG system. The upper bar is used for the expected value across productivity levels. We can now write the utility of an individual of productivity w_i :

$$u_i = u \left(w_i \left(1 - \tau \right) - s_i \right) + \beta \, u \left(R s_i + w_i \left(1 - \tau \right) z_i - \gamma z_i^2 + p_i \right).$$

The equilibrium age of retirement is thus equal to:

$$z_i = w_i \left(1 - \tau \left(1 - \alpha \right) \right) / 2\gamma.$$

In other words, the lower the contributory share and the higher the tax rate, the earlier the retirement. We have here one of the sources of tax distortion, namely the fact that part of contribution is not perceived as coming back to the worker at retirement.

There are two other sources of distortion that do not appear in the above formula: a wealth effect where the system is not mature enough or where it is redistributive with additional incentives to retire early. One can easily calculate the net social security wealth of a worker of productivity i *as*:

$$\begin{aligned} \theta_i &= -\tau \left(w_i + \frac{w_i z_i}{R} \right) + \frac{p_i}{R} \\ &= \tau \, w_i \left(\frac{1 + n}{R} - 1 \right) \quad \text{if} \quad \alpha = 1 \\ &= \frac{\tau}{R} \left[\left(\bar{w} \left(1 + n \right) - w_i R \right) + \left(\overline{w^2} - w_i^2 \right) \frac{1 - \tau}{2\gamma} \right] \quad \text{if} \quad \alpha = 0. \end{aligned}$$

Where the system is not mature, one writes $R < n$ and there is a clear wealth effect: part of the pension is paid by future generations and this induces early retirement. Where the system matures, there is a negative wealth effect (the service of the implicit debt) that ought to induce later retirement. The redistributive effect is more ambiguous: it induces high wage earners to retire later and low wage earners to retire earlier.

The distortion just analyzed arises from the payroll tax. It is clear that if elderly workers could be exempted from it — only the young workers contributed — there would be no incentive for early retirement. In most countries

elderly workers are not only subject to the payroll tax, but by working one more year they often forgo some available social benefits: unemployment or disability compensation or pensions from an early retirement scheme. To put it another way, working one more year does not increase their replacement ratio.

Up to now, p_i was defined as the aggregate benefit obtained during the second period of life, and thus independent of retirement length $(1 - z_i)$. Suppose now that p_i decreases with z_i. Then the choice of z_i in the case of flat benefit is given by:

$$-\frac{\partial u_i}{\partial z_i} = \left[w_i (1 - \tau) + \frac{\partial p}{\partial z_i} \right] \frac{\partial u_i}{\partial d_i},$$

where $\dfrac{\partial p_i}{\partial z_i} < 0$. In the quadratic example, one has $z_i = \dfrac{w_i (1 - \tau) + \dfrac{\partial p_i}{\partial z_i}}{2\gamma}$.

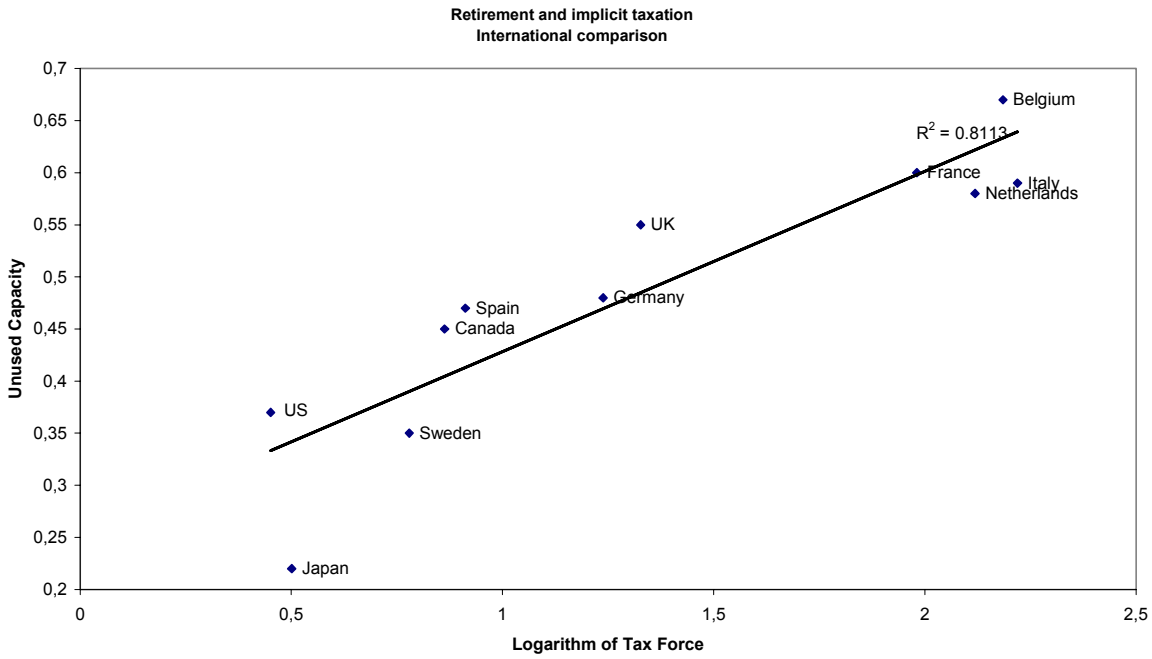
The choice of prolonged activity is thus subject to a double burden: the payroll tax and the forgone pension benefit.

The importance of these two burdens varies quite a lot across countries and this variation explains why effective retirement shows such a wide range among the OECD countries. It would be simplistic to only blame governments for these burdens. In general, unions and firms agree to use them, at the workers' expense, as a way of cutting the work force down to the lowest possible cost to firms.

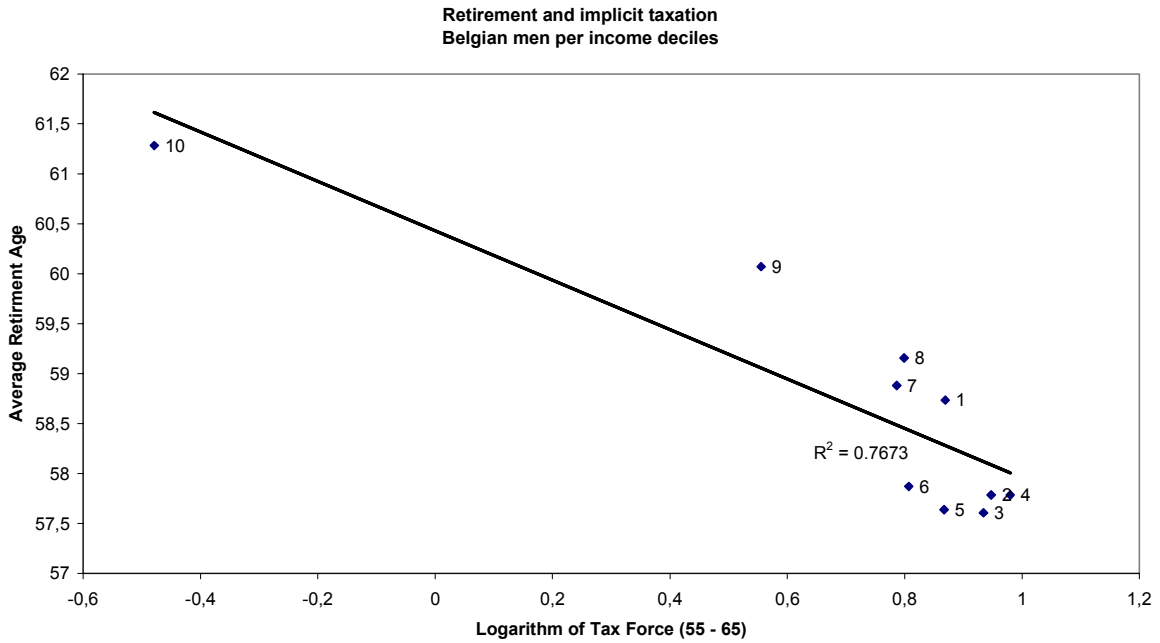
There now exists a number of studies that provide measurement of these burdens, or what is often called the implicit tax, that elderly workers face in case of early retirement. These measurements are more refined than the one defined in our simple model; they depend on various characteristics: age, sex, education, family structures, ... for each worker. Such studies present strong evidence that these implicit taxes induce most workers to retire at the earliest possible stage.

We consider two such studies, both conducted within the NBER ageing group. The first is an international comparison of implicit taxes and retirement behavior by Gruber and Wise (1999) and the second, which is posterior, is a microeconometric study of retirement in Belgium by Dellis *et al.* (2000).

Insert Figure 1 and Figure 2



Source : Gruber and Wise (1999)



Source : Dellis et al. (2001)

Both figures present a relation between labor force participation among elderly workers and an indicator of implicit taxation on postponing retirement. This indicator, named tax force, is the sum of the implicit taxes an elderly worker faces at each age during the relevant period (55-65 in Belgium). For the international comparison, the labor participation indicator is actually one minus overall participation between 55 and 65; for the Belgian study, we use the average retirement age. As to the comparison units in the Belgian study, we use income deciles. As it appears clearly, both high implicit tax and low income levels explain early retirement.

Using the above formula:

$$z_i = \frac{w_i - \tau w_i + \dfrac{\partial p_i}{\partial z_i}}{2\gamma},$$

w_i is the indicator for income, $\tau w_i + \dfrac{\partial p_i}{\partial z_i}$, the tax force and γ reflects the taste parameter that can vary across countries.

3 Optimal retirement ages

In the previous section we saw that most existing social security packages tend to distort the choice of retirement age downwards. In other words, the actual age of retirement is generally lower than the optimal level.

To obtain optimal levels we now derive the first-best optimality conditions. Keeping the presentation simple, we drop the first period in the above problem. Each individual with productivity w_i works a fraction z_i of a lifetime normalized to 1. This can be viewed as a reduced form of a continuous time problem with instantaneous utility $u(c, \ell)$ where ℓ is equal to either 1 or 0 and the disutility for ℓ increases over time. The objective of the social planner is utilitarian, and his problem is to maximize the following Lagrangean:

$$\mathcal{L} = \sum n_i U\left[c_i - \gamma z_i^2\right] + \mu \sum n_i \left[c_i - z_i w_i\right],$$

where $U(u)$ is a social utility, u is a quasi linear utility and μ is the multiplier associated with the resource constraint. The optimality conditions are simply:

$$z_i^* = \frac{w_i}{2\gamma} \text{ and } c_i - \frac{w_i^2}{4\gamma} = u^* \text{ (equal for all } i).$$

With 2 types and $n_1 = n_2$, $c_1 = \frac{1}{4\gamma}\left(w_1^2 + \frac{w_2^2}{2}\right)$ and $c_2 = \frac{1}{4\gamma}\left(w_2^2 + \frac{w_1^2}{2}\right)$. Note that z_i^* is also the *laissez-faire* solution.

We could decentralize these optimal conditions as if we had non distortionary instruments. In this particular example it is pretty easy, as the government observes z_i. Even if it does not observe w_i, it can offer each individual a transfer $x_i = c_i^*$, impose a retirement age $\bar{z}_i = z_i^*$ and take away earnings. This solution is incentive compatible.

In general, however, for either administrative or informational reasons, decentralization of this sort is not feasible. Assume, for example, that the government is constrained to use a flat rate payroll tax with uniform benefit p. The problem can be expressed in the following Lagrangean:

$$\mathcal{L} = \sum n_i \; u\left[(1-t)\, w_i\, z_i + p - \gamma z_i^2\right] + \mu \sum n_i \left[t w_i z_i - p\right].$$

If the government couldn't observe z_i, we would have the standard optimal linear income tax with an efficiency term $\left[\sum n_i\, w_i \frac{\partial z_i}{\partial t}\right]$ and an equity term $\left[cov\left(\frac{\partial u}{\partial c_i}, w_i z_i\right)\right]$. In fact the government observes z_i but can only impose a minimum retirement age that constrains the lower productivity individuals, namely those with the lower notional supply of z_i as $z_i = \dfrac{w_i\,(1-t)}{2\gamma}$.

Keeping the two-types case, this means that the lower productivity individual will be subject to a lower distortion than the higher productivity individual. In general, we see the opposite result: no distortion at the top and downward distortion for less productive workers.

Suppose that workers face two decisions concerning labor: how long is the weekly work, ℓ, and how long is the work career measured in number of weeks, z. Again, we adopt a reduced form of the utility function with constant consumption c_i, weekly labor supply ℓ_i and length of active life z_i.

$$U_i = U\left(c_i - v\left(\ell_i\right) R\left(z_i\right)\right).$$

With this new specification [both $v(\cdot)$ and $R(\cdot)$ are strictly convex functions], the first-best optimality problem is given by maximizing:

$$\mathcal{L} = \sum n_i U\left(c_i - v\left(\ell_i\right) R\left(z_i\right)\right) + \mu \sum n_i \left(c_i - z_i \ell_i w_i\right)$$

which gives: $U'(u_i) = \mu$; $v'(\ell_i) R(z_i) = z_i w_i$ and $v(\ell_i) R'(z_i) = \ell_i w_i$. As a consequence $\dfrac{dz_i}{d\ell_i} = \dfrac{v'(\ell_i) R(z_i)}{R'(z_i) v(\ell_i)} = \dfrac{z_i}{\ell_i}$. Here too, the optimal choice of z_i and ℓ_i is the same as the market choice.

With two choice variables, ℓ_i and z_i, and given that w_i and ℓ_i are not observable – $y_i = w_i \ell_i$ and z_i are common knowledge – the first-best optimum cannot be decentralized.

One can show that a non linear tax $T(z_i, w_i \ell_i)$ can be designed. It is clearly superior to any linear policy and has the following features for the two types: there is no distortion at the top: $z_2 = z_2^*$ and $\ell_2 = \ell_2^*$. For the less productive there is a downward distortion of ℓ_1 and z_1 relative to c_1, and of ℓ_1 relative to z_1.

The fact that z_i is observable and that ℓ_i is not makes the distortion on the first smaller than that on the second. But the main conclusion is that asymmetric information implies some downward distortion on retirement, although lower than with a linear scheme.

4 The politics of early retirement

Why has it turned out so difficult to increase the statutory retirement age and to reduce subsidies to early retirement, even though such reforms would seem to be a natural outcome of higher longevity? Similarly, why have we reached a point where increased life expectancy is regarded as a problem rather than a blessing for society?

To understand this, one needs to think within a dynamic setting. When social security was first designed, there were no entitlements. We can reasonably state that the key parameters: contributions rates, replacement rates and statutory retirement age were chosen behind the veil of ignorance. At that time only the young generation was concerned; the older generation didn't have a clear idea of the free lunch it was going to receive. The joint evolution of increased longevity and early retirement came later. Quite possibly the younger generation left alone would have been ready to reform the system and reverse the pattern of retirement. But such reform was then and still is opposed by the political power of individuals at retirement or close to retirement who are ready to defend what they consider to be their legitimate entitlement.

A number of models exist that provide a political economy determination

of the level of social security benefits. The first generation models assume identical individuals except for age. The retirement age is given and, in the canonical version, the level of benefits chosen is the level most preferred by the median age voter. The outcome is a level of benefit, higher than the optimal one that would be chosen at the start of the working life. The introduction of liquidity constraints, or of uncertainty, does not modify this conclusion. The second generation models assume individuals who differ not only in age but also in productivity or in altruism. Again, the dominant conclusion is that of relatively generous social security benefits.

All these models assume a fixed retirement age. With this assumption dropped, one can think of voting on a retirement age wether directly or indirectly. In the first case, individuals vote for a mandatory retirement ages and possibly other parameters of the social security system. In the second case, individuals vote on the size of the payroll tax knowing that it affects the age at which they eventually retire.

Without going into too many details, we use the two period model given above for $\alpha = 0$ (namely, a pure Beveridgean system). The problem for each individual is to pick his most preferred tax rate, τ_i^*, that maximizes:

$$u_i(\tau) = u\left((1-\tau)w_i - s_i^*\right) + \beta u\left(Rs_i^* + \frac{w_i^2(1-\tau)^2}{4\gamma} + \tau\left((1+n)\bar{w} + \frac{(1-\tau)\overline{w^2}}{2\gamma}\right)\right)$$

where $s_i^* \geqslant 0$ is the optimal choice of saving equal to zero for low income individuals. There are three reasons for voting for a low level of τ :

- the PAYG system yields a low return: $R > 1 + n$,
- the redistribution is harmful (this concerns high income individuals),
- the level of consumption in the second period would outsize the one in the first period (this concerns low productivity workers).

Under some plausible assumptions, one obtains a profile of τ_i^* for a distribution of w_i with support (w_-, w_+). It is represented on Figure 3.

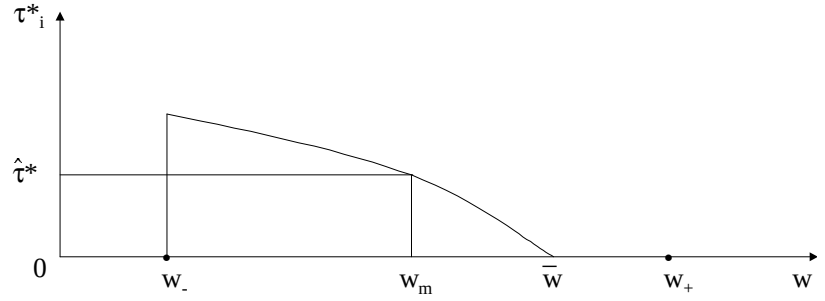


Figure 3: Preferred payroll tax rate

From Figure 3, it is clear that we have a majority in favor of $\hat{\tau}^*$. The worker with median age, w_m, is decisive. [1]

We have assumed that such a vote occurred at one point and that only the working generation was concerned by it. If n falls a lot relative to r (and also if there is little redistribution (α is high)), it can be shown that a majority in the working generation will be in favor of reducing $\hat{\tau}^*$ and consequently of increasing the retirement age. But now the retired generation does not remain passive since it expects benefits based on $\hat{\tau}^*$.

In what way and for how long will the retired generation be able to stall reforms? First, the way. It can be stalled through the regular process of representative democracy in which lobbying by interest groups plays an important role. As regarded to how long it depends on the power of these interest groups and of their selfishness. A little bit of intergenerational altruism would suffice for the retired generation to realize that such a reform could be beneficial for their children and grandchildren.

As regards reform, European countries behave in differing ways. Some countries, such as Sweden, have introduced a major restructuring of their social security with clear implications concerning retirement age. Other countries, such as the UK, don't need much reform because their social security

[1] On Figure 3, the most preferred tax rate declines with $w\,(w < \bar{w})$. This occurs with enough substituability between c and d. When there is no such substituability, the most preferred tax rate increases with w and the equilibrium is such that 50% of the population, that is both low incomes and high incomes, would vote for less while 50% or middle incomes, would vote for more. This is what Epple and Romano (1996) call "ends against the middle".

system does not face major cost escalation problems. The majority of countries however seems to have a hard time moving towards reforms despite an abundance of national and international expert reports indicating the necessity to move quickly, particularly as regards raising the pension age. France is not unique; in fact it is quite typical of a society where the mere suggestion to raise the retirement age can be fatal for a politician not unlike what a confession of having taken drugs in college can do for politicians in some other countries.

The surveys on this subject are quite interesting. Over years they show a majority in favor of the status quo. In almost all European countries, respondents oppose any restrictions of their existing social security, even though these impliy tax cuts. In one ten years old survey (Eurobarometer) there was an interesting question about continuing the existing system even at the cost of higher contribution or contracting the welfare state to a limited number of essential benefits. The "continuists" clearly outnumbered the "contractionists" in all the European countries (EC12) as commented by Ferrera (1993). And he concluded that "the legitimacy of social protection in its current format remains robust within the EC as a whole".

On the questions about the option to reform the pension system because of ageing, hardly a third of the respondents thought that raising the retirement age was a likely policy option. In fact Germany (45%), France (42%) and the Netherlands (48%) seemed more convinced than the others about the wisdom of raising the pension age.

In a recent survey conducted in Belgium, more precisely in the Flemish community, people were asked about their preferred retirement age. The majority of respondents cited the age of 57, which is also the effective retirement age, and well below the statutory age of 65 known not to be sustainable [see Schokkaert *et al.* (2000)].

Finally, there is the survey by Boeri *et al.* (2001) conducted in Germany, France, Italy and Spain on the welfare state. It paints the same picture as the earlier Eurobarometer: a majority of the citizens does not want any rolling back of their welfare state, which does not mean that they are happy with the existing programs. Fortunately, the door is not completely closed to reform. A majority of respondents are also in favor of some sort of flexibility in the way social security in organized.

5 Desire for leisure and disability

Up to now we have focused on individual differences in productivity. In the reality, workers can be differentiated not just according to productivity but also to their health at work. Because of personal characteristics, or because of the painful nature of the job, some workers are worn out earlier than others. Clearly, this should play in their decision to retire, as well as in the way retirement policy ought to be designed.

In our setting, the differential capacity to work can concern weekly labor supply, ℓ_i, or the length of the working life, z_i. We focus on the latter and take the case where individuals have different productivity, say w_1 and $w_2\,(w_2 > w_1)$ and different disutility for $z_i, R_i\,(z_i)\,(i = 1, 2)$ such that $R_1\,(z) > R_2\,(z)$ and $\dfrac{zR_1'}{R_1\,(z)} \gtrless \dfrac{zR_2'}{R_2\,(z)}$ for any z.

If we have three types of individuals characterized by $(R_1, w_1)\,, (R_2, w_1)$ and (R_2, w_2) respectively, we know that in the *laisser-faire* as well as in the first-best $\ell_1 \leqslant \ell_2 \leqslant \ell_3$ and $z_1 \leqslant z_2 \leqslant z_3$ under some normality conditions. What about the second-best tax transfer policy?

We recall that the government observes $w_i\ell_i$ and z_i but not w_i and R_i. There will be no distortion at the top: individual 3 will choose the first-best levels of ℓ_3 and z_3. Individual 2 will be subject to a positive marginal tax with respect to ℓ_2 and z_2, but the downward distortion on ℓ_2 is higher than that on z_2. This makes sense as z_2 is directly controlled, and ℓ_2 only indirectly. Finally, individual 3 will also be subject to a positive marginal tax on ℓ_3 and z_3, but now in relative term, z_3 is more distorted than ℓ_3, which is expected: as compared to type 2 individual type 3 has the same productivity w_1 but more disutility for z_1. To put it otherwise, the social planner observes ℓ_2 but not $R_2\,(z_2)\,.$

In conclusion, with asymmetric information one cannot avoid some sort of downward distortion for the retirement age of less productive and above all less healthy individuals. In other terms, the existence of implicit taxes evoked in the introduction, particularly for the disabled and low productivity workers, makes some sense.

The key question is how sensitive is this second pattern of retirement to increase longevity. Basically, within the simple framework adopted so far, increased longevity (h) implies a higher demand for consumption. We have to modify the above problem in two ways: first, we drop the quasi-linearity assumption which implies that longevity has no effect on c and we

introduce as argument of $R_i(\cdot)\, z/h$, the fraction of lifetime devoted to work. The problem for each individual facing a tax function $T(w_i\ell_i, z_i)$ is now:

$$Max\ \ hu\left[\frac{w_i\ell_i z_i - T(w_i\ell_i, z_i)}{h}\right] - v(\ell_i)\, R_i\left(\frac{z_i}{h}\right).$$

At first sight, one would expect an increase of ℓ_i and z_i, the relative importance of which depends on the second derivatives of u, v and R_i. It is realistic to expect that for "healthy" workers the adjustment will entail postponing retirement rather than lenghtening the work week. However for "unhealthy" workers for which $R''(z_i/h)$ could be tend to infinity for z_1 reaching a certain limit, the only adjustment could go through higher ℓ_1 and lower c_1. The constraint will be binding for the second-best policy.

As a consequence, increased longevity could imply a wider range of retirement ages. At the top, type 3 individuals would work longer without distortion and at the bottom type 1 individuals would have a relatively shorter work career but at the expense of lower consumption and a longer work week.

6 Conclusion

During the last few decades many European countries have expanded their social security systems in ways which have discouraged labor market participation in old age and thus induced retirement. This tendency coupled with a steadily increasing longevity, threatens the financial viability of PAYG pension systems.

In a first-best world one would clearly aim at later retirement, particularly for productive and healthy workers. In a second-best world, wherein both productivity and capacity are not observable, the trend towards early retirement is partially unavoidable. More importantly, long due reforms are effectively opposed by particular interest groups more concerned with their own entitlements than with public interest.

The type of reforms that are called for, and which have been conducted in countries such as Sweden, scale down the non contributory part of the public pension system. Even though they can be shown to be Pareto improving in the steady-state, they involve less redistribution and lower utility for the poor workers in the transition period.

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	1995					2050				
	Fraction of people at least aged									
Countries	50	60	70	80	90	50	60	70	80	90
Germany	34,6	20,7	10,5	4,1	0,4	47,9	35,0	21,7	10,6	1,5
Spain	31,0	20,6	10,2	3,3	0,4	48,8	37,1	24,7	10,4	1,7
France	29,7	20,0	10,3	4,2	0,6	44,8	33,0	21,0	10,1	2,1
Ireland	24,4	15,3	8,0	2,5	0,3	46,1	33,0	19,9	8,1	1,3
Italy	34,4	22,2	11,1	4,0	0,4	50,7	38,3	26,0	12,0	1,9
UK	31,2	20,5	11,2	4,0	0,5	44,5	31,7	19,6	9,5	1,7
Sweden	33,6	22,1	12,9	4,6	0,6	41,8	29,1	18,1	8,5	1,5
EU 15	32,2	20,6	10,6	3,9	0,5	46,3	33,9	21,7	10,1	1,7

Table 4: Fraction of people aged 50, 60, 70, 80, 90 in 1995 and 2050 - Source: Calot and Sardon (1999)

	Men				Women			
	Life expectancy		Retirement age		Life expectancy		Retirement age	
	1960-65	95-2000	1960	1995	1960-65	95-2000	1960	1995
Belgium	67.9	73.8	63.3	57.6	73.9	80.6	60.8	54.1
France	67.6	74.2	64.5	59.2	74.5	82.0	65.8	58.3
Germany	67.4	73.9	65.2	60.5	72.9	80.2	62.3	58.4
Ireland	68.4	73.6	68.1	63.4	72.3	79.2	70.8	60.1
Italy	67.4	75.0	64.5	60.6	72.6	81.2	62.0	57.2
Spain	67.9	74.5	67.9	61.4	72.7	81.5	68.0	58.9
Sweden	71.6	76.3	66.0	63.3	75.6	80.8	63.4	62.1
UK	67.9	74.5	66.2	62.7	73.8	79.8	62.7	59.7

Table 5: Longevity and retirement age in the European Union (1960-1995) - Source: United Nations Population Division, World Population Prospects, 1998. Blondal and Scarpetta (1998)

Belgian men: 1970-2050

	I	II	III	IV
	Ratio 60	Ratio based on effective retirement extrapolated after 1995	Ratio based on effective retirement kept at 58 after 1995	Ratio keeping length of retirement constant (17 years)
1970	32.3	24.3	24.3	-
1980	27.7	25.6	25.6	-
1995	32.5	37.6	37.6	37.6
2025	50.1	78.2	58.6	46.1
2050	58.6	105.8	67.4	41.2

Belgian women: 1970-2050

	Ratio 60	Ratio based on effective retirement extrapolated after 1995	Ratio based on effective retirement kept at 58 after 1995	Ratio keeping length of retirement constant (27 years)
1970	43.5	47.1	47.1	-
1980	37.5	47.4	47.4	-
1995	45.7	65.9	65.9	65.9
2025	63.8	130.3	95.6	78.6
2050	78.0	184.5	108.0	70.5

Table 6: Alternative ratios of dependance - Source: Lannoy and Lipszyc (2000)