

The ageing debate in social security: barking up the wrong tree?¹

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I. Introduction

The world's population is ageing, rapidly in Europe and other OECD countries, less rapidly in other regions. As a consequence, social security systems around the world - most notably pension systems are said "to be in trouble" and are described as having "spun out of control".²

This short paper examines the relationship between the ageing process and the alleged financial unsustainability of contemporary social protection systems, which are in many countries around the world, largely based on, or at least influenced by the European model of social protection. This model consists of pluralistic interacting subsystems of tax or contribution financed social security systems providing health care and cash benefits, complemented by tax financed social assistance schemes which provide benefits of last resort to people with insufficient income from work or other transfers. This paper will not analyze whether the introduction of individual savings systems is an adequate replacement for the largely pay-as-you-go financed pension systems but will concentrate on the diagnostic state of a social security reform process before advocating remedies.

It is attempted here to underpin the debate on the potential effects of ageing with some quantitative information which is often lacking. A simple modelling exercise will be undertaken which will trace the impact of a fairly rapidly ageing population on a typical social protection system. Ageing is a world-wide phenomenon. The process shows the biggest momentum in Western Europe and Japan. A hypothetical country in Western Europe has been chosen as an example of a rapidly ageing society. This does not mean that the exercise is irrelevant for countries in other regions. It must be expected that this exercise foreshadows a development that other countries will probably experience some decades later assuming that their social protection systems follow the "European Model". Eastern European countries are probably the group of countries which will face increasingly ageing population. Other countries in other regions will follow shortly thereafter.

In a two-step analysis the paper will demonstrate two points:

- If retirement ages and labour force participation rates were to be increased in an ageing society, the demographic burden of the social protection systems (as described by the number of persons in pension age divided by the number of potential contributors) could almost be kept at the present levels throughout the next century. There is thus no real demographic constraint on the supply of labour which would prevent a smoothing of the expected demographic burden. The critical question is, whether the economies can absorb the additional supply of labour. *The ageing problem thus translates into an employment problem.*

² cf. World Bank: *Averting the old-age crisis - Policies to protect the old and promote growth*, Washington DC, 1994

· *If the economies cannot absorb the additional supply of labour, the above employment problem turns into a financing problem.* Even if the economies cannot absorb an additional supply of labour, but manage to maintain at least the present employment level, the present social protection systems can most likely be kept financially sustainable by "gentle steering" through adequate policy measures. A radical restructuring of the systems would not be necessary.

II. The exercise

In order to demonstrate the effects of ageing on the demographic and financial structure of a national social protection system, a model population has to be defined and in a second step a comprehensive social protection system with a typical expenditure pattern has to be determined.

The analysis of the impact of ageing cannot be confined to pension schemes. It is misleading to equate the impact of ageing solely to its repercussions on the old-age pension system. While old-age pensions are the biggest single expenditure block within every national social protection system and the sensitivity of old-age pension systems to increases in the number of old people is obvious, all other social protection subsystems (such as survivors and invalidity pensions, family benefits, health care, unemployment benefit and others) also react to a changing age structure of the population.

In addition, assumptions on the future economic development have to be made. In the final analysis, it is the level and development of national income, together with societal value systems (i.e. the willingness of those with primary incomes to share with those without primary incomes) that determine how much social protection expenditure is economically and politically sustainable.³

³ There are no hard and fast rules as to how much social protection a country can afford. Limits of sustainability of social expenditure are clearly not defined by absolute normative expenditure limits but by financing constraints which are in turn defined by limits of solidarity in each society. cf. Cichon and Hagemeyer: "Social protection expenditure: A review of macro-economic issues", Social protection in Europe: Financing and coverage. ILO, Geneva 1995.

1. EUROLAND - A model country in ageing Europe

In order to avoid a distortion of the analysis and the debate by specific atypical national social protection provisions, a hypothetical country, here called Euroland, has been constructed as a "laboratory" for this exercise. In 1995, the starting point of this analysis, Euroland has the demographic structure of the Netherlands. The population is then projected for 120 years (from 1995 to 2115) based on mortality and fertility developments assumed again for the Netherlands by the UN⁴, as well as the general pattern of the UN standard life tables. To simplify the social security projections it has been assumed that the active population in the country is retiring at age 60 which is a fair approximation of the *de facto* low actual average retirement age in Western Europe.⁵ It is then assumed that the social protection expenditure in our model country is identical to the of average social expenditure structure in the European Union⁶ in 1991.

The exercise is undertaken in two stages. First, the development of the classical old-age dependency rates (i.e. the ratio of potential pension beneficiaries to the population in active age or the active population) is examined and then the impact of the demographic structure on the overall social expenditure is demonstrated by model calculations - based on a set of careful assumptions - which project the 1995 social expenditure structure till 2115. Not all model results and sensitivity tests which were undertaken during the modelling process can be described here in full detail. The following section concentrates on the interpretation of the major results.

2. Classical demographic dependency ratios, pension age, labour force participation rates and employment levels

Demographic dependency

Graph 1 demonstrates the development of the classical demographic old-age dependency rates, i.e. the ratio of the number of persons in the age group 60 and over, to the number of people between the ages of 20 and 59. The curve is familiar and dramatic, indicating more than

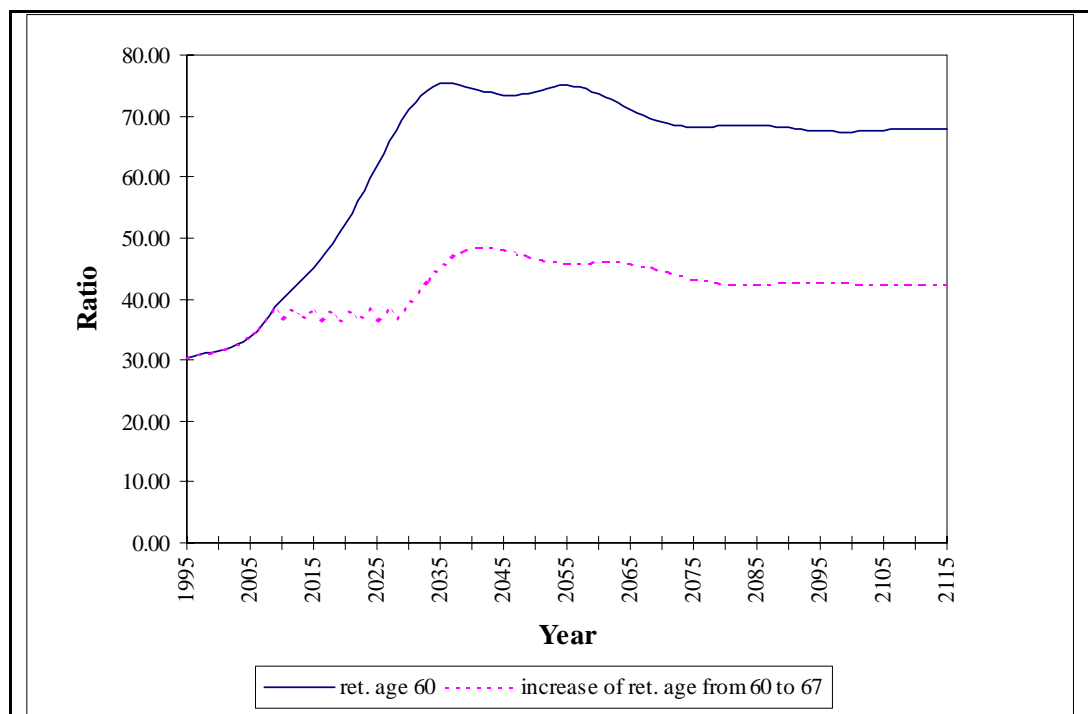
⁴ cf. United Nations: Department for Economic and Social Information and Policy Analysis: World Population Prospects - The 1992 Revision, New York, 1993.

⁵ The relatively low *de facto* retirement age is a consequence of early retirement provisions as well as pre-retirement arrangements or the use of the invalidity outlet to leave the labour market. In total these effects lead to a *de facto* retirement age which is substantially lower than the legal retirement age.

⁶ Commission of the European Communities: Social Protection in Europe 1993, Luxembourg 1994.

a doubling of the demographic dependency ratio within the next 35 to 40 years. Curves of this category often deliver the justification to predict a doubling of the pay-as-you-go contribution rates within the next four decades. But, the second line on the chart already indicates a solution to the demographic problem: a rise of *the de facto* retirement age of 60 to about 67, phased in gradually - after a due period of notice - over 21 years from 2010. The effect is substantial. It shifts down the old-age dependency rate at the peak (around 2035) by about 30 %-points. Age 67 has been chosen to define a probable upper limit for average national retirement ages in the future.

Graph 1: Long-term development of demographic dependency ratios, Euroland, 1995 - 2115



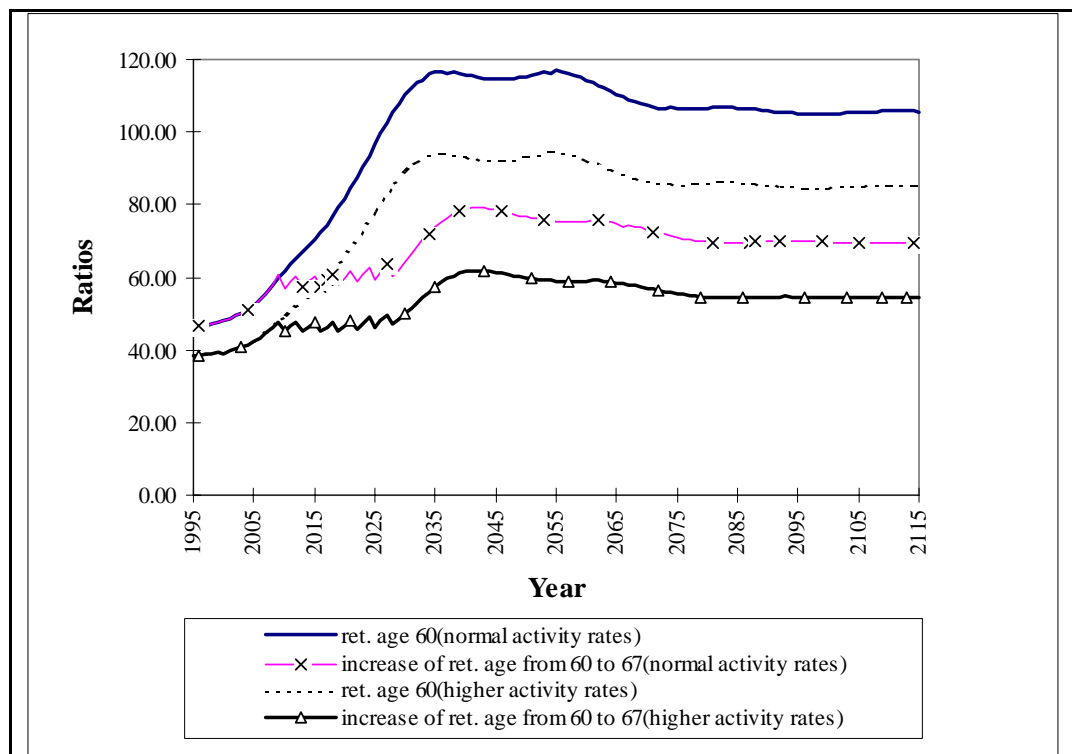
System dependency

However, it is not the pure demographic dependency rate which determines the financial status of an old-age pension system, but the ratio of the number of pensioners to the number of actually contributing population. In a first approximation, this system dependency ratio was here estimated by dividing the total population over 60 by the number of economically active persons in the age group of 20 to 59. Curve No.1 in Graph 2 maps this ratio. It shows the same familiar dramatic pattern as the above pure demographic scenario. Curve No.2 again shows the reduction effect due to the increase of retirement age.

The most interesting effect is however demonstrated by curve No 3. This curve assumes that the labour force participation rates of women can be brought up to those of men, except for

the child-rearing age groups of 25 to 39. This shifts down the system dependency rates again.⁷ In fact, if one could increase female participation rates and increase retirement age to 67 or even 65 gradually during the next three decades, then the system dependency rates throughout the coming decades could almost remain constant. Hence, the ageing problem in Euroland, however dramatic it appeared at the outset, would disappear as a consequence of increased retirement age and increased labour force participation.

Graph 2: Long-term development of old-age system dependency ratios, Euroland, 1995 - 2115



⁷ For the purpose of this analysis it has been assumed that all persons above age 60 receive a pension from the pension system. The increase in labour force participation, i.e. implicitly the increase in the future number of contributors thus does not affect here the number of future beneficiaries.

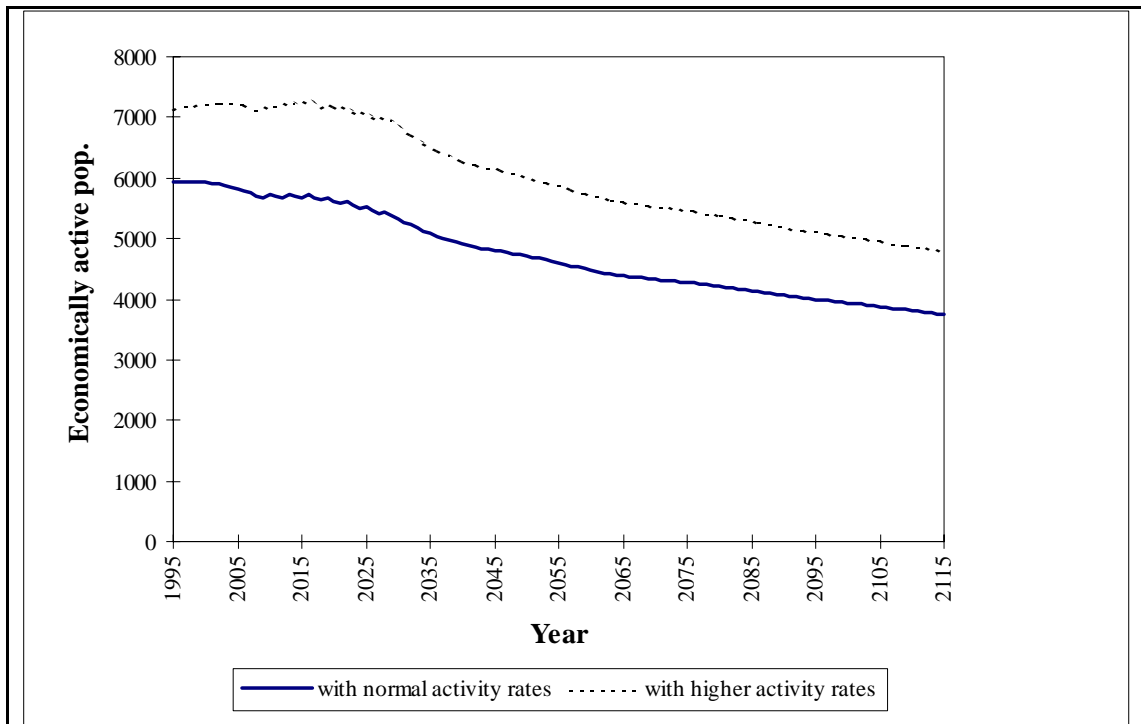
The increase of retirement age by *de facto* seven years to be completed during the next three decades might appear too drastic, but it does not seem to be unreasonable to expect generations which decide to reduce the number of their children below replacement level, to compensate the loss of labour supply by a longer working life. Generations with fewer children have to stay young longer. While it is clear that increased retirement ages cannot be prescribed for all jobs and all categories of insured persons, the increasing life expectancy at old ages as well as the improving health status appear to make a decisive upward shift of the average retirement age feasible. It might be necessary to phase this shift in more gradually but this would not fundamentally change the above diagnosis. The substantial increase of female labour force participation rates, except for women of child rearing ages, would also at first sight seem to be an over-optimistic assumption. However, the resulting participation rates for women in our model country would not be substantially different from female labour force participation rates already observed today in Sweden. Labour force participation trends in Europe during the last three decades also indicate that further improvements might well be expected.

The employment connection

The above results could even be improved if one could abolish today's level of unemployment (which presently stands at about 10% of the labour force) and add the unemployed to the group of contributors. This leads directly to the fundamental uncertainty of the above exercise.

The key question is: Can the labour market absorb the additional supply of labour that results from the upward shift of the retirement age, and the potential increase of labour force participation rates? Graph 3 demonstrates that the increase of the retirement age in Euroland has been phased in such a way (after 2110) so as not to increase the present level of labour supply (given present activity rates). A major proportion of the ageing problem could hence be solved if the economy could simply maintain the present level of employment. But an upward shift of female activity rates, which would be needed to fully stabilise old-age dependency rates at the present level and hence virtually solve the ageing problem completely, would shift up the labour supply compared to the present level for about half a century. One might have doubts as to whether this additional supply of labour can be absorbed into gainful employment.

Graph 3: Development of the economically active population, Euroland, 1995 - 2115



The alleged ageing problem hence translates into an employment problem. This leads straight into the debate on economic and social policy in the European model. This economic model relies on high productivity, high wages and high competitiveness in world markets. Partly due to the desire to achieve ever increasing productivity - in particular after the oil shocks in the 1970s - the model has created excess supply of labour in most European societies during the last two decades. Excess supply of labour has been financed by the social protection system, i.e. the unemployment benefits systems and the social assistance systems, but also to a considerable extent by the pension systems through earlier retirement and higher invalidity. So far, the gains from increased productivity seem to have outweighed the cost incurred through the financing of excess labour supply through the social protection system. Moreover, the overall welfare level of the societies has been increasing or at least not declined.

Again it is the European economic model developed during the decades after the second world war which has, to a large extent, dominated and determined the present role and expenditure of national social protection systems, and will continue to do so in the future.

However, if the European economies face increasing competition from overseas in many of their major markets, and are they are no longer able to protect their markets, economic growth in Europe might slow down or even come to a halt in many countries. This means that these economies are probably not able to absorb additional supply of labour created during the next decades due to an increasing retirement age or due to increasing labour force participation rates. In the logic of the European model this translates immediately into the question of whether these

economies - if they cannot employ their total labour force - can at least finance the excess supply of labour. This question is synonymous with a more comprehensive one: Are the social protection systems in Europe financially sustainable?

This leads to the second half of the Euroland exercise.

2. Examining the future cost of the "European model" of social protection

In order to answer the above question, the cost of the social protection system has to be projected into the future. While projections over a century can never be exact, they are still needed to establish whether the present social protection systems are at least sustainable under foreseeable developments. If their costs "explode" under conditions which we assume will prevail in the future based on our contemporary knowledge, then it would be irrational to assume that they remain politically and economically sustainable.

Projections need assumptions. Here, the assumed structure of social expenditure will be projected on the basis of the population projections discussed in the previous section under two sets of assumptions. The first set maps out a fairly careful economic scenario, the second set defines future benefit levels and expenditure.

(1) Economic scenario assumptions

The present level of employment in Euroland remains constant until the labour force of the shrinking population reaches today's employment level. After that, the level of employment is identical to the (shrinking) labour force. Technological progress and international competition will most likely lead to further increases of the productivity of Euroland's workforce. At constant employment levels increasing productivity would lead to real economic growth. In order to avoid a too optimistic picture, the level of real GDP was kept constant throughout the projection period. Together with the above employment assumptions this implicitly leads to the assumption that productivity increases translate into reduced working hours per worker until the point in time when the total number of employed workers is equal to the labour force (i.e. unemployment is abolished in calculations as a consequence of the demographic development). After this demographic "break even point" modest productivity increases per capita will be realized since a constant GDP has to be produced by a shrinking labour force. On balance these assumptions seem to be pessimistic rather than optimistic.

(2) Social protection assumptions

The real level of all per capita social protection benefits is kept constant at the present level and the development of the number of benefit recipients follows the conditions set by the labour market and the demographic structure. In more detail this means:

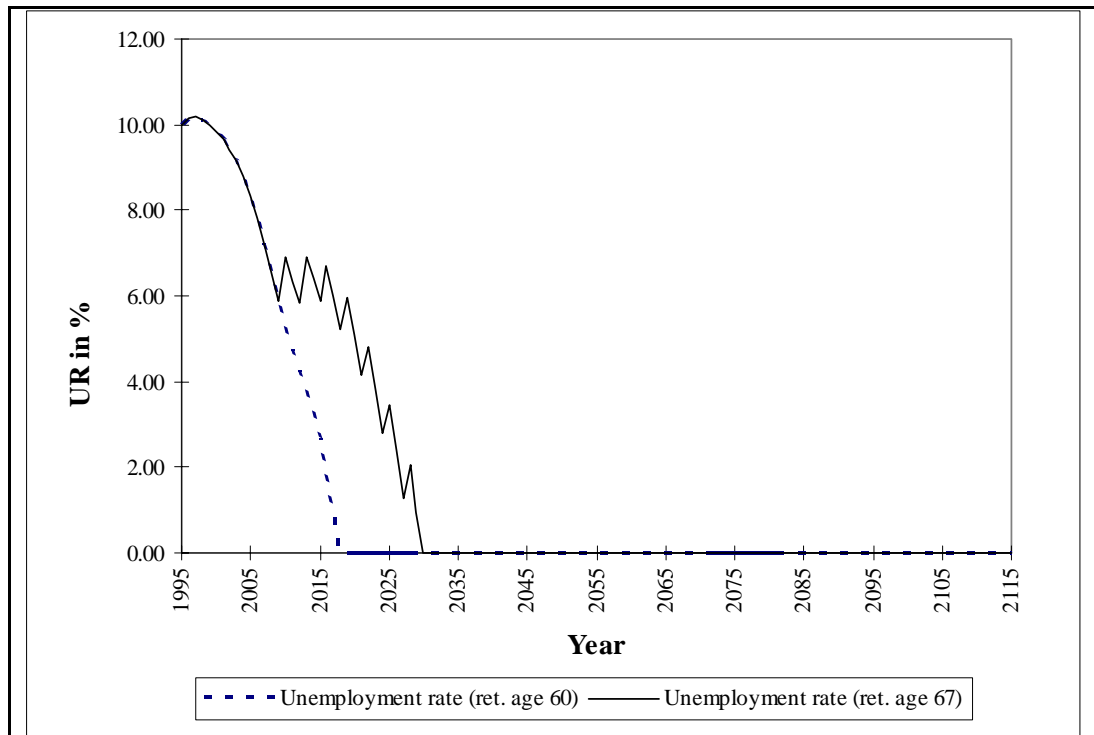
- 2.1 Expenditure on old-age pensions increases in line with the number of persons over retirement age.
- 2.2 Expenditure on invalidity pensions increases in line with labour force and expenditure on survivors' pensions increases in line with the non-active population over the age of 20.

- 2.3 Expenditure on health care increases as the population ages (it is assumed that persons over 60 consume about twice as much health services and health care goods as persons under age 60).
- 2.4 Expenditure on family benefits moves with the number of persons under the age of 20.
- 2.5 Unemployment benefit expenditure follows the projected number of unemployed.
- 2.6 Other benefit expenditure (notably social assistance, housing assistance and some other income related benefits) is indirectly proportional to the development of per capita GDP.

Two scenarios are analyzed. The first projects the development of social protection expenditure (in terms of shares of GDP) under the present pension age, and the second assumes a phased increase of the retirement age to 67 after 2010. No increase of labour force participation rates was assumed, since it appears unlikely that labour force participation would increase noticeably when unemployment is high over a long period.

Graph 4 describes the development of the unemployment rate (assumed to be initially 10%) under the above economic conditions and the two retirement age alternatives. It is obvious that the demographic development will theoretically and under status quo conditions abolish unemployment before the middle of next century, but under the retirement age 67 variant the process of abolishing unemployment will take substantially longer (10 to 15 years). In reality unemployment will not disappear completely, as labour market restructuring processes will always lead to frictional unemployment. This generally low level of unemployment has been ignored here.

Graph 4: Projected long-term development of unemployment in Euroland, model calculations, 1995 - 2115



Expected development of total social expenditure

Table 1 depicts the results of the expenditure projections for constant real 1995 GDP levels under the two variants:

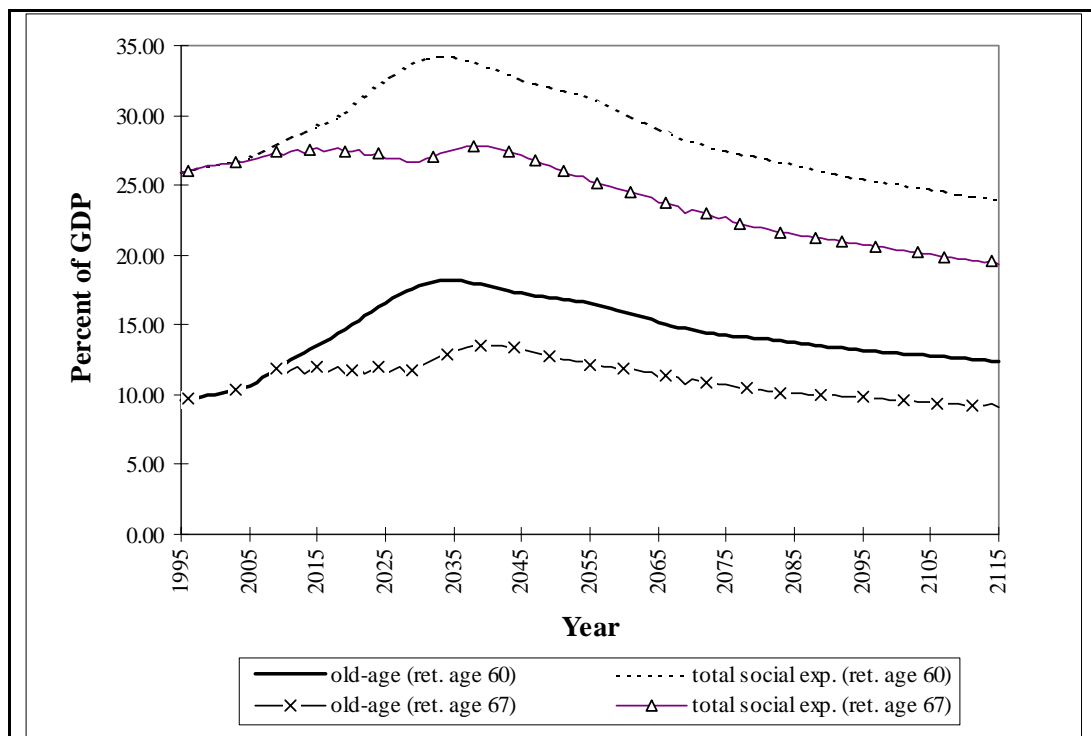
Table 1: Projected development of total social expenditure in Euroland, GDP shares, 1995 -2115

| Base scenario Retirement age 60 | | | | | | | | | | | | | |
|--|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| year | 1995 | 2000 | 2010 | 2020 | 2030 | 2040 | 2050 | 2060 | 2070 | 2080 | 2090 | 2100 | 2115 |
| Health | 6.5 | 6.6 | 6.8 | 7.1 | 7.3 | 7.1 | 6.8 | 6.5 | 6.1 | 5.9 | 5.7 | 5.5 | 5.2 |
| Old age | 9.6 | 10.0 | 12.2 | 15.0 | 17.8 | 17.8 | 16.9 | 15.9 | 14.6 | 14.0 | 13.5 | 13.0 | 12.4 |
| Surv. | 2.1 | 2.2 | 2.1 | 2.2 | 2.0 | 2.1 | 1.9 | 1.7 | 1.6 | 1.5 | 1.4 | 1.3 | 1.2 |
| Inv. | 2.3 | 2.3 | 2.2 | 2.1 | 1.8 | 1.7 | 1.7 | 1.6 | 1.5 | 1.5 | 1.4 | 1.4 | 1.3 |
| Family | 1.6 | 1.6 | 1.5 | 1.4 | 1.4 | 1.3 | 1.2 | 1.2 | 1.2 | 1.1 | 1.1 | 1.1 | 1.0 |
| Unemp. | 2.0 | 2.0 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| others | 1.8 | 1.8 | 1.8 | 1.7 | 1.7 | 1.7 | 1.6 | 1.5 | 1.5 | 1.4 | 1.4 | 1.3 | 1.3 |
| Total | 25.9 | 26.5 | 27.6 | 29.4 | 32.0 | 31.7 | 30.2 | 28.4 | 26.6 | 25.4 | 24.4 | 23.6 | 22.4 |
| Retirement age 67 Scenario | | | | | | | | | | | | | |
| year | 1995 | 2000 | 2010 | 2020 | 2030 | 2040 | 2050 | 2060 | 2070 | 2080 | 2090 | 2100 | 2115 |
| Health | 6.5 | 6.6 | 6.8 | 7.1 | 7.3 | 7.1 | 6.8 | 6.5 | 6.1 | 5.9 | 5.7 | 5.5 | 5.2 |
| Old age | 9.6 | 10.0 | 11.4 | 11.8 | 12.0 | 13.6 | 12.7 | 11.9 | 11.1 | 10.3 | 9.9 | 9.6 | 9.1 |
| Surv. | 2.1 | 2.2 | 2.1 | 2.2 | 2.0 | 2.1 | 1.9 | 1.7 | 1.6 | 1.4 | 1.3 | 1.3 | 1.1 |
| Inv. | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.0 | 2.0 | 1.9 | 1.8 | 1.8 | 1.7 | 1.6 | 1.6 |
| Family | 1.6 | 1.6 | 1.5 | 1.4 | 1.4 | 1.3 | 1.2 | 1.2 | 1.2 | 1.1 | 1.1 | 1.1 | 1.0 |
| Unemp. | 2.0 | 2.0 | 1.3 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| others | 1.8 | 1.8 | 1.8 | 1.7 | 1.7 | 1.7 | 1.6 | 1.5 | 1.5 | 1.4 | 1.4 | 1.3 | 1.3 |
| Total | 25.9 | 26.5 | 27.2 | 27.4 | 26.7 | 27.8 | 26.2 | 24.6 | 23.2 | 21.9 | 21.1 | 20.4 | 19.4 |

Source: ILO / SECFAS model calculations

The first column for 1995 reflects the assumed average EU pattern of social protection expenditure.⁸ The overall level of social expenditure in EU countries presently centres around 26% of GDP. Graph 5 traces the most important developments. i.e. the overall social expenditure under the two options as a share of GDP as well as the development of the cost of pensions also measured in GDP shares.

Graph 5: Projected development of total social expenditure and old-age pension expenditure as a share of GDP, Euroland, 1995 -2115



⁸ Sensitivity tests with alternative distributions of overall national social protection expenditure which placed slightly more emphasis on health care and family benefits, were also undertaken. They were found to only have a marginal impact on the long-term overall cost of the system.

Total social expenditure peaks under both scenarios between 2040 and 2050. The peak of the base case scenario is about 23% higher than the present expenditure level. This may sound substantial but is rather good news compared to the 150% increase which Graph 1 maps out for the pure demographic old-age dependency ratio during the same period. The difference between the two figures indicates clearly that cost trends of the social protection system should not be equated with the development of simple demographic developments. The expenditure peak still remains within the range of the highest national social expenditure figures measured in 1991 (e.g. for Denmark, France and the Netherlands).

The scenario with the retirement age at 67, would only lead to an expenditure peak which is about 7% higher than the present level, a difference that is within the margin of uncertainty of projections for a complex financial system such as a national social protection system over a time span of more than a century.

In the long run, the demographic development, despite an increasing average age of the population, would lead to an even lower overall national social expenditure, or at least a return to the present level, which is a direct consequence of the implicit productivity assumptions made towards the end of the projection period. Other model runs show that with a more optimistic assumption on growth (like, for example, 1% over a period of 10 years and marginal productivity improvements) the peak expenditure could be substantially lowered provided that benefit levels were kept constant.

All of the above simulations ignore the future development of migration. The size of immigration into the European countries is difficult to predict as it depends on a variety of different factors, but since normally younger age groups migrate, migration can be expected to have a further mitigating effect on the age-related social expenditure impacts, at least for some decades.

Shifts in the social protection expenditure and policy responses

Each social protection system consists of a portfolio of benefits. For some benefits the expenditure increases directly with ageing (notably old-age pensions), while others (like family benefits, invalidity and unemployment) are expected to decrease as population ages and hence compensate for some of the increase of the expenditure for old-age pensions. The impact of ageing on the overall national social expenditure, even in rapidly ageing Europe and even with the prevailing rather low *de facto* retirement ages, is thus considerably less dramatic than often quoted. However, the structure of social expenditure will in future be increasingly skewed towards higher expenditure for old-age income maintenance. This requires a series of policy actions to achieve the necessary shifting of resources between different institutions in the overall national social protection system. Shifts which will reflect the different needs of cash and in-kind benefits of an older population. This is far from easy but is certainly achievable.

A sensitivity test with a lower growth scenario was undertaken. The result was an expected increase of overall social expenditure. However, a gradual reduction of benefit levels by 10% (which could be achieved for example by a less than full inflation indexing of benefits for a number of years) would reduce the peak burden to a level which is only slightly

higher than the present level in the standard scenario. In the scenario with the retirement age set at 67, the peak would even be identical with the 1995 level of expenditure. This demonstrates that relatively "gentle policy measures" could be designed to cushion the effect of adverse economic developments.

The ageing of a society requires a variety of structural adaptations in the economy and in the benefit delivery system of the social benefit system. Changes in the social system range from a contracting educational system to a modified health care system, from the expansion of capacities for long-term institutional and ambulatory care to the extension of retraining facilities for older workers. Industrial production and the service sector will have to adapt to the changing consumption pattern of an ageing population. Many other structural impacts of the demographic change on the economy can be quoted. Most of these changes will create additional demands and require investments. Many of them will require additional social sector employment, which will help to stabilize the overall employment level, even at a lower level of measured productivity. As the competition on world markets will require Europe and other maturing economies and societies to develop increasingly sophisticated products and services for which there will be a limited world-wide demand, a contraction of the labour force during the coming decades might even be welcome.

The analysis shows that there are social policy measures which can keep national social expenditure at the present, or slightly higher level, provided that the present level of employment can more or less be maintained till the demographic development helps to release some of the pressures on the labour market. Most European economies have increased employment levels slightly during the 1980s and 1990s. The volume of hours worked, however has declined, which points to another policy option to soften possible pressures on present employment levels: the sharing of work among more heads. Whether this sharing of work has to be "bought" by lower per capita disposable incomes is difficult to predict.

III. Conclusions

All this is, of course, only a model analysis, and in addition even a simple one, but all our decisions affecting longer-term future developments, such as the reform of national pension systems, are inevitably based on assumptions and expectations, and hence, on models. And the recipes that are presently often put forward as solutions for the alleged inevitable cost explosion in the social protection systems are often even more simplistic.

What is the answer to the key question as to whether the European economic model can sustain the European social protection model in view of ageing societies? The answer depends on whether the societies can maintain the present or a slightly lower level of employment. There is no reason to assume that they cannot. Ageing will trigger a shift in the composition of national social spending but it is in itself no threat to the sustainability of the systems. It was demonstrated that there is a variety of policy instruments which can effectively and flexibly contain the costs of national social protection systems. Many of these instruments are already being applied. Health care costs have effectively been contained in many countries, retirement ages are increasing, benefit levels are reviewed, and administrations are streamlined. The policy reality in Europe shows on a day-to-day basis that the systems have never "spun out of control" and have always fulfilled their social

mandate, while at the same time, being charged with facilitating economic restructuring.

However, the policy decisions which have to be made to accommodate coming structural changes in the economy and in society will be formidable. *There is no old-age crisis, but there certainly is an employment and public policy challenge.* There might be other reasons to opt for a different social protection system, for example, a system which reduces the reliance on societal solidarity in favour of greater personal responsibility through personal savings. One of these reasons may be that additional savings are needed to fuel future investments and hence world-wide economic growth. If this is the objective of social policy reforms, it should be clearly stated. Ageing should not be used as an excuse to discredit and consequentially dismantle the existing social protection systems, in order to replace them by systems which serve a different purpose.

Those who stare at the changing pattern of the "population tree" and conclude quickly and with a dose of Populist bravado that the present social protection has to be changed radically, are simply barking up the wrong tree.

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