

# Ageing, Health and Pensions in Europe: An Economic Perspective



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# 1. Introduction

The ageing of populations is one of the main economic and social developments shaping the 21<sup>st</sup> century. Figure 1 shows that in all OECD countries the ratio of the population of 65 and older (assumed to be economically inactive) to the labour force is expected to rise substantially, from an average of 27.2 in 2000 to an average of 62.3 in 2050. Ageing fundamentally affects households as well as the European welfare states, for example through social security provision and health care. Globalisation and population ageing already exert large pressures on our welfare states, necessitating reform of pension and health care systems in many countries. This will impact European labour markets and the well-being of European citizens. Ageing and its impact on social systems is listed as one of the five major trends in society in the METRIS report of the European Commission (European Commission, 2009).

The aim of the ESF Forward Look project ‘Ageing, Health and Pensions in Europe’ was to exploit the diversity in Europe to understand better the key relationships between demographics, welfare regimes, pension provision, public health, employment, income security and

well-being in a cross-national framework from a broad economic perspective, accounting also for insights from the other social sciences. It intended to stimulate scientific research that would add cutting-edge scientific knowledge on the core topics of the European economic and social policy debate.

The Lisbon agenda designed an ambitious programme to improve Europe’s lagging growth performance. Empirical evidence suggests that population ageing could weaken Europe’s welfare unless Europe succeeds in activating its ageing population. Yet, ageing clearly also yields opportunities and benefits. People can enjoy life longer. In addition, lower birth rates and improved education enable women to have a higher and fuller participation in the formal labour market. At the same time, ageing calls for social innovation. How can our societies benefit longer from the talents of older people, and how can human resources be maintained better during the entire life course? How can a longer life be exploited to allow parents to combine a career and parenthood? How can income security and well-being of older age groups be guaranteed?

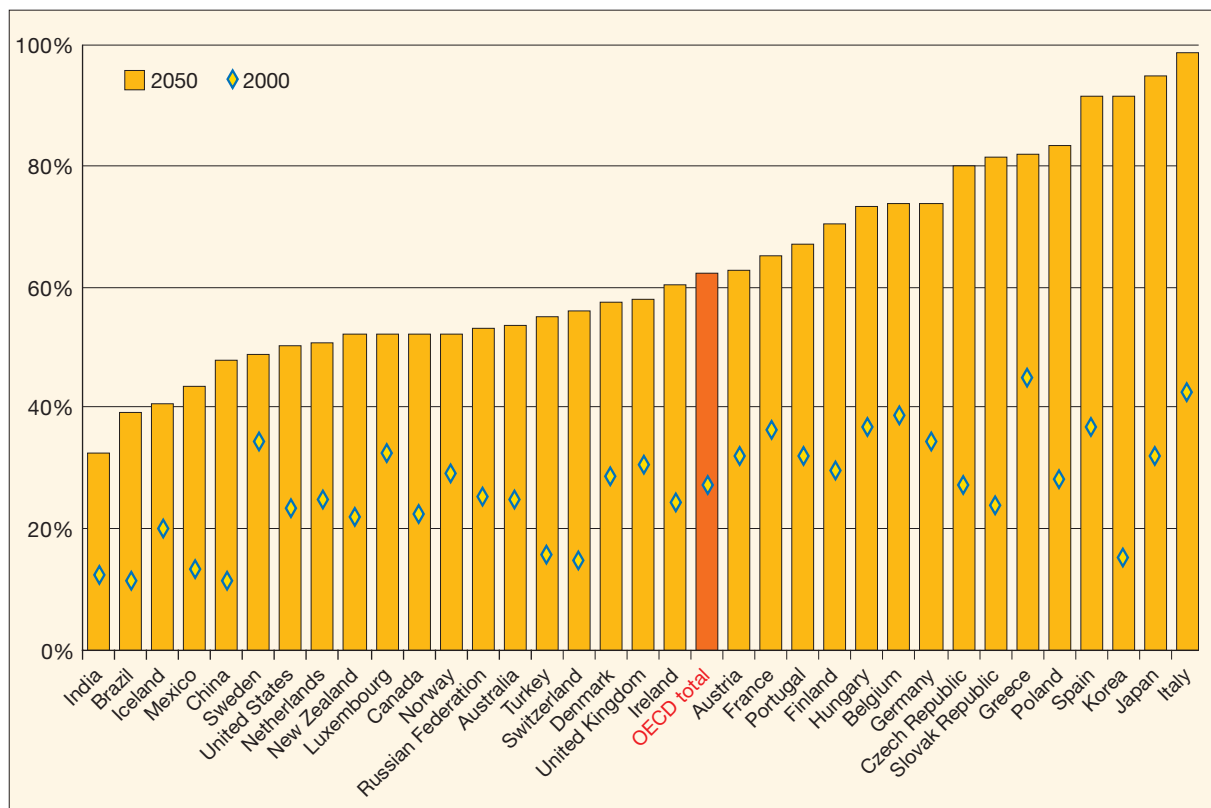


Figure 1. Ratio of the inactive population aged 65 and over to the labour force. Source: OECD (2009).

# 1. Introduction

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Many studies have analysed the impact of ageing on adequate provision of health care and pensions. They vary from studies that look at individual behaviour and individual well-being to studies that explore the changing roles of institutions like banks, pension funds and insurance companies; the consequences for government budgets and public finances; and the macro-economic consequences of ageing in an international context, including spill-over effects from other countries with different institutions and demographic compositions.

Understanding the impact of population ageing on our societies and in particular on European welfare states benefits from a cross-national comparative point of view, since comparing different policy approaches and, particularly, exploring the consequences of various policy changes in different institutional and business cycle environments helps greatly to learn about the impact of policy. This report aims at setting out a research agenda that exploits the diversity of European pension and health systems to study causal links between institutional arrangements, individual decision making, labour force transitions, financial security and general well-being of older age groups, and health outcomes. A key feature is to integrate economic, psychological, sociological and epidemiological approaches to individual decision making related to health and pensions, and the implications of this for financial and labour markets, financial institutions and public policy.

The starting point of the analysis is the individual. Understanding how individuals make their decisions and understanding the causal mechanisms that drive their well-being is the key to analysing the functioning of institutions and markets and macro-economic relationships, and therefore also obtaining insight into the potential consequences of policies.

While economic decisions are central to our approach, it is by now well-established that economic decisions cannot be isolated from decisions and environmental factors at other levels and in other domains, implying a large added value for an approach that uses insights from the other social sciences. Individuals are members of households and family networks, of firms and of other organisations, which need to be taken into account as factors driving individual decisions. For example, retirement decisions are not only based upon economic considerations, but also influenced by employer perceptions, attitudes of co-workers, working conditions, job satisfaction, etc. The traditional economic view of a *homo economicus* making individual rational decisions in isolation from other agents fails. This calls for a systematic consideration of sociological and psychological dimensions as well as the interrelations between socioeconomic factors and health. A society achieving

successful ageing is one where older people's well-being is optimised and where older people make the maximum contribution to society as a whole. In this report we will therefore combine insights from many disciplines in economics and the social sciences: micro-economics of individual behaviour; sociological and psychological aspects related to the economics of ageing; the economics of health and health care; financial markets and institutions in an ageing society; and the public policy implications of ageing.

Since several disciplines can give insight into the same policy questions, this report is organised along the lines of three broad policy and research themes rather than along the lines of the disciplines: labour market issues, income security of an ageing population, and well-being of older age groups.

The first theme involves a key policy concern of European policy makers: how to raise the labour-force participation of older workers? Retirement and labour supply decisions of older workers are core issues of micro-economic research. Factors like quality of work, health status, social networks and peer group behaviour are important as well – showing that psychology and sociology have a lot to say about this. Also health plays a major role, e.g., through work disability, morbidity or expected longevity. Public policy determines the economic environment under which decisions are made, and trades off insurance of idiosyncratic risk against moral hazard in terms of disincentives to work and maintaining human capital. Moreover, retirement decisions also have implications for public policy. The demand side of the labour market is equally important, particularly when the supply is being increased. How can the productivity of older workers be maintained? How can existing stereotypes and prejudice towards older workers be eliminated? How effective are laws against age discrimination or public campaigns to promote the image of older workers? Which demand-side adjustments will be necessary to accommodate increased supply of older workers, concerning, e.g., hiring policies, reducing wage costs, training of older workers, using alternative exit routes, accommodating workers with a health problem and facilitating gradual retirement? These adjustments may require changes with substantial macro-economic implications in labour-market institutions.

The second theme, income security, includes everything related to defined-benefit and defined-contribution pension systems, intergenerational risk sharing, individual decisions on pensions and other retirement savings (e.g., portfolio choice, housing), consumption patterns before and after retirement, decisions to annuitise or not, financial knowledge, psychological factors that lead to decisions that are not in the households' own long-run

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interest, etc. It addresses important questions such as how should governments, individuals and financial institutions share the responsibilities for financial security at an older age? Or how should vulnerable groups such as immigrants, women, or low-skilled and low-educated workers be protected against old age poverty?

The disciplines providing insights into this are mainly micro-economics, finance, macro-economics, psychology, sociology and public policy (e.g., through implications of pension systems and pension reforms for income inequality and poverty). Health plays a role through the financial risks of health shocks and health (and work disability) insurance. The theme also includes financing of income in kind, e.g., health care services and old age care. Of course, there are also clear links between this theme and the first theme.

The third theme, well-being of older age groups, not only comprises economic status but is also driven by psychological well-being, family contacts and other social networks and inter- and intra-generational transfers, time use and satisfaction with daily activities (including paid work and volunteer work), social exclusion, physical and mental health (and health behaviour and prevention), availability of formal and informal long-term care and other aspects of the health care system. It addresses questions like what is an appropriate European model for the organisation and financing of long-term care? Or how can the social productivity (e.g., volunteer work, participation in social organisations, informal care tasks) among older people be augmented? It combines insights from health, sociology, psychology, micro-economics and public policy (such as long-term care insurance). Macro-economic implications of ageing for government budgets may also have substantial consequences for the well-being of older age groups.

For each of these three themes, this report discusses the most important policy questions and the relevant scientific developments until now. It then identifies the gaps in current scientific knowledge and the challenges for research in the next five to ten years. This is done in Chapters 2-4. In Chapter 5, some relevant current European research networks are described and an analysis of strengths, weaknesses, opportunities and threats (SWOT) analysis is presented of European research on these themes. Moreover, a road map is sketched of European research that can fill many of the gaps identified in Chapters 2-4, emphasising the feasibility of fruitfully addressing the identified research challenges, the data requirements and the need for research cooperation at the European level, and the steps needed to make progress.

## 2. The Labour Market Position of Older Workers

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Figure 2 presents employment rates by gender for the age group 50-64 in EU countries in 2005. The figures show large variation in participation rates across countries, and understanding the factors that lead to this variation may help to design policies that can increase participation in this age group.

Keeping older workers employed is at the heart of the public policy debate on the economic consequences of ageing and the sustainability of pension systems. Many existing studies focus on the consequences of financial incentives and other factors for labour supply of older workers and this seems relatively well understood. There appears to be common agreement that financial incentives have a strong effect on whether older people are willing to work, provided that other factors like health, job characteristics and family related tasks such as taking care of parents do not prevent an individual from working. Much less empirical research is done on the demand side of the labour market, which becomes particularly relevant if policy measures stimulating supply become effective.

The Forward Look's work on this theme was organised in three parts. The first part looked at the economic and non-economic determinants of labour supply,<sup>1</sup> while the second focused on the demand side.<sup>2</sup> The third part explored supply, demand, productivity and investment in human capital from a macro-economic perspective.<sup>3</sup>

### 2.1 Policy questions

The main policy questions concerning labour supply, labour demand, the productivity and skills of older workers and the consequences for the European economy and society identified in the project were the following:

- ***Which economic and non-economic factors drive labour supply of older workers?***

Studies on the consequences of introducing and abolishing generous early retirement arrangements in many countries have shown that retirement decisions are sensitive to financial incentives. Other factors that matter are health, job characteristics and job satisfaction, family considerations and cultural or peer group effects, but their quantitative importance is not yet clear and policies focusing on these other factors largely remain to be designed.

1. See the Forward Look paper by Arthur van Soest, 'Labour supply and employment of older workers.' All Forward Look papers can be downloaded from the website of the final conference: <http://www.netspar.nl/events/2009/forward/program/>

2. See the Forward Look paper by Amilcar Moreira, Brendan Whelan and Ashgar Zaidi, 'The demand for older workers.'

3. See the Forward Look paper by Bas Jacobs, 'Human capital, retirement and pension saving.'

- ***What are the advantages and disadvantages of gradual retirement, for workers, employers and the macro-economy?***

Gradual retirement, in the form of either phased retirement reducing hours in the career job, a less demanding bridge job or self-employment, is more common in the US than in Europe. It potentially offers an opportunity to keep people attached longer to the labour market.

- ***What are the consequences of working longer for well-being at an older age?***

It seems clear that working longer may reduce old age poverty if it also leads to higher pensions, but studies on the consequences for, e.g., health and cognitive skills seem inconclusive.

- ***How can negative attitudes towards older workers be eliminated among employers?***

Negative stereotypes and prejudice against older workers, although they are diminishing, are still strongly embedded in society. Moreover, where employers' perceptions are more positive, those perceptions are often not translated into actions that improve employability of older age groups. How effective are legislation against age discrimination and public campaigns promoting a more positive view of older workers?

- ***What determines labour demand for older workers and how effective are specific policies to increase this?***

Examples of suggested policies are promoting the benefits of an age-diverse workforce to change attitudes and reduce age discrimination; reconsidering the weight of seniority components in wages to bring wages more in line with productivity; and incentives in collective agreements to recruit older unemployed workers and update the skills of workers when they age.

- ***How can life-long learning be promoted in an effective way?***

The effectiveness of investment in skills of older workers depends on how long these workers remain employed, leading to important relations between human capital investment, productivity, retirement saving and early retirement arrangements.

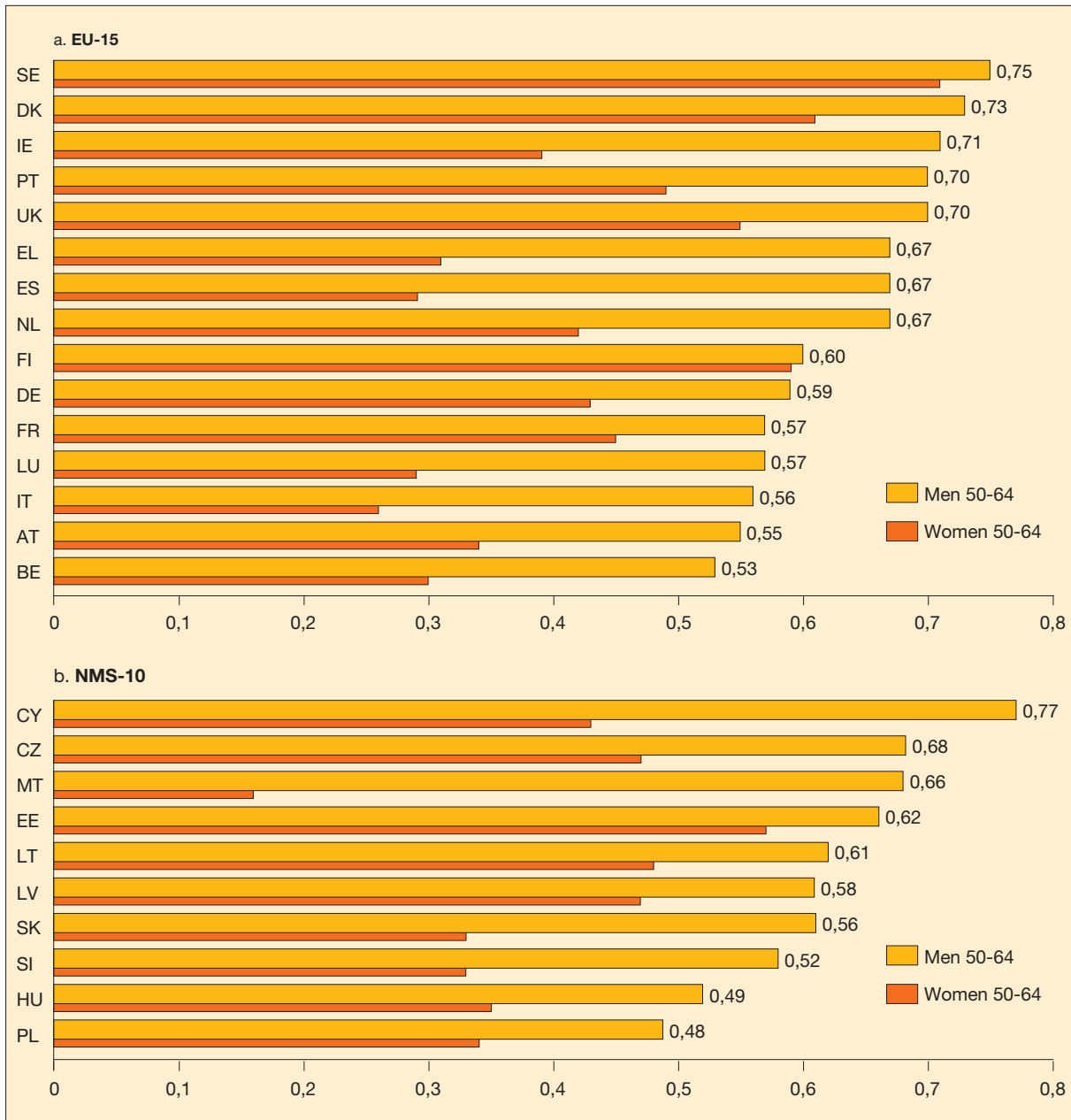
- ***What is the relation between labour market flexibility and the position of older workers?***

Compared to the US, European labour markets are characterised by larger employment protection, less job mobility, longer durations in jobs and lower hiring rates of older workers. Would removing institutional restrictions and increasing flexibility improve the position of older workers?

- ***Does the economic crisis affect the relevance of existing policy recommendations?***

The increasing unemployment rates (among young





**Figure 2.** Employment rates of older workers (age 50-64) in old (EU-15) and new (NMS) European Union countries, 2005.  
Source: Zaidi, Markovec and Fuchs (2007)

workers in particular) seem to reduce the political pressure on increasing participation of older workers.

- ***Is education the key to the European employment problem in the long run?***

The lower education levels of older cohorts in Europe compared to younger cohorts and to the US could

explain the employment gap of older workers between Europe and the US, although countries like Denmark seem to be able to achieve a high employment rate of unskilled older workers.

## 2. The Labour Market Position of Older Workers

### 2.2 Major progress in understanding<sup>4</sup>

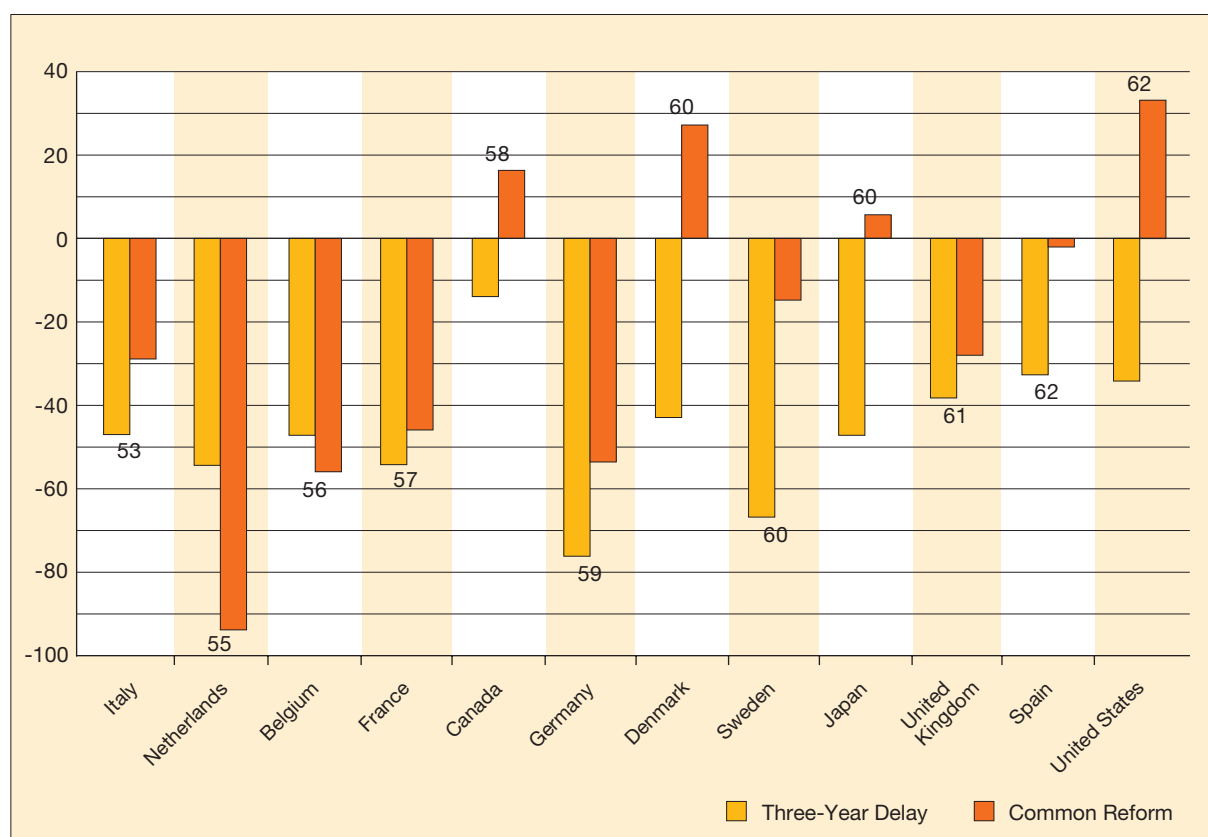
#### Labour supply of older workers

At least three explanations for the large variation in retirement patterns across countries have been given (cf., e.g. Kapteyn and Andreyeva, 2008). The first is financial incentives, emphasised by a group of researchers led by Jonathan Gruber and David Wise, who did country-specific studies using a harmonised methodology (e.g., Gruber and Wise, 2004) and many other studies, evaluating the link between provisions of social security programmes and national retirement patterns. The point of all these studies is that they consider the substitution effect (a higher reward for working longer raises the price of leisure around the retirement age, and therefore reduces the demand for leisure and increases labour supply) as the dominant factor in shaping individual choices in the income-leisure trade-off.

4. See the three Forward Look papers (footnotes 1, 2, and 3) for more details and references.

To illustrate this, Figure 3 summarises the results of simulating two hypothetical pension reforms in twelve countries, based upon a common model estimated for all countries (the Option Value model). The first reform ('Three-Year Delay') shifts all entitlements by three years (if the actual entitlement at age X is Y, the simulation assigns entitlement Y to age X+3). The second reform ('Common Reform') replaces the actual system by an approximately actuarially fair system with normal retirement age 65 and a replacement rate of 60% when retiring at this age, and the possibility to retire as of age 60 with an actuarial compensation of 6% for each year of postponing retirement. The figure shows by how much the percentage out of labour force (OLF) changes for a country-specific age group: the first age at which at least 25% of the workforce is out of the labour force plus the next four years.

The figure shows that retirement behaviour is sensitive to the financial incentives. In all countries except Canada, nonparticipation in the age group considered falls by more than 40% if pension entitlements are shifted by three years. The effect of the common reform depends



**Figure 3.** Simulated change in % out of labour force (OLF) in the year OLF attains 25% plus the next four years. Source: Gruber and Wise (2004, p.34)

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on how different the actual system is from the hypothetical actuarially fair system of the reform; for example, it would have a particularly large effect in the Netherlands, because the common reform does not have the favourable early retirement arrangements of the actual system in the time period considered (1984-1996).

Another explanation for the employment gap between Americans and Europeans is the larger extent to which home production can be substituted with services available in the labour market (Freeman and Schettkat, 2001). In this view, supported with time use data, the total amount of formal plus informal (household) work is the same for Americans and Europeans. The lower tax wedge and wider wage dispersion in the US makes market work relatively more attractive in the US. Choosing market work rather than home production is more rewarding for high-wage earners whose share is larger among women in the US. The higher opportunity cost of time induces more women in the US to choose market work instead of home production.

Alternative explanations for the employment gap between the US and Europe point at differences in preferences or culture (Blanchard, 2004) and the role of institutions, particularly the power of unions (Alesina, Glaeser and Sacerdote, 2005). So-called “work less, work all” policies reduced working hours per person in Europe compared to the US without raising employment, and influenced leisure patterns in society through a social multiplier effect: people enjoy leisure more when leisure of their friends, relatives and social groups increase.

A discussion of retirement patterns also has to consider the role of health. Failing health may lead to retirement (e.g., Kalwij and Vermeulen, 2008). If this were the only mechanism at play then one would expect the increase in population health to be accompanied by an upward trend in retirement ages. Retirement status may also have a (positive or negative) influence on health: it can remove mental stress and physical work effort, but is also a major life event, which in itself creates stress and may reduce health. Existing studies often find a negative effect of retirement on, in particular, mental health (e.g., Bonsang et al., 2007).

An economic framework for studying the relation between health and retirement is the Grossman model (Grossman, 1972) in which individuals derive utility from consumption and health, but where health also influences earnings. Wolfe (1985) and Galama et al. (2008) introduce variants of the basic Grossman model that include a retirement decision. In this framework individuals with lower human capital have fewer resources to invest in health so that their health deteriorates faster, implying that health will be positively associated with income and education. A higher earnings capacity also

induces people to work longer, as observed in many studies. Yet, at the same time improvements in health over time have an income effect that reduces work effort and hence explains trends in early retirement.

### **The demand for older workers**

The demand for older workers can be analysed in terms of the factors that influence job creation and job destruction, the so-called ‘equilibrium models’, or in terms of the factors that drive the hiring decisions of individual firms. Hetze and Ochsen (2005) build on traditional equilibrium models and incorporate the impact of age-based heterogeneity in the labour force on the formation of search equilibrium. They show how ageing affects job creation and job destruction: if older workers are less productive than their younger counterparts, ageing will reduce the number of vacancies, as these would reduce the company’s revenues.

Of the models that predict the demand for older workers from the firm’s perspective, the best known is Lazear’s ‘delayed compensation contracts’ model (Lazear, 1979). Lazear argues that a work contract where the worker is paid less than the value of his/her marginal product at younger ages, and more at later ages, has advantages for both workers and employers. For workers this type of contract will increase their lifetime wealth. Employers, although forced to bear the higher fixed costs associated with delayed compensation, gain from improvements in performance and stronger employee commitment which are induced by the workers’ fear of losing delayed compensation. Mandatory retirement is required as a way of terminating the contractual work, as the worker would not voluntarily retire due to the high wage. In this model, firms avoid hiring older workers, as this will reduce the possible benefits of delayed compensation.

### **Productivity and wages**

A summary of the literature relating age to productivity is provided in Skirbekk (2003), who finds that the evidence suggests a decline in several aspects of physical and mental functioning from around age 50. On the other hand, other studies argue that older workers often rely on their professional experience to adapt and compensate for the decline in physical and mental ability and find no significant difference between the job performance of older and younger workers. Recent studies using matched employer-employee data (e.g., Crépon and Aubert, 2003) suggest that individual productivity does decline in some dimensions with age, but this decline can be partly compensated for by experience, personal aids and suitable workplace adjustments.

## 2. The Labour Market Position of Older Workers

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### **Employer attitudes and age discrimination in recruitment**

Some insight into attitudes and beliefs among the general public is provided by a special Eurobarometer survey (European Commission, 2007). It shows that almost half of the surveyed population feels that a candidate's age is, together with the onset of a disability, one of the most important criteria that might put the candidate at a disadvantage when competing for a job against someone with the same qualifications. The study shows that 78% of respondents feel that a person aged 50 plus is less likely to get a job, be accepted for training or be promoted than a younger person. In a survey of 500 large employers in the UK, Taylor and Walker (1994) show that a sizable group of respondents had negative stereotypes of older workers, especially with regard to their openness to training and their ability to adapt to new technologies. Laboratory and field experiments seem to confirm that employers discriminate against older applicants (e.g., Riach and Rich, 2002). More recent studies show mixed results. For example, McNair, Flynn and Dutton (2007) found that age stereotypes and attitudes tend to favour older workers in general (emphasising more skills, life experience, reliability, loyalty and ability to cope with pressure or deal with others, especially customers) though negative views exist as well (e.g., lack of willingness to adopt new work methods). Ilmarinen (2006) emphasises the need for a global change towards a work culture that is better suited for workers of all ages, involving employers and employees as well as society.

### **Labour market regulation, recruitment and retention**

Cheron, Hairault and Langot (2008) extend the standard model of equilibrium unemployment with an explicit role of age. They argue that a standard retirement age explains the lower employment rate amongst the older population: it reduces the willingness of firms to recruit older workers, as the expected returns will be lower. Moreover, the shorter expected job duration also reduces the tendency of older workers to invest in job search activities. In general, the authors conclude that the existing policies in many countries present strong perverse effects on both overall employment and social welfare.

There are several empirical studies on the impact of employment protection legislation. Bassanini and Duval (2006), using cross-country/time-series data from 21 OECD countries over the period 1982-2003, found a positive relation between the level of employment protection legislation and the employment rate of workers aged 55 to 64. OECD (2004) finds a negative relation

between employment protection (here measured through an Index of Employment Protection Legislation – EPL) and the hiring rate of men aged 50 and over but this is compensated by a decrease in firings.

### **On-the-job training**

The Forward Looks paper by Bas Jacobs shows how to systematically analyse the interactions between human capital investments in on-the-job training (OJT), retirement choices and pension saving. The model adds an endogenous retirement decision to the standard life-cycle model of OJT investments and human capital formation. Retirement and pension saving appear to affect the incentives to invest in human capital over the life cycle. By extending the time-horizon over which investments in skills materialise, a higher retirement age promotes investments in on-the-job training. Later retirement and OJT investment are therefore complementary and generous early retirement schemes therefore indirectly discourage investment in human capital. The intuition is that the opportunity return at which future labour earnings are discounted increases with the retirement age and human and financial capital are substitutes over the life cycle.

The following policy implications arise from this analysis: promoting life-long learning or later retirement will not be effective if strong disincentives caused by labour market institutions, early retirement schemes and incentives for pension savings remain in place. And promoting private savings for old age may inadvertently create implicit taxes on skill formation and indirectly stimulate early retirement, thereby worsening the ageing problems. The main message is that any policy reform should therefore take into account the dynamic interactions of OJT investment, retirement and pension saving.

Empirical work analysing on-the-job training of older workers is scarce. A major empirical problem in the training literature is that investment in on-the-job training is very difficult to measure. According to, e.g., Heckman (2000) most training is informal rather than formal, limiting the applicability of commonly employed training measures, which are often based on subjective data (from firms or employees), on formal OJT investment. Moreover, firms and employees seem to have different views on the participation intensity of training. See also Leuven (2005) for an elaborate review. Not only the costs (i.e., the OJT investment), but also the returns (future wages) are difficult to measure empirically. The reason is that earnings are not equal to labour productivity even if labour markets are perfectly competitive, since time investment in on-the-job training drives a wedge between gross labour productivity and gross labour earnings. This is something that is often overlooked. Clearly, time

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costs are the most important ingredient of investment in human capital and worker productivity cannot be inferred from labour earnings.

Heckman, Lochner and Taber (1998) do obtain estimates, however, by identifying skill prices per unit of human capital from the earnings of the older workers who are in the latest years of their careers. Indeed, human capital investments would approximately be zero for these workers, so that labour earnings indeed reflect productivity.

## **Conclusions**

All in all, it seems justified to conclude that we know more about labour supply of older workers than about demand and employer attitudes. Financial incentives matter for retirement decisions, though other, non-economic factors like job satisfaction, health, working conditions and attitudes of employers and co-workers also can have important effects. Still, more work needs to be done on, e.g., joint retirement decisions of husbands and wives, gradual retirement, substitution between exit routes, the interplay between economic and non-economic factors, etc. Cross-country analysis exploiting the institutional variation seems particularly fruitful here. Moreover, recent pension and social insurance reforms in many EU countries give room for applying quasi-experimental approaches and improved identification of causal effects in structural retirement models, which would clearly be at the research frontier in this field.

More research challenges remain concerning employer attitudes and labour demand. Good micro data are quite scarce here and the heterogeneous nature of jobs and firms increases the difficulty of this task. Qualitative research using cross-country comparisons suggests that a global age management approach with a “coordinated and comprehensive package of age friendly employment measures and policies” leads to the best results (Sigg, 2007), but much more work is necessary to determine what characterises optimal age management, considering economic as well as non-economic factors. In particular, the interplay between true economic factors (productivity, costs of flexible work schedules and accommodation of the workplace) and non-economic factors (employer perceptions, legislation against age discrimination, public promotion campaigns, etc.) are poorly understood.

## 3. Financial Security in Old Age

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Financial security in old age can be provided in many ways. The most important ways in most European countries are a government system of old age social security provision (first pillar pensions), occupational pensions through private pension funds (second pillar pensions) and voluntary household savings for retirement, for example in the form of life insurance (third pillar pensions). General household savings that can be used for retirement but also for other purposes are sometimes seen as a fourth pillar. A specific example is investing in owner-occupied housing, where a reverse mortgage or the proceeds of selling the house can be used to finance (part of) the cost of living in old age. Financial support by family members often also plays an important role. The four pillars are often used in combination, with the public pension as a poverty alleviating basis.

In the Forward Look project, the research on this theme was organised in three parts. The first part mainly focused on the first and second pillars, addressing the advantages and drawbacks of collective systems versus individual saving and aiming at optimising the investment strategies of pension funds.<sup>5</sup> Financial markets play a crucial role here. The second part focused on the second and third pillars and the interaction between pension funds and insurance companies offering specific (voluntary) pension saving products, and the households for which these products are meant.<sup>6</sup> The third part addressed the crucial question whether (and if so, how), taking all forms of savings together, household financial preparation for retirement can be improved.<sup>7</sup>

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5. See the Forward Look paper by Christian Gollier, "Risk and portfolio choices in individual and collective pension plans."

6. See the Forward Look paper by Lans Bovenberg and Theo Nijman, "Innovative institutions and products for retirement provision in Europe."

7. See the Forward Look paper by Elsa Fornero, Annamaria Lusardi and Chiara Monticone, 'Adequacy of saving for old age in Europe.'

### 3.1 Policy questions

Many important policy questions on this theme exist. They have been addressed in existing research, but more research is needed before final answers can be given. The main research questions identified in the project were the following:

- ***Should Pay-As-You-Go systems be supplemented by funded pensions?***

Pay-as-you-go systems (PAYG) are systems where the working generation pays for the current retired. Countries which exclusively rely on a PAYG system are especially vulnerable to lower fertility and several of these countries are now considering replacing parts of the PAYG system by funded systems, particularly for high income earners.

- ***What are the advantages and disadvantages of collective pensions against individual ones?***

There is a trade-off between advantages of collective models like economies of scale and the possibility of risk sharing between different generations, and the drawbacks such as the fact that 'one size fits all' does not suit in a society in which pensioners are very heterogeneous in, for example, their preferences, income and wealth composition.

- ***Which restrictions must be imposed on pension funds and other financial institutions?***

The relevance of this became particularly clear during the financial crisis, revealing the serious 'principal agent' problem that interests of financial managers do not always coincide with those of the participants and firms for whom they invest.

- ***Can we give guidelines for portfolio allocation of a funded pension system in a given institutional context?***

Given objectives on risk and expected return, how does a pension fund's optimal ratio between risky and safe assets depend on, for example, flexibility of the retirement age, contribution rates, standard of living and the housing market?

- ***How to help people make life cycle saving and investment decisions that guarantee financial security in old age and maximise lifetime welfare?***

Here account has to be taken of the complexity of financial planning and the abundant evidence that people do not always make the decisions that are in their own (long run) interest (too often choosing the default, repeatedly postponing financial decisions, etc.).

- ***Should one reduce portfolio risk at older age?***

This should be studied accounting for the relationships between labour income and asset returns and risks

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in the long and in the short run. Moreover, the answer may change when retirement becomes more flexible (through gradual retirement or the opportunity to delay or postpone retirement).

- **Defined benefit or defined contribution pensions?**

People prefer guaranteed real income after retirement (defined benefit) but this may be very expensive. Indeed, pension funds may want to make their clients bear part of the risk and prefer defined contribution plans where the income depends on the returns on the investments. Is there a way to combine the best of both systems in new products?

- **Annuities or liquidation of household wealth?**

People are reluctant to buy annuities if they have a chance to get their pension savings as a lump sum. Should annuitisation be made mandatory to ensure income security in old age (as is done in many European countries)? On the other hand, older people are reluctant to tap into housing wealth. Should reverse mortgages be stimulated?

- **Which policies can improve financial planning and retirement saving of groups that do not adequately prepare for retirement?**

Recent research shows that a majority of households may be financially well prepared for retirement, but there is enormous heterogeneity with some groups (low skilled, self-employed, immigrants, etc.) at much greater risk of old-age poverty. These groups may need specific help to avoid sub-optimal decisions due to, for example, lack of information or status quo bias.

### 3.2 Major progress in understanding<sup>8</sup>

#### Adequacy of savings from the perspective of the pension system

Differences in European retirement provisions are reflected in differences in the age saving profiles (Börsch-Supan and Lusardi, 2003). While other driving forces may explain part of these differences (e.g., the stringency of borrowing constraints), part of the variations are the direct effects of the different pension setups. For example, the more generous social security in both Italy and Germany reduces the need to save for retirement during the working age.

For the adequacy of pensions, more important than benefit levels *per se* is the government's role in promoting or providing a good *ex ante* allocation and diversification

8. See the three Forward Look papers on financial security for more details and references.

of risks. This entails an institutional framework that, under a financial sustainability constraint, provides *efficient* ways to broaden the scope for risk pooling and sharing, through public pensions and a good regulation or supervision of market provisions, reduces poverty among older age groups and encourages *individual awareness* of retirement needs and the capacity to make informed and farsighted decisions, e.g., through financial literacy programmes and appropriate pension design.

As for efficiency, in overlapping generation models a source of market incompleteness comes from the impossibility of individuals to engage in *intergenerational* risk sharing with yet unborn generations. As a substitute to set up an intergenerational contract, governments create a PAYG method of financing. Risk diversification, however, also demands a good combination of public and private choices as well as good regulation or supervision of market provisions, offering a rationale for a *mixed system* (Castellino and Fornero, 2006). Moreover, the choice between defined benefit (DB) or defined contribution (DC) should be carefully considered since it carries important implications for social welfare (Gomes and Michaelides, 2003).

#### Adequacy from the individual perspective

The *normative benchmark* of the economic analysis of household savings is that rational individuals (taking into account the institutional framework in which they operate) plan their consumption decisions over their lifetime (e.g., Browning and Lusardi, 1996). The stylised version of the life cycle model (LCM), in which individuals save during their working life to provide for consumption in old age, allows for a neat conceptualisation of retirement savings adequacy – the annuity value that, under the constraint of life cycle resources, can sustain the preferred consumption path – and lends itself to intuitive and simple measures of adequacy, such as the individual replacement rates, widely used. Much richer versions of the model have added real-life features such as labour supply decisions and retirement choices, a bequest motive, and uncertainty over future earnings, rates of return, length of life, and health conditions. Apart from predicting the smoothing of marginal utilities, an important feature of the model is its ability to distinguish between “*inadequate*” and low levels of saving/wealth. For instance, young people with an increasing income profile may save very little while older individuals may have little voluntary saving because the amount of mandatory saving is already providing for their retirement needs.

The empirical evidence, implicitly or explicitly based on the LCM, is mixed (and largely concentrated on data from the US). The majority of the more recent studies

### 3. Financial Security in Old Age

using more sophisticated models (e.g., Scholz, Seshadri and Khitatrakun, 2006) find that saving is adequate for the large majority of the population and that *under saving* is concentrated among households with low socioeconomic status.

*Wealth liquidity* is another important element of saving adequacy, particularly the illiquidity of housing wealth – a major component of wealth in old age. Financial markets have developed instruments to extract equity from a home and to transform it into more liquid forms, e.g., through reverse mortgages, offering opportunities for improving a household's ability to finance its preferred consumption path (Muellbauer, 2007), although these new instruments are still rarely used in practice.

The availability of *annuities* is another essential aspect of retirement saving adequacy. While the theory seems unable to answer questions about the 'optimal fraction' of annuitised wealth, simulation exercises show that annuities are quite valuable (Geanakoplos, Mitchell and Zeldes, 2000) even when the optimal consumption trajectories differ substantially from the time paths of annuity payouts. In practice, annuity markets are thin, as many problems limit individuals' propensity to annuitise. Still, it seems impossible to explain the lack of demand for annuities with models of fully rational economic agents. Psychological factors – i.e., a preference for lump sums *as such* and other forms of 'irrational' or bounded rational behaviour like hyperbolic discounting – are likely to be at work (Brown, 2009).

#### Retirement planning, information about pensions and financial literacy

A growing literature has documented significant departures from the model of a fully rational economic agent and pointed to behavioural and psychological factors that limit individual planning ability. Lusardi (1999) found that one-third of the age group 50-60 in the US had not thought about retirement at all. Lack of planning is concentrated among specific groups of the population, such as those with low educational attainment, African-Americans, Hispanics and women. Several US studies have indicated that workers were also poorly informed about their pensions and the characteristics of their pension plans. One reason individuals do not engage in planning or are not knowledgeable about pensions or the terms of their financial contracts is that they lack financial literacy. Lusardi and Mitchell (2007) show that financial literacy and pension knowledge are positively associated to financial planning and retirement saving.



#### Risk and portfolio choices in individual and collective pension plans

In a static framework, the portfolio choice problem is a compromise between risk and performance, formalised by maximising expected utility with a concave utility function on final consumption. The optimum depends on the degree of concavity of the utility, which determines the degree of absolute risk aversion and the distribution of returns to financial assets.

Important progress has been made since the late 1960s by introducing time into portfolio strategies, addressing the question how the length of the time horizon affects the optimal structure of the portfolio. In the benchmark model, the only decision to be made at each instant in time is about the assets allocation. In the real world, households also control their labour supply or the intensity of their saving effort. Gollier (2001) showed that this has a large impact on the relationship between the investor's time horizon and the share of wealth invested in risky assets.

When human capital wealth is added to the model, total wealth consists of financial wealth as well as human capital wealth and can be invested in either stocks or bonds. Human capital is not tradable. This implies that young agents should invest a larger fraction of their *financial* wealth in risky assets than old agents, since the young are less dependent on financial wealth for their consumption – they have an alternative riskless income source in the form of labour income.



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A rapidly developing literature analyses to what extent the core conclusions of this benchmark model are robust to alternative assumptions with respect to human capital, to the properties of financial markets and to the specification of individual preferences. Cocco, Gomes and Maenhout (2005) find that young investors choose portfolios that are less tilted towards equity than the portfolios of middle-aged investors. The desire to hold a safe, liquid stock of precautionary savings has become one of the explanations for the so-called equity premium puzzle (i.e., the large rewards for risk taking that are hard to explain on the basis of the benchmark model) and for why young households do not participate in the stock market (Constantinides and Duffie, 1996).

Another crucial assumption on human capital in the benchmark model is that labour supply is fixed. In reality, people often can adjust labour supply, e.g., by adjusting the retirement date. Bodie, Merton and Samuelson (1992) show that endogenous labour supply enhances the capacity to bear risk, increasing risk taking. If the retirement age is flexible around retirement, older workers can afford to invest in risk-bearing assets and will invest more in stocks.

More recently, different authors have applied the ideas of life cycle models and buffer stock saving to collective pension plans. When participation is compulsory, future contributions could be securitised, thereby improving the intergenerational risk-sharing efficiency of the system. This means allowing plans to smooth financial shocks across generations, or enlarging the plans' investment horizons beyond each generation's lifetime (cf., e.g., Poterba et al., 2005).

## **Conclusion**

Theoretical models of financial behaviour, financial markets and preparing for retirement are relatively well developed. Still, these models typically miss out on many real-life features, the most important one probably being the assumption that individuals behave like the traditional *homo economicus* with rational expectations and optimal decisions. Recent empirical work emphasises lack of financial literacy and pension knowledge and suboptimal decision making based upon rules of thumb, default choices and the influences of peer group decisions. Pure economics is not enough – there is abundant evidence that psychological and sociological factors play an important role. Incorporating these empirical 'anomalies' into rigorous theoretical and empirical models of retirement saving and life cycle labour supply and consumption seems to be a natural way to go in the near future.

## 4. Well-Being of Older Europeans

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Well-being of older Europeans has many dimensions. Economic aspects were already emphasised in the previous section. This section mainly considers other dimensions and their relationship to the economic dimension. A distinction can be made between various age groups. For the younger age group (until 70 or perhaps 75; it is obviously not useful to give a strict threshold here) formal work and other socially productive activities play a major role. Good working conditions and opportunities to remain socially productive after (early) retirement can contribute to higher well-being. Both intrinsic and extrinsic rewards for these activities are crucial. At older ages, physical and mental health problems often become a growing concern, leading to an increasing dependency on formal and informal health care. Mobility tends to fall, increasing the importance of housing and living arrangements. Social networks play an important role at all ages but their nature changes over time – they become smaller and more family centred at older ages. The role of family networks also changes with age, from giving support to their parents and children and grandchildren to receiving support from younger generations. The role of networks also depends on the national context, such as the intergenerational balance of income and wealth, and the nature of the housing market.

The work on this theme was organised in four parts. The first focused on well-being in early old age and the role of formal work and other socially productive activities.<sup>9</sup> The second emphasised the importance of social networks both in early and in later old age.<sup>10</sup> The third part looked at mental health from a psychological angle, which is particularly relevant for the oldest age groups.<sup>11</sup> Finally, the fourth part looked at the consequences of ageing for the economics of health care and the sustainability of health care systems.<sup>12</sup>

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9. See the Forward Look paper by Johannes Siegrist and Morten Wahrendorf, 'Socioeconomic and psychosocial determinants of well-being in early old age.'

10. See the Forward Look paper by Martin Kohli and Harald Künemund, 'Social networks.'

11. See the Forward Look paper by Dieter Ferring and Thomas Boll, 'Regulation of subjective well-being in older adults.'

12. See the Forward Look paper by Alberto Holly, 'Old age, health, and long-term care.'

### 4.1 Policy questions

We present a selection of major policy issues related to this theme.

- **Formal work and well-being in early old age**

Job satisfaction is much more than a good wage. What can be done to organise work within the firm and in society to keep people motivated and thus maintain as many older people as possible in employed or self-employed working conditions? How can health and well-being of middle-aged to early old-aged working men and women better be protected and improved?

- **Socially productive activities other than formal work**

What needs to be done to enable retired people to continue or initiate socially productive activities, such as volunteering, being engaged in informal help, or caring for a sick or disabled person? How can the proportion of socially productive older people be augmented? What are the costs and benefits of extending opportunities and incentives?

- **Should the government or the family cover life course risks?**

Risks such as unemployment, work disability or divorce are increasing, but at the same time coverage by public transfers is decreasing in many countries. What is the optimal role of the government versus financial transfers and social support by the family?

- **What can public policy do to make it attractive to combine having children with employment?**

How can parenthood and employment be reconciled, in an era where this combination seems a precondition for women to be willing to engage in parenthood? What are the consequences of different ways of organising and funding formal child care in combination with informal child care by, for example, grandparents?

- **How to provide care to the dependent elderly?**

The family has traditionally been the key provider of such care (particularly in the European South), but the role of the family seems to be declining. The rising demand and costs threaten to overburden the public (state and market) system of care service provision and institutional care. Can voluntary intergenerational transfers in a wider community take over part of the role of the family?

- **The Internet and e-networking**

Particularly in late old age, well-being is strongly affected by family and social contacts. Where geographic limitations play a role, the Internet provides a partial alternative. Internet and other new technologies can also help to keep functioning independently, e.g., with shopping, banking, obtaining information, etc. Should government



interventions stimulate access to Internet of the older age groups by, e.g., subsidies or training?

- **Promoting subjective well-being**

Which life circumstances contribute to increasing or decreasing subjective well-being (SWB) of older adults? Can policies at the local, regional, national or supranational levels help to promote SWB of older people (e.g., sufficient level of pensions, medical and other support services for older adults, opportunities for education and lifelong learning, new forms of dwelling for older adults supporting social inclusion)? To what extent does high versus low SWB of older adults produce positive versus negative individual and societal outcomes (e.g., health, performance in work or other socially productive activities)?

- **Projecting and dealing with the costs of health care**

The rapid growth of the oldest groups among the older population has consequences for the costs of health care. But the development of medical technology may be at least as important. When the technology is available but expensive, medical treatment choices become economic choices. How should the health care system be organised? Should the remuneration system of medical staff be adjusted to ensure that individual decisions are in the interest of society? Should, for example, personal care budgets be used to give more choice and responsibility to the consumers of health care?

- **Long-term care**

In addition to medical care, ageing of the population will lead to a larger demand for long-term care. Increasing prevalence of dementia is a particular concern. What is an appropriate European model for long-term care finance and organisation? Should policy measures stimulate investments in labour supply of long-term care staff?

Can and should public policy stimulate informal care as an alternative to formal care? Can housing adjustments and housing market flexibility reduce the need for care?

## 4.2 Major progress in understanding<sup>13</sup>

### The links between socially productive activities and well-being

Socially productive activities range from the continuation of gainful work to voluntary work of various sorts and may even include ‘hobby work’. The long-term neglect of socially productive activities of older people has been redressed in the recent literature (e.g., Künemund, 2001). Social participation within and beyond the family has impressive benefits, which include increased emotional well-being, better health and even increased longevity.

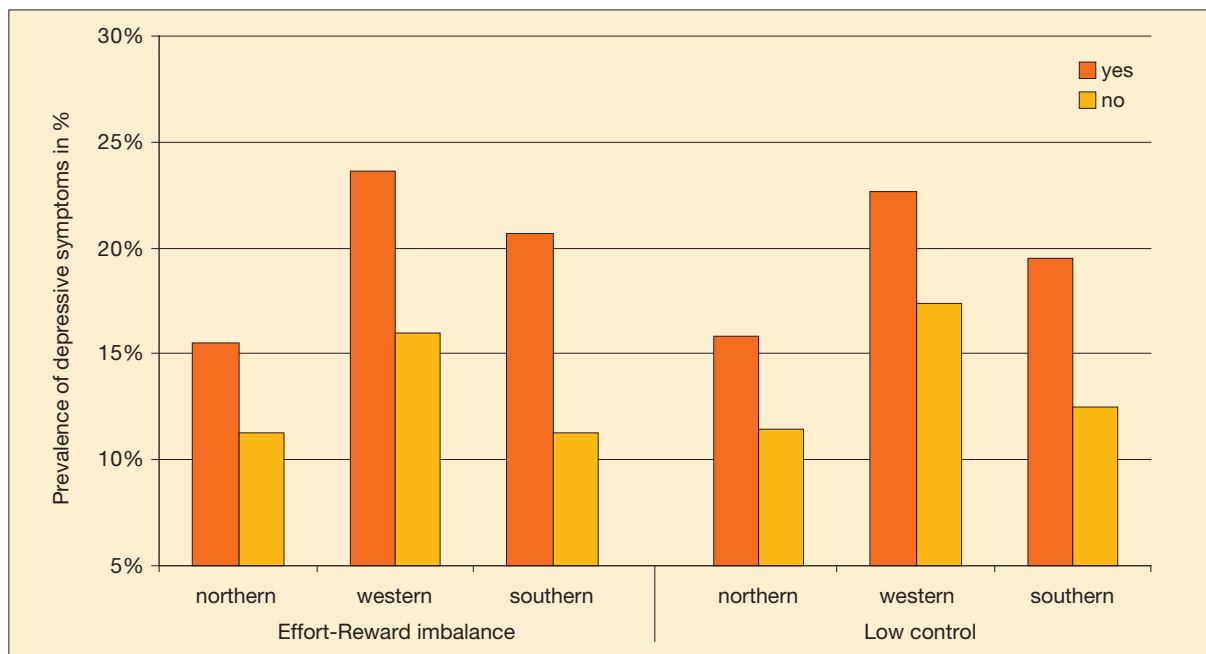
Valuing productive activities through rewards occurs both in formal and informal transactions. A theoretical model, *effort-reward imbalance*, claims that the continued experience of reciprocity between efforts spent and rewards received promotes health and well-being, whereas violations of this principle under circumstances where efforts outmatch rewards elicit sustained stressful experience with adverse long-term effects on health and well-being (Siegrist, 2005). Experiencing autonomy and control over one’s productive activity must be considered an additional health-protective psychosocial resource (Haidt and Rodin, 1999). Theoretical concepts of objective and subjective control have been successfully tested with respect to a variety of health outcomes. The socio-emotional consequences of socially productive activities may be particularly relevant in early old age where options of agency, control and reward resulting from core social roles are becoming less frequent and less pronounced (Siegrist et al., 2004).

### The role of formal and informal work for well-being in early old age

The association of employment duration and well-being is bi-directional. Poor health and disability are powerful predictors of early exit from labour market, but leaving the job prematurely also reduces well-being. Poor quality of work is not only more prevalent among working men and women with low socioeconomic status, but also exerts direct effects on health and well-being. Two models have received special attention in recent inter-

13. See the four Forward Look papers referred to above for more details and references.

## 4. Well-Being of Older Europeans



**Figure 4.** Prevalence of depressive symptoms in SHARE 2006 (EURO-D) according to low quality of work in 2004 I (yes= highest 33% effort-reward ratio or low control)

national research: the demand control model (Karasek and Theorell, 1990) and the effort-reward imbalance model (Siegrist, 2005). The former identifies stressful work by job task profiles that are characterised by high demand in combination with low control (in particular lack of decision authority over one's tasks). The latter builds on the notion of social reciprocity that lies at the core of the employment (or work) contract and claims that an imbalance between high efforts spent and low rewards received in turn (money, esteem, career prospects including job security) adversely affects health. An adverse psychosocial work environment in terms of these two models exerts negative effects on health among older workers by increasing their probability of long sickness absence, of reduced performance and productivity, and of forced early retirement due to illness or disability.

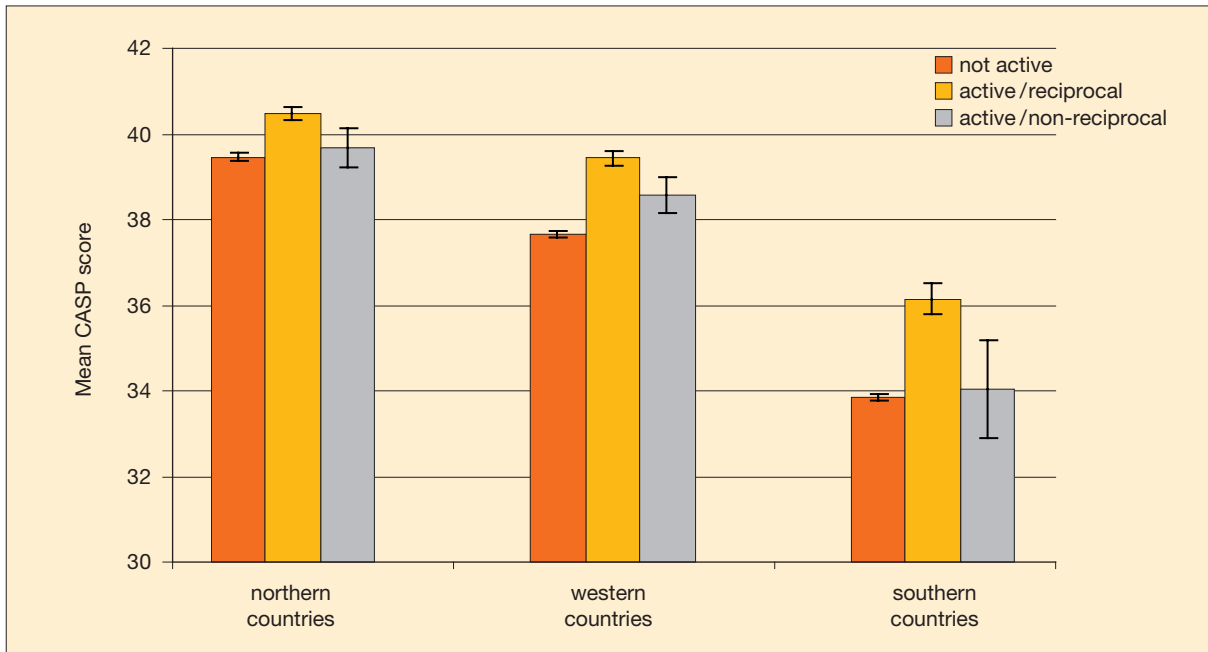
To illustrate, Figure 4 demonstrates the prevalence of depressive symptoms for three groups of European countries according to whether low quality of work was present two years earlier or not. Clear-cut differences are obvious in all three country groups for effort-reward imbalance and for low control at work.

A significant and consistent finding concerns social inequalities in the frequency of productive activities. These differences are consistent across countries and

most pronounced in case of voluntary work (Wahrendorf et al., 2008). Taken together, they illustrate lower options of potentially beneficial effects of goal-directed agency on well-being among lower socioeconomic third age populations.

Figure 5 is based upon SHARE data and summarises the association of volunteering in 2004 and quality of life in 2006 in three groups of European countries. Participants are categorised into one of the following conditions: (1) participants who did not volunteer; (2) participants who volunteered and who experienced reciprocity of exchange; (3) participants who volunteered, but did not experience reciprocal exchange. We observe a strong North-South gradient in quality of life, irrespective of the participants' activity status. Second, in each group of countries those who experience their voluntary work as rewarding enjoy significantly better quality of life than those without experienced reciprocity, and inactive participants have the lowest quality of life.

Figures 4 and 5 simply give associations, not necessarily implying causal mechanisms at work, although the two-year time difference between the two measurements in Figure 4 suggests that the causal effect is from low quality of work to depressive symptoms.



**Figure 5.** Quality of life in SHARE wave II (mean scores of CASP-12 (range 12-48) and standard errors) according to voluntary work (3 categories) in SHARE wave I

## Social networks

Social networks are important throughout the life cycle but their nature changes with age, particularly also from early old age to later old age. The fact that network size decreases with age is partly explained by the increasing probability of the death of parents, partners, siblings and friends. Moreover, the theory of socio-emotional selectivity (Carstensen, 1991) explains these changes from changes in individual time perspective: people select with whom to spend their remaining life time and drop less important relations.

The literature today comes to the conclusion that intergenerational family bonds usually remain strong throughout adulthood and old age, and may even become more important for well-being over the life course than nuclear family ties (e.g., Kohli, 1999). Adult children and their parents live close to each other (although mostly not in the same household), feel close to each other emotionally, have frequent contact with each other, and mutually support each other with several types of help; financial transfers and social support are frequent and substantial, occur mostly in the generational lineage, and their net flow is mostly from parents to children; financial transfers *inter vivos* are complemented by bequests.

The crucial question is whether social networks will remain equally important in the future. The tension

between the time spent to help parents and formal labour supply for both women and men is especially acute for those in the position of the ‘sandwich generation’ (Künemund, 2006), who have a double obligation of care for dependent parents and children. With the rising labour force participation of women and the extension of working life through a later retirement age, the potential time crunch is likely to become harsher.

A crucial question for policy is whether the available family potential can be activated in times of need. Studies disagree on the importance of the burden due to competing demands from parents, children and the labour market and its consequences for well-being (cf., e.g., Künemund, 2006). Recent evidence suggests that welfare state provisions, instead of crowding out family support, enable the family to provide new intergenerational support and transfers (e.g., Kohli, 1999).

Non-kin social networks may fill the gap if family networks weaken. Withdrawal from labour force participation can result in smaller social networks as far as interactions with work colleagues are concerned. But the transition to retirement is not paralleled by withdrawal from social participation in general. The term ‘productive ageing’ is used to point out that activity and social engagement play a major role in old age as well, a fact which is often neglected in the discourse of intergenerational equity.

## 4. Well-Being of Older Europeans

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### Subjective well-being of old age groups

Research on subjective well-being (SWB) in older adults has been conducted in several disciplines: social-scientific survey research, personality psychology, social psychology, life-span developmental psychology, gerontology. SWB essentially refers to an evaluation of an individual's life from his or her *own perspective*. It contrasts with evaluations from external observers' (researchers' or policy makers') point of view based upon objective criteria related to health, education, income or other aspects (Diener, Lucas and Scollon, 2006). SWB has a *cognitive* component, namely the evaluation of one's life (life satisfaction – LS), and an affective component, namely presence of positive and absence of negative feelings. It can refer to one's *life as a whole* or to *specific life domains* (e.g., health, material wealth, social relationships). The measurement in many existing studies has focused on just one component, i.e., life satisfaction ("How do you feel about your life as a whole?") or positive / negative affect. Kahneman et al. (2004) have proposed alternative approaches such as the Day Reconstruction Method (DRM): respondents fill out a diary about events of their previous day and assess how they felt during each event on selected dimensions of well-being.

The *theoretical status of SWB* in causal networks can be represented in four basic models:

- (1) The *effect model*. Most of the literature regards SWB primarily as an effect, i.e., as the result of an individual's personality or environment.
- (2) The *predictor model*. A smaller part of the literature sees SWB primarily as a cause of individual and social outcomes (e.g., health, longevity; altruistic / voluntary engagements).
- (3) The *mediator model*. Very few studies consider SWB to be a mediating variable which is caused by personal and / or environmental factors and which then has an effect on individual and / or social outcomes.
- (4) The *moderator model*. SWB could be regarded as a moderator, i.e., a third variable, which may modify the effect of certain causes on certain outcomes.

Pinquart and Sörensen (2001) analysed 286 studies on the association of socioeconomic status, social network and competence with subjective well-being in old people; SWB was covered by life satisfaction, happiness and self-esteem. All in all, their results highlight the importance of life circumstances and social indicators for SWB in the old adults. The main finding seems that low income, low educational status as well as functional deficits go along with reduced life satisfaction, low happiness and reduced self-esteem in old age.

A few *prospective longitudinal studies* show that, depending on the type of event, the adaptation of SWB (i.e., return to pre-event level) may be slow and incomplete. For instance, adaptation to widowhood took about seven years on average. SWB decline in response to severe disability was even more pronounced and adaptation took either longer or never happened at all.

Thomae (1970) developed a cognitive theory of ageing, in which he emphasised not only the objective incidence but the *subjective interpretation and evaluation* of age-correlated impairments and losses as the crucial factor in determining one's life satisfaction in old age. The crucial factor for life satisfaction is assumed to be the relation between individual needs and perceived reality.

Baltes and Baltes (1990) proposed the model of Selective Optimisation with Compensation (SOC) as a model of successful ageing. According to this model SWB is promoted by the maximisation of positive outcomes (gains) and the minimisation of negative outcomes (losses). What constitutes gains and losses should depend on cultural and on personal factors as well as on the position in the lifetime of an individual. Brandtstädter and colleagues proposed the most elaborated approach to analyse individual development and SWB across the life-span (e.g. Brandtstädter and Renner, 1990). Their Theory of Assimilative and Accommodative Processes focuses on the interplay between the processes related to pursuit of goals and related to the adjustment of goals when individuals face discrepancies between desired and factual courses of their lives.

Interventions to promote SWB comprise psycho-educational as well as psychotherapeutic interventions. All in all, one may conclude that the effectiveness of psychotherapy and mental health services with older people has been established. Lyubomirsky, King and Diener (2005) have shown in a review of the literature that SWB has positive effects on several aspects of human functioning such as creativity, social contexts, work performance, physical health, information processing and cognitive functioning.

### Health and socioeconomic status

Trying to understand the explanation for the well-documented very strong relationship between health and socioeconomic status (SES) is one of the most challenging research issues in the economics of ageing, and in particular the direction of causality. Research to date showed that the strong relationship holds for a variety of health variables (most illnesses, mortality, self-rated health status, psychological well-being and biomarkers) and alternative measures of SES (wealth, education, occupation, income, level of social integra-

tion). In the case of wealth, this association is known as the *health-wealth gradient*. One direction of causality is from wealth to health – because individuals with more wealth can afford better medical care, live in healthier environments, etc. Another is from health to wealth. Healthier individuals may be able to work more than those who are ill, enabling them to accumulate more wealth. Finally, wealth and health status may be simultaneously determined by possibly unobserved common factors. For policy to improve welfare, health and well-being, it is important to distinguish these explanations of the health-wealth gradient in the context of an ageing population. There are many publications dealing with this issue using longitudinal data in the US, e.g., Adams et al. (2003) who find evidence of causal effects of health on wealth and much less in the other direction. Still, the causality debate remains an open issue, and little research is done in European countries.

### Ageing and health care expenditure

The data show that for a given year, health expenditure increases with age, except for the very old. Since the population is ageing, it is often claimed that the demographic changes will result in an acceleration of health expenditure. But this argument seems to confuse the notion of correlation with that of causality. Its validity deserves to be examined more closely by studying the role of other possible factors of health expenditure growth which can be related to the ageing of the population and the increase of longevity.

Various econometric studies show that medical technological advance and its diffusion are a leading explanatory factor of the increase in health care expenditure.

For instance, NBER studies analysed the growth of inpatient Medicare costs and showed that the price that Medicare pays for admissions has been falling over time but the technological intensity of the treatment has been increasing (see, for example, Cutler and McClellan, 1998). It is obvious that death as such is not an explanatory factor of the evolution of health care expenditure. It is rather the medical care aimed at treating various pathologies, of which some lead to the death of the patients. This approach strongly suggests a change of paradigm, in which the ageing of the population and the increase in longevity have little impact on the growth of health care expenditure, whereas the larger part of this increase is due to the evolution of medical technology. This topic constitutes an active field of current research.

It is clear that in a very large number of cases, medical care technology brings benefits to society in terms of increased longevity, improved quality of life, etc. This



leads to the important question: *Is this medical care technology worth its expense?*

The central empirical issue here is to determine the importance of medical technology changes for better health. Medical care is worth to be valued if any of the additional increase in longevity results from improved medical care, or if medical care improves quality of life (Bunker, Frazier and Mosteller, 1994).

### Ageing and long-term care

Long-term care is care for chronic illness or disability instead of treatment of an acute illness. It is widely believed that long-term care expenditure growth will accelerate over the next 20 to 30 years, mainly as a result of larger numbers of older persons, and a steep increase in the numbers of the oldest old. For this reason, long-term care issues are becoming increasingly important on the health and social policy agendas of developed countries. A detailed survey of the issues is provided by Norton (2000).

Informal care provided at home by family members, friends or voluntary organisations is the most important source of long-term care in all OECD countries. Presently, the bulk of informal care is provided by women aged over 45. Men are more likely to take over the role of care-giver for their spouses than in other family roles. Because more old people are living as couples and for a longer time, this has led to some increase in the participation of men in informal care-giving over time.

The projection of long-term care expenditure has become a topic of growing interest in European policy circles. An appropriate framework is developed by Cutler and Sheiner (1998). They look at expenditures as the sum

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over all ages of the product of: (1) the number of people alive in each age group, (2) the average health status at each age, and (3) the *per capita* medical spending conditional on health status, which also varies with age. *Per capita* long-term care spending grows exponential with age, and the bulk is concentrated on persons aged 80 years and older.

Most demographically-derived predictions of future health and long-term care spending focus on number of people, assuming their average health status and health care needs remain constant. Demographers are divided in their opinions on the extent to which life expectancy will be further prolonged in the future (Tuljapurkar, Li and Boe, 2000) and the factors driving the decline of mortality are poorly understood. Moreover, future demand for long-term care will not only be driven by the rising number of very old people but also by their health and health care needs.

The theoretical framework for carrying out empirical work on this issue places trends in mortality and morbidity in the context of the *epidemiological transition* (Omran, 1971) characterising how social, environmental and health factors combine to change life expectancies, the most common causes of death and the prevalence of disease in successive population cohorts. This framework allows for both shrinking late life morbidity and expansion of morbidity, so that the problem of forecasting remains an empirical one. An overview of recent findings is given in OECD (2005). Although a number of studies agree that favourable disability trends in the future could have a substantial mitigating effect on future demand for long-term care, the fast growing number of very old persons is nonetheless expected to increase substantially care needs (and related spending) in the future.

To complete the analysis, *per capita* medical spending conditional on health status needs to be considered, depending on the relationship between the evolution of long-term care expenses and the development of medical technology to treat chronic diseases.

### Conclusions

There is a rich literature on factors that determine well-being of older age groups, building on theoretical arguments from sociology, psychology, economics and epidemiology. The empirical evidence is mainly descriptive, confirming the associations predicted by the various theories. Often, however, the same associations can be explained by different causal mechanisms or by confounding factors. We think that substantial progress can be made in this respect, particularly when longitudinal data become available where the same people are followed over a long period of time, and the timing of

the events can be exploited to disentangle the different mechanisms. The explanation of the positive relation between health and socioeconomic status is a good example, as has already been shown with data from the US. The institutional diversity across Europe, and particularly the many reforms of retirement and social security policies at different points in time, will also help.

The future cost and organisation of health care in our ageing society is a core topic in health economics where a lot of research questions need to be addressed, to guide policy makers with important choices that will need to be made. To make progress in this area, it is worth pointing to the methods and type of data used in Goldman et al. (2004), who project health care costs of older age groups in the US using a micro-simulation demographic and economic model, the Future Elderly Model (FEM). Their model uses Medicare claims records linked to actual medical care use and costs over time. A similar exercise would be very useful to carry out for European countries, combining information provided by health insurers (claims data) and medical data in a single data base. This form of integrated database does not yet seem to exist in many European countries and creating it would be extremely useful.



## 5. A Roadmap for Research on Ageing, Pensions and Health in Europe

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In this section we first describe current relevant research networks and centres of expertise in Europe. We then list the main strengths, weaknesses, opportunities and threats of research of ageing, pensions and health in Europe from an economic perspective. On the basis of this, some research priorities for the next five to ten years (the objectives of the roadmap) are formulated and the conditions for achieving progress on these topics are sketched. Finally, some concrete actions are suggested.

### 5.1 European research on ageing, pensions and health

Cooperation between researchers in different countries is useful, particularly if we want to learn about the consequences of differences in institutions such as social security and pension generosity, etc. For many of the issues discussed above, insights from various disciplines can be usefully combined (mainly economics and sociology, and to some extent also psychology and public health). Thus cooperation between experts from various disciplines certainly also has added value. Such cooperation has been started in several networks and infrastructural projects funded by the European Union.

An example of a successful network funded by the EU is the ERA-Age network coordinated by Alan Walker at the University of Sheffield.<sup>14</sup> The aim of ERA-Age is to promote the development of a European strategy for research on ageing and, thereby, to enable Europe to gain maximum added value from investment in this field. This network focuses on ageing but is very broad with hardly any focus on economics. It mainly brings together researchers and policy makers in sociology, public health, and biological and medical science.

A second example is the family of EU funded research networks and infrastructural projects focusing on collecting and using the SHARE data, mainly coordinated by the Mannheim Economics of Ageing Institute (MEA). Here, economists play a leading role. The main drawback is that not all EU countries are represented, and particularly most countries in Central and Eastern Europe are lacking. Hopefully this will change in the near future.<sup>15</sup>

A third relevant network is the ESA Research Network on Ageing in Europe, focusing on sociology and social

policy.<sup>16</sup> This network is part of the European Sociological Association and focuses on ageing from a sociological point of view, but the topics of interest overlap substantially with those of economists (costs of pensions and health care, changing patterns of consumption and lifestyle, intergenerational transfers, etc.).

An example of a more specific network is the AAMEE project<sup>17</sup> which focuses on the promotion of active ageing and social, cultural and economic integration of older migrants and old age groups in ethnic minorities, emphasising volunteer activities and the emergence of new culturally sensitive products and services in the fields of, for instance, housing, care, education, leisure, culture and marketing.

The European Network of Economic Policy Research Institutes (ENEPRI)<sup>18</sup> brings together 24 leading national economic policy research institutes from most of the EU-27 countries, to foster the international diffusion of existing research, coordinate research plans, conduct joint research and increase public awareness of the European dimension of national economic policy issues. Several projects related to the socioeconomics of ageing conducted by ENEPRI members received finance from the European Commission, such as AHEAD (Ageing, Health Status and Determinants of Health Expenditure) and AIM (Adequacy and sustainability of old-age Income Maintenance).

A network specifically focusing on ageing in Central and Eastern Europe is the EAST (Eastern European Ageing Societies in Transition) network of the Oxford Institute of Ageing. It mostly focuses on gerontological and geriatric research but also on social policy, poverty, unemployment, social security, etc.<sup>19</sup>

An example of a network that does not focus particularly on ageing but in which ageing is one of the main themes is the Generations and Gender Programme (GGP, see Vikat et al., 2007)<sup>20</sup>, which organises and maintains a system of national Generations and Gender Surveys and contextual databases concerning European and some non-European countries. Its main goal is to improve understanding of demographic and social developments

14. See <http://era-age.group.shef.ac.uk/>. ERA-AGE has twelve partner countries; Romania is the only one in Central/Eastern Europe.

15. Current projects are SHARE LIFE, SHARE LEAP and SHARE-PREP. The web site lists 16 participating countries with the Czech Republic and Poland representing Central and Eastern Europe. See <http://www.share-project.org/>.

16. See <http://www.ageing-in-europe.org/>.

17. Active Ageing of Migrant Elders across Europe. See <http://www.aamee.eu/>.

18. See <http://www.enepri.org/>.

19. See <http://www.ageing.ox.ac.uk/>. The network currently involves academics from Albania, Belarus, Bulgaria, Croatia, Czech Republic, Estonia, (East) Germany, Hungary, Latvia, Lithuania, Poland, Romania, Russia, Serbia, Slovakia, Slovenia and the Ukraine.

20. See [http://www.unece.org/pau/\\_docs/ggp/GGP\\_2006\\_SumDescr.pdf](http://www.unece.org/pau/_docs/ggp/GGP_2006_SumDescr.pdf). Eastern and Central Europe are reasonably well represented; Hungary is in the core group of the programme and data are collected in nine Eastern and Central European countries.

## 5. A Roadmap for Research on Ageing, Pensions and Health in Europe

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and of the factors that influence these developments with particular attention towards relationships between children and parents (generations) and between partners (gender). This programme focuses on the determinants of, and transitions in, these relationships, marked by demographic events including retirement, ageing and changes in health status. The GGP addresses the individual, partnership and household levels of analysis through the Generations and Gender Survey (GGS), with respondents providing information on themselves as well as on their partners, children, parents, other household members and, to a lesser extent, also on their social networks.

There are many other formal and informal networks that focus on ageing, health and pensions. For example, there is a group of European health economists organising an annual conference on Health Econometrics (Andrew Jones, Owen O'Donnell and others), who mainly focus on ageing and health.

It seems reasonable to argue that, in addition to this, there is ample scope for a network that focuses on research on ageing from an economic perspective with input from social sciences and public health to the extent that they relate and can contribute to the economics of ageing.<sup>21</sup> The core would be experts and institutes specialised in economics, but there would be room for non-economists working on adjacent topics. Institutes from Central and Eastern Europe that could be involved are the Warsaw School of Economics, the School of Political and Administrative Studies in Bucharest, the Center for Economic Research and Graduate Education in Prague and the Central European University in Budapest. Such a network could stimulate policy relevant studies at the research frontier by allocating funds for research grants, organising meetings where researchers from different disciplines and countries interact, facilitate international data collection and data access, etc.

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21. In the US, such networks do exist, funding research projects and organising meetings, e.g., the retirement research centers (at NBER, Boston College and Michigan University) funded by the Social Security Administration, and the NBER programme on Ageing. Broad European networks similar to NBER like CEPR and CESifo do not have a structured programme on ageing.

### 5.2 Strengths, weaknesses, opportunities and threats

#### Strengths

##### *Institutional knowledge*

- Europe has a number of universities with strong research expertise in labour economics, risk management, financial markets and pension economics. European researchers participate in leading networks such as the Gruber and Wise group on retirement and labour force participation of older workers.
- Europe has excellent researchers in the sociology, psychology, public health and demography of ageing.

##### *Research focus and methods*

- European networks of research in economics traditionally emphasise the importance of labour supply and retirement. The economic model of retirement resulting from inter-temporal optimisation over the life-cycle has been developed into a powerful tool in economic science.
- Substantial progress has been made in studying the institutional side (e.g., sustainability of pension systems, financial incentives for saving and retirement decisions, collective and individual responsibilities, transition problems).
- A lot of progress has been made in developing adequate measures of well-being, mental health and (predictors of) dementia.

##### *Research coordination*

- Several European networks have recently emerged to structure the European research of risk management and financial markets and to collect data on European countries. This has also induced more comparative research across countries.
- European networks have brought together researchers interested in ageing from sociology, psychology, public health, demography and economics. Europe has excellent researchers in all these fields.

##### *Data*

- Labour supply and labour market positions are well covered in European data sets like ECHP and SHARE. This has stimulated comparative research across countries.

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## Weaknesses

### *Institutional knowledge*

- Europe lags behind the US, particularly the NBER group that sets the agenda for research on social security reforms.

### *Research focus and methods*

- While research on labour supply factors has led to common agreement, much less is known about the role of labour demand and the role of labour market institutions.
- Integrated knowledge about the variety of European countries' labour market and retirement institutions is scarce; researchers usually know more about the US than about their neighbouring country. Such knowledge is also not easily accessible.
- Non-economic factors (e.g., health, family considerations) are hardly incorporated in the rigorous theoretical and empirical life-cycle models.
- In the research on employability of older workers, the role of the employer does not get enough attention.
- Theoretical models explaining the relationships between (investment in) health, health care use, and socioeconomic status and retirement choices are underdeveloped.
- The empirical evidence on the development of morbidity (and the health care needs associated with it), conditional on the changes in mortality, is mixed.
- Research evaluating the effect of interventions to promote subjective well-being is missing.
- Psychological and sociological approaches (e.g., status quo bias, lack of financial literacy, role of the family) are hardly incorporated in rigorous theoretical and empirical economic life-cycle models.

### *Data access*

- SHARE does not cover all European countries, and is underfunded. ECHP was terminated after 2001 and partly replaced by EU-SILC. Multidisciplinary household panel data sets with a long time span are lacking for most countries or not easily accessible. (An exception is GSOEP for Germany.)
- Even European researchers often use US data on financial markets because these are easier to obtain and analyse.
- Integrated knowledge about the variety of other European countries' social security and pension institutions is scarce; researchers usually know more about the US than about their neighbouring countries. Such knowledge is not easily accessible.
- Integrated knowledge about the variety of European countries' health care systems is scarce and difficult to access. Administrative data, if available for research at all in a given country, are typically available only to researchers in that country and not to researchers

without a formal connection to that country.

- Many European countries are not covered by current European data collection initiatives. In particular, the Central and Eastern European countries are under-represented.
- To analyse (mental and physical) health and well-being at an older age, it is often necessary to have information on the earlier life courses of people (i.e., long before people reach age 50), but this information is typically lacking.

### *Policy impact*

- Results of scientific research are often seen as "not relevant" or "too academic" by decision makers.

### *Research coordination*

- Research on, e.g., household preferences with respect to portfolio risk by different groups in different disciplines and countries, is segmented and not coordinated.

## Opportunities

### *Research focus and methods*

- Europe's labour markets, pension institutions and health care systems offer a unique 'laboratory' with large variation in institutions and pension systems to face broadly similar problems. Different solutions and political styles are exposed to broadly similar external shocks (like economic and demographic developments).
- Similarly, the large variety in social structures and family networks across European countries (e.g., north versus south) offers opportunities for cross-national analysis.

### *Data*

- Better data are becoming available. Not only SHARE and ESS (the European Social Survey), but also, at least in some countries, e.g., matched employer and employee data or administrative micro-data from social security, pension institutions and health care organisations that give detailed insight into health, socioeconomic status and the savings and retirement choices people can make.
- Multidisciplinary and longitudinal European surveys (SHARE, ELSA – the English Longitudinal Study on Ageing), with information on economic, social, psychological and health aspects of people's lives, are growing into maturity and likely to reach their main payoff periods in the next decade.
- Longitudinal studies covering a long time period allow cohort effects to be examined, such as the consequences of changing social structures or health technology.

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### **Policy impact**

- The labour market position of older workers is at the top of the policy agenda in many European countries.
- There is a lot of interest in well-being of older age groups among policy makers in European countries.
- Pension design, asset allocation and risk management are timely topics in view of current market circumstances.

### **Research coordination**

- Networks originating from, e.g., SHARE, Netspar and this Forward Look project create opportunities for cooperation between economists, sociologists, psychologists, demographers and public health researchers.
- Expertise recently built up in experimental labour economics can be used to design laboratory experiments.
- Existing networks involving public and private sector can be used to set up field experiments.
- While the current economic and financial crisis is a cause of serious distress, it can also become a source of new opportunities, not to be missed.

### **Threats**

#### **Policy impact**

- The recent financial crisis seems to reduce the attention for labour force participation of older workers and might also reduce investment in good research.
- The recent financial crisis has called into question the very grounds of pension reforms in Europe, in particular, the ‘risk diversification’ rationale for creating a privately-funded pillar, based on financial returns, alongside the public one, established on a pact between generations.
- The financial crisis might reduce government and private sector investment in good research, in spite of the fact that the same crisis makes such research particularly necessary.
- In most European countries research in social sciences is substantially less recognised than research in science, technology and medicine.
- Professional bodies (actuarial associations, risk management associations, consultants and lobby organisations) could turn away from academics, with the risk of lower quality financial products. More extensive networks between academic institutions and the pension and insurance industry are needed.

#### **Research focus**

- The desire to have a study which answers everything may turn out to be counterproductive.

### **Data**

- Harmonised and longitudinal data collection might be undermined by decentralised and short-term funding.
- Survey research seems to suffer more and more from falling response rates, putting the representative nature of the survey at risk.

### **5.3 Objectives: three research priorities**

#### **What do we have now? What is available? What is possible? What is feasible? What is attainable in the next five to ten years?**

Building on the previous sections, on what is already known, what are the gaps in existing knowledge, what is most interesting from a policy point of view, and what may be feasible in the next five to ten years, we identify three research priorities for European research on the economics of ageing, where the European dimension and European cooperation can be particularly beneficial.<sup>22</sup>

The first is *employability of individuals at early old age*, with emphasis on the demand side, employer perceptions and attitudes, and institutional factors, which are much less studied and understood than the supply side determinants. Where reforms of financial incentives have stimulated older workers to remain in the labour force, keeping them at work requires demand conditions to be satisfied. Older workers must be attractive to employers, because of their skills, productivity and costs. Attitudes of employers towards older workers vary across countries and have to change in some countries. Subsidies for hiring or investing in older workers may help; the effects of employment protection and other features of labour market flexibility and opportunities for self-employment after a career job need to be better understood. Job characteristics, the organisation of work, accommodation of workers with a disability and the recognition of the comparative advantages of older workers can contribute to increasing productivity and participation of older workers. The variations across Europe in institutions and institutional reforms need to be better exploited to improve our understanding of the mechanisms at work and the relationships between these economic and non-economic factors.

The second research priority concerns *collective versus individual responsibility for retirement saving*,

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22. The three priorities all consist of many research questions; some of them can be fruitfully addressed in the next five years, others require new data, making a five-year horizon unrealistic.

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to guarantee financial security in the years after retirement until late old age. The crucial question is how to reconcile the tension between, on the one hand, paternalism and collective risk sharing and, on the other hand, freedom of choice and heterogeneity of preferences. The consequences of financial illiteracy and the use of sub-optimal decision rules need to be better understood in rigorous modelling frameworks supported by empirical research. The institutional diversity in Europe, with a multitude of reforms in national and occupational pension schemes, and experiments with various combinations of (minimum) state pensions, occupational pensions and voluntary contributions to retirement savings plans can be exploited more.

The third priority concerns the long-term and short-term determinants of *health, health care use and well-being* in later old age. We need to understand better the mechanisms that link conditions earlier in life, including socioeconomic conditions, to health and well-being at an older age. The variety in European health care systems and reforms of these systems can be exploited to understand better how various systems benefit different socioeconomic and age groups within reasonable bounds of cost effectiveness. The relationships between economic welfare, housing conditions and living environments, social networks, cognitive skills, health care demand and mental and physical health at ages where the latter start to deteriorate need to be studied in different cultures with, e.g., different family networks and cultural and historical norms – in addition to different health care and other institutions.

## 5.4 Conditions

**What should we take account of?  
What are the positive/negative trends?  
What is required to achieve the objectives?**

What is required to make European research on the three priorities feasible and successful? The most important needs identified in the project are various sorts of data, better access to the new data and to already existing data, and more coordination in the European research agenda on these priorities.

### **Data collection and access**

Many research questions can be addressed with survey data on individuals or households. For specific questions, cross-section data, repeated cross-sections or country-specific longitudinal data may be very useful, because of the specific information they contain, their large sample sizes and sometimes their wider range over time.

A more recent development is the increasing availability and use of administrative data in selected countries from various sources: income and wealth from tax records, pension entitlements from social security institutions or occupational pension funds, health and health care use information from hospitals or health insurance companies, etc. Such data sets often cover large groups of people, sometimes even the complete population. The Scandinavian countries are particularly advanced in this respect but others are following. Research opportunities increase even further if several such administrative data sets can be combined, or if they can be merged with survey data. A drawback is that the data are often available only to researchers at a university or research institute of the specific country.

The fact that data exist is not enough: they also need to be used by researchers. To achieve this, the costs and conditions for using the data should not hamper their use. In the ideal case, data should be free for all academic researchers, who can register and get access via a secure web site. Moreover, the data must come in a user-friendly format with adequate documentation. This is a major and costly task. The prototype example is the RAND version of the Health and Retirement Study (HRS) – a user-friendly version of a large part of the HRS data, with harmonised variables across waves, sophisticated imputations for missing values, constructed variables exploiting preloaded information, etc. Large investments are needed to construct and update such a data base.

Coordination at the European level would be useful – to make researchers across Europe aware of the available data, particularly in countries other than their own, to improve documentation for international users and to simplify access procedures. A European network focusing on this type of data exchange could be an important step forward to achieve this goal. This could perhaps be done in cooperation with national data archiving organisations and with CESSDA, the Council of European Social Science Data Archive.<sup>23</sup> Workshops where researchers and programmers familiar with specific data sources teach other researchers how to use the data are also useful. Such workshops are, for example, organised for the German Socioeconomic Panel.

### **SHARE**

SHARE, the Survey of Health, Ageing and Retirement in Europe,<sup>24</sup> is a general survey covering adults aged 50 and older, offering multidisciplinary micro data in a number of European countries. It is selected as one of the large-scale European Infrastructural projects that

23. See <http://www.cessda.org/>.

24. See <http://www.share-project.org>.

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deserve further development in the ESFRI Roadmap of the European Commission. The measures in the SHARE dataset are also comparable with measures from the US Health and Retirement Study (HRS), and the English Longitudinal Study of Ageing (ELSA). The baseline 2004 wave included representative data on 28,517 respondents from eleven countries (Denmark, Sweden, Austria, France, Germany, Switzerland, Belgium, The Netherlands, Spain, Italy, and Greece). In 2006-2007, a second wave was fielded in these eleven countries and SHARE was extended with Poland, the Czech Republic, Ireland, and Israel. The longitudinal nature of the data is substantially enriched in the third wave, with a battery of retrospective questions on major events experienced over the life course. SHARE includes many objective and subjective measures of physical and mental health, psychological conditions (well-being, life satisfaction), socioeconomic status (e.g., work activity, job characteristics, income, wealth and consumption, housing, education), and social participation (e.g., family relations, informal care, volunteer activities).

To address the research challenges identified above, useful extensions of SHARE would be the following:

- Expanding the longitudinal dimension. This is necessary to identify and understand the causal mechanisms that often take many years to become effective, such as the effect of unemployment or other economic shocks on health and well-being in old age. While retrospective measures can help in many respects, genuine panel data with complete information on the same individuals over a long period of time remain important.
  - Expanding the European coverage. To learn as much as possible from international variation in reforms of labour market institutions, pension systems and health care policies, more countries would be very useful. In particular, Central and Eastern European countries are underrepresented. Also the use of anchoring vignettes should be improved to enhance the comparability of subjective measures of well-being which until now have been administered experimentally to small subsamples in selected countries only.<sup>25</sup>
  - Adding detailed survey information on, for example, job characteristics, on-the-job training, employer attitudes, gradual retirement opportunities and preferences and job satisfaction. One way to do this would be to interview SHARE respondents on specific topics in years when there is no core survey, a strategy that is also followed in the US for the HRS. A cost-efficient way to do this would be by using Internet interviews, following the HRS example.<sup>26</sup> Specific groups such as the oldest old can still be interviewed face to face.
- Merging with administrative data, e.g., on income, wealth and, in particular, pension entitlements. These variables are inherently hard to measure in surveys and merging with administrative data can improve the quality of the economic content of SHARE. In addition, one can think of linking SHARE to register data on health care utilisation that are available in several countries.
  - To study labour demand, it would be useful to merge the SHARE data to an employer survey that interviews the employers of the SHARE respondents. This will provide a more direct way to analyse employer attitudes and firm and workplace characteristics than asking the employees. Matched employer-employee data are often used in labour economics, but not in the specific context of older workers.

### **Laboratory and field experiments**

Socioeconomic surveys and administrative data are not the only sources of data for economic research. Laboratory experiments and field experiments are an increasingly popular method to generate new insights into savings behaviour, to measure preferences, peer group effects and behavioural features like default choices. Most of the existing research is based upon US data and it would be useful to have such field experiments in Europe. Field experiments have also been used in health care and in labour economics, though not in the context of retirement decisions. Combining several types of data (e.g., experimental data with survey data or field experiments with laboratory experiments) also seems a useful trend. All of this, however, seems easier to realise for savings and portfolio choice than in the context of retirement decisions or well-being in late old age.

### **Exchange of knowledge**

Cooperation between researchers in different countries is needed to learn about the consequences of differences in institutions such as social security, pension schemes or health care systems. The lack of institutional knowledge about European countries is an impediment to research on Europe. It is important to create a database with the main features of national institutional arrangements and their reforms, but in addition, personal cooperation and the possibility to consult national experts will be necessary to work with individual data and account for the heterogeneity in institutional arrangements applying over time and to different groups of individuals.

25. See <http://www.compare-project.org>.

26. See <http://micda.psc.isr.umich.edu/project/detail/34585>.

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## 5.5 Actions

**Which steps are needed and in which order? How can we get the infrastructures we need? Which strategic alliances are necessary? What to aim at, what to avoid; and how?**

### *Data access and institutional knowledge*

We recommend the following steps:

- Develop a European centre of expertise with institutional knowledge on labour market institutions, financial, pension and social security institutions and health care systems, accounting for the reforms that lead to heterogeneity in which arrangement applies to which individual at a given point in time.
- Explore the possibilities of a broad European network aimed at international exchange of country-specific survey and administrative data in the field of ageing, health and pensions. One major set of tasks of such a network could be related to SHARE:
- Invest in a user-friendly version of SHARE, with more cleaning, imputations and support through a help desk and user meetings or workshops.
- Explore the possibilities and funding opportunities for off-year interviews on specific topics with sub-samples of the SHARE respondents, possibly partly over the Internet. Some possible topics relating to the three research themes are:
  - Among respondents in early old age: detailed interview on job characteristics, job satisfaction, employer accommodation, gradual retirement opportunities, interest in self-employment and other bridge jobs, and employer accommodation of and attitudes towards older workers.
  - Among respondents of all ages: detailed interview on time preference, future expectations, risk attitudes and, for the younger groups, retirement saving behaviour. Experiments with hypothetical or real payments could be part of this.
  - Among the older age groups (and possibly using proxy interviews with a close relative): detailed interview on expectations concerning long-term care and other health care use, preferences for health care use, social networks, housing and living arrangements and well-being. (This builds on the already extensive modules on health and health care use.)

### *Exchange of knowledge*

- Building on existing informal networks and the contacts established through the Forward Look project, create more coordination in the European research agenda on the economics and social sciences of ageing by establishing a European research network

structure. Existing national centres of expertise like Netspar and CeRP can be invited to take the lead.

- Better integrate researchers from Central and Eastern Europe into European networks.
- Organise regular meetings and make research grants available to activate and expand the network, focusing on the three research priorities identified above.
- Create a European forum for exchange of knowledge between academics, business and public policy. Interaction with the private pension industry (insurance companies, pension funds, banks) and policy makers in governments is of significant importance for academic research to be able to contribute to the most urgent policy questions and to have access to relevant expertise and data. A European network for research on ageing and retirement provision that is set up and run jointly by knowledge institutions, national and European government institutions and the pension industry could be mutually advantageous.





# Annex 1

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## Annex 2

### References

- Adams, P., Hurd, M.D., McFadden, D., Merrill, A. and Ribiero, T. (2003) Healthy, wealthy and wise? Tests for direct causal paths between health and socioeconomic status. *Journal of Econometrics*, 112, 3-56.
- Alesina, A., Glaeser, E. and Sacerdote, B. (2005) *Work and leisure in the U.S. and Europe: Why so different?* NBER Working Paper No. 11278, NBER, Cambridge (MA).
- Baltes, P. B. and Baltes, M.M. (1990) Psychological perspectives on successful aging: The model of selective optimization with compensation. In P. B. Baltes and M.M. Baltes (Eds.), *Successful Aging: Perspectives from the Behavioral Sciences*, New York: Cambridge University Press, pp. 1-34.
- Bassanini, A. and Duval, R. (2006) *The Determinants of Unemployment across OECD Countries: Reassessing the Role of Policies and Institutions*, OECD Economic Studies, 42, Paris: OECD.
- Blanchard, O. (2004) *The economic future of Europe*. NBER Working Paper No. 10310, NBER, Cambridge (MA).
- Bodie, Z., Merton, R.C. and Samuelson, W.F. (1992) Labor supply flexibility and portfolio choice in a life-cycle model. *Journal of Economic Dynamics and Control*, 16, 427-449.
- Bonsang, E., Adam, S., Bay, C., Germain, S. and Perelman, S. (2007) *Retirement and cognitive reserve: A stochastic frontier approach applied to survey data*. CREPP working paper 2007/04, University of Liege.
- Börsch-Supan, A. and Lusardi, A. (2003) Saving: Cross-national perspective. In A. Börsch-Supan (Ed.), *Life-Cycle Savings and Public Policy: A Cross-National Study in Six Countries*, Amsterdam: Elsevier.
- Brandtstädter, J. and Renner, G. (1990) Tenacious goal pursuit and flexible goal adjustment: Explication and age-related analysis of assimilative and accommodative strategies of coping. *Psychology and Aging*, 5, 58-67.
- Brown, J. (2009) Understanding the role of annuities in retirement planning. In A. Lusardi (Ed.), *Overcoming the Saving Slump: How to Increase the Effectiveness of Financial Education and Saving Programs*, Chicago: University of Chicago Press, forthcoming.
- Browning, M. and Lusardi, A. (1996) Household saving: Micro theories and micro facts. *Journal of Economic Literature*, 34, 1797-1885.
- Bunker, J. P., Frazier, H. S. and Mosteller, F. (1994) Improving health: Measuring effects of medical care. *The Milbank Quarterly*, 72, 225-258.
- Carstensen, L.L. (1991) Socioemotional selectivity theory: Social activity in life-span context. *Annual Review of Gerontology and Geriatrics*, 11, 195-217.
- Castellino, O. and Fornero, E. (2006) Private pension in Europe and in the United States: A comparison of recent and likely future developments. *The ICFAI Journal of Employment Law*, 4, 8-34.
- Cheron, A., Hairault, J.-O. and Langot, F. (2008) Age-dependent employment protection. IZA Discussion Paper No. 3851, IZA, Bonn.
- Cocco, J.F., Gomes, F.J. and Maenhout, P.J. (2005) Consumption and portfolio choice over the life cycle. *The Review of Financial Studies*, 18, 492-533.
- Constantinides, G.M. and Duffie, D. (1996) Asset pricing with heterogeneous consumers. *Journal of Political Economy*, 105, 219-240.
- Crépon, B. and Aubert, P. (2003) Productivité et salaire des travailleurs âgés. *Economie et Statistique*, 368, 157-185.
- Cutler, D.M. and McClellan, M.B. (1998) What is technological change? In: Wise, D.A. (ed.), *Inquiries in the Economics of Aging*, Chicago: University of Chicago Press, pp. 51-81.
- Cutler, D.M. and Sheiner, L. (1998) Demographics and medical care spending: Standard and non-standard effects. NBER Working Paper No. 6866, NBER, Cambridge (MA).
- Diener, E., Lucas, R. E. and Scollon, C. (2006) Beyond the hedonic treadmill: Revising the adaptation theory of well-being. *American Psychologist*, 61, 305-314.
- European Commission (2007) *Discrimination in the European Union*. Special Eurobarometer 263, Brussels: European Commission.
- European Commission (2009) *The METRIS report: Emerging trends in socio-economic sciences and humanities in Europe*. European Commission, Directorate-General for Research, Brussels.
- Freeman, R. and Schettkat, R. (2001) Marketization of production and the US-Europe employment gap. *Oxford Bulletin of Economics and Statistics*, 63, 647-70.
- Galama, T., Kapteyn, A., Fonseca, R. and Michaud, P.-C. (2008) *Health, saving and retirement*. RAND Working Paper, forthcoming.
- Geanakoplos, J., Mitchell, O. and Zeldes, S. (2000) *Social security money's worth*. NBER Working Paper No. 6722, NBER, Cambridge (MA).
- Goldman, D.P. et al. (2004) *Health Status and Medical Treatment of the Future Elderly: Final Report.*, Santa Monica: RAND Corporation.
- Gollier, C. (2001) *The Economics of Risk and Time*. Cambridge: The MIT Press.
- Gomes, F. and Michaelides, A. (2003) *Aggregate implications of social security reform*, paper

## Annex 2

### References

- prepared for the Fifth Annual Joint Conference of the Retirement Research Consortium 'Securing Retirement Income for Tomorrow's Retirees', May 15-16, 2003, Washington, D.C.
- Grossman, M. (1972) On the concept of health capital and the demand for health. *Journal of Political Economy*, 80(2), 223-255.
- Gruber, J. and Wise, D. (2004) *Social Security Programs and Retirement around the World: Micro-Estimation*. Chicago: University of Chicago Press.
- Haidt, J. and Rodin, J. (1999) Control and efficacy as interdisciplinary bridges. *Review of General Psychology*, 3, 317-37.
- Heckman, J. (2000) Policies to foster human capital. *Research in Economics*, 54, 3-56.
- Heckman, J., Lochner, L. and Taber, C. (1998) Explaining rising wage inequality: Explorations with a dynamic general equilibrium model of labor earnings with heterogeneous agents. *Review of Economic Dynamics*, 1, 1-58.
- Hetze, P. and Ochsen, C. (2005) *How aging of the labor force affects equilibrium unemployment*. Thünen Series of Applied Economic Theory Working Paper No. 57.
- Ilmarinen, J. (2006) *Towards a longer work life! Ageing and work life quality in the European Union*. Finnish Institute of Occupational Health and Ministry of Social Affairs and Health, Helsinki.
- Kahneman, D., Krueger, A.B., Schkade, D.A., Schwarz, N. and Stone, A.A. (2004) A survey method for characterizing daily life experience: The day reconstruction method. *Science*, 306, 1776-1780.
- Kalwij, A. and Vermeulen, F. (2008) Health and labour force participation of older people in Europe: what do objective health indicators add to the analysis? *Health Economics*, 17, 619-638.
- Kapteyn, A. and Andreyeva, T. (2008) *Retirement patterns in Europe and the U.S.* Panel paper No. 6, Netspar, Tilburg University.
- Karasek, R. and Theorell, T. (1990) *Healthy Work*. New York: Basic Books.
- Kohli, M. (1999) Private and public transfers between generations: Linking the family and the state. *European Societies*, 1, 81-104.
- Künemund, H. (2001) *Gesellschaftliche Partizipation und Engagement in der zweiten Lebenshälfte. Empirische Befunde zu Tätigkeitsformen im Alter und Prognosen ihrer zukünftigen Entwicklung*. Berlin: Weißensee Verlag.
- Künemund, H. (2006) Changing welfare states and the 'sandwich generation' – increasing burden for the next generation? *International Journal of Ageing and Later Life*, 1, 11-30.
- Lazear, E. (1979) Why is there mandatory retirement? *Journal of Political Economy*, 87, 1261-1284.
- Leuven, E. (2005) The economics of private-sector training: A review of the literature. *Journal of Economic Surveys*, 19, 91-111.
- Lusardi, A. (1999) Information, expectations, and savings for retirement. In H. Aaron (Ed.), *Behavioral Dimensions of Retirement Economics*, Washington, D.C.: Brookings Institution and Russell Sage Foundation, pp. 81-115.
- Lusardi, A. and Mitchell, O. S. (2007) Baby boomer retirement security: The role of planning, financial literacy, and housing wealth. *Journal of Monetary Economics*, 54, 205-224.
- Lyubomirsky, S., King, L. and Diener, E. (2005) The benefits of frequent positive affect: Does happiness lead to success? *Psychological Bulletin*, 131, 803-855.
- McNair, S., Flynn, M. and Dutton, N. (2007) *Employer responses to an ageing workforce: A qualitative study*. Research Report No. 455, Department for Work and Pensions, Leeds.
- Muellbauer, J. (2007) Housing, credit and consumer expenditure, paper prepared for the Kansas Federal Reserve Symposium, 31 August – 1 September 2007.
- Norton, E.C. (2000) Long-term care. In A.J. Culyer and J.P. Newhouse (Eds.), *Handbook of Health Economics, Volume 1*, Amsterdam: Elsevier.
- OECD (2004) *OECD Employment Outlook*. Paris: OECD.
- OECD (2005) *Long-term Care for Older People*. Paris: OECD.
- OECD (2009) *OECD Factbook 2009: Economic, Environmental and Social Statistics*. Paris, OECD.
- Omran, A.R. (1971) The epidemiological transition: A theory of the epidemiology of population change. *The Milbank Memorial Fund Quarterly*, 49, 509-538.
- Pinquart, M. and Sörensen, S. (2001) How effective are psychotherapeutic and other psychosocial interventions with older adults? A meta-analysis. *Journal of Mental Health and Aging*, 7, 207-243.
- Poterba, J., Rauh, J., Venti, S. and Wise, D. (2005) Utility evaluation of risk in retirement saving accounts. In D. Wise (Ed.), *Analyses in the Economics of Aging*, Chicago: Chicago University Press, pp. 13-52.
- Riach, P. and Rich, J. (2002) Field experiments of discrimination in the market place. *Economic Journal*, 112, 480-518.
- Scholz, J.K., Seshadri, A. and Khitatrakun, S. (2006) Are Americans saving 'optimally' for retirement? *Journal of Political Economy*, 114, 607-643.

- 
- Siegrist, J., Starke, D., Chandola, T., Godin, I., Marmot, M., Niedhammer, I. and Peter, R. (2004) The measurement of effort-reward imbalance at work: European comparisons. *Social Science and Medicine*, 58, 1483-1499.
- Siegrist, J. (2005) Social reciprocity and health: New scientific evidence and policy implications. *Psychoneuroendocrinology*, 30, 1033-1038.
- Sigg, R. (2007) Extending working life: Evidences, policy challenges and successful responses. In B. Marin and A. Zaidi (Eds.), *Mainstreaming Ageing: Indicators to Monitor Sustainable Progress and Policies*, Farnham: Ashgate, pp. 447-489.
- Skirbekk, V. (2003) *Age and individual productivity: A literature survey*. Max Planck Institute for Demographic Research Working Paper 2003-028, Max-Planck Institute for Demographic Research, Rostock.
- Taylor, P. and Walker, A. (1994) The ageing workforce: Employers' attitudes towards older people. *Work, Employment and Society*, 8, 569-591.
- Thomae, H. (1970) Theory of aging and cognitive theory of personality. *Human Development*, 13, 1-13.
- Tuljapurkar, S., Li, N. and Boe, C. (2000) A universal pattern of mortality decline in the G7 countries. *Nature*, 405, 789-792.
- Vikat, A., Spéder, Z., Beets, G., Billari, F.C., Bühler, C., Désesquelles, A., Fokkema, T., Hoem, J.M., MacDonald, A., Neyer, G., Pailhé, A., Pinnelli, A. and Solaz, A. (2007) Generations and gender survey (GGS): Towards a better understanding of relationships and processes in the life course. *Demographic Research*, 17, 389-440.
- Wahrendorf, M., Ribet, C., Zins, M. and Siegrist, J. (2008) Social productivity and depressive symptoms in early old age-results from the GAZEL study. *Ageing and Mental Health*, 12, 1-7.
- Wolfe, J.R. (1985) A model of declining health and retirement. *Journal of Political Economy*, 93, 1258-1267.
- Zaidi, A., Markovec, M. and Fuchs, M. (2007) Transition from work to retirement in EU countries. In B. Marin and A. Zaidi (Eds.), *Mainstreaming Ageing: Indicators to Monitor Sustainable Progress and Policies*, Farnham: Ashgate, pp. 395-419.

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