

# **Economic Consequences of Ageing in Europe**

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## **Abstract**

Many European countries are faced with demographic challenges owing to declines in fertility rates as well as a general increase in ageing populations. These demographic developments have significant repercussions on pension reforms. This paper studies the evidence on the participation of ageing populations to the workforce in Europe and examines the consequences of pension policies and different social security systems. We examine microeconomic evidence on pension income for populations across Europe by using data from the Survey of Health, Ageing and Retirement in Europe (SHARE) and the Family Resources Survey (FRS). This article shows, and reflects on the consequences of some key changes introduced by European governments to their pension systems. We suggest that the new pension policies will need to tackle the economic challenges of ageing including the issue of adequacy of post-retirement incomes and inequality of pension income.

**Keywords:** Pension income, adequacy, poverty.

## **Introduction**

In recent years there has been a trend towards sustainable pension systems with policy makers and academics alike showing an increasing interest towards private institutions playing a role in complementing public provisions and individuals being offered incentives to save for retirement. The sustainability of pension systems has provoked discussions in many western countries about the reform of funded pension schemes, the age of retirement, and the adequacy of post-retirement income. PAYG systems have been and still are the foundation of all state pension schemes, where pensions are paid out of current income which in turn depends on the number of individuals in employment (Barr, 2006b). Many developed countries have made adjustments to render pay-as-you-go (PAYG) pension systems sustainable and others have encouraged pension systems privatization with a greater emphasis on individual savings (Pedersen, 2004). The argument in favor of fully funded systems (where retirees receive pensions linked to their contributions over their lifetime) is one of long term sustainability, given that the proportion of population aged 65 and over for the next 50 years is projected to almost double in OECD countries, with a slower increase in those countries with large shares of ageing population such as Italy, Belgium, the UK, France and Germany (Whiteford and Whitehouse, 2006).

The implementation of different pension systems across Europe reflects the importance of different pension objectives within each government. Some countries, for example, in Central and Southern Europe have adopted a Bismarckian system whereby state pensions are viewed as part of a social insurance tradition, and constitute high proportions of welfare expenditure. Many Scandinavian countries and the UK, on the other hand, have opted for the Beveridge model, where only a minimum income is guaranteed by the state pension and where private contributions to funded pensions are encouraged (Baldwin, 1990; Kolmar, 2007). Over the past twenty years a number of pension reforms with common themes have taken place in many European countries with the simultaneous objectives of increasing pension systems sustainability and protecting pensioners from falling into poverty. The most recurrent reforms were the tightening of conditions for pension eligibility; the indexation of pension benefits to prices rather than earnings; the link between pension benefits and changes in life expectancy; the introduction of private Defined Contribution (DC) schemes, where the levels of pension benefits depend on the amount members contribute to the schemes and on the performance of assets in which the schemes are invested (Haverland, 2001).

The Bismarckian social policy tradition was initially adopted in Germany in the late 19<sup>th</sup> century, and later embraced by many other countries with a social insurance tradition (such as Austria, France, Italy, Spain, Greece) in central and southern Europe (Baldwin, 1990; Ferrera, 1996; Boersch-Supan, 2006). The Bismarckian model sees public pensions as a form of social insurance (Hennessy, 2008) and strongly relates earnings and contributions over the working life to expected benefits. In countries of a Bismarckian tradition the state-run PAYG pensions with a redistribution element is predominant and often takes the form of targeted or minimum pension plans.

For example in Austria higher benefits are paid to poorer pensioners and in Germany social assistance allows general welfare benefits to be used to protect poor retirees (OECD, 2005). The Beveridge tradition focuses on the provision of a basic pension using means-testing or flat rate benefits and paying the same amounts to retirees according to the number of years in employment. The state pension here takes the role of a redistributive component, a safety net, designed to prevent old age poverty (Whiteford and Whitehouse, 2006).

The authors are conscious of the problematic issues that country classification can raise in relation for example to policy changes over the timeframe examined, as illustrated by Johnson (1999). Korpi and Palme (1998) classify countries according to their welfare systems to explain poverty and inequality levels in Western countries, while Johnson was concerned with measuring social security convergence for a number of different welfare regimes. We use the classification of countries to explore whether a connection between pension systems and levels of pension income exists.

Before we define income adequacy, the concept of poverty needs to be addressed. We define as poor those individuals having resources (typically income) below 60 percent of the median of equivalised disposable income (Eurostat 2005). To measure post-retirement income adequacy we, therefore, compare the levels of income post-retirement to poverty rates among the elderly, in line with Engen et al. (2005). Since the countries included in our analysis are all part of EU15 we have used the 60% of median national income as poverty threshold as indicated by the Eurostat guidelines (CPS 98/31/2) as well as by Duncan *et al.* (1993) and Whelan *et al.* (2003). We then compare national median pension incomes as found in our analysis to national poverty thresholds<sup>1</sup>.

The issue of adequacy of income after retirement has been the subject of a number of studies in the UK and the US for many years (Bodie, 1990; Bernheim *et al.* 2001; Banks et al. 1998; Tanner, 1998; Ginn and Arber, 1999; Banks et al. 2002 and Blake, 2004). The link between social insurance and poverty levels has been researched extensively by Feldstein (see Feldstein, 1974; Feldstein, 2002; Feldstein, 2005). Certain economic literature focuses on studying the changes in the living standards after retirement (Whiteford and Kennedy, 1995), by examining changes in income, expenditure or consumption, as suggested by Atkinson in 1985. The theory underpinning this methodology is the life-cycle model put forward by Modigliani and Brumberg in 1954 and again by Ando and Modigliani in 1963. Other methods for measuring retirement income adequacy include use of replacement ratios, and examining the levels of consumption after retirement, as demonstrated by Banks et al. (1998). The measurement of consumption, however, can be problematic. Banks et al (1998) found that unanticipated shocks around the time of retirement can affect consumption levels of retirees, whereby a majority of individuals seem to have expectations about their future retirement income that exceed the effective pension entitlements. Both methodologies present measurement problems at

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<sup>1</sup> We apply the EUROSTAT threshold of 60% the median income levels for 2004.

cross-country level, for example, the choice of relevant goods to be included in the consumption measurement may vary from country to country, while replacement ratios can be significantly affected by the payments of lump sums, very common in some countries, further, they fail to address the issue of pension income inequalities amongst countries.

In this article we explore three main issues: firstly, we show the labour market status in Europe, secondly we estimate the differences in public and private pension components within EU countries; thirdly we consider the consequences of such differences on the levels of total pension income. A public pension system is a state-provided retirement income that covers all those in employment, while a private pension implies that coverage and benefits of the scheme ensue from the decisions taken by private agents and it includes individual pensions and occupational pension schemes. The definition above however is not unproblematic. It implies that where membership to occupational pension schemes is mandatory rather than resulting from the employees' decisions to adhere to the scheme, these should be included in the public sphere. However, here we choose to confine occupational schemes to the private domain even when mandated, if their funding derives from private sources rather than from the state (occupational schemes in the Netherlands are a good example).

### **Background Research**

A key question is whether higher degrees of social and economic equality are achieved in systems where public provisions represent a more significant component of retirement income than private pensions (see Johnson, 1999; Bud and Campbell, 2000; Disney, 2000; Brugiavini, and Peracchi 2003). Some literature suggests that low public provisions of income post-retirement are substituted by private provisions and vice-versa. Bonoli (2003) contends that where public pensions are earnings-related private or occupational pensions tend to be under-developed. The concept of substitution effect has been used by Sandmo in 1970 and by Dreze and Modigliani in 1972 to examine the consequence on saving and consumption decisions controlling for price change. Evidence of a substitution effect between private and public pensions is in agreement with the life-cycle motive for saving, that is, to provide for anticipated imbalances between future income and consumption standards (see Pedersen, 2004; Browning and Lusardi, 1996). According to the life-cycle theory individuals' savings for retirement will reduce at the presence of a generous public pension (Feldstein, 1974). Disney (2000) finds evidence of substitution effects between pension wealth and private saving when he investigates the consequences of the 1992 pension reform in Italy. A number of studies have examined the effects of welfare policies and different levels of social security on saving rates (see for example Atkinson, 1991; Hubbard *et al.* 1995; Feldstein 2005). The decline in personal saving, particularly in low-income households, caused by social insurance programs is demonstrated by Hubbard *et al.* (1995) and shown by Feldstein in a number of empirical studies (Feldstein, 1974; Feldstein, 1996). Rao (2001) contended that despite different countries attributing different roles and degrees of importance to public and private pension schemes, the results in terms of replacement

income and post-retirement wealth are similar which implies that individuals see public and private pensions as substitutes. Amongst studies that support this view many have shown that a substitution effect exists within a specific country or a specific age group (for example Munnell, 1982; Attanasio and Brugiavini, 1999, Disney, 2000). Those who have analysed the relationship between public and private pension provisions across a number of countries found that a substitution effect could only be detected during certain time periods, while there is no clear or consistent evidence of substitution between private and public pensions across countries and over time (Pedersen, 1997; Pedersen, 2004; Disney, 2000). A complementary relationship between public and private pensions is supported by a number of academics that have shown that a more generous public pension system might, in some cases, lead to a faster growth in private pensions (Dobbin and Boychuck, 1996). This means that private pensions could, in some cases, be boosted by an increase in public pensions because of an increase in expectations of what is considered to be an adequate income post-retirement (Pedersen, 2004). Attanasio and Brugiavini (1999) found in their study on the effects of the 1992 Italian pension reform known as the 'Amato' reform which distinctly decreased future pension entitlements, that a clear substitution effect only exists for heads of households aged between 30 and 50, while no evidence could be found for those nearer retirement or for younger generations. This and other studies (Dobbin and Boychuck, 1996) have prompted some authors to question the substitution effect between public and private provision of retirement income.

### **Pension arrangements in Europe**

It is widely accepted that the public pension system is one of the major components of the welfare state in Europe. However, the extent to which public pensions are seen as a means of social and economic equality varies remarkably across different European countries and is a legacy of decisions made by the political forces in power in the post-war years. Current pension provisions are mainly the results of pension arrangements and policies put in place in Western Europe in the post-war years. Different policies were implemented to set up comprehensive pension systems and led to two broad classifications of welfare traditions, the Bismarckian and the Beveridgean models. According to Bonoli's classification of social policy tradition, the Anglo-Scandinavian welfare system reflects the Beveridge model, whilst the Continental European welfare system developed into the Bismarckian model (see Bonoli, 1997). Social policies in Bismarckian countries are based on social insurance, where pension benefits are provided according to contributions, are earnings-related and the objective of state benefits is income maintenance after retirement. The Beveridgean social tradition is based on the provision of universal, typically flat-rate benefits with the objective of preventing poverty among the population, as a consequence, in the Beveridge model, also known as multi-pillar system, pension income comes from a number of different sources. The main differences between the two systems consist in the mix of public and private benefits provided and in the way pension schemes are financed.

In countries where the Bismarckian model of social insurance has been adopted workers receive earnings-related state benefits based on the

contributions made over their working life. According to Bonoli (2003) the extensiveness and generosity of these schemes might have hindered the role and the expansion of occupational and private pensions. The debate on the unfunded nature of PAYG public schemes is centred on how these schemes expose the traditionally generous social insurance countries to the economic and social threats posed by an ageing population (OECD, 1998). Germany, France, Austria, Italy, belong to the standard Bismarckian tradition where public pensions include earnings-related retirement income as well as disability and survivor benefits (Haverland, 2001). Korpi and Palme (1998) define Sweden as an encompassing model due to the mixed nature of its welfare state where a flat-rate basic pension is paid together with a supplementary, income-related pension (ATP) calculated according to defined benefit principles (Anderson, 2001). We concur with Bonoli (2003) who classifies Sweden as a social insurance country (and therefore closer to the Bismarckian tradition) due to its pension system predominantly financed on a PAYG basis. As suggested by Esping-Andersen (1990) and Ferrera and Hemerijck (2003) we regard Belgium as one of the conservative-corporatist welfare regimes (such as Germany, France, Austria and Italy) close to the Bismarckian tradition. Its high expenditure on pension as a percentage of GDP, a state pension that includes an earnings-related scheme and low labour force participation of 50-64 year olds (Whiteford and Whitehouse, 2006) are features that relate closely to the social insurance model.

In countries of Beveridgean tradition the state provide a minimum benefit aiming at preventing poverty amongst pensioners, while the responsibility of income maintenance lies with the individual through private pension planning (Rowlingson, 2002). In these countries (for example in the UK, Denmark and the Netherlands) funded private occupational schemes have thrived and sometimes taken mandatory form (for example in the Netherlands). Both the Bismarckian and the Beveridgean systems often include additional means-tested benefits targeted to pensioners whose contributions are not sufficient to provide them with a minimum pension income, usually linked to the national poverty threshold. Within countries of Beveridgean tradition there are notable difference pertaining to the type and level of minimum state pension as well as to the extensiveness of occupational / private schemes. The UK and Denmark, for example, present a first tier state pension that include basic benefit schemes (with the same amount paid to each retiree according to the number of years of work) and targeted plans or means-tested benefits (where poorer pensioners receive higher benefits) (Whiteford and Whitehouse, 2006). By contrast the Netherlands pay a basic state flat-rate pension (AOW) to all residents (a minimum of 50 years of residence are required for full benefits) from the age of 65. The level of the full state benefit here is set at 70 percent of the net minimum wage for singles and 100 percent for couples (Haverland, 2001). Denmark, the Netherlands and the UK have adopted a Beveridgean model close to the ideals of universal welfare coverage and of a flat-rate benefit, with the responsibility of maintaining their living standards placed on the individuals (Beveridge, 1942). Occupational pensions in countries adopting the Beveridge model have a saving role designed to maintain a standard of living during retirement comparable to an individual's earnings when in work. They are constituted of privately managed Defined Benefits (in the

Netherlands) or Defined Contribution schemes (in Denmark), while the UK uses a mix of DB and DC schemes. In defined benefit plans (DB) pension income depends on the number of years of contribution and on a proportion of annual earnings from work. In defined contribution (DC) schemes individuals receive a pension that comes from the monies invested and the return from the invested assets (Whiteford and Whitehouse, 2006) and can be susceptible to inflation, price volatility and failures of the capital markets (Haverland, 2001). Particularly, when converting the capital into an annuity, inflation is a key variable over the annuity's lifetime.

### **The last ten years of pension reforms**

In the last decade the pension systems of many European countries have undergone considerable changes, a World Bank report published in 1994, indicated that recent demographic trends would render PAYG systems unsustainable and that a move towards individual savings accounts would be advisable (World Bank, 1994). Increasing the financial sustainability and affordability of public pension systems was the main motivation behind the sets of reforms that took place in many European countries (Whiteford and Whitehouse, 2006). In this section we discuss the main changes to pension systems, implemented in the last decade, to illustrate governments' endeavours to achieve sustainability.

An important feature of pensions is that they are the result of long-term contracts and for those who are retired, current entitlements are functions of their country's pension system over many years and their personal work history. To overcome problems inherent with the interval between the enactment of pension reforms and their outcomes in terms of pension incomes for retirees Johnson (1999) and Johnson and Rake (1997) use a comparative pension simulation model where pensioners are assumed to have lived all their working life under a defined set of pension rules, in place at the time of their retirement, to allow for a direct comparison of the effects of contemporary pension regulations on pension outcomes across Europe. Our approach is to observe current retirees' pension income packages in relation to pre-reform systems, however in this section we also discuss the latest reforms to provide the context for our findings.

Of the countries examined only two, Italy and Sweden, have put in place radical systemic reforms, with an overhaul of the systems in place by adopting non-financial defined contribution (NDC) schemes. In these schemes the state PAYG scheme is separated into two components, an actuarial element that still operates on a pay-as-you-go basis and a redistributive element financed from taxation. The new actuarial element operates like a funded defined contribution scheme that pays an income stream where the present value at retirement amounts to the retiree's contributions and return accumulation (Barr, 2006a). Most European countries have proposed and enacted a number of parametric reforms to existing systems, where only some of the basic parameters of public pensions are changed. Examples of parametric reforms are the increase in the retirement age at which state benefits are received or increase in



contributions necessary to receive such benefits. France, Austria and Germany have implemented radical changes to their PAYG systems. France, for example, has introduced a link between number of contributions (in years) and life expectancy (Legros, 2006).

Parametric reforms can have a considerable impact on estimated public spending. The German government in 2001 estimated an increase of 5.5 percent in public spending for pensions over the next 50 years, but after the reforms were put in place in 2001 the new forecast for the same timeframe has gone down to 1.7 percent (Zaidi *et al.* 2006).

Table 1 here

Table 1 summarises the main parametric reforms introduced by the countries examined. The reforms are divided into 5 categories: retirement age, contribution rate, contribution requirement, benefit indexation, pension formula. In some cases, countries like Italy, that have carried out systemic reforms as well as parametric ones are also in the Table, this is because here the old schemes still apply to older cohorts of workers.

One of the most frequent reforms undertaken has been the change in retirement age. This reform, though politically difficult to push forward, tends to be more easily justifiable than reductions in generosity, as it can be linked directly to the increase in longevity. In many cases, the reform has simply involved the equalisation of the legal retirement age for men and women except in Italy, where the retirement age for both genders was increased.

Differences in welfare systems have been affecting the distribution and the age pattern of labour force participation and retirement. In countries where early retirement is allowed and/or is generous (typically Southern countries, but also Austria and France), we see a high prevalence of early retirees. This is confirmed by a number of studies on retirement decisions in OECD countries (see for example Blóndal and Scarpetta, 1998; Gruber and Wise, 1999 and 2002).

Reforms of contribution rates can be used to ease public finances in view of the increase in life expectancy for populations in Western Europe. Changing contribution requirements for eligibility to pension benefits is one of the most common changes analysed across the European countries - it has been a backtrack on the early retirement schemes quite popular in the 1970s and 1980s. Belgium, Denmark, Germany, France, Italy, Austria and Spain have all undergone changes to increase contribution requirements for early retirement or deductions for taking up pensions before the normal retirement age. Many countries, like Austria, Belgium, France and Italy have also seen an increase in the number of minimum contributions necessary to qualify for maximum pension.

In the past many countries moved away from allowing current pensions to be in line with earnings. Since 2005, most EU countries allow benefits to be in line with inflation, with the UK being the exception. The United Kingdom

is moving in the opposite direction having adopted price linking in the early 1980s. This is primarily due to the increasing gap between basic state pension and average earnings, likely to render many future pensioners dependent on means tested pensions. Most pension systems in Europe nowadays are no longer characterised by earnings-linked pensions but by price-linked pensions with the result of reducing the cost to Treasuries.

To extend working lives and discourage early retirement, countries like Greece, have increased entitlements to those who work beyond certain ages, or have encouraged people to work longer by reducing accrual rates. Some countries have modified the accrual rates according to earnings, France and Sweden, for example, have higher accrual rates for those on higher salaries. Changes in the pensionable salary have also been common in Europe, many countries limited the pensionable salary to the final few years of a career, when workers would usually be at the top of their earnings history. Recently this period has been prolonged so that the wage replaced by the pension may no longer be representative of the final salary. This reform is more likely to harm those with steep earnings career, while will have less effect on those on low-incomes.

### **Data**

We define an individual as retired if he or she define themselves as retired or if they have received a public pension in the preceding 12 months combined with retirement from economic activity (Gough and Arkani, 2007). The choice to consider self selection was made primarily to eliminate the effect of different effective retirement ages in the respective countries. Those who did not define themselves as ‘retired’ but did receive a public pension were also included in our sample. The Survey of Health, Ageing and Retirement in Europe (SHARE) allowed us to distinguish between public and occupational pension sources. Public provision of retirement income include: old age public pension, public pension and early retirement, public injury insurance, public pension of reversibility, public pension of invalidity and war public pension. The amounts received as private pension provision include: private or employer’s pension and early retirement, insurance for disability, and pension of reversibility as also illustrated in Table 2.

Table 2 here

By using SHARE we carried out an income analysis at individual level and a homogeneous cross-national analysis, which would otherwise be rendered difficult by countries’ idiosyncrasies. SHARE is a multidisciplinary cross-national longitudinal survey of continental Europeans over the age of 50 and their spouses. The baseline SHARE study includes data on twelve countries (ten at the time of the analysis) providing a representation of the different European regions from Scandinavia through Central Europe to the Mediterranean. We use data from SHARE Wave 1, the data was collected in 2004 and published in 2005 and include over 31,000 individuals interviewed aged 50 and above across eleven countries, from which we excluded Switzerland as it is not part of the European Union. The Family Resources

Survey (FRS) covers private households in the United Kingdom, its sample includes over 42,000 individuals of all ages and is drawn from the Postcode Address File (PAF). The UK data was also collected in 2004. All adults in selected households are eligible for inclusion in the survey which collects information on the incomes and circumstances of private households in the UK.

### **Labour Market Status**

Figures 1a and 1b here

In Austria and Italy the proportion of over 50s in work is much lower than in other countries (below 20% for both years). The percentage of people in work increases in all countries examined with the biggest increase in France. The percentage of people in the labour force is highest in Sweden and Denmark, where in 2006 reaches 40%. A comparison of figures 1a and 1b also shows that between 2004 and 2006 the proportion of retired decreased in France and Greece more than elsewhere.

### **Differences in public and private income components within EU countries**

Figure 2 here

Figure 1 shows Public and private pension coverage. The prominent role of private pensions in countries under the 'Beveridge' system is clear, in these countries a much higher proportion of the retired population receives a private pension. The UK is the country where private retirement income is most widespread with 68 percent of those in retirement benefiting from a private pension. Amongst the countries that have traditionally adopted a 'Bismarckian' model, there is evidence of a much lower private pension coverage partially compensated by a generally higher public pension coverage, which in Germany, Spain and Greece reaches 99 percent of the retired population. An interesting result is obtained for France, where 52 percent of those in retirement are receiving a private source of income. France is close to the 'Bismarckian' model by tradition, however its private sector pension system is a two-tiered structure with mandatory occupational schemes that complement the Basic Insurance pension, which means occupational pension plans are well established amongst private sector employees (Srinivas *et al.*, 2000). The results for Spain and Greece suggest that the vast majority of those in retirement rely almost entirely on the state pension, with only less than 2 percent receive a private pension.

### **Adequacy of pension income**

The income poverty threshold for each country was calculated at 60 percent of the median disposable income (Eurostat 2005). Figure 2 shows the median income values of public, private and total pension incomes and how each of the countries examined compare to their individual income poverty line.

Figure 3 here

The levels of total pension income vary greatly from country to country, Denmark, the Netherlands, Sweden and France show the highest income levels, far above their national poverty lines. In Austria, Belgium and in the UK the median of pension income is still above but very close to the poverty thresholds, while in Germany and Greece total pension income is markedly close to the national poverty line. Amongst the countries under scrutiny, Italy and Spain show levels of median total pension below their national poverty lines. The high levels of total pension income in Denmark, the Netherlands, France and Sweden, matched with relatively high public pensions tend to support the argument that in these countries basic state pensions are complemented by widespread private pensions. The graph also shows how the Netherlands have the highest pension income with a very high level of private provision. The size of private pensions is a consequence of coverage in terms of entitlements and a reflection of the contributions matured over the working life. This can, at least to a certain extent explain the high levels of Dutch private pensions thanks to a series of reforms favouring the development of private pensions since the 1950s. The data for Belgium shows a significant similarity to the median values for the eleven countries examined, with the total pension being above the poverty threshold. In Denmark, the Netherlands, Sweden and France the combination of income from public provisions and private pensions allows for far higher total pensions than elsewhere. This seems to support a complementary effect between public and private provisions given the levels of public pensions are relatively high with respect to the poverty lines. This substantiates the argument that to maintain pre-retirement living standards private components can be used extensively in conjunction with public pensions. We also note that in countries where traditionally there have been fewer incentives to invest in private pensions, such as Spain, Greece and Italy the number of pensioners receiving income from private provisions is extremely low (below 2 percent in Spain and Greece, just above 5 percent in Italy) which indicates that in these countries the vast majority of pensioners rely solely on state pensions. Private pension levels are also remarkably low in Germany where total pension income is only marginally above the poverty threshold.

Figure 4 here

We then measure income inequality by using the Gini coefficient, figure 3 illustrates our results on income inequality amongst pensioners. The Gini coefficients indicate firstly that pension income inequality is generally higher than total income inequality when those in work are also included. This is particularly evident for Spain and Greece, where the level of public pension is generally very low and private pensions negligible amongst current pensioners. Secondly, pension income tends to be more evenly distributed in Germany and Italy, where state pension is considered instrumental to increasing social fairness. The Netherlands and the UK (it is noteworthy that in the UK inequality for the whole population is higher than in the other countries examined) show lower inequality in pension income, which can be explained with the long-term commitment of the Dutch and UK governments to widespread coverage of private pension.

## Conclusions and implications

Within this article we examined the public and private provisions of income post-retirement and the overall levels of pension income for eleven European countries. We build on previous research (Pedersen, 1997; Disney, 2000; Pedersen 2004). We find that public pension provisions are still a major component of retirement income in many countries, private provisions are more significant, in terms of amounts received by pensioners, in countries with a Beveridgean tradition, with the provision of public flat-rate benefits, such as the Netherlands, Sweden and Denmark and the UK. Evidence shows that the UK, the Netherlands, Denmark and Sweden are the countries with the highest proportions of the retired population receiving a private pension and median private pensions greater than public pensions. The size and importance of private pensions are not only a consequence of coverage in terms of entitlements, but they also are a reflection of the contributions matured over the working life. This can, at least to a certain extent explain the high levels of private pensions in the Netherlands where the legislation that favoured the widespread development of private pensions dates back to the 1950s.

In countries of Bismarckian tradition, such as Austria, Belgium, Germany and Italy the proportion of pensioners drawing their retirement income from private sources is considerably lower, while for Greece and Spain the numbers indicate that pensioners tend to rely almost solely on public pension provision. Countries where state pension is considered as conducive to social fairness or where private pensions are sufficiently widespread show the highest levels of pension income equality (see for example Germany, Italy, the Netherlands and the UK).

Our findings further suggest that where private pensions supplement public pensions and private pension coverage is sufficiently high, the total median level of income lies well above the poverty line. This is also dependent on the level of basic state pension, as shown by the differences between the high total pension figures in the Netherlands and Denmark and the lower total pension in the UK. In the Scandinavian countries, where private pensions are a strong component of income post-retirement, public pensions are also generally high. Despite the many parametric reforms that have taken place in Germany, Austria and Italy, the outcomes of these reforms are still uncertain. For example, the median level of private pensions in Germany is still very low while in Austria and Italy private pensions play an extremely limited role, if any, for the vast majority of pensioners.

In terms of adequacy, countries where total retirement incomes are well above the national poverty line are also the countries where public and private pensions seem complement each other. For example, this is observed in the case of Denmark and Sweden, countries where public pensions are the highest in our sample, but also where private provisions are widespread amongst large proportions of the retired populations and increase the total

median income considerably above the respective national poverty lines. The absence of such an effect entails that in countries where public pensions are low and private pensions are not widespread total retirement income is either below or only marginally above the poverty threshold.

Public pensions are still a substantial part of retirement income, they can be used to lift low-income pensioners out of poverty and to reduce post-retirement income inequality.

The move towards private pensions can be useful but may lead to an increase in income inequality amongst pensioners.

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Table 1: Major reforms in the rules and regulations underlying the old-age pension systems

Country	Parametric reforms between 1995 and 2005				
	Retirement Age	Contribution rate	Contribution requirement	Benefit indexation	Public Pension Eligibility
Austria	✓		✓	✓	✓
Germany	✓	✓	✓	✓	
Sweden					
Netherlands		✓			
Spain			✓	✓	✓
Italy	✓	✓	✓		✓
France			✓		✓
Denmark	✓	✓	✓		
Greece	✓			✓	✓
Belgium	✓		✓		✓
UK	✓	✓			✓

Source: adapted from 'MISSOC Comparative Tables' from 1995 to 2005. International Social Security Association (2006) and 'Social Programmes throughout the World', various editions.

Table 2: public and private pension components

Public pension components	Private pension components
Old age public pension	Private or employer pension
Public pension and early retirement	Private or employer pension and early retirement
Injury insurance	Private or employer insurance for disability
Public pension of reversibility	Private or employer pension of reversibility
Public pension of invalidity	
War public pension	

Figure 1a 2004: Labour Market Status

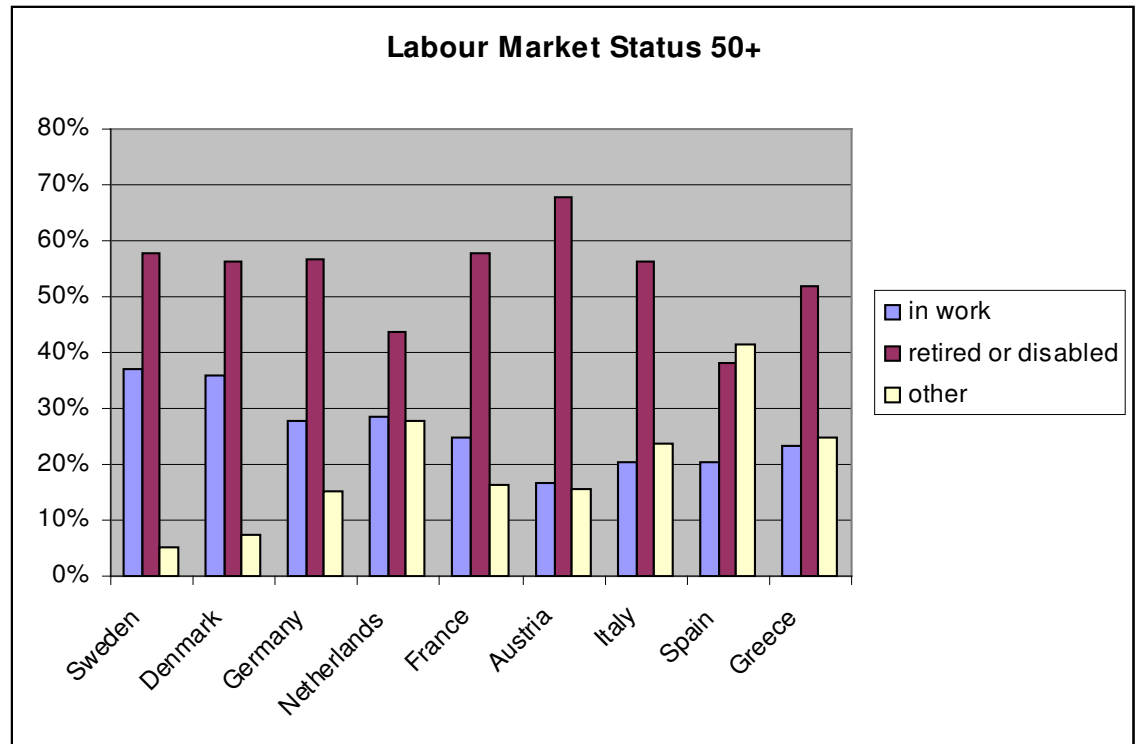


Figure 1b 2006: Labour Market Status

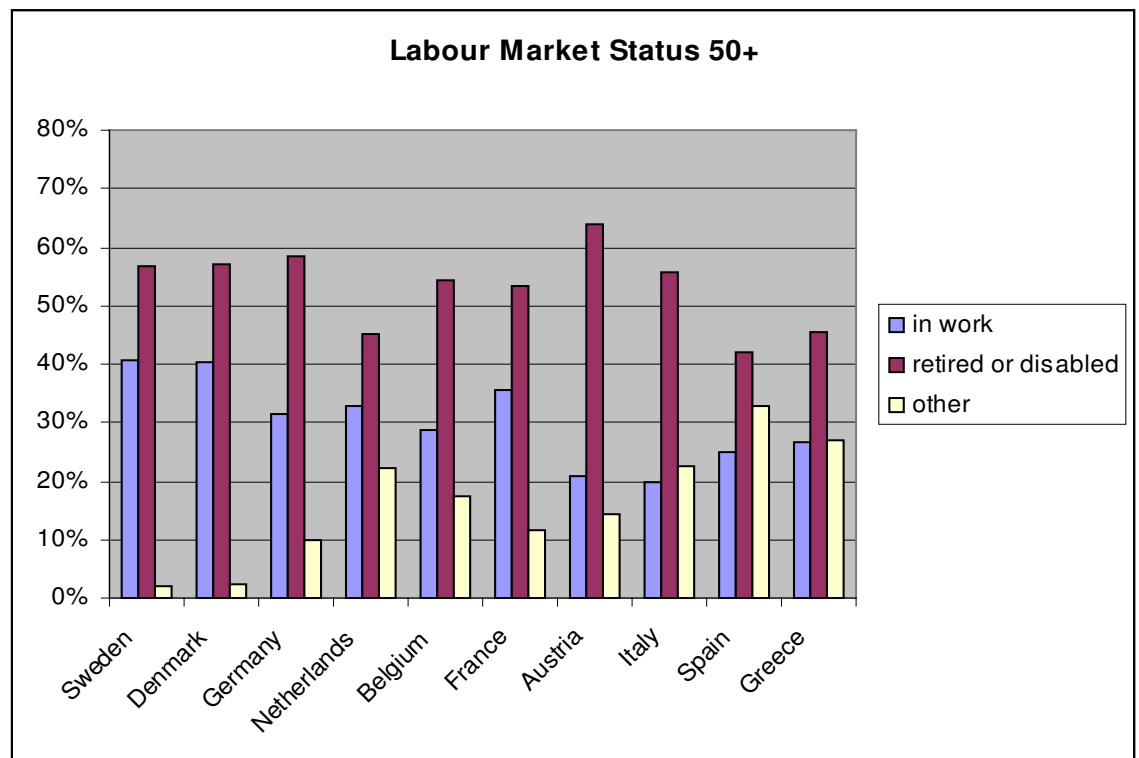


Figure 2: Public and private pension coverage

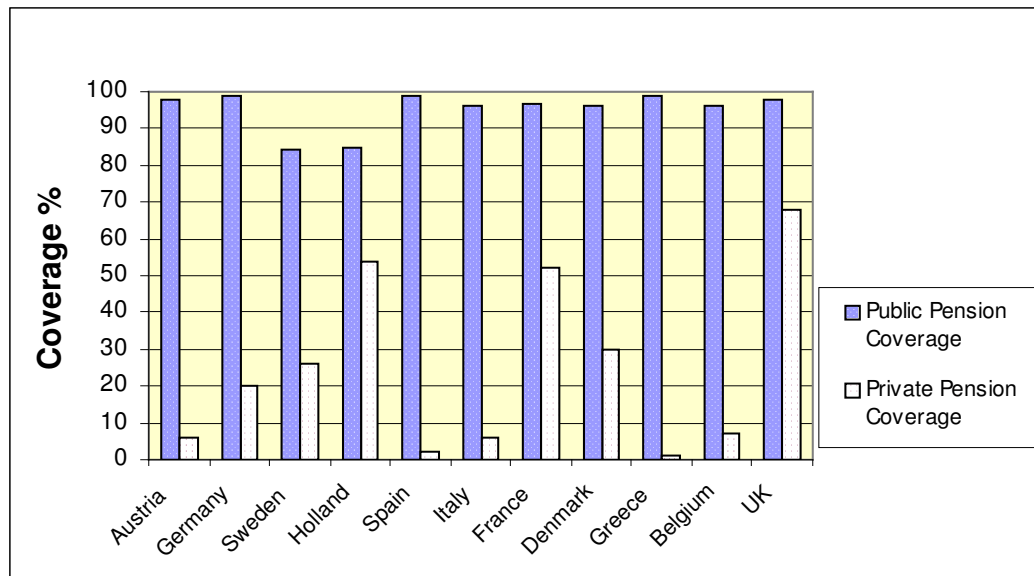
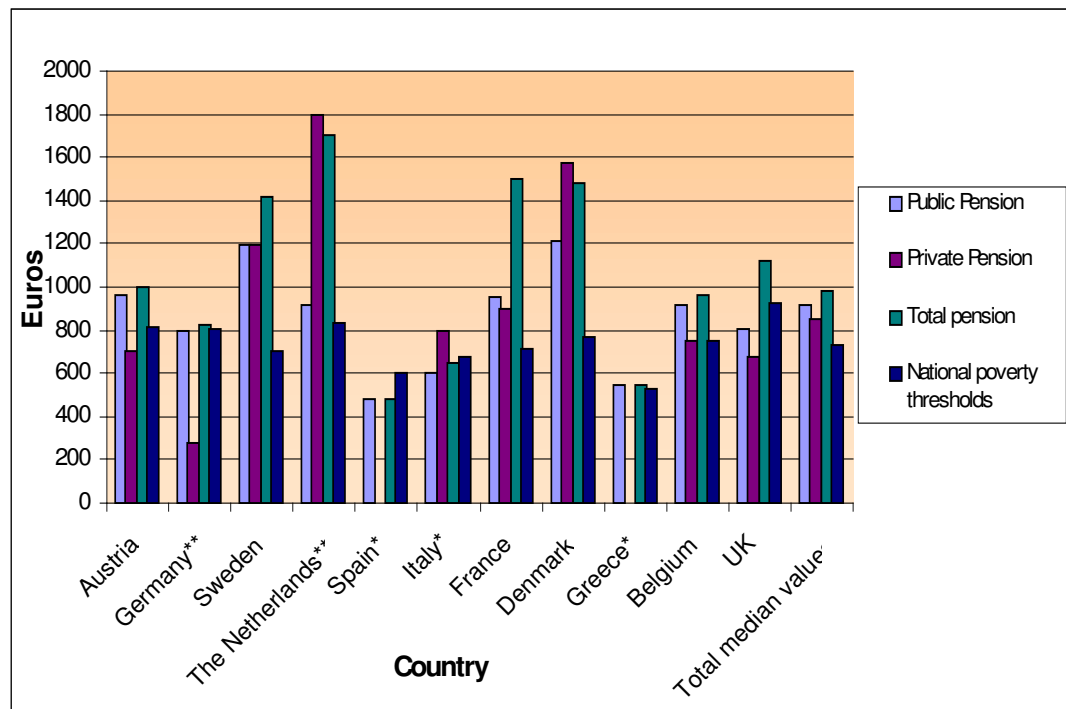


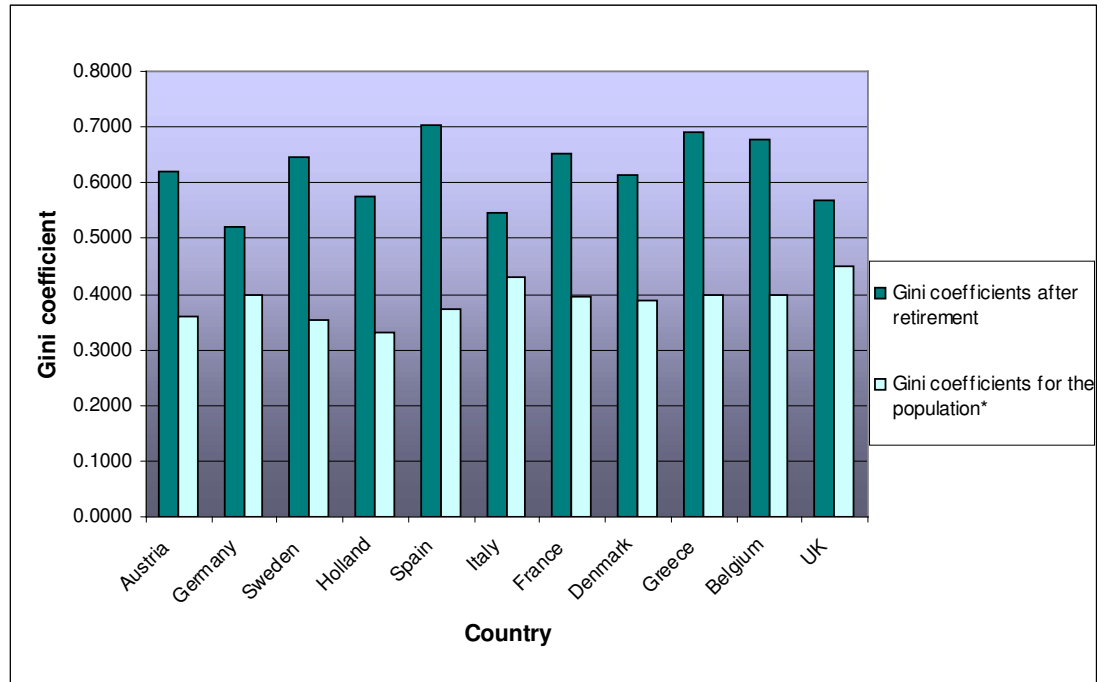
Figure 3: Amounts of public, private and total pensions in Euros (median values)



\* The median values for private pensions here cannot be considered valid because of lack of data

\*\*Poverty thresholds are calculated on 2005 data.

Figure 4: Income inequality – Gini coefficients



\* Source: EUROMOD 2003