

AFFLUENCE AND POVERTY IN OLD AGE: NEW EVIDENCE FROM THE EUROPEAN COMMUNITY HOUSEHOLD PANEL

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Abstract

The relative income positions and welfare of elderly persons in the EU are analysed using data from the European Community Household Panel. The elderly invariably receive lower average incomes than the non-elderly, but there are large variations across countries. Pensions represent the main source of income of the elderly, with labour and capital incomes contributing only marginally to total income. High replacement rates for old age pensions are not sufficient to guarantee protection against poverty in old age, as they fail to provide adequate support to vulnerable groups e.g., individuals with incomplete employment histories, or lone pensioners.

A much stronger association exists between welfare or satisfaction in old age and income inequality than between welfare or satisfaction and the generosity of old age pensions. It is thus the inequality reduction potential of old age pensions, rather than their generosity, that appears to be the key element in determining the ability of a pension scheme to deliver an adequate standard of living to the elderly. Pension reforms that intend to separate the income redistribution and income insurance functions of old age pensions are likely to strengthen intra-generational income redistribution, and diversify the sources from which the elderly obtain their incomes. The multi-pillar scheme is thus likely to eliminate poverty in old age more effectively than current income financing.

Keywords: income distribution, international comparisons, pensions, poverty

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1. Introduction

The population in the industrialised world is growing older. A World Bank forecast (World Bank, 1994) estimates that the population share of persons over sixty years old in the OECD countries will increase from 19.9 percent in 2000 to 27.0 percent in 2020, 30.7 percent in 2030 and peak at 31.2 percent in 2050. The same report forecasts that by 2030, at least one in three persons will be over sixty years old in the EU member states Austria, Germany, Italy, Luxembourg and the Netherlands. The combination of demographic ageing and generous old-age pension schemes in the industrialised world has raised doubts about the future sustainability of existing institutional arrangements for income insurance in old age. In addition, the effects of demographic ageing are compounded by early retirement.

Roseveare *et al.* (1996) predict that between 1995 and 2040, pension expenditures as a share of GDP will markedly increase in all EU countries, with the exception of Ireland and the United Kingdom. In Belgium, Finland, Germany, Italy, Portugal and Spain, pension expenditures are projected to increase to 15 percent or more of GDP. The net liabilities of public pension systems i.e., projected benefits minus projected contributions, are predicted to exceed 100 percent of GDP in Belgium, France, Portugal, Spain and Sweden. The magnitude of the ageing problem – and its implications for pension systems – are such that it cannot be relied on simple solutions to solve the problem. Small increases in retirement ages, or marginal increases in social security contribution rates, or a small decrease in old-age pension replacement rates, will be insufficient to stabilise the financial balance of existing old-age income insurance systems. Projections of the future costs of the public pension systems show that The Centre for Strategic and International Studies, a Washington-based think-tank, estimates¹ that, in order to hold benefits and tax rates constant, retirement ages in France and Italy would need to increase to 73 and 72 respectively by 2030. By 2050, retirement ages would need to be 78 and 79 respectively. Comprehensive changes to the existing pension systems, which are run on a pay-as-you-go (PAYG) basis in the majority of industrialised countries, are therefore necessary, and these will probably need to be coupled with the introduction of fully funded elements, as advocated by international organisations (e.g., World Bank, 1994; OECD, 1998) and the academic community (e.g., Feldstein, 1996).

Under PAYG, the benefits to the current cohort of retirees are financed through levying a tax on the earnings on the current cohort of workers. If demographic ageing leads to an increase in the number of future retirees, one (or a combination of) the following institutionally determined parameters needs to be adjusted: legal retirement ages, or labour force participation rates, or social security tax rates need to go up, or pension benefits need to go down. Alternatively, an increase in the economic rate of growth may successfully offset the effects of population ageing on the financial stability of PAYG pensions. From an efficiency point of view, one of the problems of PAYG pensions is that redistribution – both inter- and intra-generational – and income insurance are carried out within the same structure. As a result, only a loose link exists between contributions paid to the pension system and benefits received from the pension system.

The proposal to introduce multi-pillar defined contribution schemes (see e.g., World Bank, 1994) is an attempt to break up the integrated structure of PAYG and create a pension system where each of the components fulfils a distinct function. The first pillar would provide a minimum pension guarantee, and might be financed out of general taxation. The function of the first pillar would be to provide intra-generational redistribution and protect pensioners against living in poverty. The second pillar would be a mandatory pension savings plan. Contributions would be paid into individual accounts. The second pillar would provide income insurance, but not income redistribution (or only limited redistribution). Finally, the third pillar would be a voluntary pension savings plan for people who would like to save more towards their retirement than publicly mandated. Under a multi-pillar arrangement, a much closer correspondence would exist between contributions and benefits. This

¹ See *Financial Times*, “Problem of ageing ‘underestimated’”, 17 June 2000.

would remove certain disincentive effects, but at the same time the multi-pillar pension scheme would continue to redistribute incomes, both inter- and intra-generationally.

Reforms of PAYG pensions and the introduction of multi-pillar pension schemes with fully funded elements are likely to invariably lead to a decrease in replacement ratios for old-age pensions. What will the welfare consequences of a less generous old age pension system be? OECD (1998) and World Bank (1994) argue that under current arrangements, high replacement ratios ensure adequate protection against poverty for the large majority of elderly persons, and that in many countries, the elderly are better-off than the non-elderly. Pockets of poverty exist among those elderly with low lifetime earnings, and with incomplete contribution records (i.e., employment history interrupted by unemployment, illness, disability). High replacement ratios will do little to alleviate this type of poverty, which would require much more targeted programmes, or a universal benefit. High replacement ratios by themselves are therefore insufficient to guarantee adequate protection against poverty in old age, nor are they necessary. Therefore a decrease in the degree of protection extended to the elderly should, in principle, not entail significantly negative welfare consequences for the elderly, who are, on average, better protected against low incomes and poverty than other household types.

Tsakoglou (1996) and Hauser (1997) examine the living standards of the elderly and non-elderly in the European Union, and discuss the relevance of replacement ratios for old age pensions for the protection of the elderly against poverty. Tsakoglou uses household budget survey data from national sources subsequently harmonised by Eurostat, supplemented by information from Hagenars *et al.* (1992). The data refers to the period 1987-1990. Hauser uses Luxembourg Income Study (LIS) data, supplemented by data from national sources for Greece and Portugal. The reference period for the Hauser study is 1985-1992.

While Tsakoglou distinguishes between elderly and non-elderly persons – and elderly person is a person aged 65 years or more – for the purposes of the welfare comparisons, Hauser distinguishes between persons living in pensioner and non-pensioner households. A pensioner household is a household in which the head is aged 55 years or more, and at least one household member receives a pension. Tsakoglou analyses relative income positions using both expenditure and income data, while Hauser uses exclusively income data. Both studies equalise their income data using OECD equivalence scale factors. Poverty is measured in relative terms. The poverty results referred to here are the results obtained by Tsakoglou and Hauser for the poverty line equal to half the median and mean respectively.

Tsakoglou's results show that in Europe, on average, the non-elderly are better-off than the elderly. This conclusion holds for all countries when poverty status is assessed using household expenditure data. When household income data are used, the same general conclusion emerges, although the elderly are better-off than the non-elderly in three countries: Ireland, Luxembourg and Spain.

Tsakoglou finds that the mean equivalent income of the elderly is lower than the mean equivalent income of the non-elderly. Income differences between elderly and non-elderly are smallest in Ireland, Luxembourg, France and Spain, and largest in Denmark, Portugal and the United Kingdom. The lowest incidence of poverty among the elderly is found in Ireland, Luxembourg, the Netherlands and Spain, while the highest poverty incidence is found in Denmark, Greece, Portugal and the United Kingdom. Differences in living standards between the elderly and the non-elderly are larger in the Southern EU member states (with the exception of Spain), and smaller in the Northern EU member states (with the exception of Denmark and the United Kingdom). The measure of the extent of poverty among the elderly in the EU is quite sensitive to whether poverty is assessed using expenditure or income information. In the case of Denmark, these differences are largest and most noticeable. Using expenditure information, only 7.5 percent of the elderly Danes are poor. Using income, however, the poverty rate is as high as 27 percent.

Based on these results, Tsakoglou predicts that cuts in pensions and other transfer payments targeted at the elderly in order to safeguard the solvency of current institutional arrangements are likely to have

very negative effects on the living standards of the elderly. Likewise, they will entail a weakening of the relative income position of the elderly in comparison to the non-elderly. Tsakloglou's analysis fails to take into account the heterogeneity of the elderly, and does therefore not allow to identify the observable characteristics of the elderly that are particularly vulnerable. This information is, however, an essential ingredient for the evaluation of the success of the old age income transfer programmes.

Hauser observes that the aim of the pension system is not only to guarantee an adequate standard of living to the elderly, but also to reduce inequality among pensioners and to avoid poverty in old age (Hauser, 1997: 10). On the basis of these criteria, Hauser evaluates the mandatory pension systems in a range of EU member states. The Netherlands succeed in providing a high level of well-being for pensioners, and inequality and poverty among pensioners are low. France, Luxembourg and Spain also attain a high level of well-being for their pensioners, while pensioner inequality and poverty are in the medium range. Denmark provides only a low level of well-being for its pensioners, but inequality and poverty among pensioners are very low. Belgium, Germany and Ireland provide medium levels of well-being for their pensioners, but inequality and poverty are medium to low. Finally, Greece, Italy, Portugal and the United Kingdom provide medium or low levels of well-being for their pensioners, and, in addition, inequality and poverty among pensioners are high.

The objective of this paper is to re-examine the available empirical evidence using data from a unique cross-national and comparable dataset collected at the level of the European Union. We examine the living standards of elderly persons in the European Union, and we compare welfare levels of the elderly and non-elderly, using a range of indicators. We extend the analysis in order to take into account the heterogeneity of the elderly population. The importance of taking into account the diversity of the elderly has been forcefully demonstrated by Quinn (1987) in his analysis of the economic status of the elderly in the United States. The third wave of the European Community Household Panel (ECHP) that is used in this paper comprises information on 14 EU member states, collected at roughly the same point in time i.e., during the course of 1994. Unlike the Tsakloglou (1996) and Hauser (1997) studies, this paper can draw on directly comparable information obtained from a single source and for a unified time period.

The paper is structured as follows. Section 2 provides a detailed description of the ECHP and explains the methodology employed in this paper. Section 3 analyses relative income positions of elderly and non-elderly citizens in the European Union. Relative income positions and the distribution of incomes are described using inequality measures, poverty indices and subjective welfare assessment measures. the distribution of incomes among elderly and non-elderly in the EU. In section 4, the institutional background for income insurance in old-age in the EU member states is described and against the background of this information, a thorough discussion of the results is undertaken country by country. Section 5 concludes. The appendix includes information on the basic features of the public pension systems in the 14 ECHP countries, in order to aid the interpretation of the results, although it is not possible to establish a direct correspondence across countries between differences in living standards of the elderly and differences in institutions for old age income insurance.

2. Data and methodology

The results published in this paper are drawn from the European Community Household Panel (ECHP). The ECHP is a standardised longitudinal household survey. It is based on an almost identical questionnaire in all participating countries and the project is co-ordinated by Eurostat, the statistical office of the European Union. Unlike other internationally comparative household panel surveys e.g., the Cross-National Equivalent File or the Panel Comparability Project (PACO), where the standardisation of variables is carried out *ex post*, the standardisation in the ECHP is undertaken *ex ante* i.e., the content of the data base is determined for all the participating countries before the fieldwork takes place. At the level of the participating countries, the National Data Collection Units (NDUs) are responsible for the sample selection, carrying out the fieldwork and the initial data processing of the survey. The first wave of the ECHP was conducted in 1994 and included all EU member states with the exception of Austria, Finland and Sweden. Subsequently Austria and Finland

also joined the project, so that the third wave of the ECHP is representative of the entire European Union, with the exception of Sweden.

Within each country, the ECHP is, in principle, representative of all private households on the territory of the country in question. Sampling frames and procedures are the responsibility of the NDUs and are therefore not standardised across countries. In the majority of participating countries, samples are drawn via two-stage sampling, with geographical areas as primary sampling units and households or addresses as secondary sampling units. In Portugal and France, a three-stage sampling design is used, whereas in Denmark, Luxembourg, Northern Ireland and parts of Italy and the Netherlands, simple random sampling is used. A detailed description of the ECHP can be found in Eurostat (1996) and Peracchi (2000) provides a critical assessment of the data base.

The ECHP is based on a sample of approximately 60,000 households and 130,000 adults (170,000 adults and children). It covers a wide range of topics, including demography, income, employment, unemployment, health, education and training, housing and social relations. Although the ECHP is essentially a longitudinal survey – following the same persons through time – the data from each wave can be used as independent cross-sections and the data are supplied with a set of cross-sectional weighting factors for this purpose.

Consequently, this paper only uses data from wave three of the ECHP, which was carried out in 1996. The total sample size for wave three is equal to 170,179 individuals (adults and children). The analysis in this paper is based on a sample of 165,817 individuals, after discarding the information on individuals for whom it was not possible to calculate their age and/or equivalent income. The largest national sample is that for Italy with 21,140 individuals, while the smallest sample is observed for Luxembourg with only 2,545 individuals.

The use of the weights is supposed to correct the results for the effects of unit non-response and attrition, while imputation of missing values is used in order to deal with item non-response. In fact, Eurostat spends considerable time and resources on weighting the data and on imputations, which partly accounts for the relatively long time lag between the collection of the information and the release of the data.

Unit and item non-response rates are highly variable across countries. Peracchi (2000) supplies detailed information and non-response and attrition rates. In wave 1 of the ECHP, the household response rates were highest in Greece and Portugal, where 90 percent of the selected households completed the interview. They were worst in Germany and Luxembourg, where less than 50 percent of the selected households completed the interview. In subsequent waves, the response rates for the remaining households were quite high, with those countries that initially accounted for the worst response rates now exhibiting the highest rates of respondent ‘loyalty’.

The imputation that is undertaken by Eurostat affects the income variables. Again, Peracchi (2000, 16) provides details. As a result of the imputation, there is little missing income information in the ECHP. In general, in less than 1 percent of the cases information on household income or its components is missing. However, a lot of income information is also imputed. In wave three of the ECHP, total net household income contains some imputation in 37.4 percent of all cases. The income component with the highest imputation rate is, expectedly, capital income. In wave three, most income information was imputed for Belgium and France, and least for Ireland, the Netherlands and Spain. Rules used by Eurostat for imputation and weighting of the data are therefore likely to significantly affect the results obtained. Little information is, however, available to users of the data in order to check the adequacy and consistency of these rules which the user has to accept as given.

The objective of this paper is to describe the relative income positions of elderly and non-elderly persons in the member states of the European Union by way of the ECHP data.

For the purposes of the analysis, an elderly person is defined as a person aged 65 years and over. This benchmark is chosen as the legal retirement age (for males) is 65 in a majority of EU member states², and also in order to facilitate the comparability of the results with other, similar, studies (e.g., Tsakoglou, 1996). In Table 1, the structure by age of the population in the EU is summarised. The share of elderly persons in the population is highest in Germany and in Greece, and lowest in Ireland and the Netherlands. On average, one in six Europeans is aged 65 years or over. The age dependency ratio corresponds to the number of elderly persons aged 65 years and above, divided by the number of persons of working age. This ratio may serve as an approximation of the number of retired dependent persons per active member of the labour force. Age dependency ratios are highest in Germany and Greece, and lowest in Ireland and the Netherlands. They vary between four working-age persons for each elderly person and five working-age persons for each elderly persons. Age dependency ratios are, however, predicted to considerably deteriorate in the future. Bos *et al.* (1994) project that the EU average elderly dependency ratio will increase from 0.214 in 1990 to 0.259 in 2010 and 0.403 in 2030. In Austria, Germany, Italy, Luxembourg and the Netherlands, dependency ratios are predicted to approach 0.5 by 2030, thus putting to the test inter-generational solidarity.

[TABLE 1 ABOUT HERE]

The income distributions analysed in this paper are distributions of persons and not of households. For this purpose, an assumption of equal sharing of incomes among all household members is made, and each household member is credited with the income per equivalent adult in the household. Equivalised household income adjusts untransformed household income for differences in needs and economies of scale in consumption. The equivalisation of household incomes is undertaken using the modified OECD equivalence scale. This scale gives a weight of 1.0 to the first adult in the household and 0.5 to additional adult household members. Children younger than 14 years of age receive a weight of 0.3. Thus, the marginal cost of an additional household member is not fixed, but decreasing and children have lower needs than adults. Equivalisation of household incomes is often criticised for its *ad hoc* nature (see e.g., Nelson, 1993) and no consensus has emerged on what type of equivalence scale should be used in applied work. However, while it is important to recognise the limitations of the method and to exercise prudence when interpreting the results obtained, it is equally important to adopt a pragmatic stance. Thus, although income distribution results are undoubtedly sensitive to the exact choice of equivalence scale, the OECD scales do not make extreme assumptions – either perfect economies of scale, or no economies of scale – that have been shown to imply extreme outcomes i.e., extreme relative income differences (see e.g., Buhmann *et al.*, 1988).

Disposable income in the ECHP is total annual household income net of tax and other deductions. Income data may be rendered cross-nationally comparable by applying a set of purchasing power parity (PPP) factors³ to the incomes measured in national currency units. Unlike in the case of Tsakoglou (1996), the analysis in this paper is limited to the examination of welfare by using income indicators only, rather than income and expenditure indicators. In the ECHP no information on household expenditures is available. Data limitations therefore prevent us from implementing this type of analysis. Household expenditure is often preferred to household income in income distribution and poverty analysis, as expenditure is generally measured with greater precision than income, and because current expenditure generally provides a better approximation of permanent income than current income (see Deaton, 1980). In addition, the income information contains no imputations for the value of benefits received in-kind e.g., free or subsidised housing or medical care. To the extent that the importance and scope of in-kind benefits varies across countries, this omission is likely to distort our results. Information provided by Eurostat (Eurostat, 2000) on benefits received in-kind shows that on average in the EU, some 8 percent of total transfers are in-kind. Among the ECHP

² See Appendix for precise information on retirement ages in the EU.

³ The PPP rates supplied by *Eurostat* for the third wave of the ECHP are the following: Austria (15.19), Belgium (42.13), Denmark (9.740), Finland (7.012), France (7.274), Germany (2.148), Greece (236.5), Ireland (0.7032), Italy (1.696), Luxembourg (40.79), Netherlands (2.250), Portugal (142.7), Spain (134.9), United Kingdom (0.7305).

countries, the share of in-kind benefits in transfers is lowest in Italy and Spain (6 percent), and highest France (10 percent) and Denmark (11 percent).

3. The distribution of incomes and welfare among elderly and non-elderly in the European Union

The institutional arrangements for the provision of income insurance in old age across Europe are described in the Appendix. The old age pension systems greatly differ across countries, shaped by history, social relations and general economic conditions and prosperity. In the majority of EU countries, pensions are financed by taxing the labour incomes of the currently economically active generation in order to finance the pension benefits of the current generation of old age pensioners. Pensions are thus a form of institutionalised savings that allow to transfer purchasing power from one period to another, typically from work to retirement. Pensions are the main source of income of the elderly, as is shown in Table 2 and changes in the way in which pensions are provided in the future are likely to have an impact on the relative income and the welfare of the elderly.

[TABLE 2 ABOUT HERE]

The overwhelming majority of Europeans aged 65 years and over have cut their ties with the labour market. In Austria, Belgium, Finland, France, Germany, Luxembourg, the Netherlands and Spain, 1 percent or less of the elderly are still economically active. In Denmark, Greece, Italy and the United Kingdom, between 2 and 3 percent of the elderly continue to work, while the Irish and Portuguese are the most active in old age, with employment rates for elderly persons of 6 and 9 percent respectively. As a corollary, pension income represents by far the most important source of income of elderly Europeans.

In general, throughout the EU, pensions are the second most important source of personal incomes, after labour incomes. Exceptions are Denmark, Finland and Ireland, where overall non-pension transfers are a more important source of income than pensions. Labour incomes account for between 46 (Finland) and 59 (Portugal) percent of the incomes of all persons, pensions for between 17 (Ireland) and 33 (Italy) percent, non-pension transfers for between 5 (Greece) and 29 (Ireland) percent, and other incomes⁴ for between 3 (Denmark and Germany) and 14 (Greece) percent.

Incomes of the elderly in the EU are not very diversified by source of income. Pensions represent between 75 (United Kingdom) and 93 (Finland and Germany) percent of their total personal incomes. Consequently, the elderly receive little income from alternative income sources. Labour incomes account for less than 2 percent of the income of the elderly in the majority of EU countries. Exceptions are Denmark, Greece, Ireland, Italy, Portugal and the United Kingdom. In Ireland, over 7 percent of the income of the elderly is derived from the labour market. In most EU countries, non-pension transfers represent a more important source of income for the elderly than labour incomes. The income shares for elderly persons of non-pension transfers are largest in Denmark (9 percent) and the United Kingdom (12 percent). Notice that in both countries, the share of pensions in the income of the elderly is relatively small, and that the state pension schemes include a flat-rate element that provides minimum safety only. Replacement ratios for old age pensions are also lower than in other EU member states (see Davis, 1997 and Table 3). Their public pensions are thus considerably less generous than in other EU countries, and general transfers are used to supplement the incomes of poorer elderly persons. For the non-elderly, labour incomes represent the most important source of income (typically between 50 and 60 percent), but non-pension transfers also represent a considerable share of their income. In Finland and Ireland, non-pension transfers account for almost one third of the personal incomes of the non-elderly.

Despite the convergence of income levels between the members of the EU taking place, the Union continues to be characterised by large income differences across countries. The EU-wide Gini

⁴ 'Other incomes' are capital incomes plus private transfers.

coefficient of equivalised incomes computed using ECHP data is equal to 0.7220 and the Union-wide relative mean deviation of incomes is equal to 0.5839, indicating that an income transfer of over 58 percent from those EU citizens with incomes above the mean to those citizens with incomes below the mean would be necessary in order to achieve a perfectly equal distribution of incomes in the EU. In Table 3, mean equivalent incomes are reported for all persons, as well as for the elderly and non-elderly. The mean income per equivalent adult in Luxembourg – the richest member state – is almost three times higher than the mean income per equivalent adult in Portugal – the poorest member state – even after adjusting the incomes for differences in the cost of living. The average equivalent income of an elderly person is over three times higher in Luxembourg than in Portugal. The elderly in the Benelux countries, in Austria, in Germany and in France exhibit the highest absolute standards of living in the EU, while at the other end, the elderly in the southern EU countries Greece, Portugal and Spain, and the elderly in Ireland have the lowest absolute standards of living as measured by income.

[TABLE 3 ABOUT HERE]

Throughout the EU, the mean equivalised income of the elderly is lower than the mean equivalised income of the non-elderly. However, there are large cross-country differences. In Italy, for instance, the mean income of the elderly is less than half a percent lower than the mean income of the non-elderly. In France, Germany, Luxembourg, the Netherlands and Spain, the mean incomes of the elderly amount to over 90 percent of the mean incomes of the non-elderly. In Austria, Denmark, Ireland and the United Kingdom, the average incomes of the elderly are over 20 percent lower than the average incomes of the non-elderly.

Averages, however, are not informative about how incomes are distributed among elderly and non-elderly, nor about the extent of deprivation or poverty. For this purpose, we calculate from the ECHP data a series of income inequality and poverty measures to assess the overall generosity of pension schemes (i.e., standard of living of the elderly relative to the non-elderly), their inequality reduction potential, and their poverty reduction potential, and we supplement this information with data on subjective welfare evaluations.

How equally, or unequally are the incomes of the elderly in the EU distributed? In Table 4, the distribution of incomes among elderly persons is analysed using deciles of equivalent income. Each income decile regroups ten percent of the total population i.e., elderly and non-elderly together. Within each decile, however, the relative frequency of elderly and non-elderly persons varies, so that it can be instructive to look at the distributions of the elderly alone by income deciles. In the Netherlands and Spain, only a small share of elderly persons are surviving on very low incomes: 3.7 percent of elderly Spanish and 5.7 percent of elderly Dutch fall into the first equivalent income decile. On the other hand, 23.36 percent of the elderly Danish and 18.79 percent of the elderly Greek are receiving very low incomes.

[TABLE 4 ABOUT HERE]

In Denmark, almost one in two elderly persons belong to the bottom two deciles of the income distribution. In Greece and Portugal, almost one in three persons belong to the bottom two deciles. In Italy, Spain and Luxembourg, on the other hand, fewer than one in five elderly belong to the bottom two deciles. At the other end of the income distribution spectrum, we see that the largest shares of elderly receiving very high incomes live in France and the Netherlands: one in ten elderly persons belong to the highest income decile, and almost one in five to the top two income deciles. Notice that in three countries where the public pension system includes a flat-rate element – Denmark, Finland and the United Kingdom – the proportion of elderly persons surviving on very low incomes is significantly higher than in other member countries of comparable levels of per capita incomes.

In Table 5, we summarise income inequality using a set of synthetic indices. Three income inequality indices are used: the relative mean deviation of incomes, the Gini coefficient and the Theil entropy measure. Overall, incomes are distributed most equally in Denmark and in Finland (with Gini

coefficients below 0.25) and most unequally in Portugal and in Austria (with Gini coefficients above 0.36). This finding is robust i.e., it does not depend on the income inequality measure chosen. Inequality among the non-elderly basically follows the same patterns as inequality among the entire population.

[TABLE 5 ABOUT HERE]

Inequality among the elderly, however, deviates from this pattern. It is lowest in Finland and in Luxembourg, and highest in Greece, Italy and Portugal. In Finland and Luxembourg, the Gini coefficient for incomes of elderly persons is below 0.24. In Greece, Italy and Portugal, it is significantly higher than 0.30. In the majority of EU countries, incomes are distributed more equally among the elderly than among the non-elderly. Exceptions are Belgium, Denmark, France, Greece and Portugal. In Denmark, however, incomes are overall distributed very equally, and although the inequality of incomes among the elderly is higher than among the non-elderly, Denmark exhibits the third lowest income inequality among elderly persons in the EU. Notice that in Austria, Ireland, Luxembourg and Spain incomes of the elderly are significantly more equally distributed than incomes of the non-elderly.

The extent of poverty among elderly citizens in the European Union is highly dependent on the poverty concept employed. Poverty may be defined in absolute terms. In this case, a person is poor if his or her income is below what is necessary to satisfy one's basic needs. Absolute poverty is highly negatively correlated with income per capita (or equivalised income), and it can be reduced by giving more income to the poor. Relative poverty, on the other hand, is defined as income below a level that is deemed socially necessary in order to allow the person to fully participate in society. Relative poverty is typically positively correlated with income inequality and can thus be reduced through compressing the income distribution i.e., through reducing the income gap between the poor and the non-poor. As the objective of this paper is to make comparisons of incomes and welfare between elderly and non-elderly citizens within EU member states, and then to compare these outcomes across countries, a relative poverty concept is retained for the present analysis⁵. However, for illustrative purposes, absolute poverty rates are also reported.

The relative poverty line is set at half the country-specific median i.e., a person is poor if his or her equivalised income is lower than half the median. The half-median low-income cut-off point is used in a large number of internationally comparative poverty studies (see e.g., Smeeding *et al.*, 1990; Blackburn, 1994) and is also used by Tsakoglou (1996) in his study of poverty among the elderly and non-elderly in the EU. The median income is preferred to the mean as the reference point for societal welfare, as the median provides a more robust measure of the location of the central tendency in the income data. For the illustrative analysis of absolute poverty, the poverty line is fixed at half the EU-wide median. Relative and absolute poverty rates are reported in Table 6. Two types of summary poverty statistics are used: a simple headcount index, measuring poverty incidence, and the index proposed by Foster *et al.* (1984), which combines in a single index poverty incidence and intensity.

[TABLE 6 ABOUT HERE]

Overall, relative poverty is lowest in Denmark, Finland, Luxembourg and the Netherlands, where fewer than 7 percent of all individuals are poor. Italy, Greece and Portugal exhibit the highest incidence of poverty in the EU, with headcount poverty rates between 13 and 15 percent. Absolute poverty is highly correlated with mean equivalent income. Austria, Denmark and Luxembourg have the highest mean equivalent incomes and also exhibit the lowest poverty rates, while Greece, Italy, Portugal and Spain exhibit the lowest mean equivalent incomes and highest poverty rates. Using an absolute poverty line, 1 percent of the population are poor in Luxembourg, 2.5 percent in Austria and

⁵ Callan and Nolan (1991) present a comprehensive survey of poverty lines used in applied work, and outline the advantages and drawbacks associated with each method.

4 percent in Denmark. The poverty headcount is highest in Portugal with 36 percent, followed by Greece with 27 percent and Spain with 22 percent.

Relative poverty among the elderly is lowest in Ireland, Luxembourg, the Netherlands and Spain, where between 4 and 5 percent of the elderly receive incomes below half the median. The incidence of relative poverty is highest in Greece (25 percent), Portugal (22 percent) and the United Kingdom (15 percent). Germany exhibits the seventh lowest poverty incidence rate for elderly persons, but the second highest F-G-T index. This would suggest that the poor elderly in Germany suffer substantial income shortfalls from the poverty line. However, it is likely that this result can be accounted for by measurement errors in the lower left-hand tail of the income distribution. Absolute poverty among the elderly is lowest in Luxembourg (below 1 percent), followed by Austria, Denmark and the Netherlands (all below 5 percent). It is highest in Portugal (51 percent), followed by Greece (41 percent), Spain (18 percent) and Ireland (13 percent).

The controversy about whether poverty should be measured in absolute or in relative terms can be related to the debate on the indexation of pension benefits. Should pensions be indexed to prices or to wages? In the former case, absolute standards of living are maintained. The pensioners' purchasing power is – in principle – preserved, but nothing more. Pensioners are not participating in the benefits of economic growth that occurs after their retirement. Thus, if real wages are increasing, pensions indexed to prices leads to relative status loss of the retired. If, however, pensions are indexed to wages, relative standards of living are maintained. The pensioners, along with the economically active, fully share the benefits of economic growth, even if this growth occurs after they have retired. Pension benefits are increasing in real terms, thus enhancing the purchasing power of the retired. The majority of EU member states use a price indexation mechanism for pension benefits. This system is significantly cheaper to maintain than a system of wage indexation. In the long-run, however, price indexation will erode the relative income position of the elderly. Price indexation is, in fact, a non-transparent mechanism to reduce the financial burden of public pension schemes⁶. Notice that poverty among the elderly is lowest in a country that uses wage indexation – the Netherlands – followed by two countries – Luxembourg and Spain – that use a hybrid indexation mechanism i.e., indexation to prices and wages. Poverty incidence among the elderly is highest in four countries that resort to price indexation: Belgium, Greece, Portugal and the United Kingdom.

But are the elderly systematically better off than the non-elderly, as is claimed by e.g., World Bank (1994)? The answer to this question is clearly 'no'. In eight out of fourteen EU countries, the headcount poverty rate of the elderly is higher than that of the non-elderly. In two of these countries – Finland and France – the evidence is marginal. And in seven out of fourteen countries, the F-G-T index of the elderly is higher than that of the non-elderly. Only in five countries – Italy, Ireland, Luxembourg, the Netherlands and Spain – are the non-elderly poorer than the elderly, when both poverty incidence and intensity measures are used. For Germany, the headcount index for the elderly is lower than for the non-elderly, but the F-G-T index is higher. For Finland and Portugal, on the other hand, the F-G-T index for the elderly is lower than for the non-elderly, although the headcount is higher. This suggests that a higher share of elderly than non-elderly have incomes below the poverty line, but the average shortfall of the poor elderly is much smaller than the average shortfall of the poor non-elderly. In terms of the headcount index, the difference between the elderly and the non-elderly is largest in Denmark, Greece and Portugal, while it is smallest in the Netherlands and Spain. If measured by the F-G-T index, the welfare gap between elderly and non-elderly is largest in Denmark, France and Greece, and smallest in Italy and Luxembourg.

⁶ See e.g., the projections for the United Kingdom in Franco and Munzi (1996, 105-106). Using 1990 as a base year, the projections show that under price-indexation of the flat-rate pension, the equilibrium contribution rate decreases from 19.1 percent to 14.1 percent in 2050, while it increases from 19.1 percent to 24.5 percent in 2050 under the scenario of wage indexation of the flat-rate pension. Thus, price-indexation achieves cost containment in the pension system, but obtains it at the price of a widening welfare gap between the retired and economically active.

Although in a majority of EU countries, the elderly are poorer than the non-elderly, the elderly are a relatively small population group. The contributions to poverty in Table 7 show the importance of poverty among the elderly in relation to overall poverty. Headcount and F-G-T poverty indices are additively decomposable i.e., the population poverty indices are equal to the weighted sum of the subgroup poverty indices. The higher the contribution of the elderly to total poverty, the more this population group deserves special attention from the point of view of poverty alleviation.

[TABLE 7 ABOUT HERE]

The contributions to total poverty by the elderly are largest in Denmark and Greece, where they contribute approximately 30 percent to total headcount poverty, and 20 and 25 percent respectively to total F-G-T poverty. Additionally, in Belgium, Portugal and the United Kingdom, the contribution of the elderly to the headcount index is 20 percent or more. Thus, in Belgium, Denmark, Greece, Portugal and the United Kingdom, between one in five and one in three poor persons are aged 65 and more. In Ireland, the Netherlands and Spain, the elderly contribute less than 10 percent to the headcount total, and additionally, in Italy and Luxembourg, the elderly contribute less than 10 percent to the F-G-T total. Thus, in these countries, the elderly make only a small contribution to total poverty. The five countries with the lowest contributions by the elderly to total poverty – Italy, Ireland, Luxembourg, the Netherlands and Spain – are the only ones where the elderly contribute less to total poverty than their population share.

The above measures of welfare and deprivation are seemingly ‘objective’ measures: the income at a person’s disposal determines the quantity of goods and services that he or she can purchase in order to satisfy his or her basic needs and desires. Poverty ensues if the income of the person is below what is necessary to satisfy these basic needs. However, the definition of basic needs and their transformation into a monetary value inevitably entails considerable judgement. Certain persons, through their preferences, enterprise or ingenuity may need fewer resources to achieve a given level of satisfaction than some other persons. It may therefore appear that a better way to evaluate whether a person is deprived or not, would be to simply ask the person how he or she feels about his or her living conditions. Table 8 contains information on subjective welfare evaluations of this kind.

First, subjective welfare is evaluated by asking the person responding to the household questionnaire whether, in his or her opinion, the household is able to make ends meet with its current income, using a six-point scale. Households that are only able to make ends meet with difficulty or with great difficulty are regrouped in Table 8 as ‘unable to make ends meet’. The person answering the household questionnaire answers the question for all household members. Thus, if a household is unable to make ends meet, all household members are also unable to make ends meet.

[TABLE 8 ABOUT HERE]

Overall, the smallest proportion of persons unable to make ends meet is found in Germany and Luxembourg (7 percent), while the largest proportion is found in Greece (54 percent). For the elderly population, the results show that they experience fewer difficulties in making ends meet than the non-elderly. Only in four countries – Greece, Italy, the Netherlands and Portugal – do the elderly experience more problems in making ends meet than the non-elderly. Objective and subjective welfare measurements do not necessarily yield the same conclusions. In nine EU countries, more elderly persons feel poor i.e., are unable to make ends meet, than are objectively measured to be poor i.e., having income below the poverty line. In half the countries, the difference between objective and subjective poverty measures is larger than 5 percent. Of these, Denmark is the only country in which fewer elderly persons feel poor than are objectively defined as poor. The differences between objective and subjective poverty are largest in the Southern EU countries and in Ireland and the Netherlands.

For a second measure of subjective welfare, we use information on satisfaction with the financial situation. Each person is asked whether he or she is satisfied with their financial information and they rank their satisfaction or dis-satisfaction on a scale of one (not satisfied at all) to six (fully satisfied). A

person is classified as 'not satisfied with their financial situation' in Table 8, if he or she achieves a satisfaction index of two or less.

In Greece and Spain, the dis-satisfaction with the financial situation is greatest in the EU: 37 percent are not satisfied in Greece and 38 percent in Spain. Satisfaction, on the other hand, is greatest in Austria, Denmark and the Netherlands (7, 9 and 10 percent of dis-satisfaction respectively). In the majority of EU member states, the elderly are more satisfied with their financial situation than the non-elderly. The only exceptions are Greece and Portugal. In Greece, 45 percent of the elderly are not happy about their financial situation, and in Portugal 39 percent. In contrast, only 5 percent of the elderly in Austria and Denmark are not satisfied with their financial situation, 6 percent in Finland and 7 percent in Luxembourg.

Incidence of poverty in old age and 'inability to make ends meet' or 'satisfaction with financial situation' are only weakly correlated. A much stronger correlation exists, however, between income inequality among the elderly and subjective welfare. Satisfaction levels are generally higher in countries with low income inequality among the elderly (with the exception of Austria), and lower in those countries with high income inequality among the elderly. Thus it appears that the distribution of incomes between persons in comparable situations, rather than average incomes of individuals in different situations are the main determinants of the subjective well-being of the elderly.

Thus far, this paper has not considered the effects of population heterogeneity. Relative income positions of the elderly *vis-à-vis* the non-elderly were analysed as though both population groups were homogeneous. In what follows, this restriction is lifted, and poverty decomposition techniques are used to analyse the distribution of welfare between elderly persons. The objective of the analysis is to identify a set of observable characteristics that are correlates of poverty in old age and may thus be used for policy or targeting purposes.

In Table 9, poverty among the elderly is analysed along two dimensions: gender and living arrangements. Differences in male and female life expectancies translate into a significantly higher proportion of women than men among those persons in the EU aged 65 years and more. In Austria, Finland and Germany, less than 40 percent of the elderly are males. However, the advantage that women enjoy in terms of longevity is not met by a similar advantage in terms of welfare. In fact, the poverty rate among elderly women is higher than the poverty rate for elderly men in all 14 EU member states included in the ECHP project. Welfare differences between elderly men and women are most pronounced in Finland, Portugal and the United Kingdom, where poverty incidence among women is over 5 percent higher than among men. Elderly persons living on their own, especially women, are particularly vulnerable. 20 percent of elderly single women are poor in Belgium, 26 percent in the United Kingdom, 30 percent in Greece, and 36 percent in Portugal. The poverty rates for single elderly men are generally lower than the poverty rates for single elderly women. The welfare differences between single elderly males and females are smallest in Denmark, Luxembourg, the Netherlands and Spain, and most pronounced in Belgium, Finland and the United Kingdom.

[TABLE 9 ABOUT HERE]

With the exception of Greece, where almost one in three elderly couples is poor, elderly couples are generally less vulnerable than elderly persons with different living arrangements. 'Other households' include three-generation households. Three-generation households are a frequent form of living arrangement in the Southern EU member states. Accordingly, the results in Table 9 show that a large share of elderly persons live in 'other households' in Greece, Italy, Spain and Portugal. In addition to the Southern states, 'other households' are also frequent in Austria, Ireland and Luxembourg. If we make the assumption that the majority of 'other households' in which elderly persons live are three-generation households, the results suggest that this form of living arrangement provides considerable coinsurance and income redistribution between generations of the same family: in those countries with over 20 percent of elderly persons living in 'other households', the poverty incidence among the elderly is lower than on average. Notice that in those countries with high shares of 'other households',

the incomes of the elderly at the household level contain a large proportion of labour incomes. As we assume that personal incomes from all sources are equally shared between all household members, this is further evidence of the eminence of three-generational households in Southern Europe, in Austria, in Ireland and in Luxembourg.

After the discussion of the demographic context of poverty in old age, we now turn to the economic context. Results in Table 10 show that the majority of elderly persons in the 14 ECHP countries has ceased to be economically active. In Belgium, France, Germany, Luxembourg and Spain, less than 1 percent of adults aged 65 or more are still working. *A priori*, it is unclear what relationship one should expect between economic activity in old age and welfare. A person may decide to continue to be economically active beyond the usual retirement age out of necessity i.e., the additional income is necessary to escape from poverty, or out of 'optimality' i.e., the person receives an income that is higher than the value he or she puts on the foregone leisure. The empirical results in Table 9 do not allow to discriminate between the two hypotheses. In general, the results suggest the incidence of poverty among economically active elderly persons is lower than average. Continuing to work beyond age 65 therefore appears to reduce the risk of poverty in old-age. Exceptions are Denmark, the Netherlands and Spain. In the Netherlands, in particular, the poverty rate for economically inactive elderly persons is only 4 percent, while the poverty rate for economically active elderly persons is 26 percent. In Denmark, where the activity rate for elderly persons is 2.5 percent, the incidence of poverty among the working elderly is 12 percent, compared to 10 percent for the non-working elderly. In the Netherlands, the full pension is only payable after 50 years of insurance, otherwise the pension is reduced. Denmark, on the other hand, has the highest legal retirement age in the EU (67 for men and women). These design features may help to explain why poverty rates among the economically active elderly are higher than among the inactive elderly. In fact, high lifetime earnings are typically associated with early retirement. Thus, as age increases, the relative importance the elderly persons with low lifetime earnings will increase among those elderly still economically active. Low replacement ratios in Denmark may also encourage the elderly to continue working beyond the legal retirement age.

[TABLE 10 ABOUT HERE]

The analysis of the structure of the personal incomes of the elderly show that pensions provide the main source of income for the majority of the elderly in the EU. In Finland, pensions are the main source of income for 97 percent of elderly persons. Furthermore, pensions are the main source of income for over 90 percent of the elderly in France, Germany and the Netherlands. In general, the incidence of poverty among elderly persons receiving pensions as their main source of income is lower than the incidence among all elderly persons. Pensions thus provide adequate protection against poverty in old age. Exceptions are the three countries with the highest incidence of poverty in old age i.e., Greece, Portugal and the United Kingdom. Wages and earnings are the main source of income of only a minority of elderly persons. Only in Greece and Ireland are labour incomes the main source of income of more than 5 percent of the elderly. In general, those elderly persons that predominantly receive their income as wages and earnings experience a lower incidence of poverty than average. Exceptions are, again, the Netherlands and Spain.

Pockets of poverty are discovered among those elderly persons for whom labour incomes or pensions are not the main source of income. In Belgium, for instance, 14 percent of the elderly are poor. Three percent of the elderly receive non-pension transfers as their main source of income, and 10 percent receive no significant income from any source. Poverty rates among these groups are 31 and 23 percent respectively. In Spain, almost 15 percent of the elderly receive no income, although the poverty rate among this group of elderly persons is only 6 percent. It is likely, however, that a higher incidence of poverty among this group is offset by the frequent arrangement of elderly persons living in three-generation households. Although this arrangement guarantees the elderly sufficient income to protect them from poverty, it may negatively affect the quality of life in other regards. This, in turn, would explain the high degree of 'subjective poverty' among the elderly in Spain. Furthermore, in Austria, Greece, Ireland, Italy and Luxembourg, over 5 percent of the elderly have no income, while in

Austria, Italy, Spain and the United Kingdom, over 5 percent of the elderly receive non-pension transfers as their main source of income. Thus, the incidence of poverty in old age is significantly higher among those groups of elderly persons that have histories of irregular employment, illness, disability, or were not in the labour force for family reasons. These persons have not accumulated any claims to the economic product generated by the current generation of economically active persons, and consequently, they spend their old age in a precarious financial situation.

4. Concluding remarks

In this paper, relative income positions of the elderly in 14 member states of the European Union are analysed using data from the third wave of the ECHP, conducted in 1994. The incomes and welfare of the elderly are highly variable across countries, and within countries. A comparison of average incomes of the elderly and non-elderly is insufficient to capture this diversity. For this reason, our analysis of the relative income position of the elderly takes into account the various facets of welfare in old age: income distribution, income inequality, poverty, subjective welfare, and the heterogeneity of the elderly.

Average incomes of the elderly are always lower than average incomes of the non-elderly, although cross-country differences are large. The ratio of average incomes of the elderly and non-elderly varies between 0.74 in Austria, and almost unity in Italy. In Finland and Luxembourg, inequality and poverty among the elderly are low. In Ireland, the Netherlands and Spain, poverty is low, but inequality is in the medium range. In Denmark, poverty is in the medium range, but inequality is the lowest in the ECHP sample. In Austria, France, Germany and Italy, both inequality and poverty are in the medium range. Belgium has a high poverty, but a medium level of inequality. Finally, in Greece, Portugal and the United Kingdom, incomes of the elderly are distributed very unequally, and poverty incidence among the elderly is also high. Within this last group, notice that the living conditions of the elderly in Greece and Portugal are markedly worse than those of the elderly in the United Kingdom. In Greece and Portugal, one in four elderly persons is poor in relative terms, and 41 and 51 percent of the elderly respectively receive incomes below half the EU-wide median. Based on subjective criteria, the elderly generally feel better-off than the non-elderly. Subjective and objective (poverty) measures of well-being of the elderly are only weakly correlated, while a much closer association exists between subjective well-being and income inequality.

The results in this paper generally confirm the findings of Tsakloglou (1996) and Hauser (1997). However, this paper and Hauser (1997) suggest that poverty among the elderly in Denmark is significantly lower than found by Tsakloglou (1996). Likewise, this paper concludes that elderly Belgians are less well-protected against poverty than is suggested by the other studies. All three papers agree, however, that Luxembourg and the Netherlands provide high levels of welfare and income protection to their elderly citizens, while the lowest standards of living in old age are observed in Greece, Portugal and the United Kingdom.

Large differences between the average incomes of the elderly and non-elderly can be traced back to the generosity of the respective pension systems. In France, Germany, Italy, Luxembourg, the Netherlands and Italy, pensions are very generous, and the mean incomes of the elderly amount to over 90 percent of the mean incomes of the non-elderly. In Austria, Denmark, Greece, Ireland and the United Kingdom, the pension systems are considerably less generous, and the average incomes of the elderly are much lower than those of the non-elderly. High replacement ratios for old age pensions are not a necessary condition to guarantee an adequate income to the majority of elderly persons. Even in countries with high relative incomes of the elderly, pockets of poverty exist among the elderly. Single elderly women are particularly vulnerable, as are those elderly persons that have failed to acquire sufficient claims to the output produced by future generations.

In Denmark, pension benefits are composed of a modest basic pension and a supplementary pension related to employment. Average pension benefits in Denmark are low and the mean income of elderly persons is 78 percent of the mean income of non-elderly persons. However, incomes among the

elderly are distributed very equally, and a comparable number of elderly persons are poor in Denmark than in France or Germany, with substantially higher replacement rates. The same applies to Finland: although replacement rates are low, the incomes of the elderly are distributed very equally, and few elderly persons are poor. Denmark and Finland provide examples of countries that combine a universal flat benefit with earnings related pensions, thus separating the income redistribution and income insurance functions of pensions. Inequality among the elderly is low, and so is poverty. Unlike a generous employment-related pension scheme, the universal benefit reaches elderly persons in particularly vulnerable positions e.g., persons with incomplete or interrupted employment histories.

The separation of the income redistribution and insurance functions of pensions, coupled with the introduction of a basic universal benefit, or targeted programs reduces poverty more effectively, and at a lower cost to the public pension system than generous employment-related schemes. However, how much income a basic old age pension should replace is a difficult question, and depends, among other things, on intertemporal preferences. Although the ratios of mean incomes of the elderly and non-elderly in Denmark and the United Kingdom are of a similar magnitude, Denmark is much more successful at relieving poverty in old age than the United Kingdom. In Denmark, the low universal pension is embedded within a strongly redistributive transfer system, whereas in the United Kingdom, the low mandatory pension is used as an incentive device to encourage elderly persons to voluntarily supplement their public pension by a private pension. This strategy, however, exacerbates income differences between the elderly and leads to a high inequality of incomes of the elderly.

Incomes of the elderly in the EU are not diversified according to their source, or origin: the majority of elderly people heavily depend on pensions for their income. In addition, few elderly persons extend their working life beyond age 65. From the point of view of reforming PAYG public pension schemes, these findings turn out to be problematic. Decreases in replacement ratios are likely to have very negative effects on the welfare of the elderly, as their sources of income are not sufficiently diversified in order to give them the ability to offset a decrease in pension benefits through an increase in another type of income e.g., labour or capital income. A gradual phasing-in of mandatory personal savings accounts under a multi-pillar pension funding arrangement would be likely to decrease the dependence of elderly persons on pensions, a potentially volatile source of income in the future, given the problems of demographic ageing. Furthermore, provisions to encourage the elderly to extend their working life, by granting them the possibility to defer retirement at actuarially fair rates, or by giving them the possibility to arrange their working time more flexibly, would contribute to diversify their sources of income, while it would also, at the same time, decrease expenditures on and increase contributions to old age pension systems.

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TABLE 1: SAMPLE CHARACTERISTICS

	sample size	observations used	population share of non-elderly	population share of elderly	age dependency ratio (pop. ≥ 65 / pop. 17-64)
A	9219	9094	0.8471	0.1529	0.2422
B	8374	8060	0.8422	0.1578	0.2549
D	11440	11044	0.8250	0.1750	0.2736
DK	6832	6820	0.8453	0.1547	0.2418
E	19666	18986	0.8355	0.1645	0.2519
F	16942	16800	0.8479	0.1521	0.2425
FIN	11215	10948	0.8493	0.1507	0.2442
GR	14390	14243	0.8282	0.1718	0.2684
I	21463	21140	0.8311	0.1689	0.2530
IRL	10869	10463	0.8840	0.1160	0.1959
L	2583	2545	0.8575	0.1425	0.2197
NL	13270	12038	0.8673	0.1327	0.2047
P	14594	14449	0.8461	0.1539	0.2425
UK	9322	9187	0.8445	0.1555	0.2579

List of abbreviations:

A	Austria
B	Belgium
D	Germany
DK	Denmark
E	Spain
F	France
FIN	Finland
GR	Greece
I	Italy
IRL	Ireland
L	Luxembourg
NL	Netherlands
P	Portugal
UK	United Kingdom

TABLE 2: PERSONAL INCOMES BY SOURCE OF ORIGIN

	labour income			pensions			non-pension transfers			other incomes		
	all	non-elderly	elderly	all	non-elderly	elderly	all	non-elderly	elderly	all	non-elderly	elderly
A	0.5485	0.6785	0.0092	0.2252	0.0745	0.8504	0.1381	0.1520	0.0808	0.0882	0.0950	0.0600
B	0.4737	0.5935	0.0087	0.2493	0.0942	0.8516	0.1935	0.2329	0.0405	0.0835	0.0795	0.0992
D	0.5618	0.7186	0.0125	0.2684	0.0800	0.9289	0.1412	0.1732	0.0289	0.0286	0.0283	0.0297
DK	0.5686	0.6999	0.0286	0.1856	0.0271	0.8376	0.2166	0.2481	0.0870	0.0292	0.0249	0.0468
E	0.5385	0.7021	0.0165	0.2474	0.0533	0.8668	0.1408	0.1660	0.0603	0.0733	0.0786	0.0565
F	0.5311	0.6620	0.0134	0.2260	0.0619	0.8753	0.1671	0.2012	0.0321	0.0758	0.0749	0.0792
FIN	0.4614	0.5737	0.0140	0.2362	0.0617	0.9315	0.2663	0.3267	0.0256	0.0360	0.0378	0.0289
GR	0.5138	0.6754	0.0487	0.2879	0.0983	0.8336	0.0542	0.0589	0.0409	0.1440	0.1674	0.0768
I	0.5340	0.7113	0.0250	0.3266	0.1416	0.8577	0.0574	0.0522	0.0722	0.0820	0.0949	0.0450
IRL	0.5085	0.5959	0.0733	0.1676	0.0364	0.8203	0.2888	0.3358	0.0550	0.0351	0.0318	0.0514
L	0.5437	0.6656	0.0147	0.2221	0.0871	0.8076	0.1584	0.1796	0.0664	0.0758	0.0677	0.1113
NL	0.5662	0.6985	0.0069	0.2037	0.0346	0.9190	0.1768	0.2103	0.0384	0.0533	0.0566	0.0393
P	0.5908	0.7513	0.0519	0.2661	0.0847	0.8749	0.1045	0.1245	0.0374	0.0386	0.0394	0.0357
UK	0.5498	0.6840	0.0344	0.1997	0.0556	0.7529	0.1995	0.2176	0.1297	0.0510	0.0427	0.0830

TABLE 3: MEAN EQUIVALENT INCOME

	mean equivalent income (national currency units)			mean equivalent income (ECU, PPP adjusted)			ratio of mean equivalent incomes
	all	non- elderly	elderly	all	non- elderly	elderly	elderly/non-elderly
A	269299	280566	206875	17729	18470	13619	0.7373
B	579546	592707	509326	13756	14069	12089	0.8593
D	30279	30615	28694	14096	14253	13358	0.9373
DK	137346	142160	111040	14101	14595	11400	0.7811
E	1224156	1240151	1142898	9075	9193	8472	0.9216
F	97818	98508	93969	13448	13542	12918	0.9539
FIN	73233	74765	64600	10444	10662	9213	0.8640
GR	1986057	2054786	1654782	8398	8688	6997	0.8053
I	17101	17112	17048	10083	10090	10052	0.9963
IRL	7726	7921	6241	10987	11264	8875	0.7879
L	895141	904749	837308	21945	22181	20527	0.9255
NL	29582	29757	28443	13148	13225	12641	0.9558
P	1109842	1139181	948592	7777	7983	6647	0.8327
UK	10000	10367	8009	13689	14192	10964	0.7725

TABLE 4: SHARE OF ELDERLY IN POPULATION DECILES RANKED ACCORDING TO EQUIVALENT INCOME

	1 st (lowest)	2 nd	3 rd	4 th	5 th	6 th	7 th	8 th	9 th	10 th (highest)	bottom two deciles	top two deciles
A	0.1291	0.1632	0.1350	0.1220	0.1039	0.0744	0.0930	0.0675	0.0792	0.0327	0.2923	0.1119
B	0.1278	0.1341	0.1884	0.1136	0.0888	0.0764	0.0598	0.0788	0.0677	0.0646	0.2619	0.1323
D	0.0931	0.1165	0.1167	0.1215	0.1107	0.1184	0.0839	0.0797	0.0834	0.0761	0.2096	0.1595
DK	0.2336	0.2349	0.1216	0.0907	0.0723	0.0452	0.0463	0.0346	0.0618	0.0589	0.4685	0.1207
E	0.0370	0.1270	0.1424	0.1128	0.1347	0.1252	0.1039	0.0874	0.0632	0.0663	0.1640	0.1295
F	0.1098	0.1136	0.1143	0.1159	0.0980	0.1135	0.0725	0.0889	0.0777	0.0958	0.2234	0.1735
FIN	0.1201	0.1657	0.1408	0.1336	0.1018	0.0865	0.0767	0.0609	0.0561	0.0579	0.2858	0.1140
GR	0.1879	0.1401	0.1142	0.1006	0.0826	0.0945	0.0748	0.0715	0.0634	0.0705	0.3280	0.1339
I	0.0606	0.1034	0.1095	0.1290	0.1185	0.1320	0.0976	0.0862	0.0849	0.0782	0.1640	0.1631
IRL	0.0635	0.1265	0.2157	0.1903	0.1050	0.0732	0.0568	0.0560	0.0613	0.0516	0.1900	0.1129
L	0.0806	0.0992	0.1094	0.1141	0.1299	0.1056	0.1021	0.1178	0.0650	0.0762	0.1798	0.1412
NL	0.0570	0.1642	0.1450	0.0988	0.0948	0.0980	0.0750	0.0723	0.0936	0.1014	0.2212	0.1950
P	0.1170	0.2034	0.1425	0.0920	0.0929	0.0632	0.0751	0.0902	0.0551	0.0686	0.3204	0.1237
UK	0.1290	0.1625	0.1701	0.1344	0.0767	0.0881	0.0711	0.0596	0.0559	0.0526	0.2915	0.1085

TABLE 5: INCOME INEQUALITY

	relative mean deviation of incomes			Gini coefficient			Theil entropy measure		
	all	non- elderly	elderly	all	non- elderly	elderly	all	non- elderly	elderly
A	0.2601	0.2634	0.2159	0.3604	0.3640	0.3025	0.2298	0.2329	0.1620
B	0.1929	0.1886	0.2042	0.2778	0.2732	0.2882	0.1352	0.1316	0.1477
D	0.1923	0.1930	0.1857	0.2769	0.2776	0.2701	0.1336	0.1340	0.1297
DK	0.1526	0.1447	0.1715	0.2220	0.2115	0.2420	0.0893	0.0829	0.1056
E	0.2361	0.2418	0.1992	0.3313	0.3389	0.2815	0.1878	0.1947	0.1467
F	0.2024	0.2009	0.2094	0.2882	0.2863	0.2972	0.1469	0.1454	0.1548
FIN	0.1688	0.1673	0.1617	0.2407	0.2393	0.2321	0.1004	0.0998	0.0947
GR	0.2384	0.2320	0.2613	0.3380	0.3294	0.3662	0.1984	0.1900	0.2277
I	0.2306	0.2331	0.2180	0.3307	0.3332	0.3154	0.2374	0.2346	0.2514
IRL	0.2382	0.2376	0.2099	0.3292	0.3306	0.2817	0.1953	0.1972	0.1493
L	0.1986	0.2028	0.1699	0.2786	0.2845	0.2374	0.1410	0.1481	0.0924
NL	0.2027	0.2029	0.1998	0.2893	0.2911	0.2747	0.1638	0.1684	0.1313
P	0.2611	0.2559	0.2815	0.3681	0.3619	0.3860	0.2398	0.2292	0.2947
UK	0.2373	0.2343	0.2299	0.3330	0.3306	0.3170	0.2025	0.2010	0.1822

TABLE 6: RELATIVE AND ABSOLUTE POVERTY IN EU MEMBER STATES

	Headcount index (relative p.l.)			F-G-T ($\epsilon=2$) index (relative p.l.)			Headcount index (absolute p.l.)			F-G-T ($\epsilon=2$) index (absolute p.l.)		
	all	non- elderly	elderly	all	non- elderly	elderly	all	non- elderly	elderly	all	non- elderly	elderly
A	0.0934	0.0898	0.1135	0.0136	0.0132	0.0158	0.0380	0.0378	0.0390	0.0077	0.0072	0.0102
B	0.1078	0.1025	0.1357	0.0169	0.0167	0.0179	0.0463	0.0442	0.0578	0.0123	0.0123	0.0119
D	0.1106	0.1133	0.0976	0.0194	0.0188	0.0221	0.0590	0.0595	0.0568	0.0127	0.0119	0.0162
DK	0.0557	0.0470	0.1036	0.0067	0.0064	0.0087	0.0242	0.0207	0.0438	0.0034	0.0034	0.0032
E	0.1146	0.1276	0.0486	0.0223	0.0486	0.0057	0.2195	0.2263	0.1846	0.0358	0.0404	0.0125
F	0.0914	0.0902	0.0978	0.0129	0.0123	0.0167	0.0498	0.0489	0.0546	0.0097	0.0090	0.0134
FIN	0.0678	0.0675	0.0694	0.0092	0.0097	0.0065	0.0744	0.0734	0.0799	0.0099	0.0104	0.0073
GR	0.1414	0.1183	0.2531	0.0281	0.0253	0.0417	0.2682	0.2383	0.4125	0.0492	0.0428	0.0800
I	0.1268	0.1351	0.0863	0.0300	0.0334	0.0149	0.1709	0.1801	0.1255	0.0363	0.0398	0.0190
IRL	0.0768	0.0796	0.0542	0.0121	0.0127	0.0076	0.1218	0.1279	0.0751	0.0145	0.0152	0.0095
L	0.0608	0.0626	0.0503	0.0085	0.0093	0.0041	0.0121	0.0126	0.0085	0.0030	0.0035	0.0003
NL	0.0671	0.0710	0.0414	0.0186	0.0197	0.0115	0.0537	0.0567	0.0341	0.0161	0.0170	0.0097
P	0.1452	0.1309	0.2236	0.0312	0.0335	0.0185	0.3565	0.3270	0.5182	0.0647	0.0629	0.0745
UK	0.1177	0.1108	0.1549	0.0126	0.0121	0.0150	0.0730	0.0708	0.0847	0.0090	0.0086	0.0110

TABLE 7: CONTRIBUTIONS TO TOTAL POVERTY BY ELDERLY AND NON-ELDERLY

	memo item: population shares			Headcount index (relative p.l.)			F-G-T ($\epsilon=2$) index (relative p.l.)		
	all	non- elderly	elderly	all	non- elderly	elderly	all	non- elderly	elderly
A	1.0000	0.8471	0.1529	1.0000	0.8142	0.1858	1.0000	0.8223	0.1777
B	1.0000	0.8422	0.1578	1.0000	0.8012	0.1988	1.0000	0.8326	0.1675
D	1.0000	0.8250	0.1750	1.0000	0.8455	0.1545	1.0000	0.8007	0.1993
DK	1.0000	0.8453	0.1547	1.0000	0.7124	0.2876	1.0000	0.7997	0.2003
E	1.0000	0.8355	0.1645	1.0000	0.9303	0.0697	1.0000	0.9584	0.0416
F	1.0000	0.8479	0.1521	1.0000	0.8372	0.1628	1.0000	0.8040	0.1960
FIN	1.0000	0.8493	0.1507	1.0000	0.8456	0.1544	1.0000	0.8933	0.1067
GR	1.0000	0.8282	0.1718	1.0000	0.6925	0.3075	1.0000	0.7452	0.2548
I	1.0000	0.8311	0.1689	1.0000	0.8851	0.1149	1.0000	0.9168	0.0832
IRL	1.0000	0.8840	0.1160	1.0000	0.9180	0.0820	1.0000	0.9276	0.0724
L	1.0000	0.8575	0.1425	1.0000	0.8822	0.1178	1.0000	0.9317	0.0683
NL	1.0000	0.8673	0.1327	1.0000	0.9181	0.0819	1.0000	0.9182	0.0819
P	1.0000	0.8461	0.1539	1.0000	0.7630	0.2370	1.0000	0.9085	0.0915
UK	1.0000	0.8445	0.1555	1.0000	0.7953	0.2047	1.0000	0.8146	0.1854

TABLE 8: SUBJECTIVE WELFARE EVALUATIONS

	'unable to make ends meet'			'not satisfied with financial situation'		
	all	non- elderly	elderly	all	non- elderly	elderly
A	0.1771	0.1833	0.1425	0.0739	0.0805	0.0461
B	0.1522	0.1576	0.1237	0.1603	0.1628	0.1503
D	0.0712	0.0794	0.0374	0.1618	0.1825	0.0868
DK	0.1130	0.1234	0.0559	0.0943	0.1058	0.0477
E	0.3519	0.3653	0.2842	0.3776	0.3995	0.2911
F	0.1860	0.1976	0.1214	0.2156	0.2358	0.1317
FIN	0.2076	0.2294	0.0843	0.2080	0.2453	0.0602
GR	0.5440	0.5299	0.6181	0.3683	0.3453	0.4507
I	0.1817	0.1796	0.1922	0.3107	0.3139	0.2982
IRL	0.2856	0.2949	0.2146	0.2856	0.3072	0.1812
L	0.0745	0.0840	0.0175	0.1213	0.1335	0.0667
NL	0.1306	0.1274	0.1515	0.0957	0.0975	0.0868
P	0.3767	0.3667	0.4317	0.3400	0.3285	0.3877
UK	0.1868	0.1991	0.1211	0.1972	0.2153	0.1316

TABLE 9: POVERTY IN OLD AGE, GENDER AND HOUSEHOLD TYPE EFFECTS

	male		female		single man		single woman		couple		other household type	
	share of elderly	poverty rate	share of elderly	poverty rate	share of elderly	poverty rate	share of elderly	poverty rate	share of elderly	poverty rate	share of elderly	poverty rate
A	0.3665	0.0919	0.6335	0.1260	0.0414	0.1202	0.2551	0.1791	0.4286	0.0973	0.2450	0.0644
B	0.4134	0.1145	0.5866	0.1506	0.0637	0.0622	0.2565	0.2019	0.5684	0.1293	0.1113	0.0588
D	0.3711	0.0689	0.6289	0.1146	0.0590	0.0778	0.3340	0.1277	0.5234	0.0706	0.0832	0.1536
DK	0.4512	0.0984	0.5488	0.1079	0.1089	0.1188	0.2800	0.1240	0.5883	0.0887	0.0228	0.1639
E	0.4191	0.0407	0.5809	0.0542	0.0257	0.0373	0.1215	0.0359	0.4615	0.0375	0.3913	0.0650
F	0.4128	0.0831	0.5872	0.1082	0.0679	0.1143	0.2524	0.1293	0.5779	0.0878	0.1017	0.0580
FIN	0.3967	0.0354	0.6033	0.0917	0.0656	0.0138	0.2728	0.1513	0.5934	0.0358	0.0682	0.0879
GR	0.4655	0.2386	0.5345	0.2657	0.0433	0.2407	0.1349	0.3038	0.5775	0.2835	0.2443	0.1573
I	0.4242	0.0736	0.5758	0.0956	0.0429	0.0745	0.1991	0.1151	0.4814	0.0717	0.2766	0.0935
IRL	0.4381	0.0395	0.5619	0.0657	0.0903	0.0263	0.1972	0.0763	0.4812	0.0568	0.2314	0.0368
L	0.4207	0.0493	0.5793	0.0510	0.0679	0.0586	0.1882	0.0567	0.5226	0.0614	0.2212	0.0082
NL	0.4180	0.0398	0.5820	0.0425	0.0663	0.0459	0.2917	0.0562	0.5687	0.0306	0.0734	0.0628
P	0.4247	0.1915	0.5753	0.2473	0.0272	0.4188	0.1438	0.3626	0.5190	0.2424	0.3100	0.1102
UK	0.4073	0.1173	0.5927	0.1808	0.0835	0.1692	0.2904	0.2557	0.5489	0.1089	0.0772	0.0877

TABLE 10: POVERTY IN OLD AGE, ECONOMIC ACTIVITY AND INCOME

	economically active		no income from any source		income from work		pension income		non-pension transfer income		other income	
	share of elderly	poverty rate	share of elderly	poverty rate	share of elderly	poverty rate	share of elderly	poverty rate	share of elderly	poverty rate	share of elderly	poverty rate
A	0.0110	0.0810	0.0730	0.1320	0.0096	0.0410	0.8283	0.1099	0.0538	0.1217	0.0354	0.1678
B	0.0085	0.0839	0.0990	0.2302	0.0075	0.0594	0.8066	0.1202	0.0308	0.3091	0.0561	0.1066
D	0.0077	0.0841	0.0259	0.2013	0.0114	0.1096	0.9089	0.0895	0.0210	0.1517	0.0328	0.2010
DK	0.0247	0.1200	0.0071	0.5264	0.0255	0.0305	0.8960	0.0994	0.0458	0.1244	0.0256	0.1707
E	0.0077	0.0898	0.1479	0.0636	0.0139	0.0796	0.7545	0.0374	0.0511	0.0884	0.0326	0.1636
F	0.0088	0.0360	0.0268	0.2066	0.0118	0.0601	0.9104	0.0907	0.0144	0.0871	0.0367	0.2110
FIN	0.0113	0.0315	0.0008	0.0000	0.0112	0.0480	0.9666	0.0711	0.0146	0.0000	0.0068	0.0239
GR	0.0332	0.1750	0.0703	0.1550	0.0504	0.1473	0.8148	0.2744	0.0218	0.1714	0.0427	0.1742
I	0.0228	0.0757	0.0631	0.1250	0.0231	0.0387	0.8237	0.0807	0.0613	0.1333	0.0289	0.0984
IRL	0.0626	0.0540	0.0614	0.0518	0.0625	0.0599	0.7981	0.0481	0.0415	0.0565	0.0365	0.1804
L	0.0066	0.0000	0.0989	0.0523	0.0141	0.0000	0.7548	0.0387	0.0476	0.1367	0.0846	0.1108
NL	0.0103	0.2556	0.0166	0.0833	0.0072	0.1520	0.9324	0.0354	0.0271	0.1002	0.0167	0.1894
P	0.0909	0.2045	0.0452	0.2840	0.0472	0.0822	0.8553	0.2327	0.0306	0.2017	0.0217	0.0782
UK	0.0252	0.0102	0.0061	0.3599	0.0374	0.0169	0.8254	0.1636	0.0830	0.1681	0.0481	0.0653

APPENDIX: MAIN FEATURES OF ECHP MEMBER COUNTRIES' PENSION SYSTEMS

	basic principles on old-age pension system	normal retirement age* female	male	covered eligibility	years for full pension	indexation	benefit type
A	insurance system for all dependently employed persons based on current income financing	60	65			wages	contribution related benefit
B	a system of current income financing (PAYG) based primarily on contributions	61	65	0	45	prices	contribution related benefit
D	compulsory insurance for employees (manual and white-collar workers)	65	65	5	variable	net wages	contribution related benefit
DK	system of universal coverage (national pension) and social insurance system (supplementary pension) linked to employment	67	67	0	0	prices	universal flat benefit, means-tested benefit, contributions related benefit
E	insurance system, benefits depend on contributions	65	65	15	35	prices and wages	contribution related benefit
F	insurance system, benefits depend on contributions, compulsory supplementary pension schemes (insurance system) for all employed under the general pension scheme or social insurance system for farmers, insurance system	60	60	1/3	40	wages	contribution related benefit
FIN	dual system of insurance system (employment pension) covering all economically active persons (employees, self-employed, farmers) and a universal coverage system (national pension) guaranteeing a minimum pension, the pension schemes are integrated and when other pension income is above a given limit, no national pension is paid, voluntary supplementary schemes exist but are of relatively small importance	65	65	1/12	40	prices	universal flat benefit, contributions related benefit
GR	insurance system, benefits depend on contributions	60	65	+/- 15	35	prices	contribution related benefit
I	insurance system, benefits depend on contributions	58	63	5	40	prices and wages	contribution related benefit
IRL	contribution-based social insurance system	65	65	+/- 3	+/- 3	prices	universal flat benefit, means-tested benefit, contributions related benefit
L	insurance system	65	65	10	40	prices and wages	contribution related benefit
NL	system of universal coverage financed with contributions on earned incomes, compulsory supplementary schemes for employees based on agreements between social partners	65	65	0	50	wages	contribution related benefit
P	insurance system, benefits depend on contributions, the law provides for supplementary conventional schemes as an option	62	65	15	40	prices	contribution related benefit
UK	contributory state retirement pension scheme (for people who have reached state retirement age) made up of a flat-rate basic pension, an earnings-related additional pension (SERPS) and an earnings related graduated retirement benefit. a non-contributory state pension is payable to certain persons aged 80 years and over, voluntary supplementary pension schemes may be used to replace benefits provided by SERPS	60	65	10	44	prices	contribution related benefit

Source: MISSOC (1999), World Bank (1994)

* in Belgium, the normal retirement age for women will progressively be raised to 65 between 1997 and 2009 in Italy, the normal retirement age will progressively be raised to 60 for women and 65 for men. in Greece, the normal retirement age for women insured after 1 January 1993 is 65.