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ELDERLY AND NON-ELDERLY IN THE EUROPEAN UNION: A COMPARISON OF LIVING STANDARDS

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The paper compares the living standards of the elderly vis-a-vis the rest of the population in EU countries in the late 1980s using the data of Household Budget Surveys. Elderly and non-elderly are compared in terms of consumption expenditure, income and non-monetary indicators of welfare. The results show that in all EU countries the non-elderly are better-off than the elderly. In some countries the differences in the living standards of the two groups are marginal, whereas in others they are substantial. These differences tend to be larger in the Southern European EU countries (with the exception of Spain) and smaller in the Northern European EU countries (with the exception of the U.K.).

1. INTRODUCTION

A consistent and very promising trend observed in all industrialized countries in the 20th century is the continuous and substantial rise in the longevity of their citizens. This trend has been accompanied by a decline in the average birth rate. As a result, the share of pensionable age persons in the total population has risen steadily and this trend is expected to continue in the future. This process is clearly visible in the member-states of the European Union (EU) where the population share of persons aged over 64 is expected to rise from 14.4 percent in 1990 to 20.2 percent by 2020 (EC, 1991). As a consequence, policies towards the elderly appear with increasing frequency at the top of the agenda of policy debates in EU member-states and 1993 was designated as the "European Year of the Elderly and Solidarity Between the Generations." The increase in the longevity of senior citizens combined with the shrinking of the labour force which results from the declining birth rates (despite the increased rates of female labour force participation), the slowdown in productivity and the accelerating trend towards early exit of older workers from the labour force, has imposed a great burden on the already overstretched social security systems of all EU member-states. In many countries, the resulting deficits of the social security systems are among the top contributors to the budget deficits.

Note: This paper is based on a report written in the context of a contract of the Institute of Social Studies Advisory Service (ISSAS) for the Statistical Service of the European Union (Eurostat) (Tsakloglou, 1994a). A longer version of the paper can be found in Tsakloglou (1994b). The views expressed in the paper are those of the author and should not be attributed to Eurostat or ISSAS. Useful comments and suggestions on earlier versions of the paper were received from the late Aldi Hagenaars, Klaas de Vos, Asghar Zaidi, Bernard van Praag, Robert Flik, Deo Ramprakash, the editor Ed Wolff, an anonymous referee and seminar participants at the Athens University of Economics and Business, the University of Frankfurt, the University of York (Canada), the 23rd General Conference of the International Association for Research in Income and Wealth in St. Andrews (Canada) and the 11th World Congress of the International Economic Association in Tunis.

A number of policy recommendations aimed at tackling these problems have been suggested in recent policy debates. Implementation of some of these recommendations is not expected to affect dramatically the living standards of the elderly citizens of the EU member-states and therefore no serious social unrest is expected. Among the recommended policies in this category are policies intended to raise the retirement age, to reverse the trend towards early retirement, to devise systems combining full or partial provision of pensions and payment of salaries with or without payment of social insurance contributions for workers employed beyond their retirement threshold, to encourage and support private pension schemes, etc. A number of these recommendations have already been adopted in several EU countries. However, a policy advocated strongly in some quarters recommends cuts in pensions and other social security benefits targeted towards the elderly. Implementation of such a policy is likely to affect adversely the living standards of large segments of the elderly and to provoke their negative reaction.[1] Usually, the latter policy recommendations are accompanied by the claim that, at least in some countries, the elderly are relatively better off in comparison with the rest of the population. Such a claim seems to find some empirical support in the case of the U.S.A. but the evidence for Europe is, at best, mixed. Although several empirical investigations of the living conditions of the elderly in individual EU member-states can be found in the literature, there exists no corresponding comparative study applying the same methodology to all EU member-states.[2] The present paper attempts to fill this gap using evidence derived from Household Budget Survey (HBS) data.

This paper presents results on the relative economic status of the elderly vis-a-vis the rest of the population (non-elderly) in all EU member-states in the late 1980s in terms of equivalent consumption expenditure, equivalent income and non-monetary material indicators of welfare (housing amenities and consumer durables). The rest of the paper is organized as follows. Section 2 discusses data problems and methodological issues. Section 3 reports results derived using consumption expenditure data, whereas Section 4 reports empirical findings based on income data and Section 5 presents evidence on non-monetary welfare indicators. Section 6 attempts to provide a picture of the "multiple deprivation" suffered by elderly and non-elderly in EU countries, while Section 7 concludes the paper and provides a short discussion of the policy implications of the empirical findings.

2. Data and Methodology

As noted above, the results presented in this paper were derived using the data of the HBSs of EU member-states. These data sets were compiled in the late 1980s. In the cases of eight countries; Belgium (1987); Greece (1988); Spain (1988); France (1989); Italy (1988); Luxembourg (1987); the Netherlands (1988)

[1]In Germany and the Netherlands elderly citizens formed political parties aimed exclusively at defending their living standards as soon as such policies were announced.

[2]For an attempt to summarize the empirical findings of several studies on the living standards of the elderly in EU countries see EC (1991) and, particularly, EC (1993). For evidence on the living standards of the elderly in the U.S.A. see Hurd (1990) and the references cited there.

and the United Kingdom (1988); the results were obtained using the "harmonized" micro-data sets of the HBSs. The original micro-data sets of these surveys were transferred by the National Statistical Institutes of the above countries to the Statistical Service of the European Union (Eurostat) where they were standardized using common procedures [see Menard (1990) and Verma (1991)]. For the remaining member-states; Denmark (1988); Germany (1987; only the former Federal Republic of Germany); Ireland (1987) and Portugal (1990); the results were derived either from the estimates reported in Hagenaars *et al.* (1994), or from the estimates of the publication of Eurostat "Family Budgets: Comparative Tables." Naturally, since no micro-data were available in the case of the four latter countries, the corresponding results are not as detailed as those concerning the eight former countries.[3]

The HBSs contain a wealth of data that is useful for distributional studies, including detailed information about household and individual demographic and socio-economic characteristics, consumption expenditures (actual and imputed), incomes and a number of non-monetary indicators of welfare. The primary purpose of the HBSs is the collection of data for the construction of the Retail Price Index. As a consequence, the consumption expenditure data of most HBSs are of reasonably high quality. Nevertheless, differences in information collection methods, enumeration periods and institutional arrangements (especially regarding health and education expenditures) make them not strictly comparable across countries. On the contrary, the quality of the income information varies considerably across countries. In some HBSs the income information is very detailed whereas in others there is only information about the total net disposable income of the households and in one case (Belgium) there is no income information at all. In most HBSs the average net income of the population is lower than the corresponding figure of the National Accounts and the quality of income information varies across income sources; especially self-employment incomes are more under-reported than incomes from other sources (see Hagenaars *et al.*, 1994). Similarly, there are considerable cross-country differences regarding the amount and the quality of the HBSs' information on non-monetary indicators of welfare (household amenities and consumer durables). In some HBSs the relevant information is very detailed, in some others less so and in one case (Spain) there is no such information. Even though the HBSs data used in this study have been, to a large extent, harmonized in terms of concepts and definitions, there are still considerable cross-country differences, especially with respect to the method of information collection and content of the surveys (see Hagenaars *et al.*, 1994). For these reasons, the present paper focuses on differences between elderly and non-elderly within individual countries rather than on cross-country comparisons.

For the purposes of the paper, persons aged 65 or above are classified as "elderly persons" and persons below this threshold as "non-elderly persons." This particular threshold was selected because 65 is the official retirement age in most EU countries (at least for males) and has been used as a cut-off point in several

[3]Following the practice of the EU, the country notation used in the tables of this paper is: Belgium (B), Denmark (DK), Germany (D), Greece (GR), Spain (E), France (F), Ireland (IRL), Italy (I), Luxembourg (L), the Netherlands (NL), Portugal (P) and the United Kingdom (UK).

EU studies (Eurostat, 1990; EC, 1991; and Hagenaars *et al.*), 1994. Since the main purpose of this project is to evaluate the welfare of the elderly in comparison to the non-elderly, the distributions used are distributions of persons; not households. These distributions are derived by assigning to each household member attributes of the household such as equivalent expenditure, equivalent income, consumer durables and household amenities. In doing so it is implicitly assumed that the distribution of resources within the household is equitable. Although this is a very common assumption in distributional studies, there may be grounds to suspect that it is not necessarily correct [see Haddad and Kanbur (1990) and Thomas (1990)]. The distributions of equivalent expenditure and equivalent income are derived by dividing the total household expenditure/income by the number of equivalent adults in the household and assigning the resulting figures to each household member. The equivalence scales utilized are the so-called "modified OECD scales," which assign a weight of 1 to the head of the household, a weight of 0.5 to each subsequent adult and a weight of 0.3 to each child (person aged below 15) in the household (see Hagenaars *et al.*, 1994). Even though there is no consensus regarding the size of the "correct" household equivalence scales, the modified OECD scales lie somewhere in the middle of the range of household equivalence scales used in empirical research (see Buhmann *et al.*, 1988, Hagenaars *et al.*, 1992). It should be stressed that the quantitative results of our analysis are sensitive with respect to the choice of a particular set of equivalence scales [see Tsakloglou (1994b)]. Since in all EU member-states a very large proportion of the elderly live in small households (one- and two-member households), the larger the economies of scale implied by the set of equivalence scales used in the analysis, the more likely it is to find more elderly persons located closer to the bottom of the distribution of equivalent expenditure/income. The data used to derive the estimates reported below were weighted either by the weights provided by the National Statistical Institutes or—in case no weights were provided—by weights calculated by the author using the detailed grouped data of the Labour Force Surveys of the countries in question.

Even though the HBSs are a very rich source of information for distribution-related studies, they may not be the ideal source of information for the purposes of the present study. This is so because the elderly are very likely to be under-represented in the original (unweighted) samples of the HBSs. This under-representation is probably the consequence of two factors. Firstly, the HBSs cover only the non-institutional households and it is likely that a disproportionately large number of elderly persons live in institutional households (nursing homes). Secondly, it seems very probable that the non-cooperation of the households which are headed by elderly persons with the enumerators of the HBSs is proportionately higher than that of the households headed by non-elderly persons.[4] This under-representation is mitigated by the use of sample weights. Nevertheless, even in the weighted samples the elderly are still slightly under-represented in most countries [see Tsakloglou (1994a)]. Since in our analysis the welfare indicators of

[4]This is especially true in some countries for the very old persons; see, for example, Kemsley (1975).

the elderly are expressed as fractions of the corresponding indicators of the non-elderly, this under-representation would not affect seriously the results if the elderly included in the samples of the HBSs were representative of all the elderly in the population. Unfortunately, though, this is not the case. In most samples the very old elderly persons (those aged over 74) are relatively more under-represented in the weighted samples of the HBSs than the younger elderly persons (those aged 65–74). Since in all EU member-states the very old elderly persons enjoy a substantially lower welfare level than the relatively younger elderly persons [see Tsakloglou (1996)], it may be plausible to argue that from this point of view, in most cases, the "true" relative status of the elderly is lower than that implied by the estimates reported below.

3. Consumption Expenditure

An individual's consumption has long been considered a good approximation of his/her permanent or life-cycle income and, hence, of his/her welfare [Sen (1976a, 1981), Deaton (1980)]. Nevertheless, HBSs collect data on consumption expenditure which is just an approximation to an individual's consumption. Apart from purchased goods and services, the concept of "consumption expenditure" used here includes consumption of own production (including imputed rent) and benefits in kind provided by the employer.[5] Therefore, this concept is broader than pure "expenditure" although it is narrower than "consumption" since it does not include the value of goods and services provided free of charge by the state or other organizations (e.g. education, health and medical care, housing, public transport services, etc). The latter may have serious implications for the results of the present study, if the elderly are heavier/lighter users than the non-elderly of the subsidized or freely provided by the state goods and services. The situation is likely to vary considerably across countries, depending on their institutional arrangements.[6] For example, one can expect that the elderly are heavier users of health and medical services than the rest of the population. If in a particular country these services are heavily subsidized or provided free of charge by the state then, *ceteris paribus*, the "true" relative welfare of the elderly is likely to be higher than that depicted by their recorded equivalent expenditure (or equivalent income.)[7] Exactly the opposite is the situation with respect to educational services, since the elderly are far less likely to use these services that the rest of the population. There are relatively few studies examining the overall distributional impact

[5]For those countries for which no data on imputed rent for owner-occupied accommodation were available, imputed rent was estimated using hedonic regression techniques. Then, the resulting estimate of imputed rent was added to the total expenditure (and the total income) of the households living in owner-occupied accommodation.

[6]As noted in EC (1993, p.41) "some countries have chosen to buttress the relatively low incomes of pensioners by means of exemptions or price concessions on various goods and services." Naturally, this difference in institutional arrangements renders some cross-country comparisons rather meaningless, but may also have some implications for the comparisons of the living standards of elderly and non-elderly within the same country.

[7]This omission may have very significant consequences especially for the evaluation of the relative living standards of the very old elderly persons. Due to the particular needs of its members, this segment of the population is likely to consume a disproportionately large amount of the publicly provided health and medical services.

of government expenditures on the elderly and the non-elderly in EU countries. The distributional impact of non-cash transfers from the government to the population in the areas of health, education and housing in a number of countries (among them Germany, the Netherlands and the U.K.) is examined in detail in Smeeding *et al.* (1993). Their results show that in the three EU member-states examined in their study, the gap between elderly and non-elderly is only marginally affected by these transfers. However, due to the fact that these transfers have a more progressively redistributive impact within the group of the elderly than within the group of the non-elderly, after the transfers inequality and poverty decline more in the former group. This is probably the situation in the majority of the rest of the EU member-states—at least in those with developed welfare safety nets. It should be noted, though, that in the case of the elderly the results of Smeeding *et al.* (1993) were driven by the impact of the non-cash transfers in the areas of health and medical services. It is questionable whether health and medical expenditures should be included in our welfare indicators (equivalent consumption expenditure and equivalent income) since it can be reasonably argued that the relevant services are, simply, used to bring their users to a physical state similar to that of the rest of the population (in other words, they should be treated as investment rather than consumption or potential consumption expenditure).

Another problem arises in the case of durable goods since, on the one hand expenditure on durables cannot be identified with consumption in the same period and, on the other hand, many households enjoy the flow of services of durable goods purchased outside the enumeration period of the HBSs. Due to life-cycle reasons, the elderly households are likely to own an accumulated stock of durables and, hence, they are less likely than the rest of the population to purchase durable goods during that period. Therefore, unlike the effect of the other possible biases in the data mentioned above, the fact that the HBSs record expenditures on durable goods rather than the value of services derived from them is likely to result in an under-estimation of the "true" relative welfare position of the elderly vis-a-vis the non-elderly.

Table 1 reports estimates related to the consumption expenditures of elderly and non-elderly. Line (1) reports the population shares of the elderly in percentage terms and line (2) reports the mean equivalent expenditure of the elderly as a proportion of the mean equivalent expenditure of the non-elderly (also in percentage terms)

$$k = \mu_e / \mu_n, \tag{1}$$

where μ_e and μ_n are the mean equivalent expenditure levels of the elderly and the non-elderly, respectively. In all EU member-states the mean equivalent expenditure of the elderly is lower than that of the non-elderly. However, in quantitative terms the situation varies considerably across countries. In some countries the mean equivalent expenditure of the elderly is only slightly lower than that of the non-elderly (especially in Belgium, 98.4 percent and Luxembourg, 95.7 percent, whereas in some others it is substantially lower (most notably in Greece, 70.5 percent and Portugal, 70.7 percent).

However, average figures do not reveal too much. Several studies suggest that in many countries the level of inequality among the elderly is higher than

TABLE 1

RELATIVE POSITION OF ELDERLY IN TERMS OF CONSUMPTION EXPENDITURE IN EU COUNTRIES

Line No.	Variable	Country											
		B	DK*	D*	GR	E	F	IRL*	I	L	NL	P*	UK
1	Population share of the elderly (% of total population)	13.8	14.0	16.6	14.5	14.9	13.0	10.0	13.1	12.0	10.7	14.6	15.2
2	Mean equivalent expenditure of elderly (% of non-elderly)	98.4	80.1	92.4	70.5	93.3	92.3	90.2	80.5	95.7	90.9	70.7	73.6
3	Second Theil index of inequality of elderly	0.101	N.A.	N.A.	0.199	0.139	0.153	N.A.	0.221	0.114	0.091	N.A.	0.218
4	Second Theil index of inequality of non-elderly	0.092	N.A.	N.A.	0.160	0.121	0.130	N.A.	0.200	0.111	0.066	N.A.	0.186
5	Contribution of elderly to aggregate inequality (%)	15.0	N.A.	N.A.	16.7	16.8	14.9	N.A.	14.1	12.3	14.7	N.A.	16.9
6	Poverty rate of elderly (%)	7.9	7.5	17.4	37.4	17.9	18.2	20.0	33.1	11.4	11.7	42.9	36.8
7	Poverty rate of non-elderly (%)	7.0	3.3	9.6	14.5	11.4	11.8	15.2	19.0	10.0	3.4	21.4	13.3
8	Contribution of elderly to aggregate poverty rate (%)	15.4	27.1	26.3	30.5	21.7	18.8	12.7	20.7	13.4	29.1	25.6	33.2
9	Poverty gap of elderly (%)	12.4	14.3	21.4	32.8	20.8	22.6	23.4	28.7	15.5	15.8	34.0	27.2
10	Poverty gap of non-elderly (%)	16.9	15.8	18.2	25.1	22.6	19.9	21.2	24.2	18.9	11.6	29.1	20.9
11	Foster *et al.* index of poverty of elderly (multiplied by 10)	0.021	0.028	0.122	0.546	0.118	0.140	0.169	0.393	0.046	0.052	0.687	0.401
12	Foster *et al.* index of poverty of non-elderly (multiplied by 10)	0.032	0.014	0.051	0.135	0.087	0.072	0.099	0.168	0.054	0.010	0.278	0.088
13	Contribution of elderly to aggregate poverty according to the Foster *et al.* index (%)	9.7	24.2	32.3	40.8	19.4	22.5	15.7	26.0	10.3	39.7	29.7	45.1

Note: Country notation: Belgium (B), Denmark (DK), Germany (D), Greece (GR), Spain (E), France (F), Ireland (IRL), Italy (I), Luxembourg (L), the Netherlands (NL), Portugal (P) and the United Kingdom (UK).

*Estimates derived from A. J. M. Hagenaars, K. de Vos and M. A. Zaidi (1994).

N.A.: Not available.

the level of inequality of the entire population (see, for instance, Danzinger *et al.* 1984; Radner, 1987; Smeeding, 1989; and EC, 1991, 1993). A comparison of the levels of inequality of the elderly and the non-elderly is presented in lines (3) and (4) using the second Theil index (L) as a summary measure of inequality.

$$L_i = (1/n_i) \sum_j \ln (\mu_i / y_{ij}) \tag{2}$$

where L_i, n_i, and μ_i denote, respectively, the inequality index, the population size and the mean equivalent expenditure of group i (elderly/non-elderly) and y_{ij} the consumption expenditure of person j who belongs to group i. In all countries for which we were able to estimate such indices, inequality among the elderly is found to be higher than inequality among the non-elderly [inequality indices could not be estimated for the countries for which micro-data were not available]. Nevertheless, the quantitative differences are quite substantial across countries. The difference in the levels of inequality of elderly and non-elderly is most profound in the cases of Greece (0.199 against 0.160), the U.K. (0.218 against 0.186) and the Netherlands (although in the latter the levels of inequality are relatively low for both groups, 0.091 against 0.066) and least so in the case of Luxembourg (0.114 against 0.111). L is utilized instead of other more commonly used measures of inequality (such as the Gini index) because it is "strictly additively decomposable;" that is, it allows the quantification of the contribution of the group of elderly and the group of non-elderly to aggregate inequality as well as the contribution of disparities "between-groups."[8] More specifically, it can be written as [see Anand (1983, Appendix C)]

$$L = \sum_i (n_i/n) L_i + \sum_i (n_i/n) \ln (\mu/\mu_i), \tag{3}$$

where L, n and μ denote the inequality index, the population size and the mean equivalent expenditure of the entire population. The percentage contribution of the elderly to aggregate inequality, $100(n_e/n)(L_e/L)$, is shown in line (5). Comparison of these estimates with the estimates of line (1) suggests that the contribution of the elderly to aggregate inequality was higher than their population share in all EU member-states examined there.

Another way to examine the structure of inequality is by looking at the composition of the population deciles when the members of the sample are ranked in ascending order according to their equivalent expenditure. This is done in Table 2 (expenditure deciles shares cannot be calculated for those countries for which no micro-data were available). The evidence in this table reveals that in all EU member-states for which such comparisons are performed, the elderly are disproportionately concentrated at the bottom deciles of the distribution. Taking into

[8] L satisfies the axioms of symmetry, population-independence, mean-independence and transfer-sensitivity and, in comparison to other summary measures of inequality, is relatively more sensitive to transfers close to the bottom of the distribution; see Bourguignon (1979) and Champernowne (1974). It decomposes aggregate inequality into inequality "between-groups" and inequality "within-groups." In our samples, the contribution of disparities "between elderly and non-elderly" to aggregate inequality was always low (between 0.05 percent and 4.0 percent). In most cases, experimentation with several other inequality indices revealed a pattern similar to that reported in Table 1 (inequality higher among the elderly than among the non-elderly).

TABLE 2

PERCENTAGE OF ELDERLY IN POPULATION DECILES RANKED ACCORDING TO EQUIVALENT EXPENDITURE

Decile	Country											
	B	DK	D	GR	E	F	IRL	I	L	NL	P	UK
1 (bottom)	15.1	N.A.	N.A.	37.0	19.6	19.5	N.A.	23.2	14.0	21.3	N.A.	37.1
2	14.6	N.A	N.A	22.7	21.3	15.3	N.A	17.3	11.8	10.3	N.A.	26.1
3	16.9	N.A.	N.A.	17.0	15.2	13.6	N.A.	14.9	13.9	9.8	N.A.	17.2
4	15.7	N.A.	N.A.	14.5	14.3	13.5	N.A.	13.5	15.3	6.8	N.A.	13.5
5	16.2	N.A.	N.A.	12.8	14.7	12.9	N.A.	11.7	12.5	8.7	N.A.	12.9
6	11.2	N.A.	N.A.	10.1	13.0	12.1	N.A.	12.7	10.1	9.7	N.A.	9.7
7	10.4	N.A.	N.A.	8.1	13.7	10.3	N.A.	10.3	10.4	10.2	N.A.	9.6
8	10.9	N.A.	N.A.	8.5	12.0	10.9	N.A.	8.9	9.4	9.1	N.A.	10.6
9	13.8	N.A.	N.A.	7.3	11.4	10.0	N.A.	8.3	8.3	8.6	N.A.	7.2
10 (top)	13.5	N.A.	N.A.	7.7	14.5	11.5	N.A.	8.7	12.1	8.7	N.A.	8.4
Population share	13.8	14.0	16.6	14.5	14.9	13.0	10.0	13.1	12.0	10.7	14.6	15.2

Note: See country notations in Table 1 note.
N.A.: Not available.

account the evidence of Table 1, it is not surprising to find that this pattern is most profound in the cases of Greece and the U.K. and least so in the cases of Belgium and Luxembourg.

The fact that there is excess concentration of the elderly in the bottom deciles, implies that the poverty rates of the elderly in these countries should be higher than the poverty rates of the non-elderly. Following a relativistic approach which sets the poverty line to one-half of the mean equivalent expenditure, we can derive poverty rates for the elderly and the non-elderly

$$H_i = q_i/n_i, \tag{4}$$

where H_i and q_i denote the poverty rate and the number of poor persons in group i.[9] These rates are reported in percentage terms in lines (6) and (7) of Table 1. The corresponding percentage contributions of the elderly to the aggregate poverty rate, $100(n_e/n)(H_e/H)$, are reported in line (8). Once again, a uniform qualitative pattern emerges from the results of Table 1. In all EU member-states the poverty rate of the elderly is higher than the poverty rate of the non-elderly. However, considerable quantitative cross-country differences are also evident in Table 1. In some countries the differences in the poverty rates of elderly and non-elderly are rather insignificant (Belgium, 7.9 percent against 7.0 percent; Luxembourg, 11.4 percent against 10.0 percent), whilst in others the corresponding differences are very large (Portugal, 42.9 percent against 21.4 percent; Greece, 37.4 percent against 14.5 percent; and the U.K., 36.8 percent against 13.3 percent).[10] Naturally, comparison of the figures in lines (1) and (8) reveals that the contribution of the

[9]This definition of the poverty line (50 percent of the mean equivalent expenditure/income) has been used in several studies of poverty in the EU [see, for example, Eurostat (1990) and Hagenaars *et al.* (1994)].

[10]In relative terms, the differences in the poverty rates of elderly and non-elderly are also substantial in the Netherlands and Denmark. However, in these countries the poverty rates are very low for both population groups in comparison with the rest of the EU member-states.

elderly to the aggregate poverty rate is higher than their population share in all countries under examination; sometimes substantially so.

Poverty rates alone do not convey much information about the relative status of the least privileged members of a society. Two groups may have the same poverty rate, but in the first group all the poor may be very close to the poverty line whereas in the second group they may be close to absolute destitution. For this reason it is interesting to look at what is known as the "poverty gap" of the poor, as well. The poverty gap is the average shortfall of a poor person's expenditure from the poverty line expressed as a proportion of the poverty line

$$g_i=(z-\mu_{ip})/z, \tag{5}$$

where z is the poverty line and g_i, and μ_{ip} denote the poverty gap and the mean expenditure of the poor in group i, respectively. The poverty gaps of the elderly and the non-elderly are reported in lines (9) and (10) multiplied by 100. This time the pattern is not uniform across countries. Although in most countries the poverty gap of the elderly is larger than the poverty gap of the non-elderly, in four countries (Belgium, Denmark, Luxembourg and Spain) the average consumption expenditure of a poor elderly person is higher than that of a poor non-elderly person.

However, even if two groups have the same poverty rate and the same poverty gap, they may differ with respect to the distribution of expenditure among the poor. For this reason it may be preferable to use more complex poverty indices which take into account the poverty rate, the poverty gap and the level of inequality within the group of the poor persons. Following the seminal contribution of Sen (1976b) a number of such indices have been proposed in the literature. One of the most popular of these indices is undoubtedly that suggested by Foster *et al.* (1984)

$$F_i=(1/n_i)\sum_j[(z-x_{ij})/z]^{\varepsilon}, \tag{6}$$

where F_i is the poverty index of group i, ε is a poverty aversion parameter and $\mathbf{x}$ is the "truncated" distribution of consumption expenditure (that is, $x_{ij}=y_{ij}$ if $y_{ij}<z$ and $x_{ij}=z$ if $y_{ij}\geq z$). In line with most empirical studies which use F, the value of 2 is assigned to its "poverty aversion" ε. F has the additional advantage of being "additively decomposable," which means that it allows the quantification of the contribution of the elderly and the non-elderly to aggregate poverty. More specifically the value of F for the entire population is

$$F=\sum_i (n_i/n)[(1/n_i)\sum_j[(z-x_{ij})/z]^{\varepsilon}]=\sum_i (n_i/n)F_i. \tag{7}$$

Estimates of F for the elderly and the non-elderly are reported in lines (11) and (12) of Table 1 (since the values of the estimates of this index are very low in absolute terms, the reported estimates have been multiplied by 10). The percentage contribution of the elderly to the aggregate poverty according to F, $100(n_e/n)\times(F_e/F)$, is shown in line (13). Considerable cross-country qualitative and quantitative differences can be observed when the groups of elderly and non-elderly are compared. In two countries the values of the index are higher for the group of the non-elderly than for the group of elderly (Belgium, 0.032 against 0.021 and

Luxembourg, 0.054 against 0.046)[11], while in other cases the values of the F indices of the elderly are substantially higher than those of the non-elderly in absolute terms (Greece, 0.135 against 0.546; Portugal, 0.278 against 0.687; and the U.K. 0.088 against 0.401). As a result, the contribution of the elderly to the aggregate poverty according to F in Belgium and Luxembourg is lower than their population share, whereas in most countries it is between almost two and four times larger than that share (Germany, Greece, Ireland, Italy, the Netherlands, Portugal and the U.K.).

Overall, the results of this section seem to suggest that the non-elderly are in a better position than the elderly in the EU, although in quantitative terms there are significant differences across EU member-states.

4. Incomes

An alternative approach to look at the relative position of the elderly is to examine their incomes in comparison to the incomes of the non-elderly. Since current income is an indicator of the resources available to an individual or a household, it can be considered as a reasonable indicator of welfare. In fact, some authors argue that income may be preferable to consumption expenditure in distribution-related studies [see, for example de Vos (1991) and the references cited there]. On the one hand, the use of current income instead of current consumption expenditure as an indicator of welfare has the advantage that it avoids classifying as materially deprived those households which have the ability to finance a higher level of consumption but voluntarily choose not to do so (see Haveman, 1990). On the other hand, the use of current income as welfare indicator disregards the intertemporal allocation of resources by the economic units. Furthermore, as noted earlier, the quality of the income information of a number of HBSs used in this paper is thought to be considerably lower than the quality of the information on consumption expenditure. The concept of income used here is "net household income;" that is the total income of the household (including income in kind and imputed rent) net of personal taxes and social insurance contributions.[12] Apart from using income instead of consumption expenditure, the analysis of this section is identical to that of Section 3. The results are reported in Tables 3 and 4.

Similar to the corresponding results of Table 1, the results reported in line (2) of Table 3 suggest that, on average, the non-elderly are better-off than the elderly in all EU member-states. Once again, cross-country differences are considerable, but the ranking of the relative position of the elderly vis-a-vis the non-elderly is rather different than that shown in Table 1. The mean equivalent income

[11]It should be noted, however, that as Hagenaars *et al.* (1994, p. 186) point out "It has been brought to our attention that. . .the elderly in the HBS sample of Belgium and Luxembourg may not be representative of the elderly in the country as a whole. However, in the absence of information on the selectivity of the response, we cannot confirm or reject this hypothesis." The latter approach is adopted in the present paper, as well.

[12]As noted earlier, the Belgian data set does not contain income information and Hagenaars *et al.* (1994) do not provide income-based estimates of poverty gaps and F indices. A consequence of the latter is that the estimates of Table 3 for Denmark, Germany, Ireland and Portugal are less complete than the corresponding estimates of Table 1.

TABLE 3
RELATIVE POSITION OF ELDERLY IN TERMS OF INCOME IN EU COUNTRIES

Line No.	Variable	Country											
		B	DK*	D*	GR	E	F	IRL*	I	L	NL	P*	UK
1	Population share of the elderly (% of total population)	N.A.	14.0	16.6	14.5	14.9	13.0	10.0	13.1	11.7	10.7	14.6	15.2
2	Mean equivalent expenditure of elderly (% of non-elderly)	N.A.	69.4	87.7	86.0	97.8	94.3	94.5	89.8	95.6	88.6	75.7	66.7
3	Theil index of inequality of elderly	N.A.	N.A.	N.A.	0.192	0.095	0.170	N.A.	0.136	0.087	0.089	N.A.	0.141
4	Theil index of inequality of non-elderly	N.A.	N.A.	N.A.	0.163	0.115	0.168	N.A.	0.132	0.091	0.096	N.A.	0.224
5	Contribution of elderly to aggregate inequality (%)	N.A.	N.A.	N.A.	16.4	13.1	13.2	N.A.	13.4	11.3	9.9	N.A.	9.7
6	Poverty rate of elderly (%)	N.A.	27.0	19.4	26.8	8.1	14.7	6.4	15.8	4.9	9.7	36.8	39.5
7	Poverty rate of non-elderly (%)	N.A.	5.8	8.8	14.9	11.4	13.5	18.1	12.3	5.6	6.8	13.9	17.7
8	Contribution of elderly to aggregate poverty rate (%)	N.A.	42.9	30.3	23.4	11.1	14.1	3.8	16.2	10.4	14.6	31.2	28.6
9	Poverty gap of elderly (%)	N.A.	N.A.	N.A.	30.2	15.0	32.7	N.A.	20.0	14.6	5.9	N.A.	20.7
10	Poverty gap of non-elderly (%)	N.A.	N.A.	N.A.	26.1	20.4	32.7	N.A.	20.0	19.6	17.4	N.A.	40.8
11	Foster *et al.* index of poverty of elderly (multiplied by 10)	N.A.	N.A.	N.A.	0.345	0.028	0.254	N.A.	0.101	0.017	0.006	N.A.	0.241
12	Foster *et al.* index of poverty of non-elderly (multiplied by 10)	N.A.	N.A.	N.A.	0.159	0.080	0.228	N.A.	0.078	0.038	0.036	N.A.	0.401
13	Contribution of elderly to aggregate poverty according to the Foster *et al.* index (%)	N.A.	N.A.	N.A.	26.9	5.8	14.2	N.A.	16.3	6.1	1.9	N.A.	9.7

Note: See county notations in Table 1 note.
*Estimates derived from A. J. M. Hagenaars, K. de Vos and M. A. Zaidi (1994).
N.A.: Not available.

TABLE 4

PERCENTAGE OF ELDERLY IN POPULATION DECILES RANKED ACCORDING TO EQUIVALENT INCOME

Decile	Country											
	B	DK	D	GR	E	F	IRL	I	L	NL	P	UK
1 (bottom)	N.A.	N.A.	N.A.	25.7	10.9	13.6	N.A.	14.7	13.8	17.9	N.A.	15.0
2	N.A.	N.A.	N.A.	19.1	17.6	15.7	N.A.	17.5	12.2	13.4	N.A.	42.5
3	N.A.	N.A.	N.A.	15.1	14.7	14.7	N.A.	15.8	11.7	11.5	N.A.	30.4
4	N.A.	N.A.	N.A.	14.1	17.0	15.5	N.A.	14.8	14.0	7.8	N.A.	17.3
5	N.A.	N.A.	N.A.	13.9	14.2	13.3	N.A.	15.2	11.3	11.0	N.A.	12.9
6	N.A.	N.A.	N.A.	11.5	16.0	13.0	N.A.	13.0	15.1	8.3	N.A.	10.7
7	N.A.	N.A.	N.A.	10.5	15.9	11.4	N.A.	11.0	10.0	9.2	N.A.	6.2
8	N.A.	N.A.	N.A.	11.5	15.1	10.6	N.A.	9.5	12.0	8.5	N.A.	6.9
9	N.A.	N.A.	N.A.	11.5	13.6	9.5	N.A.	9.3	8.2	6.6	N.A.	5.4
10 (top)	N.A.	N.A.	N.A.	12.0	14.5	12.8	N.A.	9.4	8.9	7.7	N.A.	4.8
Population share	N.A.	14.0	16.6	14.5	14.9	13.0	10.0	13.1	11.7	10.7	14.6	15.2

Note: See county notations in Table 1 note.
N.A.: Not available.

of the elderly appears to be only marginally lower than that of the rest of the population in Spain (97.8 percent), Luxembourg (95.6 percent) and France (94.3 percent), but substantially lower in the U.K. (66.7 percent) and Denmark (69.4 percent). The rest of the countries lie somewhere between.

The remaining of the results of Table 3 as well as the decile shares of Table 4 are not very similar to the corresponding estimates of Tables 1 and 2. The evidence of Table 4 suggests that in most countries the elderly are less likely to be substantially over-represented in the bottom deciles of the distribution of equivalent income than in the bottom deciles of the distribution of equivalent consumption expenditure. As a result, the picture that emerges regarding the levels of income inequality within the groups of elderly and non-elderly is not as uniform as that of Table 1. Lines (3) and (4) of Table 3 suggest that inequality in the distribution of equivalent income as measured by L is higher among the non-elderly than among the elderly in four countries (Luxembourg, 0.091 against 0.087; the Netherlands 0.096 against 0.089; Spain, 0.155 against 0.095; and, especially, the U.K. 0.224 against 0.141) and lower in three countries (France, 0.168 against 0.170; Greece, 0.163 against 0.192 and Italy, 0.132 against 0.136).

A comparison of the poverty rates reported in Table 3 shows that when poverty is measured in terms of income in three countries the poverty rate of the elderly appears to be lower than the poverty rate of the non-elderly (Ireland, 6.4 percent against 18.1 percent; Luxembourg, 4.9 percent against 5.6 percent and Spain, 8.1 percent against 11.4 percent) and in the three others only marginally higher (France, 14.7 percent against 13.5 per cent; Italy, 15.8 percent against 12.3 percent and the Netherlands, 9.7 percent against 6.8 percent). In the remaining countries the poverty rates of the elderly are substantially higher than the poverty rates of the non-elderly. As a consequence of the latter, in some countries the contribution of the elderly to the aggregate poverty rate is considerably higher than their share in the total population (Portugal 31.2 percent against 14.6 percent,

Germany 30.3 percent against 16.6 percent; Greece, 23.4 percent against 14.5 percent; the U.K., 28.6 percent against 15.2 percent and, particularly, Denmark, 42.9 percent against 14.0 percent).

Turning to the income poverty gaps of the elderly and the non-elderly reported in lines (9) and (10) of Table 3, it can be noticed that the situation is very different than that reported in the corresponding lines of Table 1. Of the countries for which appropriate micro-data were available, in four cases the poverty gap of the elderly is lower than that of the non-elderly (and sometimes substantially so, as in the case of the U.K.), in two cases these gaps are equal and only in the case of Greece the average shortfall of a poor elderly person from the poverty line is larger than the corresponding shortfall of a poor non-elderly person.[13] Partly as a result of this factor, the value of the F poverty index for the group of the non-elderly is significantly higher than the value of this index for the group of the elderly in the four countries where the poverty gap of the elderly is lower than the poverty gap of the non-elderly [Luxembourg (0.036 against 0.017), Spain (0.080 against 0.028), the U.K. (0.401 against 0.241) and, especially, the Netherlands (0.036 against 0.006)]. In the three remaining countries the situation is the opposite [France (0.228 against 0.254), Italy (0.078 against 0.101) and, particularly, Greece (0.159 against 0.345)]. As a consequence of these differences in the values of the more elaborate indices of aggregate poverty, in some countries the contribution of the elderly to the aggregate poverty reported in line (13) of Table 3 is dramatically lower than the corresponding population share (the Netherlands, 1.9 percent against 10.7 percent; Spain, 5.8 percent against 14.9 percent; whereas in some others it is much higher (most notably in the case of Greece, 26.9 percent against 14.5 percent).

Despite the fact that the evidence is not as clear-cut as that of Tables 1 and 2, the estimates of Tables 3 and 4 seem to suggest that, on average, in most EU member-states the elderly enjoy a lower standard of living than the non-elderly.

5. Non-monetary Indicators of Welfare

Apart from comparing the level and structure of consumption expenditure and income of the elderly and the non-elderly in order to reach a conclusion regarding their living standards, we can also examine their relative position in terms of a series of material non-monetary indicators of welfare. This is done in the present section, where elderly and non-elderly are compared in terms of their access to a number of household amenities and consumer durable goods. Nineteen such items were picked; eleven household amenities (living area in terms of square meters per equivalent adult, inside WC, own separate kitchen and cooking facilities, bath/shower on the premises, hot running water on the premises, central heating, telephone, accommodation with garage, second home, electricity and running water) and eight consumer durables (car, television, music system, video

[13]It is likely that, at least in some northern EU countries, this result can be attributed to the structure of the pensions (main income source of the elderly). In these countries most elderly receive an earnings-related basic pension and a voluntary occupational one. The basic pension is, normally, set at such a level that prevents the elderly from falling very far below the relativist poverty line used in our analysis.

recorder, washing machine, deep freezer, dishwasher and refrigerator). The results showed that, on average, the elderly are better-off than the non-elderly in terms of space available to them in their residencies in the five countries where appropriate data were available (Belgium, France, Greece, Italy and Luxembourg). With respect to the remaining housing amenities the non-elderly are better-off than the elderly in all EU countries apart from Denmark. The differences between the two groups are fairly marginal in France, Germany, Luxembourg and the Netherlands but significant in Greece, Ireland, Portugal, Belgium and, to a lesser extent, Italy. The results of ownership of (or access to) particular durable goods showed that in all countries the non-elderly live in better equipped households than the elderly. In most cases the differences between the two groups is substantial; especially regarding items such as ownership of cars, music systems, video recorders and dishwashers (for detailed estimates and discussion see Tsakloglou, 1994b).

An attempt to provide an overall picture of the general position of elderly and non-elderly, especially with respect to the least privileged members of the

TABLE 5

PROPORTIONS OF ELDERLY AND NON-ELDERLY LIVING IN HOUSEHOLDS WITHOUT SOME OF EIGHT BASIC AMENITIES AND DURABLES

Country/Group	Proportion of original sample included	At least 2 not available	At least 3 not available	At least 4 not available
Belgium/elderly[a]	97.7	21.9	8.6	2.1
Belgium/non-elderly[a]	98.0	10.5	3.1	0.6
Greece/elderly	99.5	58.7	40.9	27.1
Greece/non-elderly	99.6	35.1	19.1	11.1
France/elderly	96.7	12.5	4.5	1.8
France/non-elderly	94.4	6.9	2.6	1.1
Italy/elderly[a,b]	100.0	13.9	7.4	2.8
Italy/non-elderly[a,b]	100.0	9.3	4.1	1.3
Luxembourg/elderly[c]	98.1	11.5	4.4	1.9
Luxembourg/non-elderly[c]	86.0	6.5	2.2	0.7
The Netherlands/elderly[d]	100.0	3.9	0.3	0.0
The Netherlands/non-elderly[d]	100.0	2.4	0.7	0.2
United Kingdom/elderly[e]	100.0	2.2	0.1	0.0
United Kingdom/non-elderly[e]	100.0	0.9	0.3	0.0

Note: Basic amenities and durables are: 35 square meters per equivalent adult, inside WC, own separate kitchen and cooking facilities, bath/shower on the premises, telephone, television, washing machine, refrigerator/deep freezer.

[a]Proportions living in households without some of seven basic amenities and durables (excluding own separate kitchen and cooking facilities).

[b]"Refrigerator" instead of "refrigerator/deep freezer."

[c]"Deep freezer" instead of "refrigerator/deep freezer."

[d]Proportions living in households without some of six basic amenities and durables (excluding 35 square meters per equivalent adult and inside WC).

[e]Proportions living in households without some of four basic durables.

society, is presented in Table 5 where elderly and non-elderly are compared in terms of their access to a number of basic amenities and durables simultaneously. These amenities and durables are: at least 35 square meters per equivalent adult, inside WC, own separate kitchen and cooking facilities, bath/shower on the

premises, telephone, television (colour or black and white), washing machine and refrigerator or deep freezer. Durables or amenities which could be considered as "luxuries" (e.g. second home, car), "culturally biased" across generations (e.g. video, hi-fi), "climatically biased" across countries (e.g. central heating, accommodation with garage) or are close to 100 percent in all EU member-states (e.g. electricity, running water, etc.) are not included. Households which did not provide information on any of the items to the enumerators of the HBSs were excluded from the samples of the corresponding surveys. Since in some HBSs there is no information on the availability of some of the above items, comparisons are performed with respect to all eight items only in the cases of France, Greece and Luxembourg, and with respect to seven items in the cases of Belgium and Italy, six items in the case of the Netherlands and four items in the case of the U.K. Taking into account that the execution of this exercise requires access to micro-data, no such comparisons were performed in the cases of Denmark, Germany, Ireland and Portugal and, also in the case of Spain where no information on amenities and durables was available.

Table 5 reports the proportions of elderly and non-elderly living in households without access to at least two, at least three and at least four of the amenities and durables selected. At any level of "deprivation" the elderly face a substantially higher risk than the non-elderly of not having access to some of the amenities and durables selected in Belgium, France, Greece, Italy and Luxembourg. The evidence is mixed in the Netherlands and the U.K. Hence, it can be concluded that in most EU member-states the elderly are less well-off than the non-elderly in terms of a series of material non-monetary indicators of welfare related to their household amenities and consumer durables.

6. A Synthetic Picture

The last three sections presented a comparison of the relative position of the elderly and the non-elderly in terms of equivalent consumption expenditure, equivalent income and ownership of or access to a number of household amenities and consumer durable goods. This section tries to focus on the least privileged members of the society using simultaneously information on consumption expenditure, income and non-monetary material indicators of welfare. Three alternative poverty thresholds are utilized for the purposes of this exercise. The first two are those used in earlier sections (50 percent of the mean equivalent expenditure and 50 percent of the mean equivalent income). The third threshold is related to the non-monetary material indicators of welfare and according to it an individual is classified as materially deprived if the household where he/she resides does not own or has access to at least two of the basic amenities and durable goods used for deriving the estimates of Table 5 (at least 35 square meters per equivalent adult, inside WC, own separate kitchen and cooking facilities, bath/shower on the premises, telephone, television, washing machine and refrigerator or deep freezer).

The results are reported in Table 6 where the proportions of elderly and non-elderly classified as materially deprived according to none, at least one, at least two and all three of the above criteria in each EU member-state are presented. For those countries where no micro-data were available, estimates were derived

TABLE 6

PROPORTIONS OF ELDERLY AND NON-ELDERLY CLASSIFIED AS MATERIALLY DEPRIVED USING THREE ALTERNATIVE CRITERIA

Country/Group	Proportion of original sample included	According to no criterion	According to at least 1 criterion	According to at least 2 criteria	According to all 3 criteria
Belgium/elderly[a]	97.7	75.0	25.0	5.0	N.A.
Belgium/non-elderly[a]	98.0	84.7	15.3	2.0	N.A.
Denmark/elderly[b,c,d]	100.0	73.4	26.6	3.1	N.A.
Denmark/non-elderly[b,c,d]	100.0	91.2	8.8	2.1	N.A
Germany/elderly[b,c]	100.0	76.2	23.8	13.1	N.A.
Germany/non-elderly[b,c]	100.0	87.0	13.0	5.5	N.A.
Greece/elderly	99.5	33.5	66.5	37.8	18.6
Greece/non-elderly	99.6	56.9	43.1	16.0	5.3
Spain/elderly[b]	99.9	78.6	21.4	4.6	N.A.
Spain/non-elderly[b]	99.9	83.1	16.9	5.8	N.A.
France/elderly	96.7	67.5	32.5	11.0	1.7
France/non-elderly	94.4	75.9	24.1	6.9	1.0
Ireland/elderly[b,c]	100.0	76.8	23.2	3.2	N.A.
Ireland/non-elderly[b,c]	100.0	76.7	23.3	10.0	N.A.
Italy/elderly[c]	100.0	60.1	39.9	17.7	5.2
Italy/non-elderly[c]	100.0	74.1	25.9	11.7	3.1
Luxembourg/elderly[f]	74.4	79.7	20.3	6.4	1.5
Luxembourg/non-elderly[f]	76.0	83.5	16.5	3.7	0.8
The Netherlands/elderly[g]	100.0	80.4	19.6	5.8	0.0
The Netherlands/non-elderly[g]	100.0	89.5	10.5	2.2	0.1
Portugal/elderly[b,c]	100.0	48.2	51.8	28.0	N.A.
Portugal/non-elderly[b,c]	100.0	74.3	25.7	9.5	N.A.
United Kingdom/elderly[b]	100.0	44.9	55.1	22.2	1.1
United Kingdom/non-elderly[h]	100.0	73.9	26.1	5.5	0.3

Note: Alternative criteria are: expenditure below 50 percent of the mean equivalent expenditure, income below 50 percent of the mean equivalent income and at least two of the (eight) basic amenities and durables of Table 5 not available.

[a]Two criteria only: expenditure below 50 percent of the mean equivalent expenditure and at least two of the (seven) basic amenities and durables of Table 5 not available.

[b]Two criteria only: expenditure below 50 percent of the mean equivalent expenditure and income below 50 percent of the mean equivalent income.

[c]Estimates derived from A. J. M. Hagenaars, K. de Vos and M. A. Zaidi (1994).

[d]Households headed by retired persons versus the rest of the households.

[e]"Refrigerator" instead of "refrigerator/deep freezer" and at least two of the (seven) basic amenities and durables of Table 5 not available.

[f]"Deep freezer" instead of "refrigerator/deep freezer."

[g]At least two of the (six) basic amenities and durables of Table 5 not available.

[h]At least two of the (four) basic durables of Table 5 not available.

from Hagenaars *et al.* (1994) with respect to relative deprivation in terms of consumption expenditure and income only. Similarly, in the cases of Belgium and Spain despite the fact that micro-data were available, only two criteria could be used due to lack of appropriate information in the corresponding HBSs (consumption expenditure and non-monetary indicators in Belgium, and consumption expenditure and income in Spain). For the remaining countries comparisons are

performed using all three criteria, although the number of non-monetary material indicators of welfare varies across countries. The evidence of Table 6 clearly suggests that in most EU countries the elderly can be considered as more materially deprived than the non-elderly. The proportions of elderly who are classified as materially deprived using at leat one, at least two or all three criteria are higher than the corresponding proportions of the non-elderly (and in most cases substantially so) in Belgium, Denmark, France, Germany, Greece, Italy, Luxembourg, Portugal and the U.K. The evidence is mixed in the cases of Spain and, to a lesser extent, the Netherlands. It is only in Ireland that the incidence of multiple deprivation of the elderly appears to be lower than that of the non-elderly.

7. Conclusions and Policy Implications

This article presented results on the relative position of the elderly vis-a-vis the non-elderly in EU member-states using HBSs data. Elderly and non-elderly were compared in terms of consumption expenditure, income and non-monetary indicators of welfare. The main conclusion of the analysis is that many qualitative similarities and quantitative differences can be observed in the EU countries regarding the relative position of their senior citizens. On the side of similarities, the results show that, on average, in all EU countries the non-elderly appear to be better-off than the elderly. Even though there are some exceptions to this rule, the elderly have lower mean equivalent expenditure and mean equivalent income than their non-elderly compatriots, proportionally more of them are located in the lower half of the distributions of equivalent consumption expenditure and equivalent income and/or fall below the poverty line. Further, the households of the non-elderly tend to be better equipped than the households of the elderly in terms of household amenities and consumer durables. On the side of differences, in some countries the average gap in the living standards of the elderly and non-elderly is marginal, whereas in others it is quite substantial. As a general pattern, the differences in the living standards of elderly and non-elderly tend to be larger in the Southern European EU member-states (with the exception of Spain) whose welfare systems are less developed than those of the rest of the EU and smaller in the Northern European EU countries (with the exception of the U.K.).[14]

For the purposes of this paper the elderly were treated as a more or less homogeneous group. However, the finding of Tables 1 and 3 that in most EU countries inequality is higher within the group of the elderly than within the group of the non-elderly as well as the evidence of Tables 2 and 4 imply that in many

[14]Tsakloglou (1994a) examines in detail the income sources and the expenditure patterns of elderly and non-elderly households, as well. As one would anticipate, the main source of income of the elderly households are the pensions they receive; however, the degree of their reliance on pensions varies considerably across EU member-states. Furthermore, the elderly households tend to allocate a higher proportion of their budgets than the rest of the households to goods and services with income elasticity of demand less than one (necessities). The latter can be combined with one of the oldest postulates in economics, namely "Engel's law," in order to shed some light on the relative position of the elderly. According to "Engel's law," the budget share for food (or other necessities) of a household is a good (inverse) indicator of its welfare level, irrespective of the total expenditure and composition of the household. If one is prepared to accept "Engel's law", then these results provide another indication that the elderly living in EU countries are in an inferior welfare position in comparison with their non-elderly compatriots.

EU countries they are likely to be a fairly heterogeneous group. Tsakloglou (1996) examines the living standards of sub-groups of elderly using three alternative criteria: sex ("male" and "female"), age ("65–74" and "over 74") and household type ("single male," "single female," "elderly couple" and "other household type"). The results show that in most EU countries the elderly are far from being a homogeneous group. As a general pattern, elderly males appear to be better-off than elderly females, younger elderly substantial better-off than the very old elderly, whereas no clear conclusion was reached regarding the sub-division of the elderly according to their household type. In most cases, elderly living alone are in a higher risk than the rest of the elderly to fall below the poverty line, although in several instances the mean equivalent consumption expenditure of their group is relatively high.

Even though the paper is mostly descriptive, some policy implications can be derived from its results. As noted in the introduction, in most EU countries the deficits of the social security systems are among the top contributors to the budget deficits and sooner or later they will have to be eliminated or reduced drastically. Most certainly, one of the groups that will be affected by the reform of the social security systems are the elderly. Among the recommended policies for the reduction of the social security deficits which affect the elderly, those which are likely to be most effective in reducing these deficits in a short period are those relying heavily on substantial cuts in pensions and other social security benefits targeted towards the elderly. Since the results of the paper indicate that the elderly are already less well-off than the rest of the population, such a policy reform is likely to increase the distance between the elderly and the non-elderly and raise inequality and poverty both within the group of elderly and nationally. It is true that the elderly of today belong to a generation with lower productivity than the productivity of those currently employed and, hence, there may be an argument to justify their lower living standards. However, if the policy-makers are interested in achieving social cohesion and inter-generational solidarity along with economic efficiency, it may be preferable to promote alternative policies for the elimination of the social security deficits, such as those mentioned earlier (reversal of the trend towards early retirement, increase in the retirement age thresholds, marginal increases in contributions, support of supplementary private pension schemes, etc.). These policies are likely to have a slower impact on the budget deficits than cuts in the social security pensions, but they are not expected to affect dramatically the gap between the living standards of elderly and non-elderly.

More specifically, policies aimed at reversing the trend towards early retirement will affect only those aged below 65 and, hence, will not have an impact on the absolute level of the living standards of the elderly. Provided that the older workers who will remain longer in the labour force do not become unemployed and their earnings are higher than the unemployment benefit, such policies are likely to cause marginal increases in the income and consumption expenditure gaps of elderly and non-elderly (and, perhaps, the poverty rate of the former, if relativistic poverty lines are adopted). Policies aimed at increasing the retirement age threshold are also likely to have a very similar impact, provided that this threshold remains at or below 65. If the retirement age threshold rises above 65, and the earnings of the persons employed beyond 65 are higher than their

pensions, then a small decline in the gap of the living standards of the two groups can be anticipated.

An alternative policy for the elimination of social security deficits which has been used widely in the past recommends increases in social security contributions. Naturally, such a policy will affect only those currently employed and is likely to lead to a reduction in the differences of the living standards of elderly and non-elderly. Even though adoption of this policy can lead to a rapid decline in social security deficits, it will also increase the non-wage labour costs, leading to declining competitiveness. Since the non-wage labour costs in many EU countries are already the highest in the world, such policies are not very popular among policy-makers in the EU.

Undoubtedly, the most radical and controversial of the alternative proposals suggested for the elimination of social security deficits is the privatization of portions of the social security systems. The consequences of such a policy reform on the relative welfare position of the elderly are not easy to predict. Following the results of standard portfolio investment theory and the experience of some countries it can be anticipated that, on average, the returns of private pension funds will be higher than those of the social security funds.[15] However, the variance of the returns of the private pension funds is likely to be substantially higher than that of the returns of social security funds. Therefore, in the framework of our analysis, it can be speculated that while the privatization of portions of the social security systems may lead to a narrowing in the gap of the living standards of elderly and non-elderly, it may also lead to increases in the level of inequality within the group of elderly and, perhaps, the proportion of the elderly falling below the poverty line (the outcome will depend on the relative magnitudes of the positive impact of the increased mean income and the negative impact of the increased level of inequality). If such a policy reform is not adopted, there may be strong grounds for arguing for a redistribution within the group of elderly, since the findings of the paper show that even though the elderly are over-represented in the bottom half of the distribution of equivalent consumption expenditure and equivalent income, in all EU countries a fairly large proportion of them belongs to the top deciles of these distributions. It should be noted, though, that in the EU countries where policies intended to redistribute resources within the group of the elderly were introduced, there was fierce reaction from groups of older persons.

REFERENCES

Anand, S., *Inequality and Poverty in Malasia: Measurement and Decomposition,* Oxford University Press, New York, 1983.

Bourguignon, F., Decomposable Income Inequality Measures, *Econometrica*, 47, 901–920, 1979.

Buhmann, B., L. Rainwater, G. Schmaus, and T. Smeeding, Equivalence Scales, Well-Being, Inequality and Poverty: Estimates Across Ten Countries Using the LIS Database, *Review of Income and Wealth* 34, 115–142, 1988.

Champernowne, D., A Comparison of Measures of Inequality of Income Distribution, *Economic Journal*, 84, 787–816, 1974.

[15]This applies particularly to those EU countries where the value of the average social security pension is linked to the retail price index rather than the average earnings of the working population.

Commission of the European Communities, DG V, *Social and Economic Policies and Older People: First Annual Report of the European Community Observatory*, Brussels, 1991 [referred to as EC (1991)].
Commission of the European Communities, DG V, *Older People in Europe: Social and Economic Policies. The* 1993 *Report of the European Observatory*, Brussels, 1993 [referred to as EC (1993)].
Danziger, S., *et al.*, Implications of the Relative Economic Status of the Elderly for Transfer Policy, in H. Aaron and G. Burtless (eds.) *Retirement and Economic Behavior*, Brookings Institution, Washington DC, 1984.
de Vos, K., Income or Expenditures, Discussion Paper EURDP91.04, Department of Economic Sociology and Psychology, Erasmus University, Rotterdam, 1991.
Deaton, A. S., "Measurement of Welfare: Theory and Practical Guidelines", World Bank Living Standards Measurement Study Working Paper No. 7, 1980.
Eurostat, *Poverty in Figures: Europe in the Early 1980s*, Theme 3, Series C, Eurostat, Luxembourg, 1990.
Foster, J. E., J. Greer and E. Thorbecke, A Class of Decomposable Poverty Measures, *Econometrica*, 52, 761–766, 1984.
Haddad, L. and S. M. R. Kanbur, How Serious is the Neglect of Intra-Household Inequality? *Economic Journal*, 100, 866–881, 1990.
Hagenaars, A. J. M., K. de Vos, and S. R. Wunderink, Family Equivalence Scales, Discussion Paper, Department of Economic Sociology and Psychology, Erasmus University, Rotterdam, 1992.
———K. de Vos, and M. A. Zaidi, *Poverty Statistics in the Late* 1980*s*: *Research Based on Micro-Data*, Theme 3, Series C, Eurostat Luxembourg, 1994.
Haveman, R., Poverty Statistics in the European Community: Assessment and Recommendations, in R. Teekens and B. S. M. van Praag (eds.) *Analysing Poverty in the European Community*, Eurostat News Special Edition, Eurostat, Luxembourg, 1990.
Hurd, M. D., Research on the elderly: Economic Status, Retirement and Consumption and Saving, *Journal of Economic Literature*, 28, 565–637, 1990.
Kemsley, W. F. F., Family Expenditure Survey: A study of Differential Response Based on a Comparison of the 1971 Sample with the Census, *Statistical News*, 31, 16–21, 1975.
Menard, B., Harmonization of Definitions of the Concepts and Characteristics Used in Family Budget Surveys, Report BF43–EN commissioned by the Statistical Office of the European Communities, 1990.
Radner, R., Money Incomes of Aged and Non-Aged Family Units 1967–84, *Social Security Bulletin*, 50, 9–28, 1987.
Sen, A. K., Real National Income, *Review of Economic Studies*, 43, 19–39, 1976a.
———, Poverty: An Ordinal Approach to Measurement, *Econometrica*, 44, 219–231, 1976b.
———, *Poverty and Famines: An Essay on Entitlements and Deprivation*, Clarendon Press, Oxford, 1981.
Smeeding, T. M., Full-Income Estimates of the Relative Well-Being of the Elderly and the Non-Elderly, in D. Bloom and D. Slottje (eds.) *Research in Economic Inequality Vol.* 1, JAI Press, Greenwich, 1989.
———, P. Saunders, J. Coder, S. Jenkins, J. Fritzell, A. J. M. Hagenaars, R. Hauser and M. Wolfson, Poverty, Inequality and Living Standard Impacts Across Seven Nations: The Effects of Non-Cash Subsidies for Health, Education and Housing, *Review of Income and Wealth*, 39, 229–256, 1993.
Thomas, D., Intrahousehold Resource Allocation, *Journal of Human Resources*, 25, 634–664, 1990.
Tsakloglou, P., Living Conditions of the Elderly in EC Countries on the Eve of the Single Market, Report to the Statistical Office of the European Communities, 1994a.
———, Elderly and Non-Elderly in the European Union: A Comparison of Living Standards, Athens University of Economics and Business, Department of International and European Economic Studies Discussion Paper No. 94–07, 1994b.
———On the Relative Welfare Position of Older Persons in the Member-States of the European Union: Evidence and Policy Implications, mimeo, Athens University of Economics and Business, forthcoming in T. Georgakopoulos, R. Grinspun and C. Paraskevopoulos (eds.), *Economic Integration and Public Policy: NAFTA, EU and Beyond*, Edward Elgar, 1996.
Verma, V. Harmonization of Family Budget Surveys, Eurostat Doc. BF 51/91 EN, 1991.