

Poverty among the elderly in the European Union: The effect of poverty measurement

Abstract

Background of the paper is the open method of coordination (OMC) on pensions of the European Union. As for the open method of coordination on social inclusion in the first joint report on pensions the main measure for poverty is the 60% median poverty line based on the modified OECD scale ('EU poverty line'). The aim of this paper is to show how the main results about poverty of the elderly in the European Union change if other poverty measures are used. For this a broad variety of poverty lines are calculated. The main conclusion is that the chosen poverty line by the EU lead to different results than all the other poverty lines. While based on the EU poverty the elderly have a higher poverty risk in the majority of countries than the average, this is not the case for *all* of the alternative poverty measures.

JEL classification: I3, I32, H55

Introduction

The reduction of poverty is one of the major goals of old age security programs and is also the first of eleven goals resolved by the European Council as part of the Open Method of Coordination process for old age social security. In March 2003 the first joint report, "Adequate and Sustainable Pensions," was published by the European Commission. This report uses only one measure of poverty for the most part: 60% of national median equivalent income using the modified OECD scale, which is also the poverty indicator in the Open Method of Coordination for social inclusion (see Atkinson et al. 2002). In the following we call this the EU poverty line. The aim of this paper is to show how the way poverty is measured changes the basic findings about poverty among the elderly in Europe. For this purpose, results are calculated for several alternatives to the EU poverty line. It can be shown that poverty measurements significantly change the results about poverty in old age – and more so than the results about poverty of the population as a whole. The database used is the European Community Household Panel, which is also the database of the above-mentioned joint report by the European Commission.

In the first part of this paper alternative methods of poverty measurement are discussed. For this we start with three general decisions about poverty measurement. Then a description of the EU poverty line follows; based on this, we discuss the following

alternatives: three variants of the EU poverty line with respect to the equivalence scale, the level of poverty and the calculation of the average, and two more fundamental alternatives, the Subjective Poverty Line (SPL), which also measures income poverty, and the Welfare Function Based Poverty Line (WPL), which takes into account direct indicators of poverty other than income. In the second part, we present the effects of these measurements on rates of poverty among the elderly. The paper concludes with a summary and some conclusions.

1. Poverty measurement

1.1. General decisions

The possibilities for poverty measurement are manifold, and it is not possible to discuss them here at length (but see e.g. Atkinson et al. 2002, Hagenaars 1986, Strengmann-Kuhn 2000, Van den Bosch 2001). Here we first want to discuss first three important basic aspects: the choice between direct and indirect poverty lines, the choice between relative and absolute poverty lines, and the choice between national and EU-wide standards as a reference.

The difference between direct and indirect poverty measurements can best be described by the process of individual welfare production (see figure 1). According to micro-economic theory, individuals maximize their welfare or utility function with respect to available resources, whereby individual welfare is dependent on the whole bundles of goods that can be used by the individual and that represent her standard of living. Direct measures of poverty are based on observations of the standard of living by measuring such a bundle of goods, while poverty measurement based on resources is called indirect (see Ringen 1988).

- figure 1 about here -

The prevalent method of measuring poverty is based on resources. The argument is that individual preferences should not be relevant for the question 'who is poor?'. It is usually not called poverty when someone voluntarily chooses a simple standard of living. Empirically, usually income is used as the indicator of resources, which is a relatively rough measure of all the resources an individual can use. However, surveys seldom provide information about financial wealth, for example, or other resource indicators. Therefore poverty measurement based solely on income can be biased, at least for certain groups. A second argument against the income definition of poverty is that the availability of goods does not necessarily depend on income or resources. Finally, there is a more fundamental argument against the use of indirect measures of poverty (see Sen 1981: 26ff.). An underlying assumption of the resource definition of poverty is that individuals are able to use their resources in a rational way. Then, if there are sufficient resources, a low standard of living can

only be the result of a voluntary decision, which would not be regarded as poverty. Sen argues, however, that people might be poor because they are not necessarily capable of making rational decisions. Under this assumption the direct approach would be more appropriate.

Because of these kinds of critique, the last 20 to 25 years have seen the development of direct measures of poverty as well. These were launched with a study by Townsend (1979) on poverty in the United Kingdom. Townsend tried to measure the standard of living by choosing a list of goods and activities and asking whether these goods are available or the activities enjoyed regularly. Based on this, he calculated a deprivation index, which indicates the extent to which the standard of living observed differs from the typical standard of living, which should be reflected in Townsend's list of goods and activities. Townsend himself, however, used this deprivation index to measure an income poverty threshold. Subsequently, methods were developed that use such deprivation indices to measure poverty directly (see Mack /Lansley 1985, Muffels 1993, Nolan/Whelan 1996, Halleröd 1998). One problem with this approach is the derivation of the poverty line. We choose here a method proposed by Strengmann-Kuhn (2000), where the poverty line is calculated on the basis of an estimated individual welfare function, the Welfare Function Based Poverty Line (WPL), which will be explained below.

A second distinction is between relative and absolute poverty lines. Absolute poverty lines are independent of social context, i.e. they are universal for all countries and all points of time. Such poverty lines are sometimes used for the politics of development: The World Bank, for example, uses a poverty line of \$1 per day. Obviously, this is a very arbitrary threshold and it is used only for pragmatic reasons. Theoretically, one could conceive of a poverty threshold as what is necessary to survive, but the answer to the question as to what is needed for survival is quite unclear. If this means more than not starving, then there is a clear relative dimension. Absolute poverty lines make no sense for developed countries. Even Adam Smith argued: "By necessaries I understand not only the commodities which are indispensably necessary for the support of life, but what ever the custom of the country renders it indecent for creditable people, even the lowest order, to be without ... Custom ... has rendered leather shoes a necessary of life in England. The poorest creditable person of either sex would be ashamed to appear in public without them" (Smith 1776, p. 351f., cited by Sen 1983: 159). Therefore, an absolute poverty line is more or less a purely theoretical concept. Ringen, for example, comes to the conclusion: "There never was such a thing as an absolute concept of poverty and no one has argued that there should be" (Ringen 1988: 353), and

Atkinson et al. (2002) wrote: “It is senseless to search for an absolute standard whereby the content of poverty can be determined accurately for all countries and at any moment in time.” We agree with these statements.

Nevertheless, a poverty line may not be completely relative. If one investigates developments over time, for example, it makes sense and provides further insights to use an additional poverty line which is indexed only in terms of inflation (see Atkinson 1998: 21, Atkinson et al. 2002). One method of measurement that does not assume in advance that the poverty threshold is relative or absolute incorporates the subjective evaluations of individuals. “Whether the resulting poverty line is absolute or relative depends on the way in which welfare, defined in this way, is related to the general standard of living in society. It is an empirical result, rather than an a priori assumption” (Hagenaars 1986: 33f.). That is one reason why we will also discuss the subjective poverty line (SPL) and the welfare function based poverty line (WPL).

Finally, for relative poverty lines, the question of the relevant standard of reference is essential. This was a particularly important question after German unification in 1990. Should the same average be used for both parts of the country or two separate averages? An argument for the same average was that it was now one country. On the other hand, using a common average made the standard for West Germany lower after unification than before, although it is implausible that the poverty threshold would decrease as a consequence of unification. An argument for two different poverty lines was that both parts of Germany were still very different economically and socially even after unification, so that it makes good sense to use different thresholds. In principle, the same questions can be asked for the European Union (see Atkinson 1998; De Vos/Zaidi 1996). However, the EU is far from being a single coherent state. Therefore we use national averages to calculate relative poverty lines. Subjective evaluations can relativize the picture in this aspect as well. In both cases, SPL and WPL, we assume that the evaluations differ from country to country, but these evaluations may include comparisons with the situation in other countries.

1.2. The EU poverty line

The EU poverty line, which is used in the Open Method of Coordination, is defined as 60% of the national median equivalent income, which is a means-weighted per capita income calculated by dividing the household income by the sum of weights of all household members. The modified OECD scale is used to calculate the equivalence scale. As usual, the first adult in the household has a weight of one, additional persons aged 14 and older increase the weight of the household by 0.5, and children younger than 14 by 0.3.

This poverty line operationalizes the general poverty definition of the European Council: “The poor shall be taken to mean persons, families and groups of persons whose resources (material, cultural and social) are so limited as to exclude them from the minimum acceptable way of life in the Member State in which they live” (European Council 1985).

Thus, it is meant to be a relative and not an absolute poverty line, for which one’s own country is the standard of reference rather than the EU. It is emphasized that a person is poor, when her means (i.e. resources) are not sufficient, which suggests an indirect measurement of poverty. Furthermore, it emphasizes that not only material, but also cultural and social means or resources are relevant. The latter are difficult to measure with surveys. However, one can assume that cultural and social means are correlated with income. More problematic is that the only indicators for material resources typically available are information about income, but not financial wealth. Financial wealth can be more important for the standard of living in old age than it is for younger persons. Thus, especially for the elderly, income is only a limited indicator of resources. Therefore we use the Welfare Function Based Poverty Line (WPL), which is based on income and additional direct indicators of the standard of living (see Strengmann-Kuhn 2000, 2004 and further below).

1.3. Equivalence scale

The first variation to the EU poverty line we make is to apply the equivalence scale. The equivalence scale is a means of comparing the income of persons living in different types of households. For this the use of per capita income seems obvious. However, using a per capita income neglects two things: first, that there are economies of scale; and second, that people’s means are different – for example, children need less than adults. Therefore a means-weighted per capita income called “equivalent income” is used. This income can also be interpreted as a measure of welfare, with two underlying assumptions: first, that all income of all household members is pooled (pooling assumption); and second, that this household income is shared such that every household member has the same welfare (equal sharing assumption). The equivalence weights are typically between one and zero and the list of these weights is called the equivalence scale.

A customary equivalence scale is the (original) OECD scale (OECD 1982), with weights of 1 (for each adult), 0.7 (for each additional person aged 14 or older) and 0.5 (for each child under 14). Hagenaaers et al. (1994) modified this scale for a study about poverty in Europe, using 0.5 and 0.3, respectively, for additional household members. They argued that estimations of the equivalence scale, especially those based on subjective evaluations in the

Netherlands, yield lower weights than the original OECD scale. Sometimes this modified scale is called the *new* OECD scale, while the original scale is called the *old* OECD scale.

Another frequently used scale is the known as the “Buhmann scale” (see Buhmann et al. 1988). Here the household income is divided by n^θ , where θ is a parameter called equivalence elasticity, which lies between 0 and 1. The higher the θ , the greater the effect of household size. If $\theta=1$, then the equivalence income is identical to per capita income; on the other extreme, $\theta=0$, it is identical to household income. Often a θ of 0.5 is assumed in empirical studies, i.e. household income is divided by the square root of household size.

In this paper, we use only one alternative and choose the original OECD scale as a variant to the modified OECD scale. Figure 2 shows that this variation changes the general results about poverty in the EU only slightly. The lowest poverty rates are found in the Scandinavian countries, and in the central European states (Germany, Austria, France, the Netherlands, Belgium and Luxembourg) they are below average. Poverty rates are high in the southern countries Greece, Italy, Spain and Portugal as well as in Great Britain and Ireland, with the UK and Portugal at the top.

- figure 2 about here -

1.4. Level of the poverty threshold and calculation of the average

Besides 60% of the median it is also common to use 50% of median income as a poverty threshold. Another alternative is to use the (arithmetic) mean instead of the median. Arguments for the median are primarily statistical attributes, because it is less sensitive to measurement errors of low or high income. Besides that, these two ways of measuring the average differ in dynamic perspective. The mean always changes in the same way as the general development of national income, while for the median it is important who gains more or less from a positive or negative income development. In an extreme case, where only the higher half of incomes increases, the median remains constant. For the calculation of a poverty threshold it has to be taken into account for income distributions that the median is typically lower than the mean. Therefore using the 50% mean line is customary, which usually lies between the 50% median and the 60% median thresholds.

figure 3 about here

Figure 3 compares the poverty rates on the basis of these three poverty lines. As expected, the poverty rates on the basis of the 50% thresholds are below the EU poverty rates, while the poverty rates based on the 50% mean usually are between the two median poverty rates. The only exception is Portugal, where the poverty rate on the basis of the 50% mean is

higher than on the basis of the 60% median. The distinction between countries with a poverty rate below and countries with a poverty rate above the EU average remains the same for all three alternatives, and the ranking changes in only a few cases.

1.5. *Subjective poverty line (SPL)*

The choice of the equivalence scale and the choice of the poverty threshold can be criticized as more or less arbitrary. Therefore it has been suggested to estimate both on the basis of subjective evaluations (see for example Hagenaars 1986). The question of who is poor and who is not, however, is not answered by individual's judgement; instead, the judgements of all those questioned in a survey are used to calculate the equivalence scale and the poverty threshold. For this, there are a couple of standard methods (see Van den Bosch 2001), one of which, the subjective poverty line (SPL), can be calculated using the European Community Household Panel. The SPL is based on the following "minimum income question" included in the ECHP questionnaire: "In your opinion, what is the very lowest net monthly income that your household would require in order to make ends meet?" The derivation of a poverty line using the answers to this question is then based on two assumptions:

- 1) The minimum income answer depends a) on household size and b) the individual's own current household income
- 2) Households with an income above the poverty line overestimate the minimum income and household with an income below the poverty line underestimate it.

On the basis of assumption (1) the following equation can be estimated empirically (Plug et al. 1997: 73):

$$\ln y_{\min} = \alpha_0 + \alpha_1 \cdot \ln n + \alpha_2 \cdot \ln y_{HH} + \varepsilon, \quad \mathbf{1}$$

where y_{\min} is the stated minimum income, n the household size and y_{hh} the current household income. This is the typical equation used for the SPL (see Goedhart et al. 1977, Van den Bosch 2001).

However, this method is not feasible for all countries with the ECHP, because the data for Germany, the UK, Sweden and Luxembourg are based on national data sets and not on the ECHP questionnaire. In the countries for which an estimation of equation 1 is possible, the effect of both household size and household income is, as expected, positive and less than 1 (see table 1). The parameters for household size lie between 0.36 and 0.56, and for household income between 0.19 and 0.35; in the Netherlands it is somewhat lower, at 0.13. Using these

estimated parameters it is possible to calculate an equivalence scale. More precisely, one can calculate an equivalence elasticity θ (see above). To illustrate the different equivalence elasticities, the factors are calculated such that an income of a two-person household needs to be higher than of a single household. This factor lies between 1.21 (Netherlands) and 1.54 (Denmark).

table 1 about here

The next step is to calculate the poverty threshold using assumption 2. From that follows:

$$\ln \bar{y} = \hat{\alpha}_0 + \hat{\alpha}_1 \cdot \ln n + \hat{\alpha}_2 \cdot \ln \bar{y} \Leftrightarrow \ln \bar{y} = \hat{\alpha}_0 / (1 - \hat{\alpha}_2) + \hat{\alpha}_1 / (1 - \hat{\alpha}_2) \cdot \ln n, \quad 2$$

where \bar{y} is the poverty line, which depends only on household size and the estimated parameters. The individual's subjective judgement plays no role. A household is poor if its household income lies below the poverty threshold for its household size.

In some countries, however, this procedure leads to quite implausible results. Thus, the resulting poverty rates in Portugal, Greece and Italy are about 80%, and also unreliably high in Spain, at 48.3% and France, at 34.9% (see figure 4). Interestingly, all of these are Mediterranean countries, in which the minimum income question might be understood in a different way than in the other countries. In the remaining six countries the differences to the EU poverty line are relatively small. In summary, it can be said that the applications of this poverty measure, at least for comparing more than these remaining six countries, are limited. Therefore we will leave it out in subsequent investigations.

figure 4 about here

1.6. Welfare function based poverty line (WPL)

All poverty measures discussed so far are pure income poverty measures. As discussed above, income alone is an insufficient indicator of resources. This is particularly true for the older population, because many of them have additional financial wealth and durable consumption goods are often available. Therefore in the following we use what is known as the "welfare function based poverty line" (WPL, see Strengmann-Kuhn 2000). It is based on estimated welfare functions that depend on both income and direct indicators for several dimensions of the standard of living. These welfare functions will be estimated for each country separately to take national differences in evaluations of the single indicators into account.

In the European Community Household Panel information is available about several indicators of the standard of living, which can be summarized in the dimensions: basic goods, secondary goods, housing conditions and environment goods (table 2, see also Layte et al. 2001).

table 2 about here

On the one hand, there are indicators about goods (such as a car or a colour TV) or activities (inviting friends for a meal), which increase deprivation if the household does not have them or can not enjoy them regularly for financial reasons. On the other hand, deprivation increases if there are problems like arrears or a leaky roof. For each good or activity that is lacking for financial reasons, and for each problem, the particular deprivation index increases by 1. Usually these deprivation indices are simply added up. This assumes a linear utility function, which implies that a loss of one point in dimension can be substituted by a gain of one point in a different dimension. We do not think that such a linear function is appropriate and assume in the following a non-linear welfare function, for which the welfare loss of one point in one dimension is weighted higher for higher deprivation. We use the following Cobb-Douglas function, a typical microeconomic utility function:

$$\ln w_i = \alpha_0 + \sum_{j=1}^4 \alpha_j \ln W_{ij} + \alpha_5 \cdot \ln y_i + \alpha_6 \cdot \ln n_i \quad \mathbf{3}$$

To estimate this function, in a first step the four deprivation indices DI_1 to DI_4 must be transformed into welfare indices by simply subtracting the deprivation index from the maximum deprivation (K_j) in the same dimension. Because the logarithm is used in equation (3) we add 1 to this value to guarantee that the welfare index is always greater than 0. Then the welfare index for each dimension j always lies between 1 and K_j+1 . Because not all relevant goods are covered, welfare is still also dependent on household income and household size. For the estimation we use satisfaction with the current financial situation, which is measured on a scale from 1 (not satisfied) to 6 (full satisfied) as a measure for the welfare w_i .

The results of the estimation are found in table 3. All estimated parameters have the expected sign and are between 0 and 1 or 0 and -1 , respectively. Basic goods have the strongest effect in all countries, followed by secondary goods. Only in some countries do housing conditions have a significant effect on satisfaction with the financial situation.

table 3 about here

With these estimated parameters it is possible to calculate a theoretical welfare level \hat{w}_i for each household, which depends only on the observed indicators of standard of living, household income and household size, and not on the actual subjective satisfaction level. This is the typical welfare level for the special situation in the particular country. Finally, a welfare threshold has to be found below which there is poverty. For that we took all households who state that they have difficulties or great difficulties making ends meet. For all these households the theoretical welfare level \hat{w}_i is calculated, and the mean of these values is used as the poverty threshold for all households.

This procedure can be criticized in manifold ways and it is indeed a relatively rough measure. Nevertheless the results are much more plausible than those for the subjective poverty line. Figure 5 shows the poverty rates for the populations as a whole. Again, for some countries – Germany, Sweden and Luxembourg – the necessary information is not available, and the data for the UK are not fully comparable. On average, the WPL poverty is about 2 percentage points below the rates based on the EU poverty line. Only in Finland, Greece and Portugal are the percentages higher. On the other hand, in Great Britain, Ireland, France and the Netherlands the WPL leads to a relatively strong reduction of the poverty rate. With the exception of the UK, the distinction between countries below and above the average poverty rate again remains stable, and the ranking of the countries changes only slightly.

figure 5 about here

2. Poverty among the elderly

2.1. *EU poverty line*

We first describe poverty among the elderly based on the EU poverty line. For that we answer the following two questions: 1) how high is the poverty rate of the older population compared to the poverty rate of the whole population? and 2) how high are the shares of people aged 65 or older among the poor in the EU member states? In the subsequent sections these results will be compared with the results based on alternative poverty measures. The elderly population is defined as all persons aged 65 or older. The unit of observation is always persons, but if a person aged 65 or older lives together with younger household members, this has an effect to the extent that they and their income are taken into account for the calculation of the equivalent income.

For the EU as a whole, the poverty rate of 18.6% for the older population based on the EU poverty line is about 2 percentage points higher than for the population as a whole (see

figure 6). Below the EU average are Sweden (8.4%), the Netherlands (8.8%), Luxembourg (10.0%), Germany (11.2%), Italy (14.4%) and Spain (17.3%). These are the very same countries in which the poverty rates of the older population are below the average national poverty rate. In the majority of countries, however, the older population has a poverty rate above the average based on the EU poverty line.

figure 6 about here

The highest poverty rates among the elderly can be observed in Ireland (37.3%), Portugal (35%) and Greece (33.3%), where a third or more of all people aged 65 and older live in a household below the EU poverty line. In Ireland, the poverty of the elderly is more than twice the poverty rate for the population in Ireland as a whole. In Denmark, too, a country with generally very low poverty, the poverty rate of the older population is very high at 30%. Here the difference between the rate of poverty among the elderly and poverty in general is the highest. The poverty rate for people aged 65 and older is more than three times higher than for the population as a whole. In Austria, too, we find that the poverty rate of the older population is more than twice the general poverty rate. The other countries with an above-average poverty rate for the older population are Great Britain (26.9%), Belgium (22.6%), France (19.5%) and Finland (19.0%).

There are great differences in the general poverty rates between the countries. Therefore, for the question as to whether the older population is particularly affected by poverty, the share of the elderly among the poor is more illustrative than the poverty rates. This share is by far the highest in Denmark, at 40.3% (see figure 7). Two of five poor people in Denmark are 65 or older! The discrepancy between the poverty rate in general and the poverty rate among the older population is also quite high in Austria, but not in the same order of magnitude as in Denmark: the share of the elderly among the poor is 28%. The lowest share, 8.5%, can be found in the Netherlands, and it is also relatively low (between 10 and the EU average of 18%) in Luxembourg, Sweden, Italy, Spain and Germany.

figure 7 about here

2.2. *Equivalence scale*

As a first alternative to the EU poverty line, we investigate the effect of a change in the equivalence scale. For this we compare the results above with those based on a poverty line for which we use only the original OECD scale instead of the modified OECD scale. Concerning general poverty rates, we showed above that poverty rates are usually slightly higher when the original scale is used (1% for the EU as whole). For the older population this is the opposite: Using the original scale, the poverty rate of 14.5% for the elderly is 4.5

percentage points below the poverty rate for the EU as a whole using the modified scale (see figure 8).

figure 8 about here

Thus, using the original equivalence scale, the result is that elderly are typically affected by poverty at a below-average rate, while this was the opposite when the EU poverty line was used. Only in Austria, Belgium, Portugal, Greece and Denmark is the poverty rate of the older population still above the national poverty rate. However, for *all* countries the measured poverty of the older population is considerably lower using the original OECD scale, and the reduction is especially strong in Finland, Austria and Ireland.

Consequently, the share of the elderly among the poor also drops significantly using the original OECD scale in all countries, for the whole EU from 18% to 12.9% (see figure 9). The share of 30% in Denmark is still the highest, but using the modified scale it was 40%. In Finland, Ireland and Sweden the share of the people aged 65 and older shrinks by more than half (in Finland from 23.7% to 10.9%, in Ireland from 20.4% to 9.6% and in Sweden from 11.7% to 5.1%). By comparison, there are only modest effects in the southern, Mediterranean countries. The reason for this is that the share of singles among the elderly is much lower than in central and northern Europe, and more old people live in larger households.

figure 9 about here

2.3. *Level of the poverty threshold*

For the whole population the poverty rate decreases from 16.4% to 10.1% using the 50% median threshold rather than the 60% median. For the older population this reduction is even stronger, from 18.6% to 10.0% (see figure 10). Using the 50% median poverty line, the result obtained using the EU poverty line, namely that the older population has a higher poverty rate, is again no longer true. In some countries the reduction of the poverty threshold has a very strong effect, particularly in the Scandinavian countries, Austria and Ireland. In Sweden, the poverty rate of the elderly decreases from 8.4% to 2.0%, in Finland from 19.0% to 6.3%, in Denmark from 31.9% to 13.3%, in Austria from 26.9% to 11.1% and in Ireland from 37.3 to 16.2%. In these countries the poverty rates for the elderly decrease by more than half. Except Austria, these are all countries with basic pension systems, which might explain these results.

figure 10 about here

In these countries, the share of the elderly among the poor also decreases to a higher extent, which is also true for Great Britain and Spain (see figure 11). In most of the countries there are only slight changes. In the EU as a whole, the share of the elderly among the poor,

15.7%, is 2.3 percentage points lower when the 50% median is used than with the 60% median.

figure 11 about here

2.4. *Summary: Income poverty lines*

Using the EU poverty line the basic result concerning poverty among the elderly is that in the majority of the countries, and in the EU as a whole, the elderly are more affected by poverty than the average population. This result is no longer true when we change the EU poverty line, either by using a different equivalent scale or by lowering the poverty threshold. In both cases the poverty rates of the elderly and their share among the poor decline. In some countries the effect is quite strong, particularly in the Scandinavian countries Denmark, Finland and Sweden, and in Ireland and Austria as well, with all countries except Austria having a basic pension scheme. In these countries, the poverty rates among the elderly react relatively sensitively to measurement.

2.5. *Welfare function based poverty line*

Using the welfare function based poverty line WPL, too, the result is that the poverty rate of the elderly is usually lower than on the basis of the EU poverty line. On average it falls from 21.1% to 14.7% (see figure 12). The poverty rate of the whole population declines from 18% to 14.5%. Thus, taking direct measures of standard of living and subjective evaluations into account, the effect on poverty rates is especially high for the older population. On the basis of the WPL the poverty rates of the elderly are above the national level only in Portugal and Greece. In all other countries they are below or near the national poverty rate. Using the EU poverty line, this is the case only for the Netherlands, Italy and Spain.

figure 12 about here

The strongest effect of the other kind of measurement can be observed again in Denmark and Ireland. In Ireland the poverty rate among the elderly drops from 37.3% (EU poverty line) to only 8.5% (WPL), and in Denmark from 31.9% to 7.8%. While income poverty among the elderly is very high in these two countries, this is not the case when direct indicators and subjective evaluations are taken into account. Also in Great Britain, France and Finland, the reduction is so strong that the poverty rate of the older population based on the WPL is below the national average, while it is above average using the EU poverty line.

The effect on the share of the older population among the poor is not as strong as the effect on poverty rates, because the national poverty rates based on the WPL are also lower than those using the EU poverty line. On average, the share decreases from 18.6% to 16.0%

(see figure 13). Investigating the effects for the single countries, one can divide them into three groups. In those countries which also react sensitively to changes in income poverty measurement (Denmark, Finland, Ireland and Austria), the effect of using the WPL rather than the EU poverty line, i.e. the reduction of the share of the older population among the poor, is even stronger, especially in Denmark, where it drops from 40.3% to 12.5%, in Ireland from 20.4% to 6.1% and Finland from 23.7% to 6.7%. In contrast, it is interesting that in those countries in which the share of older population is particularly low using income poverty thresholds, namely in the Netherlands, Italy and Spain, we observe the opposite effect: the share of the older population among the poor is higher on the basis of the WPL than when the EU poverty line is used. In all other countries the shares of the older population among the poor calculated using the WPL are quite close to the shares calculated when the original OECD scale is used.

figure 13 about here

3. Conclusion

Results about poverty among the elderly are more sensitive to measurement than results for general populations. The reasons for this are manifold, First, the elderly are usually a more homogenous group as regards household size, because they typically live in smaller households. Therefore, the use of the equivalence scale has a stronger effect. Second, in many countries, especially those with a basic or minimum pension scheme, social security against poverty is stronger for the elderly than for other groups. However, such a basic social security or a basic or minimum pension can be above or below a poverty line. Third, income is less important for the standard of living of the older population, because financial wealth plays a more important role and they already have many durable consumption goods.

Using the EU poverty line, the general result is that the older population in the majority of countries – and the EU as a whole – is more affected by poverty than the average population. When alternative measures of poverty are used this result is no longer true. Using different relative income poverty lines, the share of the elderly among the poor is lower in each case than when the EU poverty line is used, and both on EU average and for the majority of countries the poverty rates of the older population are below the national average. Moreover, using the more fundamental alternative of poverty measurement, which takes subjective individual judgements and direct indicators of living standard into account, usually reduces the share of the elderly among the poor so that the poverty rates among the elderly are

typically below the national average. This effect is particularly strong in those countries which are also very sensitive to different relative income poverty measurement: the Scandinavian countries, Ireland and Austria.

While the welfare function poverty line (WPL), though a relative rough measure, gives quite reasonable and explainable results, the subjective poverty line (SPL) yields implausible results for at least a couple of countries. Therefore its application is quite limited. Yet the WPL also requires further development and could in its current state at best supplement and by no means substitute for resource based indicators. However, one central result of our investigation is that the EU poverty line leads to different consequences than all other alternatives. Therefore, for the Open Method of Coordination process, it is at least necessary to use not only results based on the EU poverty line, but also those based on alternative relative income measures, particularly using a different equivalence scale.

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