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## The Distributional Impact of Social Transfers in the European Union: Evidence from the ECHP

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## **The Distributional Impact of Social Transfers in the European Union: Evidence from the ECHP**

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September 2001

# The Distributional Impact of Social Transfers in the European Union: Evidence from the ECHP

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## **ABSTRACT**

### **The Distributional Impact of Social Transfers in the European Union: Evidence from the ECHP\***

Social transfers vary enormously across the EU, as has been demonstrated in earlier research. This paper analyses the comparative effects of cash transfers on inequality and poverty, using consistent household data. The analysis shows that the distributional impact of these transfers is greater in countries that spend a higher proportion of income on them but that there are other important determinants, including the distribution of funds between different types of transfers and the degree of targeting for each transfer.

JEL Classification: I38, H55

Keywords: social transfers, income distribution, European Union, household survey.

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## 1. Introduction

The purpose of this paper is to examine the distributional effects of social transfers in member-states of the European Union (EU), in order to identify differences between countries in the extent to which cash transfers reduce poverty and inequality, and relate those differences to characteristics of these social expenditures such as their share of income and the allocation of funds across different programmes. This analysis will allow the debates on welfare reform that are taking place in many European countries to be informed by a cross-national perspective.

Comparisons are often made between the social transfer systems in different countries [see Eardley *et al.* (1996), for example], but these are usually conducted in broad terms such as their method of administration, share of GDP, or extent of means-testing. Studies that directly compare the effects of the transfers on the overall distribution of income are much harder to find. One example [Atkinson *et al.* (1996, chapter 7)] shows why this might be so: the national datasets that have been available typically do not provide data that is fully comparable across countries. This difficulty has recently been substantially reduced for EU countries by the establishment of the European Community Household Panel (ECHP) survey, which uses a common questionnaire to collect data from households in almost all Member States on a consistent basis. It is the availability of this new data source that makes the present paper possible.<sup>1</sup>

Of course, as Atkinson (1995) argues in his discussion of means-testing, poverty reduction and income redistribution are not the only purposes of social transfer systems. Other purposes include the provision of insurance which the private sector is unwilling to provide (such as unemployment insurance) and redistribution of family income through time (such as

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1. The data used here are from wave 2 of the survey, and were provided to us by Eurostat.

child benefits and retirement pensions), motivated by a combination of market imperfection and individuals' short-sighted behaviour. Of course, such insurance and forced savings reduce poverty and inequality at any point in time even if they do not significantly redistribute lifetime incomes. Nonetheless, a large part of such expenditure is intended for households that are not poor. This is particularly true of pensions, which are also the largest item of social transfers in most EU countries. In order to prevent pensions from obscuring the more clearly redistributive aims of other social transfers, much of the analysis in this paper reports results separately for "all social transfers" and for "non-pension social transfers".

The paper's analysis can be considered as "partial" since, due to lack of relevant information in the ECHP, the impact of taxes and social insurance contributions is not taken into account. This is particularly important as the tax systems of many EU countries include provisions that are equivalent to social transfers, such as tax credits to households with children. Adema (1999) reports on attempts to include these in a comprehensive measure of net social expenditure for a selection of OECD countries. For a further discussion of this point and partial evidence on the net distributional impact of social transfers in a number of OECD countries, see Mitchell (1991). Moreover, even if the ECHP contained such information, it would not yet have been "mature" enough to enable the analysis of longitudinal rather than cross-sectional distributional effects of social transfers. This is particularly relevant for pensions, but may also apply to other transfers, too [Falkingham and Hills (1995) and Goodin *et al* (1999)].

Section 2 briefly describes the ECHP data and the methodology for estimating the distributional effects of cash transfer payments. Section 3 provides basic information on the social protection expenditure patterns and discusses how these patterns might be expected to

affect inequality and poverty. Section 4 presents the effects of social transfers on the overall distribution of income, while section 5 considers their effect on poverty. Section 6 concludes by summarising the results and discussing their implications.

## **2. Data and methodology**

The ECHP is the first attempt to monitor the living standards of the citizens of the EU in a consistent way. Information for the second wave (which is treated here simply as a cross-section) of the ECHP, which is used in this paper, was collected in 1995. Members of the sampled households were interviewed and detailed information was collected on incomes received in 1994 and a range of socio-economic characteristics. It is this data set, which covers thirteen member-states,<sup>2</sup> that is used for the purposes of this paper. Details of the methodology are given in Eurostat (1996).

While the ECHP is a major contribution to achieving consistency in data collection across the EU, some researchers have expressed doubts about its accuracy. There were particular concerns about some of the data in wave 1, which could be attributed to “teething troubles”, and the quality of the wave 2 data used in this paper is generally considered to be better. However, it is always difficult to provide definitive tests of data quality unless there are other sources of data that are already regarded as accurate. Eurostat (2000) includes a comparison of selected ECHP results with those obtained from established national sample surveys. These generally support the accuracy of ECHP income and labour force data. However, there are substantial differences between the ECHP and national household budget

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2. Finland joined the ECHP in wave 3, while the German sample consists of 90% of the interviewed households, randomly selected.

surveys for some categories of transfer income. It is possible that some of these differences are due to measurement errors or methodological differences.

Unfortunately, it is not possible to compare the ECHP figures with Eurostat's ESSPROS data from administrative sources because the latter include benefits in kind and transfers to the non-household population. This means that the results in this paper must be interpreted with some reservations because the accuracy of the data cannot be confirmed. Against this, the application of a common methodology in the ECHP makes cross-country comparisons more reliable than those made on the basis of individual national surveys, where they are available.

One important aspect of the ECHP data on social transfers is particularly worth noting. Pension receipts do not distinguish between different pension sources (state, occupational, private) but just report a single total.<sup>3</sup> The issue of whether it is correct to regard such a total pension income as a "social transfer" could be disputed, although Adema (1999) provides a strong justification in terms of the state encouragement that is provided to pensions of all types. Nonetheless, this particular treatment of pension receipts is an additional reason for the reporting of this paper's results for both all social transfers and non-pension transfers alone.

In order to provide a consistent picture of the size and allocation of social transfers in EU countries, the analysis in section 3 makes use of national average figures for household receipts of transfers that we have calculated from the ECHP data.

In sections 4 and 5, our unit of analysis is the population member and we define the income of each member as the equivalent net disposable household income per capita for the

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3. This represents a further reason why ECHP transfer data may be different from other sources.



household to which they belong. The equivalence scales we use are the “modified OECD scales” which assign weights of 1, 0.5 and 0.3 to the household head, each of the remaining adults and each child in the household, respectively. They have been used in a number of empirical poverty studies [Hagenaars *et al.* (1994)] and, in comparison with other sets of equivalence scales used in empirical distributional studies, the economies of scale they imply lie somewhere in the middle of the range [Buhmann *et al.* (1988)]. We conducted sensitivity analysis that shows that most of the results reported below are robust with respect to the choice of equivalence scales.

The effects of the social transfers are estimated by comparing the distribution of incomes including transfers with two hypothetical distributions: (i) where social transfers are removed, and (ii) where social transfers are reduced by ten percent. In both cases, it is assumed that no other income changes occur. Distribution (i) is reported only for expositional purposes since, if there were no social transfers, many members of the population would have been forced to make different private arrangements to ensure their survival. Distribution (ii) represents the effects of marginal changes to social transfers and, as such, is not as clearly hypothetical as distribution (i). However, it could still be objected that people would alter other income sources (such as income from employment) if this change occurs. Nonetheless, in the absence of reliable estimates of labour supply responses in all of the countries considered, it represents a reasonable “first order” approximation to the distributional effect of a marginal reduction in the transfers. These comparisons are made to examine the distributional effects of all the social transfers lumped together as well as the impact of particular types of transfers.

### 3. Social Expenditure Patterns in the EU

The purpose of this section is to outline the broad characteristics of the social transfer expenditures in terms of factors that can be expected to affect their distributional impact: the share of transfer expenditure in household incomes, its allocation between different types of benefit and its degree of targeting.

Table 1 reports the share of cash social transfers in household disposable income and how this share is divided between major areas of expenditure, derived from the ECHP. This is a picture of great diversity: total social transfers vary from 19.9% for Greece to 32.7% for Belgium; pensions range from 10.9% of household disposable income in Denmark to 23.4% for Italy; while non-pension social transfers range from 1.6% in Greece to 16.3% in Denmark.

If the degree to which the total expenditures are targeted on the poor were the same in each country, we would expect Belgium and Austria to be more effective at countering poverty than Portugal and Greece, with the other countries somewhere in between. However, Eardley *et al* (1996) suggest that expenditures are not equally targeted in all countries. For example, their figures imply that Ireland and the UK apply substantially more means testing to their social transfers than the rest of the EU. These figures should be interpreted with care, both because the extent of means testing is difficult to measure<sup>4</sup> and because means-testing is not the same as targeting. For example, spending on single mothers could be well targeted if they are a poor group, even if the money is not explicitly means-tested. Nonetheless, it is clear

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4. This is because there are two dimensions of means testing: the proportion of benefits that are subject to means-testing and the sensitivity of the means-tested payments to household income and wealth. Moreover, means testing may increase notional progressivity without necessarily increasing actual progressivity, if the take-up is low.

that it is not sufficient to just look at the share of social transfer expenditure in household income or GDP to judge its distributional effect.

One aspect of social transfer expenditure that affects its targeting is its distribution by type of benefit, and this is also reported in Table 1. This shows that most countries spend the largest share of their social transfer budgets on the old, in the form of pensions (old age and survivors benefits). In contrast, the relative importance of the other benefits varies considerably between countries: Austria, Belgium, Denmark, and France spend quite heavily on the family, while Belgium, Denmark, Ireland and Spain spend substantial amounts on the unemployed.<sup>5</sup>

In considering the distributional implications of the figures presented in Table 1, it is useful to distinguish between three basic ways in which a benefit can be related to income: (i) it can be earnings-related, so that recipients in higher income deciles generally receive higher benefits; (ii) it can be flat rate, so that recipients in all income deciles receive the same amounts; (iii) it can be means-tested, so that recipients in lower income deciles receive larger amounts. However, the distributional impact will also be affected by the proportion of people in each decile that are eligible for the benefit. For example, a flat rate payment for children could result in larger payments to lower deciles if families with several children are more likely to be poor than the rest of the population.

Economic theory would suggest that, given the choice, people with higher earnings will want to make larger insurance provisions for these earnings and save more for retirement. If governments respond to these wishes in the design of their social insurance schemes, we would expect the benefits to the old, the sick and disabled, and the unemployed to be earnings related, and this is the case in many EU countries. On this basis, Table 1 suggests that a

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5. The latter could be the result of high unemployment rates, generous unemployment benefits or both.

substantial majority of transfer expenditures will be earnings related. This limits their redistributive impact, but does not eliminate it as people in these groups tend (perhaps temporarily) to have lower incomes than the rest of the population. However, the premise is not entirely true. The UK, for example, has made the main benefits in these categories flat-rate and provided means-tested supplements to those in particular risk of poverty. This is an extreme example, but some other EU countries have flat rate benefits for some of these categories, and Eardley *et al.* (1996) report a large number of means-tested supplements to the main benefits. It is particularly common for benefits to the unemployed to become means-tested after a certain period. Thus, these categories of benefit are likely to have a redistributive effect, which will differ between countries because of differences in the income-relatedness of the benefit payments and (possibly) the income positions of the recipients.

The benefits that are more obviously redistributive are family benefits and housing benefits (included in “Other benefits”). Housing benefits are typically means-tested and family benefits are usually flat rate, but many countries have a means-tested supplement.<sup>6</sup> In addition, families with several children are typically low in the (equivalised) income distribution. Table 1 shows that these more redistributive benefits generally constitute a rather small part of total expenditure on social transfers, but that they play a larger part in Belgium, Austria, Denmark and the UK.

Overall, this discussion of the data in Table 1 shows that there are a number of factors that affect the distributional impact of social transfers, and that these differ substantially between EU countries. However, data in this form are not sufficient to draw clear conclusions as to the relative redistributive impact of these transfers in the different countries. It is therefore

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6. Eardley *et al.* (1996) provides a useful list of means-tested benefits in OECD countries.

necessary to look at household level data, and this is where the ECHP becomes particularly useful.

#### **4. Effects on income inequality**

The first question to answer is “are social transfers directed primarily to the top, the middle or the bottom of the income distribution?” An answer to this question is provided in Tables 2 (for all social transfers) and 3 (for non-pension transfers). For each country, the figures in the first line are the values of the per capita mean social transfers received by the members of each decile, while the figures in the second line are the proportions of the social transfers in the total income of each decile.

The picture that emerges from Table 2 regarding the absolute value of social transfers per decile in the EU member-states is quite diverse. In most of the countries, the members of the top decile enjoy the highest mean social transfers per capita and these transfers take their lowest values in the bottom decile. In Austria, Italy and, to a lesser extent, Greece, social transfers rise as equivalent income rises, whereas, leaving aside the top and bottom deciles, the opposite is observed in Denmark, Ireland and the UK. If the two extreme deciles are ignored, no clear association between social transfers and disposable income is observed in the rest of the countries. In contrast, all countries show a clear negative association between disposable income and the share of income due to cash social transfers. The decline in the share of social transfers is steepest in the UK and least pronounced in Italy.

Table 3 provides an interesting contrast to Table 2, with a much clearer redistributive effect of non-pension transfers. For the majority of countries there is a clear downward trend in transfers across deciles in absolute terms and all countries show a strong reduction in

transfers as income rises, in relative terms. This confirms the suggestion of sections 1 and 3, that pensions are less redistributive than other social transfers.

The evidence of Tables 2 and 3 implies that, since social transfers account for a larger share of the incomes of the poor rather than the rich, it is likely that they contribute to a decline in total inequality. The validity of this hypothesis is confirmed in Table 4. The first column (A) of Table 4 reports estimates of the Atkinson index (when the value of the inequality aversion parameter is set at  $e=0.5$ ) for the distribution of equivalent disposable income per capita. The second column (B) reports the proportional decline between the level of inequality that would have been recorded if there were no social transfers and the current level of inequality. The third column (C) reports the impact that a uniform 10% cut in social transfers would have on the index. The fourth (D) and fifth (E) columns are equivalent to columns B and C, but restricted to non-pension transfers.<sup>7</sup> The last five columns of the table repeat the exercise for the Gini index.

Both inequality indices highlight similar patterns. Although there exist a few differences in their rankings for columns A, both indices take their lowest values in Denmark and the Netherlands and the highest in the Southern countries<sup>8</sup>, Ireland and the UK. Intermediate levels of inequality are recorded in Austria, Belgium, France, Germany and Luxembourg. The columns B show that both indices suggest that the impact of all cash social transfers is most important in Denmark, Belgium and the Netherlands and least so in Portugal and Greece. The estimates reported in the columns C of the table suggest that, at the margin, social transfers are

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7. It should be kept in mind that the extent of the distributional impact of a particular system of social transfers is a function of the pre-transfer level of inequality (or poverty) as well as the parameters of the transfers system.

8. Throughout this paper, the term 'Southern countries' refers to Greece, Italy, Portugal and Spain.

most effective in reducing inequality in Denmark and the UK and least so in Portugal and, particularly, Italy.<sup>9</sup>

The columns D show that non-pension transfers have the greatest redistributive effects in Denmark and the Netherlands as in the columns B, but with Belgium no longer being so highly placed. The countries with the lowest effects in columns B are Greece and Italy, so that the elimination of pensions has led to Italy replacing Portugal in the second lowest position. The columns E show that Denmark and the UK continue to have high marginal effects, but that Ireland has joined the group. Columns E show Greece and Italy as having the lowest marginal as well as the lowest overall impact of non-pension cash transfers. A comparison of columns D and E with columns B and C show that the exclusion of pensions has some effect on the relative ranking of countries, but it is not dramatic. It is also interesting that the numbers in columns D and E are generally smaller than the corresponding numbers in columns B and C, indicating that pensions do have a redistributive effect even though Tables 2 and 3 showed that it was not as great as non-pension transfers.

Comparing these results with Table 1, it is clear that, as one would expect, the countries with transfer systems that are most effective in reducing inequality are those that spend a high proportion of income on transfers. In addition, Ireland's move up the ranking when pensions are excluded corresponds to its relatively low expenditure on pensions, while Italy's move down the scale corresponds to the high proportion of its social transfers devoted

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9. The same exercise was also performed for other values of the inequality aversion parameter of the Atkinson index as well as for members of the extended Gini family of indices. In most cases, the more sensitive the index to changes at the bottom end of the distribution, the larger the aggregate as well as the marginal impact of social transfers on inequality.

to pensions. However, there is not a perfect correlation: Italy spends more than the UK on total cash transfers but is less effective at reducing inequality, while France has the third highest expenditure but is only sixth in terms of inequality reduction. It is therefore necessary to look in more detail to fully understand the results in Table 4, which may be driven by the extent to which transfers are targeted towards the poorest segments of the population, in addition to the level of expenditure.

In order to disentangle the corresponding effects, we employ the technique of inequality decomposition by factor component.<sup>10</sup> Following Pyatt *et al.* (1980), if there are  $K$  income components and the population is ranked in ascending order according to equivalent income, the Gini index,  $G$ , can be written as:

$$G = \sum_{k=1}^K \frac{m_k}{m} R_k G_k \quad (1)$$

where  $m$  and  $m_k$  denote, respectively, the mean equivalent income and the mean equivalent income of type  $k$  ( $k=1 \dots K$ ),  $G_k$  the Gini coefficient for the distribution of income component  $k$  and  $R_k$  the relative correlation coefficient of component  $k$ , which is defined as the ratio of the covariance between this component,  $y_k$ , and the rank of total income,  $r$ , to the covariance between the component,  $y_k$ , and its own rank,  $r_k$ ; that is:

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10. It should be noted that even though the technique of inequality decomposition by factor component has been used extensively in the literature, it has been criticised on the grounds that the resulting decomposition may not be unique; i.e. the results depend on the rule (type of restrictions) used in the decomposition procedure [Shorrocks (1982)]. As Shorrocks (1983) showed using PSID data, the general procedure outlined below is the most plausible available. In line with the great majority of similar empirical studies [see Cowell (2000) and the references cited there], for the purposes of the present decomposition analysis we use the most popular index of inequality, the Gini index. Results similar to those reported below were also obtained using as index of inequality the squared coefficient of variation.



$$R_k = \frac{\text{cov}(y_k, r)}{\text{cov}(y_k, r_k)} \quad (2).$$

Then, dividing both sides of (1) by  $G$  we derive:

$$\sum_{k=1}^K w_k g_k = 1 \quad (3),$$

where  $w_k = m_k/m$  is the share of component  $k$  in total income and  $g_k = R_k(G_k/G)$  is the relative concentration coefficient of component  $k$  in aggregate inequality.<sup>11</sup> Therefore,  $w_k g_k$  is the proportional contribution of component  $k$  to aggregate inequality. *Ceteris paribus*, an equiproportionate increase in incomes of type  $k$  will cause an increase or decline in aggregate inequality if  $g_k$  is greater or less than one. Further, using (1) we can calculate the elasticity of  $G$  with respect to a proportional change in component  $k$

$$e_k = (dG/dm_k)(m_k/G) = w_k g_k - w_k \quad (4)^{12}$$

Estimates of  $w_k$ ,  $g_k$  and  $e_k$  are reported in Table 5 for all cash social transfers taken together and for each individual component: pensions, all non-pension transfers, sickness and invalidity benefits, family benefits, unemployment benefits and other benefits. The estimates of the second column show that in all countries social transfers mitigate aggregate inequality, since all  $g_k$ s are less than one (in all but one case less than 0.5). Nevertheless, a number of cross-country differences are also observed. The most egalitarian distributions of social transfers are recorded in Denmark and the UK where the relative concentration coefficients,  $g_k$ , are negative. At the other extreme we find Italy, where  $g_k$  takes its highest value, 0.716. These

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11. Note that a negative  $R_k$  means that the respective component is negatively correlated with the rank of total income and, therefore, the resulting negative  $g_k$  implies that this component contributes directly to aggregate equality rather than inequality.

12. Naturally, the sum of these elasticities for all income components is always equal to zero, since an equiproportionate increase of all income components will leave aggregate inequality unaffected.

differences in  $w_k$  and  $g_k$  lead naturally to differences in the elasticity of inequality with respect to social transfers,  $e_k$ : highest (in absolute terms) in Denmark (-0.361) and the United Kingdom (-0.301) and lowest in Italy (-0.075) and Portugal (-0.117). This is consistent with the ranking in Table 4.<sup>13</sup>

The most important type of cash social transfer is pensions, accounting for 15-20% of total household income in most countries. The discussion in section 3 suggested that these could well not be redistributive and, indeed, the estimates of  $g_k$  show that in two countries, Ireland and France, pensions contribute to inequality rather than equality. On the other hand, in Denmark the corresponding figure is negative. As a result, we observe wide variations in the elasticity of  $G$  with respect to pensions: from -0.130 in Denmark and -0.111 in Greece, to 0.044 in Ireland and 0.002 in France.

Turning to non-pension transfers, we see that the concentration coefficients,  $g_k$ , are lower (algebraically) than those for all transfers and for pensions, confirming that non-pension transfers are more redistributive. However, in Greece, Italy and Portugal, the elasticities of inequality are smaller (in absolute terms) for non-pension transfers than for pensions, because of the high proportion of transfer expenditure devoted to pensions. As would be expected from columns E of Table 4, Denmark, Ireland and the UK have the largest (absolute) elasticity values, but it is interesting that Denmark does not have such a large concentration coefficient as the other two countries (possibly because it uses less means-testing). However, non-pension transfers represent a higher proportion of household income in Denmark.

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13. At first sight, the estimates of  $e_k$  in Table 5 may appear to contradict the implied elasticities of the last part of Table 4. However, the former are point elasticities, whereas the latter are arc elasticities.

The income share of cash sickness and invalidity benefits varies from 0.6% in Greece to 4.4% in the Netherlands. In most cases, the corresponding  $g_{ks}$  are negative and in all countries the elasticity of aggregate inequality with respect to them is negative as well, varying from  $-0.007$  in Austria to  $-0.050$  in Denmark.

The share of family benefits in total household income is extremely low in the Southern EU member-states but quite substantial in Belgium, Austria and Luxembourg. In all but three of the countries (Portugal, Italy and Denmark) the relevant relative concentration coefficients are negative and the elasticity of  $G$  with respect to family benefits varies between  $-0.002$  and  $-0.009$  in the Southern countries and  $-0.043$  and  $-0.076$  in the rest of the countries under examination.

Naturally, as noted earlier, unemployment benefits play an important role where unemployment is high and unemployment compensation relatively generous. For very different reasons, their share in total household income varies from 5.9% in Ireland and 5.3% in Denmark to 0.2% in Greece and 0.4% in Luxembourg. In Ireland the corresponding elasticity is  $-0.130$  and high (negative) values are also recorded in Denmark, Belgium and Spain.

“Other” benefits (mainly housing benefits and social assistance) play an important role only in the UK, Denmark and, to a lesser extent, the Netherlands and France.<sup>14</sup> In most cases the relevant  $g_{ks}$  are negative and large in absolute terms. As a consequence, in the above countries, the elasticity of  $G$  with respect to these benefits is quite substantial:  $-0.112$  in the UK,  $-0.062$  in Denmark,  $-0.054$  in the Netherlands and  $-0.052$  in France.

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14. In Table 5, the share of “Other benefits” in total household income appears to be relatively high in Germany too, 4.8%. However, this figure is not comparable with the rest of the figures in that column, since it contains, “Sickness and invalidity” and “Family” as well as “Other” benefits.

The overall picture of the role of different transfers in reducing inequality is as expected from the discussion in section 3. Insurance benefits, particularly pensions, are only weakly redistributive if at all, while benefits targeted at poor groups (family benefits, housing benefits and social assistance) are more strongly redistributive.

It is interesting to note that in all EU member-states examined in Table 5 apart from the four Southern countries, the combined contribution of the non-pension social transfers in reducing inequality is larger than the corresponding contribution of pensions, despite the fact that, with the exceptions of Denmark and the UK, the combined income share of the non-pension transfers is lower than the share of pensions.

## 5. Effects on poverty

This section examines the impact of social transfers on poverty. The relevant results are reported in Tables 6 and 7. For the purposes of these tables we employ the index of Foster *et al.* (1984) which is defined as:

$$F = \frac{1}{n} \sum_{i=1}^n \left( \frac{z - x_i}{z} \right)^a \quad (5)$$

where  $z$  is the poverty line,  $n$  the size of the population,  $x_i$  a variable that is equal to the equivalent income of the population member if he/she falls below the poverty line and  $z$  otherwise, and  $a$  is a poverty-aversion parameter. The poverty line is set at 60% of the median equivalent income.<sup>15</sup>

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15. For many countries, this is very close to the traditionally used poverty line that is equal to half of the mean equivalised income, and has the advantage of being less susceptible to extreme values. This poverty line has recently been adopted by Eurostat for some of its studies.

Like Table 4, the columns A of Table 6 report estimates of  $F$  for the distribution of disposable income for three values of  $a$ ,<sup>16</sup> while columns B report the proportional decline between the level of poverty with no social transfers and the current level of poverty, and columns C the effect of a uniform 10% cut in all cash social transfers. Columns D and E are equivalent to columns B and C but refer to non-pension transfers.

The estimates reported in columns B show that social transfers in cash are very important for the alleviation of poverty in all EU member-states. However, since these transfers increase the incomes of many population members who remain below the poverty line even after the transfers, their effectiveness in alleviating poverty appears to increase as the value of  $a$  rises. Social transfers appear to be most effective in mitigating poverty in Denmark and the Netherlands and least so in Portugal and Greece. The results in columns C show that the marginal impact appears to be quantitatively most important in Denmark, the Netherlands, Ireland and the UK (particularly for  $a = 2$ ) and least so in three Southern countries - Portugal, Greece and Italy – as well as Germany and Austria.

Looking at non-pension transfers, columns D show that Denmark and the Netherlands continue to have the largest impact on poverty, although they are joined by Ireland and the UK as the value of  $a$  increases. At the other end of the scale, Italy joins Greece and Portugal as a country with relatively little impact, just as it did in Table 4. Columns E show that the greatest marginal impacts on poverty are in Denmark, Ireland and the UK, with Belgium and the Netherlands only having a large impact with  $a = 0$ . Greece, Italy and Portugal also have little marginal impact on poverty.

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16. A value of 0 corresponds to the headcount ratio, 1 corresponds to the poverty gap, and 2 puts particular weight on the very poor.

These results suggest that, in general, countries that are effective in using social transfers to reduce inequality are also effective in reducing poverty. However, it is interesting to note that Ireland is higher in the order of countries for reducing poverty than it is for reducing inequality, probably due to a combination of the high proportion of means-testing in Ireland's social transfers and the relatively small amount spent on pensions.

Table 7 is similar to Table 6, but instead of examining the impact on poverty of all social transfers taken together, it analyses separately the impact of particular types of transfers, when  $a=2$ .<sup>17</sup> In all countries, the significance of pensions in alleviating poverty is enormous, while, at the margin, a 10% cut in pensions would have the most adverse impact in Denmark (11.8%) and Greece (8.0%) and the least adverse in the Netherlands (2.3%). For the other transfers, there are important cross-country differences. Sickness and invalidity benefits reduce poverty by over 60% in Denmark and the Netherlands but by less than 25% in Greece, Austria, Italy and Portugal. Family benefits reduce poverty by over 40% in Ireland, the UK, Luxembourg, Belgium, Austria and France but less than 15% in the four Southern countries. Even more significant cross-country differences are registered regarding the efficacy of unemployment benefits in reducing poverty: poverty in Ireland declines by 77.8%, in Denmark by 66.4%, the declines in Belgium, the Netherlands and Spain exceed 40%, but they are low in Portugal, the UK, Italy, Luxembourg and, especially, Greece. "Other" benefits play an important role in reducing poverty in France, the Netherlands, Denmark and, particularly, the UK. For all types of benefit, the patterns of results in columns B are similar to those in columns A.

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17. Similar but less pronounced results were obtained when  $a$  was set at 0 and 1.

A comparison of these results with those in Table 5 shows that, in general, countries where a particular transfer is effective in reducing inequality are also those in which the same transfer is effective in reducing poverty.

## **6. Conclusions**

This paper has examined the impact of cash social transfers on inequality and poverty in thirteen EU member-states, using data from the ECHP. The results show that, at least from a static point of view, these transfers help to reduce both inequality and poverty in all countries, but with significant cross-country differences. While there are important exceptions, the impact on inequality and poverty is generally most significant in countries which spend a high proportion of income on social transfers, like Belgium, Denmark and the Netherlands, and least so in low spending countries like Portugal and Greece. Also, countries with a high degree of means testing had a high marginal impact: the UK for both inequality and poverty and Ireland for poverty. However, the example of Denmark shows that transfer payments can be well targeted by spending relatively more on non-pension transfers.

These overall patterns are affected only slightly by whether pensions are excluded from the concept of social transfers. Ireland becomes more effective at reducing inequality and poverty because of its relatively low expenditure on pensions, while Italy becomes less effective because of its relatively high expenditure on pensions.

Within these broad results, there are variations between countries that cannot be explained simply by expenditure levels or extent of means testing. The distributional and poverty reduction impact depends also on the distribution of funds between different types of transfer and the detailed design of each transfer. The most important type of social transfer is

pensions and, in most cases, they make the highest individual contribution to reducing inequality and poverty. Nevertheless, the non-pension social transfers were found to be concentrated towards the bottom of the distribution to a larger extent than pensions and, in all non-Southern countries the combined contribution of the non-pension social transfers in reducing inequality was found to be larger than the corresponding contribution of pensions.



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**Table 1: Social transfers as a percentage of household disposable income in thirteen EU member-states (1994)**

Country	All social transfers	Pensions	All social transfers excluding pensions	Sickness and invalidity benefits	Family benefits	Unemployment benefits	Other benefits
Austria	29.3	19.5	9.8	1.3	6.2	1.4	0.8
Belgium	32.7	18.9	13.8	3.0	6.6	3.8	0.4
Denmark	27.2	10.9	16.3	2.8	4.4	5.3	3.7
France	28.2	18.4	9.8	1.7	4.0	2.1	2.0
Germany*	26.2	19.0	7.2	na	na	2.4	4.8
Greece	19.9	18.3	1.6	0.6	0.5	0.2	0.3
Ireland	26.8	14.9	12.0	1.9	3.2	5.9	1.0
Italy	26.5	23.4	3.1	1.8	0.4	0.7	0.3
Luxembourg	25.2	16.7	8.5	1.8	5.1	0.4	1.2
Portugal	20.5	15.3	5.2	1.8	1.7	1.5	0.3
Netherlands	27.8	14.9	12.9	4.4	3.0	3.0	2.4
Spain	25.8	17.5	8.3	3.9	0.2	3.7	0.5
United Kingdom	23.9	11.7	12.2	3.0	3.6	0.5	5.0

\* “Other benefits” in Germany also include “Sickness and invalidity benefits” and “Family benefits”.

Table 2: All Social transfers in cash per decile in absolute and relative terms in thirteen EU member-states (1994)

Country	Decile									
	1	2	3	4	5	6	7	8	9	10
Austria	1020 <i>40.6</i>	2283 <i>50.1</i>	3013 <i>53.5</i>	2686 <i>41.4</i>	2783 <i>37.5</i>	2977 <i>35.7</i>	3022 <i>31.5</i>	3133 <i>28.6</i>	3101 <i>22.8</i>	4027 <i>18.3</i>
Belgium	1808 <i>67.9</i>	3219 <i>70.0</i>	3706 <i>63.0</i>	3545 <i>52.0</i>	2977 <i>38.6</i>	2899 <i>33.9</i>	2578 <i>26.6</i>	2786 <i>25.1</i>	3084 <i>23.6</i>	5350 <i>25.9</i>
Denmark	3151 <i>67.5</i>	4092 <i>63.3</i>	3650 <i>51.2</i>	2946 <i>38.5</i>	2656 <i>32.0</i>	2257 <i>26.0</i>	2150 <i>21.9</i>	2300 <i>21.3</i>	1898 <i>15.1</i>	3108 <i>15.6</i>
France	1902 <i>63.0</i>	2169 <i>48.3</i>	2480 <i>45.3</i>	2415 <i>38.3</i>	2372 <i>32.4</i>	2502 <i>30.6</i>	2338 <i>25.0</i>	2523 <i>23.1</i>	3385 <i>25.4</i>	5612 <i>26.1</i>
Germany	1189 <i>47.4</i>	2569 <i>53.3</i>	2748 <i>45.6</i>	2659 <i>38.0</i>	3119 <i>39.1</i>	2822 <i>31.6</i>	2403 <i>24.1</i>	2782 <i>23.9</i>	2755 <i>18.8</i>	4659 <i>20.7</i>
Greece	804 <i>58.2</i>	1094 <i>45.7</i>	1209 <i>39.8</i>	977 <i>27.0</i>	1073 <i>25.5</i>	1335 <i>27.4</i>	1261 <i>22.3</i>	1210 <i>18.2</i>	1396 <i>16.9</i>	1789 <i>12.8</i>
Ireland	1358 <i>71.1</i>	2345 <i>77.5</i>	2232 <i>61.5</i>	1828 <i>45.3</i>	1292 <i>26.4</i>	1312 <i>22.3</i>	1125 <i>16.0</i>	1049 <i>12.2</i>	1614 <i>14.6</i>	5882 <i>29.8</i>
Italy	594 <i>38.3</i>	1184 <i>38.6</i>	1500 <i>39.2</i>	1645 <i>36.9</i>	1925 <i>36.8</i>	2237 <i>36.1</i>	1880 <i>26.8</i>	1983 <i>24.2</i>	2288 <i>23.1</i>	3790 <i>24.1</i>
Luxembourg	2047 <i>48.2</i>	3011 <i>42.7</i>	4072 <i>46.5</i>	4582 <i>43.9</i>	4012 <i>35.5</i>	5771 <i>42.7</i>	4143 <i>27.9</i>	3727 <i>20.8</i>	3508 <i>16.1</i>	4632 <i>12.1</i>
Netherlands	1679 <i>56.4</i>	2794 <i>57.5</i>	2634 <i>48.6</i>	2596 <i>42.8</i>	2215 <i>33.5</i>	2265 <i>29.9</i>	2281 <i>25.8</i>	2179 <i>20.4</i>	2783 <i>21.9</i>	4704 <i>23.1</i>
Portugal	636 <i>59.6</i>	1060 <i>53.5</i>	1121 <i>44.4</i>	869 <i>28.4</i>	863 <i>23.8</i>	869 <i>20.6</i>	924 <i>18.9</i>	1214 <i>20.3</i>	1137 <i>15.1</i>	2262 <i>16.4</i>
Spain	792 <i>52.3</i>	1439 <i>54.9</i>	1740 <i>51.2</i>	1603 <i>41.6</i>	1765 <i>39.3</i>	1797 <i>35.2</i>	1589 <i>26.9</i>	1644 <i>23.2</i>	1593 <i>18.3</i>	2006 <i>14.3</i>
United Kingdom	1752 <i>69.8</i>	3000 <i>77.1</i>	3290 <i>65.0</i>	2776 <i>49.3</i>	2494 <i>36.9</i>	1953 <i>24.9</i>	1906 <i>20.7</i>	1904 <i>17.5</i>	1548 <i>11.4</i>	2201 <i>9.5</i>

First line: Mean value of cash transfers per capita in ecu per year (in PPP terms)

Second line (in italics): Cash transfers as a proportion of total decile income

**Table 3: Non-pension social transfers in cash per decile in absolute and relative terms in thirteen EU member-states (1994)**

Country	Decile									
	1	2	3	4	5	6	7	8	9	10
Austria	637 <i>25.4</i>	795 <i>17.4</i>	896 <i>15.9</i>	848 <i>13.1</i>	804 <i>10.9</i>	894 <i>10.7</i>	950 <i>9.9</i>	772 <i>7.0</i>	796 <i>5.9</i>	554 <i>2.5</i>
Belgium	1042 <i>39.1</i>	1681 <i>36.5</i>	1244 <i>21.1</i>	1144 <i>16.8</i>	1213 <i>15.8</i>	1161 <i>13.6</i>	1050 <i>10.8</i>	1082 <i>9.7</i>	949 <i>7.3</i>	1061 <i>5.1</i>
Denmark	1501 <i>32.2</i>	2105 <i>32.5</i>	2110 <i>29.6</i>	1772 <i>23.2</i>	1844 <i>22.2</i>	1509 <i>17.4</i>	1418 <i>14.5</i>	1297 <i>12.0</i>	1057 <i>8.4</i>	892 <i>4.5</i>
France	1132 <i>37.5</i>	1093 <i>24.3</i>	1058 <i>19.3</i>	960 <i>15.2</i>	817 <i>11.2</i>	777 <i>9.5</i>	632 <i>6.8</i>	575 <i>5.3</i>	584 <i>4.4</i>	440 <i>2.1</i>
Germany	630 <i>25.1</i>	988 <i>20.5</i>	811 <i>13.5</i>	593 <i>8.5</i>	634 <i>7.9</i>	613 <i>6.9</i>	626 <i>6.3</i>	501 <i>4.3</i>	493 <i>3.4</i>	657 <i>2.9</i>
Greece	110 <i>8.0</i>	136 <i>5.7</i>	85 <i>2.8</i>	94 <i>2.6</i>	86 <i>2.0</i>	93 <i>1.9</i>	71 <i>1.3</i>	51 <i>0.8</i>	76 <i>0.9</i>	61 <i>0.4</i>
Ireland	1147 <i>60.1</i>	1523 <i>50.3</i>	1250 <i>34.5</i>	1117 <i>27.7</i>	754 <i>15.4</i>	551 <i>9.4</i>	480 <i>6.8</i>	408 <i>4.7</i>	286 <i>2.6</i>	178 <i>0.9</i>
Italy	154 <i>9.9</i>	179 <i>5.8</i>	147 <i>3.8</i>	188 <i>4.2</i>	232 <i>4.4</i>	265 <i>4.3</i>	169 <i>2.4</i>	246 <i>3.0</i>	226 <i>2.3</i>	280 <i>1.8</i>
Luxembourg	1387 <i>32.6</i>	1229 <i>17.4</i>	1733 <i>19.8</i>	1403 <i>13.5</i>	1261 <i>11.2</i>	921 <i>6.8</i>	1047 <i>7.0</i>	927 <i>5.2</i>	703 <i>3.2</i>	820 <i>2.1</i>
Netherlands	1266 <i>42.6</i>	1448 <i>29.8</i>	1222 <i>22.5</i>	1211 <i>20.0</i>	993 <i>15.0</i>	1085 <i>14.3</i>	936 <i>10.6</i>	842 <i>7.9</i>	835 <i>6.6</i>	1051 <i>5.2</i>
Portugal	154 <i>14.4</i>	244 <i>12.3</i>	244 <i>9.7</i>	224 <i>7.3</i>	283 <i>7.8</i>	263 <i>6.2</i>	275 <i>5.6</i>	347 <i>5.8</i>	221 <i>2.9</i>	236 <i>1.7</i>
Spain	530 <i>35.0</i>	507 <i>19.3</i>	509 <i>15.0</i>	463 <i>12.0</i>	435 <i>9.7</i>	504 <i>9.9</i>	496 <i>8.4</i>	472 <i>6.7</i>	384 <i>4.4</i>	370 <i>2.6</i>
United Kingdom	1102 <i>43.9</i>	1756 <i>45.2</i>	1725 <i>34.1</i>	1506 <i>26.7</i>	1243 <i>18.4</i>	846 <i>10.8</i>	681 <i>7.4</i>	648 <i>6.0</i>	413 <i>3.0</i>	398 <i>1.7</i>

First line: Mean value of cash transfers (excluding pensions) per capita in ecu per year

Second line (in italics): Cash transfers (excluding pensions) as a proportion of total decile income

**Table 4:**  
**Distributional impact of social transfers in cash in thirteen EU member-states (1994)**

Country	Index of inequality									
	Atkinson ( $e=0.5$ )					Gini				
	A	B	C	D	E	A	B	C	D	E
Austria	0.072	68.5	3.6	31.3	2.2	0.290	37.2	2.1	14.3	1.1
Belgium	0.070	75.8	5.0	51.8	3.4	0.287	41.5	2.7	21.1	1.7
Denmark	0.047	78.7	6.9	62.2	4.4	0.226	46.0	4.0	31.2	2.5
France	0.071	68.9	3.3	40.4	3.2	0.292	36.7	1.8	17.8	1.6
Germany	0.074	70.8	3.4	34.4	2.0	0.293	36.9	2.0	12.9	1.0
Greece	0.098	60.3	3.1	7.8	0.5	0.341	26.6	1.5	2.7	0.2
Ireland	0.097	67.3	3.8	54.4	4.7	0.347	31.8	2.0	22.9	2.4
Italy	0.084	66.5	1.6	12.9	0.5	0.312	31.3	1.0	4.3	0.3
Luxembourg	0.082	66.5	4.1	32.9	2.4	0.307	34.9	2.3	13.9	1.2
Netherlands	0.063	75.5	4.2	56.0	3.5	0.269	40.8	2.3	23.9	1.9
Portugal	0.114	53.6	2.6	15.7	0.9	0.371	22.7	1.3	6.3	0.5
Spain	0.087	67.5	4.2	36.3	2.2	0.325	34.2	2.2	13.9	1.0
United Kingdom	0.091	69.9	6.1	54.4	4.3	0.332	35.5	3.2	23.1	2.2

- A: Distribution of disposable income  
 B: Proportional decline in inequality due to all cash transfers (%)  
 C: Increase in inequality due to a uniform 10% cut in all cash transfers (%)  
 D: Proportional decline in inequality due to non-pension cash transfers (%)  
 E: Increase in inequality due to a uniform 10% cut in non-pension cash transfers (%)

**Table 5: Contribution of social transfers to aggregate inequality in thirteen EU member-states (1994)**

Country	All social transfers			Pensions			All social transfers excluding pensions			Sickness and invalidity benefits			Family benefits			Unemployment benefits			Other benefits		
	$w_k$	$g_k$	$e_k$	$w_k$	$g_k$	$e_k$	$w_k$	$g_k$	$e_k$	$w_k$	$g_k$	$e_k$	$w_k$	$g_k$	$e_k$	$w_k$	$g_k$	$e_k$	$w_k$	$g_k$	$e_k$
Austria	.293	.388	-.179	.195	.627	-.073	.098	-.087	-.106	.013	.444	-.007	.062	-.229	-.076	.014	-.156	-.017	.008	.255	-.006
Belgium	.327	.255	-.244	.189	.572	-.081	.138	-.180	-.163	.030	.188	-.025	.066	-.024	-.068	.038	-.658	-.062	.004	-.030	-.008
Denmark	.272	-.329	-.361	.109	-.194	-.130	.163	-.418	-.231	.028	-.757	-.050	.044	.018	-.043	.053	-.434	-.076	.037	-.650	-.062
France	.282	.458	-.153	.184	1.01	.002	.098	-.584	-.155	.017	.067	-.015	.040	-.523	-.061	.021	-.273	-.027	.020	-1.56	-.052
Germany*	.262	.362	-.167	.190	.611	-.074	.072	-.295	-.093	na	na	na	na	na	na	.024	-.556	-.038	.048	-.162	-.055
Greece	.199	.338	-.132	.183	.396	-.111	.016	-.350	-.021	.006	-.638	-.010	.005	-.544	-.008	.002	.090	-.002	.003	.366	-.002
Ireland	.268	.307	-.186	.149	1.30	.044	.120	-.923	-.230	.019	-.569	-.030	.032	-.713	-.055	.059	-1.21	-.130	.010	-.575	-.016
Italy	.265	.716	-.075	.234	.778	-.052	.031	.254	-.023	.018	.140	-.015	.004	.434	-.002	.007	.048	-.006	.003	1.22	.001
Luxembourg	.252	.193	-.203	.167	.504	-.083	.085	-.420	-.120	.018	-.426	-.025	.051	-.279	-.066	.004	-.848	-.007	.012	-.877	-.023
Portugal	.205	.431	-.117	.153	.532	-.072	.052	.129	-.045	.018	-.195	-.021	.017	.434	-.009	.015	.175	-.012	.003	.106	-.002
Netherlands	.278	.295	-.196	.149	.858	-.021	.129	-.357	-.175	.044	.039	-.042	.030	-.640	-.050	.030	.069	-.028	.024	-1.27	-.054
Spain	.258	.229	-.199	.175	.427	-.100	.083	-.193	-.098	.039	-.021	-.040	.002	-1.22	-.004	.037	-.347	-.049	.005	-.023	-.005
United Kingdom	.239	-.259	-.301	.117	.257	-.087	.122	-.752	-.214	.030	-.067	-.032	.036	-.683	-.061	.005	-.644	-.009	.050	-1.23	-.112

\* “Other benefits” in Germany also include “Sickness and invalidity benefits” and “Family benefits”.

**Table 6: Impact of cash transfers on poverty in thirteen EU member-states (1994)**

Country	Foster-Greer-Thorbecke index of poverty														
	$a=0$					$a=1$					$a=2$				
	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E
Austria	0.170	62.4	14.2	36.5	4.7	0.054	80.2	11.4	50.6	5.61	0.026	87.7	10.2	59.9	5.9
Belgium	0.180	61.0	21.5	39.0	11.4	0.055	83.2	18.5	63.6	10.8	0.027	90.6	16.6	76.6	10.6
Denmark	0.107	72.3	23.0	62.7	10.1	0.023	90.7	27.0	82.3	13.1	0.009	95.8	25.9	90.7	14.1
France	0.158	63.5	15.0	42.7	9.1	0.040	85.2	18.6	65.4	11.4	0.017	92.3	18.8	77.2	12.3
Germany	0.177	56.6	9.8	25.6	3.4	0.057	79.5	11.1	47.8	5.5	0.029	87.7	10.1	61.0	5.6
Greece	0.207	44.0	9.4	6.8	0.9	0.070	70.8	9.8	14.7	1.3	0.035	82.7	11.3	22.3	1.6
Ireland	0.212	50.1	17.0	36.9	10.6	0.049	83.8	27.1	75.1	20.6	0.019	92.7	27.0	87.7	21.9
Italy	0.188	52.7	7.1	11.4	1.1	0.061	76.3	8.0	21.4	1.6	0.033	84.9	6.6	29.4	1.6
Luxembourg	0.143	66.0	13.0	44.7	5.6	0.041	83.5	12.0	58.5	7.0	0.020	90.2	11.7	68.2	8.4
Netherlands	0.099	73.6	24.4	57.0	12.7	0.032	87.9	14.3	75.2	10.6	0.017	92.6	11.5	83.2	9.1
Portugal	0.239	37.7	7.3	14.8	2.9	0.079	66.9	10.8	28.0	2.6	0.041	79.2	10.9	36.8	2.9
Spain	0.188	55.1	10.0	29.8	4.2	0.053	81.1	14.6	56.0	7.2	0.025	89.6	13.6	70.2	8.3
United Kingdom	0.204	52.3	17.0	39.4	9.9	0.053	83.1	23.6	72.4	15.6	0.022	92.0	23.9	85.4	16.4

- A: Distribution of disposable income including cash transfers  
 B: Proportional decline in poverty due to all cash transfers (%)  
 C: Increase in poverty due to a uniform 10% cut in all cash transfers (%)  
 D: Proportional decline in poverty due to non-pension cash transfers (%)  
 E: Increase in poverty due to a uniform 10% cut in non-pension cash transfers (%)



**Table 7: Impact of particular social transfers on aggregate poverty in thirteen EU member-states (1994, Foster-Greer-Thorbecke index,  $\alpha=2$ )**

Country	Pensions		Sickness and invalidity benefits		Family benefits		Unemployment benefits		Other benefits	
	A	B	A	B	A	B	A	B	A	B
Austria	83.0	4.0	14.5	0.2	44.4	4.4	17.7	0.9	5.2	0.2
Belgium	85.0	5.9	37.9	1.4	46.0	4.8	48.0	3.3	8.5	0.7
Denmark	91.2	11.8	64.2	2.7	32.6	1.5	66.4	3.8	57.9	6.1
France	88.0	6.4	27.2	1.1	44.9	4.1	31.6	1.7	43.2	4.7
Germany*	83.7	4.4	na	na	na	na	31.8	1.7	46.5	3.8
Greece	81.0	9.7	13.5	0.8	7.6	0.6	1.7	0.3	1.9	0.0
Ireland	80.9	5.0	44.1	1.9	55.1	6.0	77.8	12.3	14.1	0.8
Italy	82.6	5.1	20.7	0.6	1.8	0.0	8.5	0.6	2.1	0.0
Luxembourg	86.3	3.2	33.3	0.6	46.5	5.7	8.1	0.6	24.0	1.1
Netherlands	86.9	2.3	62.3	1.7	25.0	2.3	50.0	1.7	51.0	3.4
Portugal	74.5	8.0	20.7	1.2	10.3	0.9	11.6	0.4	3.0	0.2
Spain	84.0	5.2	52.1	3.2	6.0	0.4	48.6	4.4	9.1	0.8
United Kingdom	80.5	7.1	38.1	1.1	49.6	4.8	12.3	0.7	71.0	9.0

\* “Other benefits” include “Sickness and invalidity benefits” and “Family benefits”.

A: Proportional decline in aggregate poverty due to the benefit (% , ceteris paribus)

B: Increase in poverty due to a 10% cut in the benefit (%)

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