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Who are the Poor in Europe?
Exploring Cross-national Differences in the Determinants of Income Poverty and Material Deprivation

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Abstract

The primary goal of this paper was to explore cross-national differences in the relative effect of selected characteristics associated with the risk of income poverty and material deprivation and to offer an explanation for the observed patterns in terms of country-level characteristics. The analyzed macro level variables included welfare regime clusters, GDP per capita, total social expenditure as well as more targeted instruments of social policy (unemployment benefits, old age/survivors benefits etc.). The other goal of the paper was to compare the outcomes obtained when poverty is defined in terms of low income with the outcomes when poverty is understood as a living-standard deprivation. I focused on the households a) composed of a single adult with dependent children, b) composed of two adults with three or more children; or where the head: c) is a low skilled worker, d) is still in education, e) is unemployed, f) is retired, g) has low education, h) reports bad health. For some of these risk factors (e.g. retired or low-educated head) we have found that – as hypothesized – the relative effect was less negative in the countries with a higher GDP per capita or a higher social expenditure or – in the welfare regime categories – in the social-democratic or conservative clusters than in the countries with a lower GDP per capita, social expenditure or belonging to the southern cluster. However, for other factors (e.g. single parent households or where the head was unemployed) we have discovered – quite surprisingly – the opposite pattern. Yet for others, namely bad health status of the household head, we have had no evidence of the cross-national variation in the relative effect whatsoever. A tentative explanation for this observed diversity was proposed in terms of a possible selection mechanism operating on unobserved characteristics that are correlated with the dependent variable. As for the targeted elements of social policy, we found some evidence of their protective effect against income poverty, however no such effect was found in the case of material deprivation.

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Who is Poor in Europe? Exploring Cross-country Differences in the Determinants of Income Poverty and Material Deprivation

1. Introduction

On the basis of previous research (eg. Barnes et al., 2002; Whelan et al., 2004) we know that typical characteristics of individuals that increase the risk of both income poverty and material deprivation are: unemployment, disability, old age or low education. Very vulnerable are also single-parent families or families with more than three children. However, the cross-national differences in the relative importance of the risk factors seem not to have been addressed sufficiently. Therefore, the primary goal of the paper is to identify the cross-national dissimilarities in the strength of association between micro-level characteristics of the households and multidimensional poverty, and provide an explanation for the observed differences in terms of macro-level characteristics of the countries.

The other goal of the paper is to compare the outcomes obtained when poverty is defined in terms of low income with the outcomes when poverty is understood as a living-standard deprivation. Despite the time that has passed since ground-breaking work of Ringen (Ringen, 1988), still relatively small portion of poverty research tries to capitalize on the notion of direct approach to poverty. This is partially due to technical reasons: difficulties in measurement of living-standards or poor quality of the data, and partially due to theoretical complexity of the concept. This paper aims to revitalize Ringen's idea by comparing the results obtained when the income poverty notion is used with the results given when more direct indicators of living-standard deprivation are used. Moreover, the paper explores in more details different aspects of material deprivation, using the dimensions derived by Whelan et al (Whelan et al., 2001) on the basis of their analysis of the ECHP and Irish data (series of Living in Ireland studies). Therefore, the focus is not only on the differences between countries but also the differences between the dimensions of poverty and material deprivation.

2. Determinants of poverty and material deprivation in a cross-national perspective

It is known that certain socio-economic characteristics of individuals and the households in which they live are associated with higher risk of both income poverty and material deprivation. Some of these factors are universal - for example the early adulthood or retirement periods are known to be characterized by a higher risk of disadvantage (e.g. Townsend, 1979). Other events increasing the risk of poverty/deprivation affect only certain individuals – examples are incidence of unemployment or becoming a single parent. Those determinants of poverty and deprivation have been an issue of concern for both academic research (e.g. Barnes et al., 2002; Whelan et al., 2004, Berthoud, 2004), and social policy implementations (c.f. the reports of Eurostat). However, the cross-national differences in the relative risk associated with the specific characteristics seem not to be addressed adequately. This paper aims to fill this gap by exploring the cross-national variation in the risk factors associated with poverty and material deprivation and offering an explanation for the observed differences in terms of the characteristics of the particular countries.

A preliminary analysis of a broad set of potential determinants of income poverty and material deprivation, supported by the results found in the literature, has helped to identify the factors that, on the one hand, most strongly affect the risk of falling into poverty/deprivation and, on the other, are most important from the point of view of social policy. The selected characteristics on which I will focus in this paper are[1]:

[1] See section 3 for more details on the risk factors of interest.

The households composed of:

- Single adult with dependent children;
- Two adults with more than two dependent children ;

And the households where the head is:

- Employed in a paid job of a low status;
- Still in education;
- Unemployed;
- Retired;
- Has a low level of education;
- Reports bad or very bad health;

The central assumption of this paper is that certain characteristics of the households affect the risk of poverty and material deprivation to a different extent, depending on the country. In other words, a certain "risk factor" may indeed be a very high determinant of poverty/deprivation in some countries, while may have only a mild effect in others. For example, a person who is unemployed will possibly always face a higher risk of poverty than a person who is employed, regardless of the country. However, the relative risk (as, for example, expressed by the odds ratios) may vary across the countries. The main goal of this paper is to explore these cross-national differences in the relative importance of risk factors and try to organize the countries in some way using relevant characteristics of the welfare systems. Specifically, I will consider the following variables to map the countries according to their performance:

Classification of welfare regimes

The classification of the welfare regimes as entities sharing common characteristics in terms of social policy instruments, social intervention strategies and institutional framework may be a useful tool to explore the cross-national differences. I use the version where the four groups of the countries are distinguished: *social-democratic* (Denmark, Finland and the Netherlands), *conservative* (Austria, Belgium, France, Germany and Italy), *liberal* (the UK and Ireland) and *southern* (Greece, Portugal and Spain). This version of the classification scheme based on the original work of Esping-Andersen (Esping-Andersen, 1990, 1999) proved to be useful in explaining poverty and material deprivation (e.g. Muffels & Fourage, 2003). We would expect that in the regimes that provide more abundant and more universal social intervention the relative risk of income poverty and material deprivation will be lower, than in the countries where the intervention is targeted only at specific groups or situations or where is simply only of a residual form. Therefore, the following hypothesis will be tested:

<u>Hypothesis 1:</u>

Regardless of the determinant of poverty/deprivation examined, the following order of the regime types should be found with regard to the relative importance (the strength of the negative effect) of the risk factor: social-democratic regime (where the relative risks should be lowest), conservative regime, liberal regime and southern regime (with highest relative risks).

GDP per capita

GDP per capita in Purchasing Power Standards (PPS) is a general measure of the size of economy and is intended to capture the cross-national differences in the wealth, and – indirectly – the overall standard of living. An expectation here is that the risk factors in the countries with higher GDP per capita should matter less. Therefore, we can formulate the following hypothesis:

Hypothesis 2:
For all risk factors, in the countries with higher GDP per capita they relative effect should be less negative than in the countries with lower GDP per capita.

Total social expenditure
Total social expenditure as a percentage of GDP is intended to measure a general degree of social protection available in the country. We would expect that the more is spent on social protection, the less negative should be the effects of the risk factors. Therefore, the next hypothesis is:

Hypothesis 3:
In the countries with higher total expenditure, all the examined factors are associated with lower relative risk of poverty than in the countries where the social expenditure is lower.

Targeted social protection
In addition to the total social expenditure, I will test the relevance of some more targeted indicators of social spending with respect to specific risk factors. We would expect that the more is spend at protection against risk associated with a specific factor, the less negative should be the relative effect of this factor. Specifically, I will consider four versions of the hypothesis:

Hypothesis 4:
In the countries with the higher percentage of GDP spent on:

a) Family/child benefits;
b) Unemployment benefits;
c) Old age benefits;
d) Sickness/disability benefits;

we observe a lower relative risk of poverty/deprivation for :

a) single parents households and households with three or more children;
b) households where the head is unemployed;
c) households where the head is retired;
d) households where the head reports (very) bad health;

than in the countries where the lower percentage of GDP is spend on these goals.

A secondary goal of the paper is to explore the differences between different dimensions, or different formulations, of poverty. The concept of poverty employed in the paper is a multidimensional one – in addition to income poverty, other, more direct indicators of material deprivation are taken into account. Specifically, on the basis of previous work (e.g. Whelan et al. 2001, Barnes et al. 2002) I am considering three dimensions of living-standard deprivation: *Basic Necessities*, *Consumer Durables* and *Housing Quality*. The three dimensions of deprivation have also been combined into a single indicator, which I simply call (overall) material deprivation indicator. Previous research has shown (e.g. Whelan et al. 2004) that the dimensions of living-standard deprivation are correlated with income to a various extent and that the decreasing order is: basic necessities dimension, consumer durables dimension and housing quality dimension. This is a reasonable result as we could expect that current level of income will have an immediate effect in terms of the current life-style deprivation as Whelan et al. call it, while housing quality for instance should be the

result of processes that are longer in time and not so strongly related to the current levels of income. Therefore, a general hypothesis concerning the dimensions of poverty is:

Hypothesis 5:
The policy interventions (as measured for instance by the social expenditure) should have more strong effects in the case of income poverty than in the case of material deprivation. And within the dimensions of material deprivation a general tendency should be to observe stronger effects in the case of basic necessities deprivation and consumer durables deprivation than in the case of housing quality deprivation.

3. Data and methods

The analysis in this paper is based on the European Community Household Panel (ECHP) data, a centrally coordinated survey of the fifteen pre-enlargement European Union countries. However, as not all necessary information was available for all the countries, only thirteen of the countries have been analysed here, namely: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, the Netherlands, Portugal, Spain and the United Kingdom. Furthermore, two of the countries: Germany and the United Kingdom are covered only partially, due to further incompleteness of the national datasets. All the eight waves of the survey have been used, covering the years 1994-2001.

Although issues directly related to changes over time are not of primary concern of this paper, the longitudinal nature of the data needs to be reflected by selection of an appropriate analytical method. Therefore, in the first step, a series of panel data models were estimated for each of the countries separately. The aim of this step is to provide a detailed description of the situation within each country before moving to analyses on a pooled dataset. The analyses in this step were performed using the Stata package and its procedure `xtlogit`.

Although all the variables considered in the paper are defined at the household level, the unit of analysis in this step is individual. It has been argued in the literature that the concept of longitudinal household is highly problematic due to its instability over time (cf. Muffels & Fouarge, 2004, Whelan et al. 2004). Therefore, all the household characteristics in a particular wave of the survey have been ascribed to the individuals constituting the household in this wave. Consequently, the individuals are tracked over time, and the characteristics of the household to which they currently belong are assigned to them in each point of time. This procedure effectively means that the results are weighted by the number of people currently residing in the household, and this weight can change over time depending on the changes in the household composition. This is a desirable propriety, as we are eventually interested in looking at people, rather households, affected by poverty.

In the second step, all the countries were pooled together and multilevel analyses were carried out using the MlwiN software. I am considering two level (cross-sectional) models with country being the higher and the household - the lower level. In this step, the data from the 3rd wave of the ECHP have been used. The reason for selecting this particular wave is that only for the first three waves of the panel full information about all the poverty and deprivation dimensions was available for the United Kingdom and Germany. Therefore, due to a limited number of countries available, I prefer to use older data containing more countries over a newer data with fewer countries. In addition, making use of the 3rd wave of the panel instead of 7th or 8th effectively limits the problems concerning attrition.

Table 1 shows the total sample size in each of the countries: in the first two columns we can see the size of the sample that was used for the panel data models: the total number of persons (unit of analysis), and the number of households that they have formed, pooled across the years. The number of households is very important in this context - as this is the real size

of the sample from which we have independent observations, the standard errors estimated by all the regression models have been adjusted to take the clustering into account. The last column of Table 1 shows the sample size for the multilevel models estimated in the second step – the number of households from the 3rd wave of ECHP for which we have had the relevant information on all the variables.

Table 1. Total sample sizes by country

Country	Persons-years	Households-years	Households – wave 3
Austria	58,231	20,777	3,292
Belgium	61,374	23,627	3,210
Denmark	49,772	21,868	2,955
Finland	57,187	22,206	4,139
France	125,966	49,008	6,600
Germany	124,126	48,030	4,593
Greece	107,451	36,285	4,907
Ireland	77,372	22,568	3,173
Italy	157,432	52,687	7,132
Portugal	100,855	39,995	5,179
Spain	114,334	38,094	4,849
The Netherlands	145,296	46,790	6,267
United Kingdom	101,212	39,790	3,775
Total	**1,407,868**	**510,796**	**61,004**

4. Variables included in the analyses

There are several dependent variables analyzed in the paper, they are constituted by different definitions of poverty. As mention before, in addition to income, I am considering three dimensions of living-standard deprivation: basic necessities dimension (inability to afford things like keeping home adequately warm, buying new clothes, replacing worn-out furniture, etc.), consumer durables dimension (enforced lack of items like a car, TV, telephone, etc.) and housing quality dimension (housing deterioration) as well as an indicator of overall deprivation. All indicators have been dichotomized to the form where 1 means poor/deprived and 0 means non-poor/non-deprived. The set of questions used to construct a specific dimension and the methods used to dichotomize the indicators can be found in the Appendix.

The choice of independent variables tested as potential determinants of poverty/deprivation was crucial from the point of view of this paper. The set of independent variables has been chosen following theoretical consideration and the results of previous research. It should be remembered however, the potential options are determined by the contents of the dataset and, as is often the case, not all the variables that could be theoretically considered are available in practice. As both income poverty and material deprivation are measured at the household level, all the potential determinants need to be defined at (or aggregated to) the household level. Earlier research has shown (Whelan et al., 2002) that the characteristics of the household can be adequately summarized by the characteristics of the household reference person (subsequently referred to as the household head). Household head in the ECHP is the person responsible for the accommodation, or in the case where more than one person is responsible - the oldest of them.

The independent variables of interest, tested as potential determinants of income poverty and living-standard deprivation were:

- **Household composition:** The household composition can have crucial impact on the other hand on household's needs and consumption patterns (e.g. the number of children), and on the potential level of resources available (e.g. the number of adults

able to participate in the labour market). I distinguish between the following types of the households: single adult without children; single adult with one or more children; two adults without children; two adults with one or two children *(the reference category)*, two adults with three or more children; other households;

- **Main activity of the household head**: This variable actually combines two variables: main activity of the household head and the job status if the head is gainfully employed. The job status has been constructed using the scale available in the ECHP data, which is an aggregated version of the International Standard Classification of Occupation (ISCO-88) schema. I distinguish between four categories (provided that the head is employed): *high job status* – legislators, senior officials, professionals, technicians and associate professionals, *higher-medium job status* – clerks and service workers, *lower-medium job status* – skilled workers, *low job status* – unskilled workers. Main activity of the household head is expected to have a crucial influence on the resources (particularly income) that the household can generate. In total ten categories are considered: paid employment high status *(the reference category)*; paid employment higher-medium status; paid employment lower-medium status; paid employment low status; self-employed, still in education; unemployed; retired; housewife; other;
- **The level of general education completed**: This variable, also defined for the household head is assumed to have a strong effect on ability to acquire resources but also on needs and consumptions pattern. The information available in the ECHP is based on the International Standard Classification of Education (ISCED). Three levels of the variable are distinguished: *high* - 3rd level of education (ISCED 5-7); *medium* - 2nd stage of secondary education (ISCED 3-4) *(the reference category)*; *low* - less than 2nd stage of second level (ISCED 0-2);
- **Health status of the household head** – Bad health is expected to have a significant impact both on the ability to generate the resources and on the level of needs (for example, it may lead to higher expenses in terms of health care and medicines). This characteristic is represented by a binary variable indicating whether household head reports bad or very bad health;
- **Age of the household head**: The age can be another a factor that influences the potential input side the household (the level of resources available in the household) and to alternate the needs and consumption patterns within household. Three categories have been distinguished: less than 30 years old; 31-64 years old *(the reference category)*; 65 years or older;
- **Previous unemployment history**: Previous research (e.g. Whelan et al., 2004) has shown that not only current employment status but also previous unemployment experience may influence the risk of both income poverty and material deprivation. For each wave of the ECHP the information is available whether a person had been unemployed during the 5 years prior to the given wave. This information, in the form of a binary indicator has been assigned to each of the household heads (1 meaning experience of unemployment);
- **Gender of the household head** – Due to the income gap between the genders a binary indicator has been included to capture the potential effect (0 - male, 1-female);
- **Marital status of the household head**: Marital status has been included mainly to control for the position in the life-cycle; three categories have been distinguished: married *(the reference category)*; divorced or separated or widowed; never married;
- **Migration status** – Migration literature points at the lower socio-economic position often experienced by migrants in Western societies. To control for this effect a

binary variable indicating whether the household head is a migrant has been constructed (1 indicating a migrant);

- **Tenure status** – Earlier research (e.g. Berthoud et al., 2004) has pointed that it is important to distinguish between the cases where the accommodation is owned and where is rented. Although it is not my intension to think of this variable as of a "determinant of poverty" or a "risk-factor" in a strict sense because it is itself a function of the resources that have been accumulated in the past, controlling for this variable is desirable because it may affect both the level of disposable income (through the costs that are associated with renting versus owning a house) and the standard of living (for example, we can suspect that the possession of various consumer durables and overall housing quality may depend on this variable).

As all the variables are categorical, the results given by the regression models always refer to the odds with respect to a reference category. For all the variables, the most common category was chosen as the reference category. They are especially important from the perspective of the paper, as the risk of poverty/ deprivation is always understood in relative terms, i.e. is contrasted with the situation of these reference categories. It is particularly important to remember them, because of the way in which the findings are presented in this paper. Specifically, always - regardless the model being estimated – all the dependent variables were entered into regression equation in a single step. However, I will present the findings only for selected categories of the selected variables only – those which, on the one hand, most strongly affect the risk of falling into poverty/deprivation and, on the other, are most important from the point of view of social policy.[2] These are the risk factors that I will focus on in this paper, the other categories and variables are treated as controls. Just to remind these selected characteristics at which I will focus are: the households composed of 1) a single adult with dependent children, 2) two adults with three or more dependent children; and the households where the head: 3) a low skilled worker; 4) is still in education; 5) is unemployed; 6) is retired; 7) has a low level of education; and 8) reports bad or very bad health.

Finally, a couple of words need to be said about the terminology I will be using throughout the paper. To simplify the things, I will sometimes call the households where the head is 65+ "the elderly households" instead of "the household where the head is an elderly person", or "young households" instead of "the households where the head is young", but the meaning is always the latter. The same rule applies to the household composition variable: for example, I occasionally name the "2 adults with 3 or more children" as "couples with 3 or more children" to simplify the description and make it les monotonous. Nevertheless, they always refer only to the categories precisely defined in the description of variables above. On the other hand, there are strong empirical relationships that justify to some extent the less precise terminology. For instance around 80-90% of the households where the head is older consists of a single older person or two older persons, or 80-90% of the households where the head is still in education consist of a single person still in education or couples where both are in education, etc.

5. Relative importance of the risk factors in particular countries

All the results presented in this section have been based on the analyses performed for each country separately. The aim of this step is to get a picture of the cross-national differences in the relative risk associated with the specific determinants of poverty/material deprivation before pooling the countries together.

[2] The full results are available from the author upon request.

In this step, I have estimated five separate models for each country: all of them were logistic random effects panel regression models with the same sets of explanatory variables. However, each time different dependent variable dimension was modelled to reflect different possible definitions and interpretations of the concept of poverty. These were in a row: income poverty, aggregated material deprivation, basic necessities deprivation, consumer durables and finally housing quality deprivation. In other words each time we act as if poverty was defined in a different way, for example as we meant by poverty lack of income or low score at the consumer durables deprivation index, etc. This analysis aims to explore the two issues highlighted before: firstly, cross-country and secondly, cross-dimensional differences in the risk factors associated with poverty.

Table 2 presents the selected results of the logistic panel regressions models. Only selected and rearranged information is presented here: to facilitate the interpretation, I combined the results from the estimation of all five different models (relating to five different specifications of poverty/deprivation). As mentioned before, only the coefficients for selected risk factors are presented, while the other independent variables serve as controls. We need to remember that the coefficients shown in the Table 2 must be always interpreted in reference to the relevant reference category (as described before).

Another important remark concerning the interpretation needs to be made here. When examining the coefficients, especially making cross-national comparisons, we need to remember that the approach taken in the analysis is purely relative. In other words, the higher relative chances of falling into income poverty or material deprivation for the single parent households in Nordic countries does not indicate that these households are worse off in an objective sense than the same households in say, Southern Europe. It simply means that the situation of these households is much worse than the situation of the reference category household in the same country and consequently high odds may be produced by particularly low poverty/deprivation rates of the reference category households in a particular country. On the other hand, if the goal of a policy is to ensure equal distribution of resources, examining odds is meaningful. It does also make sense here, as we have agreed on a relative definition of poverty, which classifies as poor those people who are in a (much) worse situation than a majority of the people *in the country where they live*.

In the case of single parent households, we observe that the risk of income poverty is significantly higher than for the reference category in all the countries with the exception of Italy. But what is important from the perspective of this paper, the relative strength of the effect varies across the countries. Generally, the strongest effects on income poverty are estimated in Denmark, Austria and Finland. As for the material deprivation, the strongest relative risk of poverty face single parents households in Denmark, the Netherlands (particularly in terms of basic necessities and consumer durables), Finland (especially in terms of consumer durables) and Ireland. As for the housing quality deprivation, the estimated effects are much weaker. Nevertheless, we can see that the single-parent households face (controlling for other variables) substantially higher risk of housing hardship in Italy and Ireland.

In the case of households with 3 and more dependent children, we generally observe higher (or in few cases not significantly different) risks (comparing to the reference category) of both income poverty and living-standard deprivation in all the countries, but the cross-national variation is less visible than it was the case with single parent households. The only exceptions from this general rule are lower consumer deprivation risks for the households with three or more children in Austria and Greece.

Table 2. Panel logistic regression coefficients of the selected risk factors on income poverty (*Inc*), aggregated material deprivation (D), basic necessities deprivation (*D1*), consumer durables deprivation (*D2*) and housing quality deprivation (*D3*); models with control variables.

		AT	**BL**	**DK**	**FIN**	**FR**	**GER**	**GR**	**IRL**	**IT**	**NL**	**PT**	**SP**	**UK**
1 adlt + children	*Inc*	*2.22**	*0.83**	*2.46**	*2.26**	*0.04*	*1.63**	*0.86**	*3.46**	*0.37**	*-0.05*	*2.16**	*0.12*	*0.82**
	D	*0.35*	*0.52**	*1.51**	*0.63**	*0.53**	-	*0.30**	*0.14*	*0.29**	*0.99**	*0.43**	*0.54**	*0.27*
	D1	*0.58**	*0.73**	*0.86**	*-0.44**	*0.28**	-	*0.48**	*-0.58**	*0.85**	*0.90**	*1.01**	*0.22**	*0.82**
	D2	*0.28*	*0.31*	*1.11**	*1.85**	*0.52**	-	*-0.68**	*-0.55**	*-0.18*	*1.10**	*-0.44**	*0.24**	-
	D3	*-0.10*	*0.00*	*0.56**	*0.03*	*0.19*	*-0.03*	*0.64**	*0.38**	*0.64**	*-0.48**	*0.94**	*0.41**	*-0.46**
2 adlts+ 3 or more chldrn	*Inc*	*0.76**	*0.59**	*-0.23*	*0.42**	*0.33**	*0.94**	*-0.06*	*0.16**	*0.43**	*0.18**	*1.04**	*0.44**	*1.28**
	D	*0.49**	*0.41**	*1.08**	*0.21*	*0.19*	-	*0.08*	*0.70**	*0.51**	*0.19*	*0.80**	*0.67**	*0.30**
	D1	*0.17*	*0.66**	*0.68**	*0.86**	*-0.09*	-	*0.32**	*0.35**	*0.28**	*0.14*	*0.54**	*0.65**	*0.19**
	D2	*-0.29**	*0.74**	*0.75**	*-0.44*	*0.39**	-	*-0.20**	*0.55**	*0.48**	*0.76**	*1.29**	*0.42**	-
	D3	*0.51**	*-0.12**	*1.39**	*0.19*	*0.54**	*0.78**	*0.86**	*0.17*	*0.93**	*0.64**	*0.62**	*0.20**	*0.17*
Paid work low status	*Inc*	*0.95**	*1.24**	*0.97**	*1.09**	*1.26**	*0.57**	*1.19**	*1.31**	*1.16**	*1.25**	*0.95**	*1.29**	*0.63**
	D	*0.94**	*0.39**	*1.22**	*0.21*	*1.70**	-	*1.09**	*1.79**	*0.36**	*0.72**	*1.51**	*1.08**	*0.54**
	D1	*0.41**	*0.28**	*0.60**	*0.10*	*1.07**	-	*0.52**	*0.63**	*0.49**	*1.26**	*0.31**	*0.89**	*0.61**
	D2	*0.74**	*0.81**	*0.56**	*0.83**	*1.20**	-	*0.10*	*0.79**	*0.38**	*0.77**	*0.77**	*0.77**	-
	D3	*0.90**	*0.53**	*0.01*	*0.06*	*0.52**	*0.43**	*0.70**	*0.72**	*-0.09*	*0.72**	*1.03**	*0.32**	*-0.31**
Still in education	*Inc*	*2.11**	*2.55**	*2.25**	*2.56**	*3.43**	*2.13**	*2.27**	*2.79**	*3.05**	*2.97**	*1.97**	*2.02**	*2.05**
	D	*1.28**	*1.81**	*2.10**	*1.34**	*0.65*	-	*0.82**	*2.32**	*0.77**	*2.01**	*1.39**	*1.39**	*1.27**
	D1	*1.70**	*2.19**	*1.54**	*2.11**	*2.14**	-	*0.18*	*1.47**	*1.00**	*2.37**	*0.43*	*1.07**	*1.52**
	D2	*0.76**	*2.92**	*1.51**	*1.81**	*0.92*	-	*1.43**	*2.50**	*1.36**	*1.69**	*-0.68**	*0.85**	-
	D3	*0.20*	*0.83*	*0.12*	*0.25*	*-2.77**	*0.73**	*-0.54*	*1.09**	*-1.95**	*0.54**	*0.36*	*0.59**	*0.04*
Unemployed	*Inc*	*1.22**	*2.95**	*1.09**	*1.73**	*1.93**	*1.71**	*2.34**	*1.91**	*2.29**	*1.55**	*1.76**	*1.98**	*1.18**
	D	*1.20**	*1.52**	*1.83**	*1.71**	*2.89**	-	*1.71**	*2.95**	*1.39**	*1.63**	*1.94**	*1.75**	*1.74**
	D1	*1.02**	*1.49*	*1.32**	*1.92**	*1.85**	-	*1.34**	*1.59**	*1.41**	*2.55**	*0.90**	*1.38**	*1.56**
	D2	*0.83**	*1.89**	*0.97**	*1.41**	*1.77**	-	*0.50**	*1.89**	*0.93**	*1.10**	*0.69**	*1.20**	-
	D3	*0.47**	*0.74**	*0.00*	*0.43**	*0.45**	*1.06**	*0.83**	*1.30**	*0.21*	*0.36**	*1.22**	*0.58**	*0.47**
Retired	*Inc*	*1.13**	*2.37**	*1.99**	*1.41**	*1.70**	*0.88**	*2.35**	*1.96**	*1.42**	*1.76**	*1.77**	*2.18**	*1.50**
	D	*0.39*	*0.55**	*1.56**	*0.71**	*1.31**	-	*0.90**	*1.39**	*-0.03*	*1.30**	*1.63**	*1.71**	*0.44**
	D1	*0.60**	*0.59**	*1.58**	*1.19**	*0.53**	-	*0.68**	*0.01*	*0.24**	*0.63*	*0.58**	*1.32**	*0.64**
	D2	*0.25*	*1.19**	*0.54**	*0.77**	*1.15**	-	*0.21**	*0.84**	*-0.09*	*1.98**	*0.66**	*1.39**	-
	D3	*0.26*	*0.28*	*-0.19*	*-0.09*	*0.55**	*0.75**	*0.58**	*0.39**	*-0.40**	-	*1.20**	*0.96**	*-0.71**
Low level of education	*Inc*	*0.70**	*0.35**	*0.54**	*0.42**	*0.32**	*0.89**	*0.71**	*0.47**	*0.79**	*0.10*	*0.96**	*0.52**	*0.35**
	D	*1.15**	*0.52**	*0.44**	*0.67**	*-0.16**	-	*0.93**	*1.27**	*1.26**	*-0.19*	*1.19**	*0.93**	*0.46**
	D1	*0.55**	*0.38**	*0.41**	*0.46**	*-0.20**	-	*0.56**	*0.59**	*0.63**	*-0.63**	*1.04**	*0.51**	*0.15**
	D2	*0.64**	*0.48**	*0.41**	*0.49**	*-0.20**	-	*0.44**	*0.80**	*0.67**	*-0.79**	*1.08**	*0.75**	-
	D3	*0.58**	*0.33**	*0.51**	*0.70**	*0.04*	*0.20**	*0.91**	*0.70**	*0.63**	*-0.18**	*1.03**	*0.43**	*0.41**
Bad Health	*Inc*	*0.29**	*0.01*	*0.24**	*0.04*	*0.24**	*0.23**	*0.16**	*-0.25**	*0.04*	*0.31**	*0.28**	*0.16**	*0.07*
	D	*0.75**	*0.91**	*0.25*	*1.26**	*0.76**	-	*0.69**	*0.87**	*0.73**	*0.31**	*0.44**	*0.63**	*0.24**
	D1	*0.62**	*1.01**	*0.65**	*0.72**	*0.51**	-	*0.58**	*0.58**	*0.57**	*0.71**	*0.47**	*0.46**	*0.57**
	D2	*0.44**	*0.67**	*0.03*	*0.82**	*0.83**	-	*0.27**	*0.73**	*0.40**	*-0.27*	*0.15**	*0.38**	-
	D3	*0.65**	*0.43**	*0.19*	*0.67**	*0.28**	*0.12*	*0.63**	*0.76**	*0.56**	*0.04*	*0.60**	*0.49**	*-0.06*

Source: ECHP, wave 3, the reference categories are: Household composition: 2 adults and 1-2 dependent children; Main activity of the household head: employed in a job of a high status, Education of the household head: medium, Health status reported by the household head: good; the other control variables are: tenure status, marital status of the household head, age of the household head, gender of the household head, and whether the household head had been unemployed during the last five years before the survey.

The effect of a household head being a low skilled worker varies depending on poverty or deprivation definition employed. When the income poverty is considered, the cross-country variation in the effects is rather moderate. This is somewhat different when the deprivation is being modelled – the cross country differences in the effect sizes seem to be bigger, especially when the specific dimensions of deprivation serve as dependent variables. Here, we have more insignificant coefficients, indicating that the household where the head has a lower-status job are not in a higher risk of material deprivation than the households with the head having the highest job status. However, the pattern of cross-country differences is difficult to classify just looking at the results in Table 2. These patterns will be explored more formally in the next section, where a multilevel approach with three levels will be employed.

The households where the head is still in education are clearly very vulnerable group both in terms of income poverty and living-standard deprivation in all the countries. Nevertheless, we can still observe a substantial cross-national variation in the strength of the effect. Interestingly, this particular type of households seems to be less affected by the housing problems than the other types of deprivation, particularly in France and Italy we observe a strong negative effects. This may reflect the situation of students living in a student accommodation that are centrally maintained (e.g. by a university) or still staying with their parents even though constituting a separate households.

The situation of households where the head is unemployed is quite similar to the case where the head is a student. However, quite interestingly, in this case the relative risk of material deprivation is often higher than the risk of income poverty. The same situation can be observed in the cases where the head of the household is retired. In both cases the cross-national differences seem to be rather substantial, nevertheless it is quite hard to discern clear cross-national patterns just by looking at the coefficients. These patterns will be examined more systematically in the next section.

The main conclusion from the discussion on the importance of main activity status is that still the best protection against both poverty and material deprivation is a gainful employment; the status of the job does not matter that much. As expected, in all the types of households we observed relatively higher risk of income poverty and material deprivation than in the reference category households, which was the household where the head has a high-status job. However the vulnerability of the households where the head does not work was much higher than the households where the head works, even if the job is of a low status.
If we compare the households where the head is out of the labour market, we can see that in majority of the countries those with the heads either retired or unemployed are less prone to income poverty than those where the head is still in education. However, if we look at the material deprivation indicators, it is actually the case that the households where the head is still in education are less at risk than the households where the head is retired or unemployed. This may indicate that possible benefits (related to unemployment or old age) although may provide certain protection against income poverty, do not protect against material deprivation. This rather pessimistic conclusion may be seen as an indirect support for the hypothesis 5, that the welfare regime interventions will have stronger effect on the disposable levels of income than on the actual standard of living.

As for the level of education, we can see that – unsurprisingly – lower education of the household head is a significant predictor of the poverty and deprivation, when other household characteristics are being controlling for. Still, there seems to be quite interesting cross-national variation in the magnitude of the effects, with countries like the UK, Denmark or Austria where the education seems to matter less and countries like Portugal, Ireland and France, where the level of education makes a lot of the difference. The effects in the case of income poverty and deprivation are quite close in the majority of countries, so in the case of this characteristic, the definition of poverty does not change a lot.

Finally, we can generally say that a bad health is always a factor pushing into poverty, regardless of the country. However, we can notice that the effect on income poverty is always weaker than on the living standard deprivation indices. This may be an indication that even if ill or disabled people do not suffer from income poverty, their living standard is worse than this of the healthy people with the same income, due to their higher needs (medicines, professional care, etc.). This seems to be quite a universal pattern, as the cross-national variation in the magnitude of the effect is rather moderate.

6. Modelling cross-national variability in the gradient of the determinants of poverty and deprivation

Although analysing countries separately has its own advantages, it is quite difficult to discern the cross-national patterns with as many as 13 countries. For this reason, in the next step the data from all the countries have been pooled together and multilevel models have been employed to explore the cross-national relationships. I construct a two level cross-sectional model with country being the higher and the household - the lower level.

The main goal of this section is to try to capture complex cross-national patterns in the differences of the relative importance of the risk factors using the country-level variables outlined before. Just to remind, these are: the regime type clusters based on the Esping-Andersen's idea, GDP per capita in PPS, the total social expenditure as a percentage of GDP, and a share of GDP spend on: unemployment benefits, old age/survivors' benefits and sickness/disability benefits. The first three country-level variables will be used to model all the risk factors under investigation, while the last three variables (targeted social expenditure) will be used to model the relevant risk factors (e.g. expenditure on unemployment benefits to model the effect of unemployment on the poverty/deprivation)

6.1. Assessing cross-national variability in the gradient of risk factors

In this introductory step, I estimated a number of multilevel models proceeding in the following fashion: for each dependent variable (poverty/deprivation dimension) I inserted the full set of explanatory variables and let the coefficients of risk-factors of interest to vary across countries one-by-one. In other words, in any single model, only one slope was random – this of a given risk factor, while coefficients of other variables were held fixed across countries and they were treated as controls. The aim of this step is to assess more formally, using the multilevel framework, which of the effects indeed vary across countries. Furthermore, by examining the covariance between random intercept and random slopes we can gain an additional insight into the relation between the magnitude of the effect of a given risk factor and the risk of experiencing poverty/deprivation by the reference category household (represented by the random intercept).

The results of this procedure are presented in the Table 3; as before – only the coefficients for the risk factors of interest have been shown here, the coefficients of the control variables are not presented. Table 3 shows the fixed part of the coefficient of a given risk factor (*Beta*), which may be interpreted as the average effect across countries; the variance of the random slope across countries and its covariance with the random intercept. In each cell of the table, alongside the coefficients, their standard errors are reported in brackets. Those pairs where the magnitude of the effect is at least twice as high as its standard error have been highlighted using bolder font.

When we look at the households composed of a single adult with children, we can say that the effect varies significantly across countries in the case of income poverty, overall deprivation and basic necessities deprivation. The covariance between the random slope and the random intercept is significant at the 0.05 level only in the case of basic necessities deprivation. However, as it is hard to obtain high levels of significance due to a low number

of countries we may want to look at the general tendencies rather than strictly applying the conventional criteria. In this sense, we can see that also in the case of overall deprivation (and – to a lesser extent – consumer durables deprivation) the covariance is quite high compared to its standard error, while there is clearly no correlation between the random slope and intercept in the case of income poverty. The negative covariance in the case of deprivation indicates – quite surprisingly - that the relative risk of material deprivation for the single parent households is higher in the countries where the overall risk of deprivation is lower[3].

Table 3. Fixed and random effects (and their standard errors) of the risk factors for five dependent variables: income poverty, overall deprivation, basic necessities deprivation, consumer durables deprivation and housing quality deprivation (random slopes and intercepts multilevel models).

	Income poverty	Overall deprivation	Basic necessities	Consumer durables	Housing quality
1 adlt + chldrn					
Beta	**0.645 (0.158)**	**0.591 (0.138)**	**0.550 (0.149)**	**0.696 (0.103)**	**0.272 (0.097)**
Cov z intcpt	-0.006 (0.051)	**-0.127 (0.071)**	-0.189 (0.096)	-0.083 (0.063)	-0.017 (0.049)
Var(slope)	**0.268 (0.116)**	**0.201 (0.088)**	**0.257 (0.107)**	0.068 (0.040)	0.024 (0.026)
2 adlts + 3+ dep chld					
Beta	**0.672 (0.206)**	**0.633 (0.085)**	**0.649 (0.063)**	**0.307 (0.171)**	**0.563 (0.138)**
Cov z intcpt	0.105 (0.074)	0.004 (0.038)	0.000 (0.000)	0.079 (0.112)	-0.141 (0.098)
Var(slope)	**0.501 (0.222)**	0.027 (0.035)	0.000 (0.000)	0.270 (0.149)	0.127 (0.094)
Empl low stat					
Beta	**0.867 (0.137)**	**0.804 (0.090)**	**0.719 (0.065)**	**0.692 (0.125)**	**0.372 (0.081)**
Cov z intcpt	-0.038 (0.043)	-0.018 (0.033)	-0.015 (0.028)	0.101 (0.073)	0.000 (0.000)
Var(slope)	**0.154 (0.073)**	0.042 (0.026)	0.015 (0.013)	0.120 (0.061)	0.000 (0.000)
Still in education					
Beta	**2.860 (0.224)**	**1.511 (0.237)**	**1.243 (0.257)**	**1.421 (0.203)**	**0.483 (0.202)**
Cov z intcpt	-0.122 (0.082)	-0.252 (0.128)	-0.156 (0.145)	**-0.357 (0.160)**	**-0.355 (0.154)**
Var(slope)	0.399 (0.220)	0.508 (0.264)	0.603 (0.317)	**0.350 (0.186)**	0.247 (0.175)
Unemployed					
Beta	**2.056 (0.204)**	**1.777 (0.129)**	**1.707 (0.151)**	**1.341 (0.121)**	**0.718 (0.107)**
Cov z intcpt	-0.053 (0.065)	**-0.137 (0.067)**	**-0.143 (0.090)**	-0.064 (0.070)	-0.084 (0.059)
Var(slope)	**0.456 (0.191)**	**0.151 (0.071)**	**0.253 (0.110)**	0.101 (0.054)	0.034 (0.033)
Retired					
Beta	**1.582 (0.154)**	**0.828 (0.120)**	**0.732 (0.115)**	**0.699 (0.161)**	**0.438 (0.155)**
Cov z intcpt	-0.039 (0.049)	0.082 (0.045)	0.062 (0.055)	0.050 (0.092)	0.199 (0.110)
Var(slope)	**0.222 (0.092)**	**0.123 (0.054)**	**0.128 (0.055)**	**0.246 (0.107)**	**0.229 (0.097)**
Low education					
Beta	**0.739 (0.104)**	**0.670 (0.141)**	**0.609 (0.139)**	**0.542 (0.126)**	**0.448 (0.153)**
Cov z intcpt	-0.025 (0.031)	-0.047 (0.054)	-0.020 (0.062)	0.097 (0.061)	0.087 (0.066)
Var(slope)	**0.131 (0.055)**	**0.257 (0.104)**	**0.253 (0.100)**	**0.195 (0.082)**	**0.289 (0.120)**
Bad health					
Beta	**0.266 (0.076)**	**0.796 (0.041)**	**0.819 (0.049)**	**0.406 (0.127)**	-
Cov z intcpt	0.028 (0.025)	0.015 (0.018)	-0.004 (0.026)	0.044 (0.082)	-
Var(slope)	0.052 (0.029)	0.003 (0.006)	0.013 (0.011)	**0.174 (0.083)**	-

Source: ECHP, wave 3, the control variables are: household composition reference categories are: Household composition: 2 adults and 1-2 dependent children; Main activity of the household head: employed in a job of a high status, Education of the household head: medium, Health status reported by the household head: good; the other control variables are: tenure status, marital status of the household head, age of the household head, gender of the household head, and whether the household head had been unemployed during the last five years before the survey.

[3] Strictly speaking it indicates that the relative risk of material deprivation for the single parent households is higher in the countries where the risk of deprivation for *the reference category household* is lower, where the reference category household is: 2 adults +1-2 children, owning an accommodation, where the head is employed in a job of a high status, has a medium level of general education, is married, is 30-64, has not been unemployed in the 5 years prior to the survey, is male and reports a good health status. However, as the model imposes fixed effects of the other variables across countries, the risk of poverty/deprivation for other households will increase/decrease proportionally in every country preserving the ordering of the countries.

In the case of couples with more than two children, we can see that the gradient varies across countries only in the case of income poverty. Also, there is some indication that - contrary to what we observed in the case of single parents with children – there is a positive correlation (although again, not significant at the conventional 0.05 level) between the random slope and intercept. This would indicate that the "negative premium" for the parents with 3 or more children is higher in the countries where the overall risk of income poverty is higher.

Examination of the variance of random slope indicates that the effect of the household head being a low-skilled worker varies across countries in the case of income poverty and, perhaps, consumer durables deprivation. There is no evidence of a significant correlation between random intercepts and slopes.

As for the households where the head is still in education, there is some indication of the strength of the effect varying across countries both in the case of poverty and deprivation. However, the variance of the random slope is of a borderline significance at the conventional significance levels. Conversely, we have quite strong evidence of the negative correlation between the random slope and intercept – particularly in the case of consumer durables and housing quality deprivation, but also in the case of overall deprivation and – to a lesser extent – income poverty. The conclusion is that the negative effect of belonging to a household where the head is still in education (rather than employed in a job of a high status) is higher in the countries where the overall risk of the deprivation (poverty) is lower.

A similar tendency can be noticed in the case of the households where the head is unemployed: the gradient varies across the countries and – particularly in the case of material deprivation – the random slope and intercept are negatively correlated indicating that the relative risk of deprivation is higher for this type of households in the countries where the general risk of deprivation is lower.

A different pattern can be observed in the case of the household where the head is retired. Here, we can see a positive covariance (although on the verge of the conventional 0.05 significance level) between the random intercept and slope in the case of material deprivation; particularly – housing quality deprivation. Therefore, the risk of material deprivation for the household where the head is retired is relatively higher in the countries where the overall levels of deprivation are higher.

In the case of the low education of the household head, the effect varies across the countries for both poverty and deprivation. However, there is no detectable correlation between random the strength of the effect and the overall risk of poverty/deprivation

An interesting conclusion can be reached in the case of a bad health status reported by the household head. Here, we have only an indication of the gradient varying across the countries only in the case of consumer durables deprivation (the model for the housing quality deprivation did not converge). But we can conclude that there is no evidence of cross-national differences in the strength of the effect both in the case of income poverty and material deprivation. Therefore, we can generally conclude that the bad health status is quite universal determinant both income poverty and material deprivation (and, as we have noticed before, much more important in the latter case).

The general conclusion from the analysis in this section is that there is evidence of cross-national variation in the relative risk associated with all the characteristics except of bad health, which seems to increase the risk of poverty – and even more deprivation – quite universally. Interestingly, we have found negative relationship between the random slopes and intercepts in the case of some factors (single parent households and the household head being unemployed or still in education), while in the case of others (household head retired or low educated) the correlation is positive. This indicates that there are differences in the cross-national patterns of association between the risk factors. We shall explore these differences in a greater detail in the subsequent sections.

6.2. The relevance of welfare regime clusters

This section uses a typology of the welfare regimes based on Esping-Andersen concept as to map the differences in the relative importance of the risk factors of interest. For this purpose, four groups of countries have been distinguished: *social-democratic* (Denmark, Finland and the Netherlands), *conservative* (Austria, Belgium, France, Germany and Italy), *liberal* (the UK and Ireland) and *southern* (Greece, Portugal and Spain). For each dependent variable (poverty and deprivation dimension) a number of multilevel random-intercept model have been estimated. In the first step, I estimated random-intercepts models with all the household-level predictor variables and three dummy variables indicating country clusters (the conservative cluster has been chosen as the reference category). Next, in addition to all the variables introduced in the first step, I added in a row (one at a time) correlations between the regime clusters and a given risk factor. Table 4 shows the summary of the findings: in the top part we can find the coefficients of the regime cluster dummies estimated in the first step, the lower part of the table presents the interactions between the risk factors and regime dummies alongside the main effects of the regime dummies. As before, the standard errors of all the estimated coefficients have been reported in brackets and those coefficients that are at least twice as big as their standard errors have been highlighted using bolder font.

When we look at the estimates for the model without interaction terms, we can see that we have the same ordering of the clusters in the case of all poverty/deprivation dimensions, with the social-democratic countries being least and southern countries most affected by income poverty and material deprivation. As the number of countries analysed is rather small it is again hard to obtain statistically significant results (at conventional levels). However, we do find the difference between the social-democratic cluster and the southern cluster is always statistically significant. Moreover, the southern cluster differs significantly also from the other two clusters when the risk of material deprivation is considered (both overall and all the specific dimensions).

Nevertheless, it is not the goal of this paper to analyze in details the differences in overall risk of poverty/deprivation between the groups of countries. Therefore, I focus now on the interactions between the regime clusters and the risk factors, to examine in which clusters of countries, the specific risk factors are relatively more important than in the other clusters. This analysis brings a number of interesting findings.

Let us begin as usual with the household composed of a single adult with dependent children. In terms of income poverty, the negative signs of interaction coefficients suggest that these households face the highest risk in the conservative cluster (reference category). The difference is statistically significant only in the case of the southern cluster and of a borderline significance in the case of social-democratic cluster. Interestingly, when we look at material deprivation instead, we can see that the highest relative risk for the single parent households can be found in the social-democratic and liberal clusters, while the lowest in the southern cluster; the differences between clusters are in every case significant. Roughly the same pattern can be seen while the specific dimensions of deprivation are examined.

We can see quite opposite patterns when we look at the households consisting of two adults and more than two dependent children. Here we have the lowest relative risk of income poverty among these households in the social-democratic cluster, while the highest in the southern cluster. However, the differences in the risk of income poverty do not translate into the differences in the risk of overall material deprivation – there are no detectable discrepancies between the clusters of countries. Still interestingly, when we consider specific deprivation dimensions, we see that this type of households face significantly higher risk of consumer durables deprivation in the southern cluster than they do in the other regime types.

Table 4. Estimated coefficients (and their standard errors) of the risk factors and their interactions with regime cluster indicators for five dependent variables: income poverty, overall deprivation, basic necessities deprivation, consumer durables deprivation and housing quality deprivation (random intercepts multilevel models).

	Income poverty		Overall deprivation		Basic necessities		Consumer durables		Housing quality	
Random intercepts without interaction terms										
Social-democratic	-0.385 (0.206)		-0.165 (0.216)		-0.312 (0.317)		**-0.560 (0.261)**		-0.295 (0.316)	
Liberal	0.142 (0.236)		0.047 (0.249)		-0.162 (0.366)		0.184 (0.299)		0.059 (0.364)	
Southern	0.270 (0.204)		**0.806 (0.214)**		**0.703 (0.316)**		**1.052 (0.257)**		**1.147 (0.312)**	
Random intercepts with interaction terms										
	Main eff	Interact	Main eff	Interact	Main eff	Interact	Main eff	Interact	Main eff	Interact
1 adlt + chldrn										
Social-democratic	-0.369	-0.288	-0.230	**0.569**	-0.386	**0.704**	**-0.550**	-0.141	-0.325	0.340
	(0.206)	(0.166)	(0.216)	(0.134)	(0.319)	(0.122)	(0.264)	(0.179)	(0.317)	(0.209)
Liberal	0.139	-0.034	-0.037	**0.514**	-0.236	**0.483**	0.119	**0.338**	0.052	0.074
	(0.236)	(0.129)	(0.248)	(0.128)	(0.369)	(0.121)	(0.303)	(0.143)	(0.365)	(0.193)
Southern	0.304	**-0.425**	**0.839**	**-0.395**	**0.733**	**-0.388**	**1.090**	**-0.381**	**1.114**	0.045
	(0.203)	(0.108)	(0.213)	(0.102)	(0.318)	(0.093)	(0.260)	(0.109)	(0.313)	(0.134)
2 adlts + 3+ dep chld										
Social-democratic	-0.359	**-0.502**	-0.155	**-0.199**	-0.305	-0.127	**-0.550**	-0.293	-0.280	-0.338
	(0.207)	(0.221)	(0.217)	(0.200)	(0.317)	(0.167)	(0.261)	(0.331)	(0.317)	(0.285)
Liberal	0.147	-0.074	0.056	-0.152	-0.158	-0.062	0.188	0.005	0.087	**-0.535**
	(0.237)	(0.179)	(0.249)	(0.193)	(0.366)	(0.173)	(0.299)	(0.228)	(0.365)	(0.261)
Southern	0.262	0.343	**0.806**	0.068	**0.703**	0.003	**1.037**	**0.580**	**1.174**	**-0.799**
	(0.204)	(0.178)	(0.214)	(0.177)	(0.316)	(0.163)	(0.257)	(0.204)	(0.312)	(0.266)
Empl low stat										
Social-democratic	-0.327	**-0.659**	-0.155	-0.082	-0.298	-0.117	**-0.570**	0.089	-0.273	-0.204
	(0.209)	(0.166)	(0.217)	(0.135)	(0.317)	(0.114)	(0.260)	(0.177)	(0.317)	(0.206)
Liberal	0.175	**-0.370**	0.031	0.138	-0.157	-0.041	0.143	**0.328**	0.043	0.179
	(0.239)	(0.151)	(0.249)	(0.145)	(0.366)	(0.129)	(0.297)	(0.160)	(0.364)	(0.199)
Southern	0.300	**-0.324**	**0.784**	**0.185**	**0.708**	-0.043	**1.000**	**0.420**	0.166	-0.174
	(0.206)	(0.103)	(0.214)	(0.092)	(0.316)	(0.080)	(0.255)	(0.103)	(0.312)	(0.123)
Still in education										
Social-democratic	-0.393	-0.254	-0.203	**0.462**	-0.343	**0.564**	**-0.620**	0.368	-0.321	0.345
	(0.206)	(0.213)	(0.220)	(0.226)	(0.319)	(0.220)	(0.260)	(0.222)	(0.316)	(0.342)
Liberal	0.145	0.039	0.038	**0.942**	-0.171	**1.102**	0.182	0.230	0.061	-0.090
	(0.235)	(0.409)	(0.253)	(0.410)	(0.368)	(0.422)	(0.298)	(0.442)	(0.363)	(0.691)
Southern	0.290	**-1.648**	**0.819**	**-1.438**	**0.712**	**-1.124**	**1.072**	**-1.323**	**1.154**	-0.681
	(0.203)	(0.299)	(0.217)	(0.355)	(0.317)	(0.314)	(0.256)	(0.315)	(0.311)	(0.461)
Unemployed										
Social-democratic	-0.269	**-0.983**	-0.127	**-0.407**	-0.279	**-0.443**	-0.498	**-0.512**	-0.298	-0.022
	(0.203)	(0.143)	(0.213)	(0.129)	(0.321)	(0.127)	(0.263)	(0.157)	(0.314)	(0.192)
Liberal	0.137	-0.001	0.041	-0.053	-0.182	-0.012	0.208	-0.265	0.061	-0.042
	(0.232)	(0.150)	(0.245)	(0.156)	(0.371)	(0.159)	(0.301)	(0.164)	(0.362)	(0.215)
Southern	0.299	**-0.377**	**0.863**	**-0.710**	**0.754**	**-0.782**	**1.112**	**-0.628**	**1.167**	-0.262
	(0.200)	(0.111)	(0.210)	(0.109)	(0.319)	(0.109)	(0.258)	(0.114)	(0.310)	(0.146)
Retired										
Social-democratic	**-0.679**	**0.905**	-0.131	**-0.296**	-0.317	-0.127	-0.440	**-0.803**	-0.287	-0.286
	(0.216)	(0.100)	(0.219)	(0.106)	(0.323)	(0.089)	(0.269)	(0.166)	(0.306)	(0.171)
Liberal	-0.021	**0.405**	0.064	-0.147	-0.185	0.010	0.230	-0.181	0.051	-0.094
	(0.246)	(0.087)	(0.252)	(0.105)	(0.373)	(0.088)	(0.309)	(0.124)	(0.353)	(0.145)
Southern	0.015	**0.679**	**0.639**	**0.527**	0.491	**0.677**	**1.047**	0.022	**0.895**	**0.718**
	(0.212)	(0.062)	(0.216)	(0.063)	(0.322)	(0.056)	(0.265)	(0.073)	(0.302)	(0.081)
Low education										
Social-democratic	-0.342	-0.119	-0.041	-0.354	-0.159	**-0.419**	-0.369	**-0.535**	-0.267	-0.142
	(0.205)	(0.088)	(0.224)	(0.084)	(0.320)	(0.073)	(0.261)	(0.113)	(0.310)	(0.126)
Liberal	0.190	-0.054	0.090	-0.030	-0.075	-0.092	0.080	0.172	0.166	-0.112
	(0.236)	(0.087)	(0.262)	(0.095)	(0.371)	(0.082)	(0.305)	(0.112)	(0.360)	(0.128)
Southern	-0.184	**0.549**	0.196	**0.772**	0.059	**0.830**	**0.684**	**0.486**	**0.598**	**0.717**
	(0.209)	(0.082)	(0.226)	(0.076)	(0.321)	(0.066)	(0.260)	(0.082)	(0.309)	(0.097)
Bad health										
Social-democratic	-0.381	-0.062	-0.149	-0.153	-0.301	-0.112	-0.481	**-0.819**	-0.305	-0.011
	(0.205)	(0.139)	(0.217)	(0.129)	(0.317)	(0.117)	(0.265)	(0.202)	(0.309)	(0.205)
Liberal	0.142	-0.028	0.044	0.019	-0.167	0.041	0.200	-0.095	0.018	0.279
	(0.235)	(0.131)	(0.249)	(0.135)	(0.366)	(0.130)	(0.304)	(0.162)	(0.356)	(0.188)
Southern	0.234	**0.192**	**0.789**	0.089	**0.675**	**0.164**	**1.085**	**-0.204**	**1.047**	**0.532**
	(0.203)	(0.078)	(0.214)	(0.077)	(0.316)	(0.073)	(0.261)	(0.087)	(0.305)	(0.102)

Source: ECHP, wave 3; reference category: conservative cluster; the following household characteristics are controlled: household composition, tenure status, main activity status of the household head, level of general education completed by the household head, marital status of the household head, age of the household head, gender of the household head, health status reported by the household head and whether the household head had been unemployed during the last five years.

Furthermore, the two adults with three or more children face lower relative risk of housing quality deprivation in the southern and liberal clusters than in the conservative and social-democratic clusters.

As for the households where the head is a low skilled worker – again, they face the highest relative risk of income poverty in the conservative cluster, while the lowest – in the social-democratic cluster. However, when we look at the material deprivation, we can see that there is no difference (for this type of households) between the social-democratic, conservative and liberal regimes but the relative risk is higher for the southern countries (if we examine this in a greater detail, this is mainly due to a higher risk of consumer durables deprivation in the southern cluster).

When the households with the head still in education are examined the picture is rather different – the relative risk of income poverty is lower in the cluster of southern countries than in the other countries. Also in the case of material deprivation (both overall and the specific dimensions), we can see that – quite surprisingly – a "negative premium" for the households where the head is still in education is lowest for the southern cluster and highest for liberal cluster, with social-democratic and conservative clusters falling in between.

As for the households where the head is unemployed, the lowest relative risk of income poverty can be seen in a social-democratic cluster, while the highest – in conservative and liberal clusters. We can see a similar pattern when material deprivation is considered (both overall and the specific dimensions) – the relative risk is highest in the conservative and liberal clusters, while the lowest - this time in the southern cluster.

In the case of the household where the head is retired, we can see that they face lowest relative risk of income poverty in the conservative cluster. However, when we take material deprivation into account the picture is quite different – we find the lowest relative risk in the social-democratic cluster, while the highest – in the southern cluster. The pattern is consistent along the deprivation dimensions.

In terms of low education we also see a consistent pattern across all the dimensions of poverty and deprivation with the lowest relative risk in the social-democratic cluster and the highest in the southern cluster.

Finally, when we consider bad health of the household head, we reach similar conclusions as before – it affects the risk of both income poverty and material deprivation quite universally and therefore there are only minor differences between the clusters of welfare regimes. Specifically, we can see that the southern cluster stands out a bit (in a negative direction), particularly in terms of housing quality deprivation.

Then, how all these different patterns support the first hypothesis formulated in section 2? Not always so well, we must admit. I expected to see, regardless of the risk factor being considered, the least negative effects in the social-democratic cluster and the most negative in the southern cluster with the conservative and liberal cluster being in between. This order is roughly preserved in the case of the households composed of two adults with more than two children, where the head is a low-skilled worker, is retired or low-educated. However, in the case of the single-parent households and when the head is unemployed or still in education the pattern is quite opposite, with the lowest "negative premium" for the households in the southern cluster and the highest in the social-democratic or conservative clusters. Furthermore, for the households where the head reports bad health we find that there are few differences between the regime clusters.

6.3. Modelling the gradient of the risk factors with country-level variables

In this section I pursue the investigation even further by introducing country-level characteristics directly to the multilevel models in order to explain out some of the cross-country variability that was observed in the section 6.1. The main points of focus here are cross-level interactions between the country-level characteristics and the household-level determinants of poverty and deprivation. In this section I have limited the analysis to two dependent variables only: income poverty and overall material deprivation. There are two reasons reason for doing so: firstly, the analysis so far has not brought out any clear patterns for the differences between the specific deprivation dimensions. Secondly, the time necessary for the estimation of the models in this section was quite substantial and occasionally there were problems with achieving convergence

When estimating the models, I proceeded in the following fashion: again, separate models for income poverty and material deprivation were estimated in which I introduced random slopes for each of the risk factors, one at a time, with other controls treated as fixed. Next, a country level variables were introduced – again one at a time – both their main effect and the cross-level interaction effect with a given risk factor. Two of the country-level variables were interacted with all the risk factors, namely the GDP per capita and the total social expenditure as a percentage of GDP. Furthermore, some more targeted variables were introduced – a share of GDP spent on family/children, unemployment, old age/survivors and sickness/disability benefits. These targeted variables were interacted only with the relevant risk factors, i.e. the households with children and the households where the head is unemployed, retired and reporting bad health respectively. Table 5 presents a summary of the results of the estimated models. Again, the standard errors have been reported in brackets alongside the estimated coefficients, and those coefficients that are at least twice as big as their standard errors have been highlighted using bolder font.

Let us again begin with a commentary on the single parent households. The results of the models estimated in this section do not bring much new information – we do not find a significant cross-level interaction neither in the case of GDP per capita nor in the case of the total social expenditure. Moreover, there is not detectable interaction effect even in the case of a more targeted variable: family/children benefits as a share of the GDP. However, if we look at the signs of the covariance terms disregarding their statistical insignificance, we can find some indication of both GDP per capita and total social expenditure being positively associated with the risk of poverty and deprivation. This remarkable tendency is quite in line with the findings from the preceding sections.

In the case of the couples with three or more children the situation is somewhat different. Although we still do not see the significant interactions with the two first macro variables, we do find a significant coefficient in the case of family and children benefits. As expected, the coefficient is negative indicating that the more a country spends on children/family benefits, the lower relative risk of income poverty. The picture is not that optimistic when we look at the material deprivation, though – here the effect is no more significant. One of possible interpretations therefore could be that although the family allowances may indeed protect families with more children against income poverty, these benefits do not protect them effectively against material deprivation.

As for the household head employed in a job of a low status, again we do not find a significant relationship with the GDP per capita. However, we do see a significant (although modest) cross-level interaction with total social expenditure in the case of material deprivation. The coefficient in the case of income poverty is also negative, although not statistically different from zero at the conventional 0.05 level.

When we look at the households where the head is still in education, we see again a surprising pattern with the relative risk of both income poverty and material deprivation being

higher in the countries with higher GDP per capita. And although the interaction with the level of social expenditure is not significant at the conventional 0.05 level, the direction is the same as in the case of GDP.

Table 5. Fixed and random effects (and their standard errors) of the risk factors and macro variables for five dependent variables: income poverty, overall deprivation, basic necessities deprivation, consumer durables deprivation and housing quality deprivation (random slopes and intercepts multilevel models).

	GDP		Tot exp		Targeted exp	
	Income poverty	Overall deprivation	Income poverty	Overall deprivation	Income poverty	Overall deprivation
1 adlt + chldrn						
Beta micro	**0.540 (0.162)**	**0.509 (0.146)**	**0.616 (0.160)**	**0.555 (0.137)**	**0.648 (0.168)**	**0.553 (0.131)**
Beta macro	-0.529 (0.310)	**-1.157 (0.319)**	-0.017 (0.023)	-0.039 (0.031)	-0.123 (0.090)	-0.198 (0.123)
Interaction	0.642 (0.518)	0.541 (0.484)	0.033 (0.036)	0.040 (0.031)	-0.049 (0.160)	0.202 (0.121)
Var(slope)	**0.227 (0.100)**	**0.187 (0.083)**	**0.266 (0.116)**	**0.188 (0.083)**	**0.301 (0.130)**	**0.169 (0.076)**
2 adlts & 3+ chl						
Beta micro	**0.708 (0.239)**	**0.644 (0.098)**	**0.728 (0.207)**	**0.673 (0.090)**	**0.765 (0.154)**	**0.674 (0.087)**
Beta macro	-0.469 (0.304)	**-1.130 (0.298)**	-0.013 (0.023)	-0.035 (0.030)	-0.106 (0.089)	-0.177 (0.118)
Interaction	-0.301 (0.781)	0.214 (0.373)	-0.070 (0.049)	-0.012 (0.020)	**-0.537 (0.160)**	-0.055 (0.088)
Var(slope)	**0.550 (0.242)**	0.040 (0.040)	**0.485 (0.215)**	0.038 (0.039)	0.237 (0.120)	0.031 (0.036)
Empl low stat						
Beta micro	**0.834 (0.151)**	**0.785 (0.096)**	**0.894 (0.139)**	**0.866 (0.075)**	-	-
Beta macro	-0.487 (0.310)	**-1.134 (0.302)**	-0.010 (0.024)	-0.029 (0.031)	-	-
Interaction	0.209 (0.444)	0.153 (0.294)	-0.034 (0.029)	**-0.048 (0.013)**	-	-
Var(slope)	**0.166 (0.077)**	0.047 (0.028)	**0.154 (0.073)**	0.013 (0.013)	-	-
Still in edu						
Beta micro	**2.572 (0.199)**	**1.084 (0.203)**	**2.710 (0.237)**	**1.477 (0.270)**	-	-
Beta macro	-0.482 (0.312)	**-1.139 (0.312)**	-0.015 (0.024)	-0.037 (0.031)	-	-
Interaction	**2.945 (0.914)**	**5.051 (0.963)**	0.085 (0.056)	0.041 (0.065)	-	-
Var(slope)	0.163 (0.115)	0.170 (0.121)	0.330 (0.189)	0.536 (0.277)	-	-
Unemployed						
Beta micro	**2.018 (0.228)**	**1.660 (0.122)**	**2.081 (0.214)**	**1.749 (0.131)**	**2.092 (0.206)**	**1.806 (0.133)**
Beta macro	-0.457 (0.295)	**-1.153 (0.315)**	-0.008 (0.023)	-0.037 (0.031)	**-0.167 (0.075)**	-0.055 (0.126)
Interaction	0.254 (0.778)	0.891 (0.465)	-0.030 (0.048)	0.030 (0.028)	-0.205 (0.187)	-0.072 (0.116)
Var(slope)	**0.483 (0.201)**	0.098 (0.050)	**0.486 (0.202)**	**0.147 (0.069)**	**0.468 (0.195)**	**0.161 (0.075)**
Retired						
Beta micro	**1.648 (0.165)**	**0.972 (0.100)**	**1.568 (0.160)**	**0.844 (0.123)**	**1.580 (0.159)**	**0.825 (0.125)**
Beta macro	-0.284 (0.338)	**-0.833 (0.296)**	-0.018 (0.024)	-0.028 (0.026)	0.027 (0.038)	-0.018 (0.043)
Interaction	-0.489 (0.458)	**-0.995 (0.293)**	0.018 (0.034)	-0.020 (0.026)	-0.019 (0.052)	0.000 (0.041)
Var(slope)	**0.218 (0.091)**	**0.054 (0.027)**	**0.240 (0.100)**	**0.126 (0.055)**	**0.239 (0.099)**	**0.137 (0.060)**
Low education						
Beta micro	**0.834 (0.101)**	**0.815 (0.137)**	**0.782 (0.098)**	**0.736 (0.125)**	-	-
Beta macro	0.121 (0.296)	-0.299 (0.361)	0.018 (0.019)	0.014 (0.025)	-	-
Interaction	-0.708 (0.355)	**-0.979 (0.441)**	-0.045 (0.023)	**-0.070 (0.030)**	-	-
Var(slope)	0.096 (0.042)	0.189 (0.078)	0.106 (0.046)	0.184 (0.076)	-	-
Bad health						
Beta micro	**0.249 (0.090)**	**0.800 (0.046)**	**0.288 (0.077)**	**0.811 (0.041)**	**0.240 (0.080)**	**0.799 (0.045)**
Beta macro	-0.471 (0.283)	**-1.118 (0.295)**	-0.009 (0.022)	-0.033 (0.030)	-0.046 (0.069)	-0.101 (0.093)
Interaction	0.230 (0.318)	0.049 (0.189)	-0.027 (0.019)	-0.012 (0.011)	-0.095 (0.064)	-0.001 (0.036)
Var(slope)	0.069 (0.036)	0.007 (0.008)	0.053 (0.029)	0.003 (0.007)	0.055 (0.030)	0.004 (0.007)

Source: ECHP, wave 3, the reference categories are: Household composition: 2 adults and 1-2 dependent children; Main activity of the household head: employed in a job of a high status, Education of the household head: medium, Health status reported by the household head: good; the other control variables are: tenure status, marital status of the household head, age of the household head, gender of the household head, and whether the household head had been unemployed during the last five years before the survey.

In the case of the household head being unemployed we see somewhat similar picture with a positive cross-level interaction effect (although of a borderline significance) with the GDP per capita in the case of material deprivation. There is no significant interaction effect in the case of income poverty however. Neither are significant the cross-level interaction

coefficients with the level of total social expenditure. As for the targeted social expenditure, we can see some indication of a negative association between the level of spending on unemployment benefits and the risk of income poverty that the unemployed face. The correlation is not significant at conventional levels but at least the size of the effect is greater than its standard error. However, in the case of material deprivation we do not find even this kind of indication - the effect is much smaller than its standard error.

As for the households where the head is retired, we find a significant negative interaction effect with the GDP in the case of material deprivation. The coefficient is still negative but not significant in the case of income poverty. We do not find significant cross-level interactions neither with the level of total social expenditure nor in with the level of old age/survivors benefits.

In the case of low education we find more significant cross-level interactions than in the case of other risk factors. The pattern is quite familiar: we find significant negative interactions with both GDP per capita and the level of total social expenditure. Therefore, the relative risk of poverty and material deprivation is lower in the countries with higher GDP per capita or higher social expenditure.

Finally, for the bad health of the household head we do not find any significant cross-level interaction terms. This result is in line with the findings in the preceding sections and confirms that bad health is a universal determinant of poverty and material deprivation, regardless of the country. The only, very modest – and indeed not significant at the conventional levels – effect can be found in the case of the risk of income poverty and the level of sickness/disability benefits. This finding might indicate that this targeted expenditure may have some effect (although not clearly measurable with the limited number of countries) as a protection against income poverty but not as a protection against material deprivation.

Let us now discuss the findings of this section with reference to the formulated hypotheses. Interestingly, the conclusions are quite similar to those reached in the previous sections. Specifically, we have had some support for the hypotheses 2 and 3 in the case of households with three or more children, where the head was retired, had a low-status job or was low educated – in the countries with a higher GDP per capita or in the countries that spend more on social protection, the negative effect of belonging to these households has been weaker. However, in the case of the case of single parents households and those with the head being unemployed or still in education, we have seen an opposite pattern – in the countries with higher social expenditure or higher GDP the negative effects of the risk factors have been stronger. In the case of bad health reported by the household head we have seen no association between the level of GDP per capita or the level of social expenditure and the strength of the effect.

As for the hypothesis 4 concerning targeted social expenditure, we could see some evidence of those targeted benefits working, particularly family/child benefits in the case of families with three or more children and, to a lesser extent – unemployment and sickness/disability benefits in the case of the head being unemployed or reporting a bad health respectively. However, we have observed these effects in the case of income poverty only; in the case of material deprivation we could find no indication of the effect of those targeted policies. This could be also seen as a support for the hypothesis 5, according to which the effects of welfare interventions could be observed more directly in the case of income poverty than in the case of material deprivation.

7. Summary and conclusions

The primary aim of this paper was to explore the cross-national differences in the relative effect of selected characteristics associated with the risk of income poverty and material deprivation and to offer an explanation for the observed patterns in terms of country-level characteristics. Preliminary analyses have helped to distinguish risk factors that are most important from both substantial and empirical point of view and on which I focused in this paper. These were the households a) composed of a single adult with dependent children, b) composed of two adults with three or more children; or where the head: c) is a low skilled worker, d) is still in education, e) is unemployed, f) is retired, g) has low education, h) reports bad health. A number of hypotheses were formulated and they assumed that the effects of all the risk factors should be less negative in the countries with a higher GDP per capita, higher social expenditure or - in terms of welfare regimes – in the social-democratic and conservative clusters. I also hypothesized that some targeted social policies (family/child, unemployment, old age/survivors and sickness/disability benefits) should have an alleviating effect on the adequate risks and that this effect should be more pronounced in the case of income poverty than in the case of material deprivation.

The results have brought a mixed support for the formulated hypotheses. We have found that the relative strength of most of the risk factors vary across European countries, some of the effects are quite universal regardless of the country, though. Cross-national comparisons brought some very interesting – and surprising – findings; the others are quite in line with the expectations.

Specifically, for some analyzed risk factors we have found that – as hypothesized – the relative effect was less negative in the countries with a higher GDP per capita or a higher social expenditure or – in the welfare regime categories – in the social-democratic or conservative clusters than in the countries with a lower GDP per capita, social expenditure or belonging to the southern cluster. We found this pattern for the households with three or more children, those where the head was retired, had low education and – to a lesser extent – where the head was a low-skilled worker.

However, quite remarkably, we have found that for the single parent households and the households where the head is either in education or unemployed, the relative risk of income poverty and/or material deprivation is lowest in the countries that are characterized by the lowest GDP or the lowest social expenditure levels. These were also the countries from the southern cluster, like Greece, Spain or Portugal. Conversely, we have found the highest "negative premium" for these types of household increases in the countries with higher GDP per capita and higher social spending. Those were the countries from the social-democratic cluster like Denmark, Finland or the Netherlands.

Bad health of the household head does not fit in either of the categories – it seems to be an example of a universal factor, affecting equally strongly the risk of poverty and material deprivation regardless of the country. Moreover, the effect in the case of material deprivation is much stronger than in the case of income poverty, indicating that probably problem lies more in greater needs than in lower incomes.

Finally, I have checked whether the level of targeted social expenditure has a detectable effect on relevant risk factors. The results are rather discouraging – the only effects we have found was that the families with three or more children were better protected against income poverty in the countries where the share of GDP spent on family/children benefits was higher. This relationship did not hold in the case of material deprivation however. Therefore, a rather pessimistic conclusion is that even if the level of targeted social expenditure may affect the level of incomes and protect against income poverty it does not have detectable positive consequences in terms of actual standard of living and does not protect against material deprivation. This is also in a line with my last hypothesis, according to which the

effects of social interventions will be more detectable in the case of income poverty than in the case of material deprivation.

Clearly, the most surprising result of the analysis are the differences between the risk factors with respect to their interactions with macro variables – apart from bad health status, where we could see no cross-country variation whatsoever, we could broadly distinguish two groups of factors that follow precisely opposite patterns of association with the macro variables examined. On the one hand we had the households with three or more children, and the households where the head was retired, had a low-status job or was low-educated – here we found the patterns as expected. On the other hand we have single parent households and the households where the head is unemployed or still in education – here the patterns are just the opposite to the expectations.

If we think about possible explanation of the remarkable differences between the two patterns, it is helpful to look at the differences between the two groups of the risk. We can say that the risk factors for which we find the results in line with expectations are in a sense more universal (like retirement), or more frequent (like low education), than the risk factors in the other group. The risks associated with these factors are better alleviated in the countries that are richer, spend more on social protection and are generally orientated towards more complex and more universal social protection systems.

The second group of the factors seems to be more specific and, perhaps, more selective. A possible explanation to the observed, and apparently paradoxical results, may be precisely the idea that the people are affected by these characteristics not at random but that the probability of being affected by a particular factor is correlated with the probability of being affected by poverty. In other words, we may suspect that what we see is a result of a selection process that operates on some unobservable characteristics correlated with the dependent variable. Consequently, those characteristics (like unemployment, for instance) may be affecting people more at random in less affluent countries like those of southern cluster, while in the countries like those of social-democratic or conservative regime, this group might be more specific and selected according to some other characteristics that make them more vulnerable to poverty at the same time. Moreover, we have to remember that in the countries of the countries of socio-democratic or conservative cluster, the overall risk of poverty and deprivation is very low. Therefore, in those more affluent societies, where the majority moves ahead very fast, those specific groups of people may be more likely to be left behind. On the other hand, we have to remember that the notion of poverty considered in this paper is purely relative and therefore, those groups in the wealthier countries, despite facing higher relative risk, may be, and indeed are, better-off in objective terms than those in their counterparts in less wealth countries, even though they face lower relative risk of poverty.

Finally, on a more positive side, we can conclude that the welfare state does its job properly in those areas that were the very reasons for its creation: it does protect people who are affected by more universal factors that may increase risk of poverty, like low education, low-paid job, having more children or entering a retirement period.

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Appendix – construction of poverty and deprivation dimensions

In the case of *basic necessities* dimension the respondents were asked whether their household *can afford* the following items *if they want* them:

- Keeping home adequately warm;
- Paying for a week annual holiday away from home;
- Replacing any worn-out furniture;
- Buying new, rather than second-hand, clothes;
- Eating meat, chicken or fish every second day, if wanted;
- Having friends or family for drink or meal at least once a month;
- Not being in arrears (i.e. whether household had been able during the past 12 months to pay all of the following (if relevant): scheduled rent for the accommodation; scheduled mortgage payments; scheduled utility bills, such as electricity, water, gas; hire purchase instalments or other loan repayments;

The consumer durables dimension has been constructed using a set of questions that were administered in the following fashion: every household was asked whether particular items were possessed, and if not, a follow-up question was asked whether this was due to inability to afford them. The items included were:

- A car or van;
- A colour TV;
- A video recorder;
- A micro wave;
- A dishwasher;
- A telephone;

The housing quality dimension was constructed using the answers to six questions:

- Does the dwelling have bath or shower?
- Does the dwelling have indoor flushing toilet?
- Does the dwelling have hot running water?
- Does the accommodation have leaky roof?
- Does the accommodation have damp walls, floors, foundations etc.?
- Does the accommodation have rot in window frames or floors?

In the case of income dimension I have employed a common approach: the total annual net household disposable income (i.e. income after taxes and social transfers) is used. To take into account differences in household size, and consequently the differences in needs and consumption patterns between households, income was adjusted using the so-called modified OECD[4]. The usual assumption of equal distribution of income among all members of the household is applied. For the purpose of this paper I have chosen the most popular definition of the cut-off point – it is set at 60% of the median of national equivalised disposable income. However, other possible cut-off points, namely 50% and 70% of the median of national equivalised disposable income have been used to test the robustness of the results.

The three specific material deprivation dimensions have been constructed combining answers to a number of questions relevant to a particular dimension. The three dimensions have also been combined into a single indicator, which I simply call (overall) material deprivation indicator. In any case the items have been combined into an index by calculating a weighted sum, using the so-called "prevalence-weighting" technique (e.g. Desai and Shah, 1988; Muffels, 2002). Specifically, each household was assigned 0 on a particular item if was deprived with respect to it (e.g. did not have an item) and 1 otherwise. Then, these scores

[4] The modified OECD scale assigns a weight of 1 to the first adult in the household, a weight of 0.5 to any other person aged 14 and over and a weight of 0.3 to each child (below 14) in the household.

were weighted inversely to the proportion of population that was not deprived on a given item (e.g. possessed the item) in a particular country. The result of this step is that the items that are possessed widely in a particular country have higher weights than the items that are rarer in this country. Consequently, people who do not possess more widespread items are considered more deprived than people who do not possess the items that are rare in a particular society. Therefore, by doing that we can compensate, at least to certain extent, for the fact that we do not have the information whether people consider specific items really necessary, or in other words, whether they perceive lack of them as deprivation. We do not need to make any assumption about the necessity of the items ourselves neither. By employing the procedure described above, we simply assume that the items that are desired are prevalent in population.

As in the case of income poverty, the next step is to set up a cut-off point to separate deprived from non-deprived on a particular dimension. The choice of this threshold is inevitably somewhat arbitrary. I have decided to employ the approach that has been used before by a number of researchers (e.g. Whelan et al, 2004) and set up the cut-off points for the particular dimensions at 70% of the median deprivation score. As for the overall deprivation index (consisting of all the items constituting the three individual dimensions added up together), I have decided to use even higher cut-off point: 80% of the national median deprivation score. The motivation for doing so is similar to this presented by Whelan et al. (2004) – by employing higher thresholds for the deprivation indices we identify groups that are relatively close in size. In this way we can avoid the situation that some of the results for deprivation are artificially strengthened due to focusing on a narrow group of the most heavily affected. Nevertheless - as in the case of income poverty –other thresholds (namely 60% for the specific dimensions and 70% for the overall indicator) have been analyzed to check the robustness of the results.