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The Working Poor in Europe

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Welfare States, Labour Market Institutions and the Working Poor: A Comparative Analysis of 20 European Countries

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This article regards the incidence of in-work poverty and how it is reduced by the payment of social transfers in 20 European countries. It combines a micro- and a macro-level perspective in two-level models. The basis for the analysis is micro-data from the EU Statistics on Income and Living Conditions (EU-SILC) 2005 and macro-data from sources such as the OECD and Eurostat. The broad comparative perspective allows for a separation of different institutional influences, namely the influence of the degree of decommodification, defamilization, and bargaining centralization. In contrast to previous studies on the working poor which have mainly described country differences in in-work poverty, this article focuses on the question of how such differences can be explained from a broader perspective of poverty research. In general, the results confirm the overall hypothesis that both welfare state measures and labour market institutions have an influence on in-work poverty. By analysing influences on pre-transfer poverty and poverty reduction separately, the author shows that such factors have varied effects on in-work poverty. While bargaining centralization proves to be relevant for the distribution of pre-transfer incomes only, the set-up of the social security system, in particular, impacts the extent of poverty reduction.

Introduction

For a long time, in-work poverty was not associated with European welfare states. Recently, the issue has drawn increasing attention as a potential consequence of welfare state change which is associated with an emphasis on labour market inclusion in favour of social security (Gilbert, 2002; Barbier, 2004). Previous research has shown that there is already a relevant share of working poor, but it has also stressed the fact that the level of in-work poverty differs from one country to the next (see e.g. Marx and Verbist, 1998; Peña-Casas and Latta, 2004; Bardone and Guio, 2005).

However, most studies are descriptive and do not look systematically at the causes of these differences. But there are a broad variety of comparative studies that analyse the impact of welfare state measures and labour market institutions on poverty, in general, as well as on the incidence of low-wage work (see e.g. Blau and Kahn, 1996; Korpi and Palme, 1998; Rueda and Pontusson, 2000; Moller *et al.*, 2003). These studies either follow a typological approach inspired by the concept of welfare regimes or of varieties of capitalism (Esping-Andersen, 1990; Hall and Soskice, 2001), or use aggregate indicators for quantitative analyses at the macro level. While the

former literature stresses qualitative differences between welfare states, the latter is able to test the influence of individual features of the institutional framework. However, the macro approach has been criticized since it cannot explain associations at the individual level (Kittel, 2006).¹

This article uses a quantitative approach, while combining a micro- and macro-level analysis in a multi-level perspective. It aims to answer who is likely to be part of the working poor, why the incidence of in-work poverty differs within Europe, and whether there are interactions between individual and household-related risk factors and the set-up of the institutional framework of a given country (such as the system of wage bargaining or the transfer system). Poverty is defined from the perspective of general poverty research, which argues that a person's welfare is generated at household level (Atkinson, 1998). Hence, personal low wages, which are often in the focus of studies on the working poor (Marx and Verbist, 1998; Brandolini *et al.*, 2002; Gardiner and Millar, 2006) are regarded as only one cause of in-work poverty. To explain country differences in in-work poverty, we have to take into account the differences not only in the incidence of low wages but also in the accumulation of earned incomes within households, in the availability and take-up of benefits. In order to be able to disentangle the various influences which cumulate into higher or lower poverty rates, I analyse separately which factors shape the incidence of pre-transfer poverty and the extent to which poverty is reduced by social transfers. By analysing pre-transfer poverty and poverty reduction separately, it is possible to answer an important question: Do the higher or lower incidences of in-work poverty have to be attributed to differences in labour market institutions, or do variations in welfare state characteristics play a more important role?

The article is organized as follows: the second section discusses the influence of the institutional framework on the incidence of in-work poverty. The third section examines individual factors impacting the risk of being poor and the degree of poverty reduction. Furthermore, it discusses potential interactions of individual factors with the set-up of the institutional framework. The empirical analyses are based on data from the EU Statistics on Income and Living Conditions (EU-SILC) 2005 and macro-data from sources such as the Organisation for Economic Co-operation and Development (OECD) and Eurostat. A discussion of the data and methods (fourth section) is followed by a descriptive overview (fifth section) of cross-country differences in in-work poverty and the extent

to which transfers reduce poverty. The sixth section presents the results of the multivariate empirical analysis. A conclusion is given in the seventh section.

The Influence of Welfare State Measures and Labour Market Institutions

It is a straightforward assumption that labour market institutions influence the incidence of pre-transfer poverty while welfare state measures primarily affect the extent of poverty reduction. In fact, the discussion on labour market institutions and income inequality usually refers to earnings. Previous research suggests that labour market institutions play a key role in explaining the extent of low-wage work as well as the distribution of wages (Blau and Kahn, 1996; Teulings and Hartog, 1997; Lucifora *et al.*, 2005). In particular, institutional features like centralized and/or coordinated wage setting are likely to affect the incidence of low wages. Many studies also show an influence of union density on the distribution of wages (Freeman, 1993; DiNardo *et al.*, 1996; Rueda and Pontusson, 2000). But since union density does not necessarily translate into a high or low level of bargaining coverage, it seems more adequate to examine features of the bargaining system. In particular, the finding that bargaining centralization encourages wage equality has gained broad empirical support (Golden and Londregan, 2006). Thus, I hypothesize that the system of wage bargaining has an influence on the extent of in-work poverty (pre-transfer). In addition to the bargaining system, minimum wages are discussed as an institutional feature which aims at the reduction of poverty. However, Wallerstein (1999) regards minimum wages as the weakest form of centralized wage setting. Furthermore, it has been argued that only a certain share of low-wage earners who benefit from (rising) minimum wages live in poor households—implying that minimum wages have only a limited impact on poverty (Nolan and Marx, 2000).²

Regarding welfare state characteristics, we can distinguish the degree of decommodification and defamilization. While the concept of decommodification is defined as the reduction of individuals' reliance on the market for their well-being (Esping-Andersen, 1990), defamilization is defined as the reduction of a person's dependence on the family (McLaughlin and Glendinning, 1994; Lister, 1994). In technical terms, decommodification describes the extent to which the welfare state provides transfers to those outside the

labour market (Esping-Andersen, 1990; Scruggs and Allan, 2006). As far as poverty, in general, is concerned, it is obvious that the degree of de-commodification is related to the incidence of poverty, since the poverty risk of the jobless depends strongly on the availability and level of transfers (Korpi and Palme, 1998; Kenworthy, 1999; Sainsbury and Morissens, 2002; Moller *et al.*, 2003). With respect to the working poor, this relationship is less obvious. However, we can distinguish two relevant mechanisms. From the perspective of economic work incentives, we can argue that the level of transfers influences the level of wages workers are willing to accept and thus the level of earnings. This is assumed to have an influence on the incidence of pre-transfer poverty. While this influence is indirect, it will be easier to detect a direct influence from the increase of household income through transfers. Also workers can claim benefits. This is the case not only if specific in-work benefits exist but also if earned incomes are below the transfer threshold. However, relevant in-work benefits are paid in Ireland and in the United Kingdom only (OECD, 2005). As a consequence, in most countries, transfers paid to other household members are more important (Lohmann, 2007). Such transfers increase the household income and thus decrease the risk of being poor for jobless and working individuals alike. Therefore, the more generous the benefits paid to working and non-working persons, the greater the chances that the working poor will be lifted out of poverty.³

As defined above, defamilization has to do with independence from one's family (Lister, 1994; McLaughlin and Glendinning, 1994). In terms of policies, defamilization is achieved via dual-earner policies such as care for children and the elderly as well as through policies that influence the economic independence or dependence of young unemployed persons (Paugam and Russell, 2000). For instance, strict employment protection legislation (EPL) in the Southern European countries is directed at safeguarding the earnings of an assumed male breadwinner at the cost of the partial exclusion of young adults and women from the labour market (Esping-Andersen, 1999). This has an influence on the relationship of needs to earned incomes in working households. It creates a higher degree of intergenerational dependency since young adults with low income or no income from work are more likely to live with working family members. Larger households have greater needs and thus are more likely to be poor. This will mainly affect pre-transfer poverty and not the extent of poverty reduction. Intergenerational dependency could, however, be interpreted in a positive way as well because it

provides protection within the family. Besides inter-generational dependence, there is a second influence of a low degree of defamilization on in-work poverty. Care obligations restrict (female) employment options which is related to a higher risk of being poor. Hence, I expect an influence on the incidence of pre-transfer poverty.

In addition to the impact of dual-earner support and intergenerational dependence, there is a third factor that affects working families' likelihood of being poor: namely the availability of cash child benefits or tax deductions. Since 'having children' is in many countries the only pre-condition to receive child benefits, most working families will benefit from such transfers (see e.g. Strengmann-Kuhn, 2003). Therefore, I expect that the generosity of child benefits has a positive influence on the extent of poverty reduction.

Individual and Household-related Factors

As for institutional influences, we can expect that the influence of individual- and household-related factors differs depending on whether we look at pre-transfer poverty or the extent of poverty reduction. First, influences on the incidence of pre-transfer poverty are discussed. Poverty research has established a number of individual and household-related factors that influence the risk of being poor. In broad terms, these can be classified as factors related to 'needs' and to 'resources'. Needs are imposed by a given household structure as already discussed in the section above. In general terms, larger households have larger needs and these needs differ according to the age of the household members. Furthermore, the risk of being poor is influenced by the resources a person has at his or her command. Crucial resources are those that allow for successful participation in the labour market—such as education, labour market experience, and occupation. Low resources often translate into a weak labour market position and precarious forms of employment, like certain types of part-time work, temporary employment, and self-employment, which are expected to be related to higher in-work poverty. In addition to 'needs' and 'resources', there are 'restrictions' on labour market participation, such as care obligations for children or elderly people in a given household.

Which individual and household-specific characteristics can we expect to alter the extent of poverty reduction? In other words, who is more likely to move

out of poverty after transfers have been taken into account? Differences are likely to be structured according to the differences in the availability and in the take-up of benefits. Both differ depending on which type of benefit we are looking at. In broad terms, we can distinguish among unemployment benefits, social assistance benefits, family benefits, and old-age benefits. Since in most systems, only workers with a solid work history receive unemployment benefits, I assume that the poverty reduction of such benefits is higher for older workers. Given that in some countries, young adults are not eligible for social assistance either, this will work into the same direction. Most obvious is the situation in the case of family benefits (Immervoll *et al.*, 2001). For workers with children, I expect a stronger impact of transfers on the degree of poverty reduction. As I will look at individuals of working age, in most countries the impact of old-age transfers will be negligible. However, there is likely an influence of this type of transfers at the household level if many workers live together with elderly persons as it is the case in some countries. We will see on the basis of the empirical results if the inclusion of old-age benefits has a relevant impact on the degree of poverty reduction.

In addition to the availability of transfers, differences in group-specific benefit take-up rates will have an impact on the extent of poverty reduction. Previous research discusses a number of influences on the probability of benefit take-up such as information deficits, the level of expected entitlements, and the costs associated with claiming (Kerr, 1982; van Oorschot, 1991; Blank and Ruggles, 1996). Accordingly, employed people are less likely to claim benefits, which can be explained by their limited time budget in comparison to the non-working population and by the fact that they stand to receive lower benefits since they are receiving at least some income from work. In addition, they appear less likely to claim benefits due to fears of stigmatization, since it is mainly the unemployed who claim benefits. This is not to say, however, that the working poor do not claim benefits at all (Lagarenne and Legendre, 2000; Strengmann-Kuhn, 2003; Lohmann, 2007). If we apply the expectations concerning costs and benefits to the working poor, it can be expected that workers who are working longer hours and have higher incomes are less likely to claim benefits. Furthermore, I assume that benefit take-up rates among the self-employed will be lower since it will be more difficult for this group to provide sufficient information about earned incomes. Underreporting of income to tax authorities acts as an additional disincentive for the self-employed to claim

benefits. Due to information deficits and problems in complying with administrative procedures, migrants, and persons with low education are expected to be less likely to claim benefits. In addition, I assume that households with more than one adult are more likely to claim benefits because their time restrictions are less severe than those of households with single adults. I expect that these groups benefit less from available transfers and therefore are less likely to be lifted out of poverty.

It is likely that the factors described so far have an influence on in-work poverty in all countries in this comparison. But it is also likely that the strength of certain influences systematically differs by country. In other words: we can assume interactions of individual and household-related factors with the set-up of the institutional framework in a given country. It is a straightforward assumption that higher spending on family services lowers the poverty risk associated with having young children because it offers better chances to reconcile work and family. Intergenerational dependency can be seen as a factor that shifts the poverty risk from younger to older workers (due to young unemployed and low-wage workers living with their parents). Accordingly, a positive interaction between age and intergenerational dependence can be assumed. Centralized bargaining is expected to have an influence on the earnings differential by skills because the equalizing impact of centralization is mainly found at the lower end of the earnings distribution (see e.g. Blau and Kahn, 1996). As a consequence, low-skilled workers can expect higher wages in countries with centralized bargaining systems. Poverty reduction is expected to be stronger for workers with children in countries with higher spending on family cash benefits.

Joint Analysis of Micro- and Macro-influences—Multi-level Analysis

As discussed in the second and third sections, we can expect macro- as well as micro-level influences to explain the variance in in-work poverty. The following analysis examines these influences jointly using a multi-level approach. As discussed in the second section, I hypothesize that welfare state characteristics and labour market institutions—i.e. *macro-level influences*—have an effect on the incidence of pre-transfer in-work poverty as well as the degree of poverty reduction via transfers. In addition, the third

section introduced a number of *micro-level influences*. Furthermore, we can expect these micro-influences to interact with macro-influences (*cross-level interactions*). Along with micro, macro, and cross-level influences, an additional aspect must be taken into account when comparing the extent of in-work poverty and poverty reduction at the aggregate level. There are differences in the *composition of the working population* which explain part of the differences in aggregate rates. We cannot regard these factors as exogenous; rather, they are to a large extent the consequence of welfare state measures. Hence, controlling for such micro-level differences already picks up part of the institutional differences which have an impact on in-work poverty (Lohmann, 2008).

Micro-data

The empirical analyses are based on EU-SILC, which contains comparable data on all EU-25 countries (except Malta) plus Norway and Iceland (Eurostat, 2007). Since sufficient data on the institutional framework (see next section) does not exist for all of these 26 countries, a number of countries had to be excluded. These countries are Estonia, Lithuania, Latvia, Cyprus, Slovenia, and Iceland. This leaves a sample of 20 countries, which covers the EU-15 countries plus four of the Eastern-Continental member states and Norway.

Income data in EU-SILC is collected for the year before the survey. Hence, the analyses regard the situation in 2004. Therefore, the definition of ‘working’ also applies to the year before the survey. A person is defined as working if he or she has been working at least 7 months out of 12. Like employment, also self-employment is defined on the basis of the information about the year before the survey. Most persons were either employed or self-employed. Some persons, however, were in self-employment for some months only. Workers are regarded as self-employed if they were self-employed at least half the time they were employed during the year before the survey. In the same manner, we can differentiate part-time workers from full-time workers. The population in question is defined as workers living in private households, over 17 and below 65 years of age. The focus in this article is on pre-transfer poverty and the impact of social transfers (except old-age benefits).⁴ Pre-transfer income is defined as disposable income minus social transfers. The choice of the poverty line is inspired by the indicator officially used at EU level (60 per cent of median equivalized—using the modified OECD-scale—household income). Alternative specifications

using a ‘steeper’ equivalence scale (non-modified OECD) and lower thresholds (40 and 50 per cent of the median) do not yield substantially different results.⁵ Hence, in the following, a person is regarded as *pre-transfer poor* if he or she lives in a household with an equivalized pre-transfer household income below 60 per cent of the median.⁶ A second poverty line is computed on the basis of equivalized post-transfer household income. If a person is poor according to the pre-transfer poverty line but not according to the post-transfer line, we can assume that poverty has been reduced via the receipt of transfers.⁷ In the following I speak—for the sake of brevity—of *poverty reduction* if I mean that a person is lifted out of poverty after transfers have been taken into account. Hence, the analysis consists of two sets of multivariate models. First, I examine which factors influence the probability that a working person is pre-transfer poor. Second, I analyse which characteristics increase the probability that poor persons will move out of poverty after transfers are paid (poverty reduction). I use the same set of independent variables in both analyses but partly expect different influences (see the discussion in the third section).

Macro-data

The information on macro-level differences originates from different sources. All indicators describe the situation in the year 2003 or 2004. Since a composite index which combines information on coverage, replacement rates, and qualifying conditions like an Esping-Andersen-style decommodification index (Scruggs and Allan, 2006) does not exist for all the countries dealt with in this article, the indicator simply reflects the level of unemployment benefits (as a percentage of the average wage of a production worker—APW). The respective information is taken from published figures from the OECD tax/benefit models (OECD, 2007).⁸

As discussed in the third section, the concept of defamilization covers different dimensions. Dual-earner support and general family support are measured by the level of public expenditure on family services and family cash transfers (both as a percentage of Gross Domestic Product (GDP)). The figures are taken from the OECD Social Expenditure Database (SOCX). The indicator of intergenerational dependence is the share of young unemployed (20–29 years) who live in their parents’ household (by country, computed on the basis of EU-SILC). Information on the level of wage bargaining centralization has been taken from Visser (2004: 43).

Table 1 Pre-transfer poverty, post-transfer poverty and poverty reduction by country (working population)

	Poverty rate		Absolute change of poverty rate			Relative change of poverty rate		
	Pre-transfer (%)	Post-transfer (%)	Gross reduction (%)	Gross increase (%)	Net reduction (%)	Gross reduction (%)	Gross increase (%)	Net reduction (%)
Denmark	8.9	4.8	4.7	0.6	4.1	52.5	0.6	46.0
Finland	7.4	3.8	3.8	0.2	3.6	51.1	0.2	48.6
Norway	9.0	4.8	4.9	0.7	4.2	54.5	0.7	47.0
Sweden	11.8	5.2	7.1	0.5	6.6	60.2	0.6	55.7
Austria	10.3	6.7	4.1	0.5	3.6	39.6	0.5	35.2
Belgium	6.4	4.0	2.9	0.4	2.4	44.3	0.5	37.3
France	11.6	6.1	6.0	0.4	5.5	51.3	0.5	47.6
Germany	9.3	5.1	4.6	0.4	4.2	49.5	0.4	45.1
Luxembourg	12.7	9.4	4.1	0.8	3.3	32.3	0.9	26.2
The Netherlands	8.3	5.9	2.6	0.2	2.4	31.6	0.2	29.0
Ireland	9.7	5.9	4.3	0.4	3.9	44.5	0.5	39.9
United Kingdom	11.3	8.0	3.9	0.6	3.3	34.6	0.7	29.4
Greece	13.1	12.7	1.3	0.9	0.4	9.8	1.0	3.3
Italy	10.3	8.9	2.0	0.6	1.4	19.4	0.7	13.5
Portugal	12.8	11.6	2.3	1.0	1.3	18.0	1.2	9.9
Spain	11.0	10.2	1.8	0.9	0.8	15.9	1.0	7.4
Czech Republic	7.6	3.5	4.3	0.2	4.0	56.4	0.2	53.5
Hungary	17.6	9.8	8.6	0.8	7.8	49.0	1.0	44.5
Poland	16.5	13.6	3.9	1.1	2.9	23.9	1.3	17.4
Slovak Republic	11.5	8.9	3.0	0.5	2.6	26.4	0.5	22.4
Mean	10.9	7.4	4.0	0.6	3.4	38.2	0.7	32.9
S.D.	2.8	3.0	1.8	0.3	1.8	15.3	0.3	16.2
Minimum	6.4	3.5	1.3	0.2	0.4	9.8	0.2	3.3
Maximum	17.6	13.6	8.6	1.1	7.8	60.2	1.3	55.7

Source: EU-SILC 2005 (weighted), own computations.

Modelling Strategy

From the perspective of multilevel analysis, we can describe the EU-SILC as two-level data with individuals nested within countries (see e.g. Snijders and Bosker, 1999). A general problem in estimating regression models from nested data is that the assumption of independence of errors across observations is likely to be violated. A common approach to dealing with this kind of data is to estimate a random intercept model in which the error term contains a unit-specific random component u_i which captures the country-specific unobserved characteristics. If the assumption holds that u_i is uncorrelated with any of the independent variables, the random intercept model will yield unbiased and efficient estimates. In addition, the random intercept model allows us to differentiate between individual- and country-level

variance. On the basis of the variance components, we can compute the intra-class correlation ρ which indicates the country-level variance as a fraction of total variance. Given the dichotomous nature of the dependent variables all the models are specified as logistic regressions (see Guo and Zhao, 2000) using xtlogit in Stata 10.

In-work Poverty and Reduction of Poverty in 20 European Countries

Table 1 shows the incidence of in-work poverty and the extent of poverty reduction via social transfers in all of the 20 countries which are examined in this article.⁹ The table also shows that there are not only

persons who move out of poverty due to the payment of transfers. There are also persons who are not poor according to the pre-transfer poverty line but poor according to the post-transfer poverty line (poverty increase).¹⁰ In a macro perspective, we usually ignore this group. Since we cannot ignore this group in a micro perspective, we have to differentiate between net poverty reduction and gross poverty reduction. However, aggregate gross and net reductions are highly correlated. Therefore, in the multivariate analysis I will ignore the aspect of poverty increases within the process of redistribution and only examine the extent of gross poverty reduction.

For better orientation, the countries are grouped regionally, which produces a strong overlap with broadly used welfare state typologies. On average, pre-transfer poverty is lowest in the countries of the Scandinavian cluster, followed by the Western-Continental and the Anglo-Saxon countries. Pre-transfer poverty is clearly higher in the Southern European countries and in three of the Eastern-Continental countries. However, the variation in some of the clusters is rather high, in particular within the two continental clusters. The picture slightly changes if we move to post-transfer poverty. Now in all Scandinavian countries in-work poverty is low. Again, low-poverty rates can also be observed in countries of the Western-Continental and the Eastern-Continental cluster (Belgium, Germany, Czech Republic). The Southern European cluster is the one with the most consistent results. In these countries, post-transfer in-work poverty tends to be high.

This is clearly due to the modest impact of transfer payments in Southern Europe. In these countries on average, the difference between the pre-transfer and post-transfer poverty (net reduction) is less than a percentage point. This is the result of two mechanisms. On the one hand, in Southern Europe, not many of the pre-transfer poor find themselves above the poverty line after transfers are paid (small gross reduction). On the other hand, compared with the rest of the countries, a larger proportion of the population finds themselves below the poverty line (large gross increase). Nevertheless, in all countries including the Southern European countries, the post-transfer rate is lower than the pre-transfer rate. However, it has been argued that social benefits are low in Southern Europe but that pensions play a more important role (see e.g. Ferrera, 1996). But although old-age benefits have a certain impact in these countries, the results do not change in a relevant manner if old-age transfers are in or excluded.¹¹

Explaining Poverty Risks and the Extent of Poverty Reduction

As argued above, I expect that in-work poverty and the extent of poverty reduction differs according to a number micro- and macro-level determinants. I start with the analysis of the influence of micro-level determinants. Table 3 shows the results of two-level random intercept models for both dependent variables. The empty models (M0) are the starting point for the further steps of analysis because they give us the information how much of the variance of the respective variables is variance between countries. The fraction of between-country variance in pre-transfer poverty is low ($\sigma^2=0.143$, $\rho=0.042$). The degree of poverty reduction differs more by country, which is reflected in a higher intra-class correlation ($\sigma^2=0.599$, $\rho=0.154$).¹²

Before I consider these country differences in more detail, I will first discuss the individual pre-transfer poverty risk factors that are expected to reflect the position of workers in the labour market and the effect of redistribution within the household (results in the left panel of Table 2). The direction of the coefficients in Model 1 (M1) shows which groups of the working population are affected by poverty. The results are mostly in-line with results from general poverty research. There are differences according to age, education, and marital status. As far as age is concerned, we find a U-shaped influence. The risk of being a member of the working poor is lowest for the middle age groups. Higher education lowers the risk of being poor. As expected, migrants face higher poverty risks, which reflects their more precarious position in the labour market.¹³ Women are more likely to be poor than men. The fact that separation or divorce is often accompanied by economic strain for women is reflected by a higher poverty risk among this group.

The household context also strongly influences the risk of belonging to the working poor. The larger a person's household, the more likely s/he is to be poor.¹⁴ While the number of household members reflects the needs of a household and—in the case of small children—potential restrictions on labour market participation, additional workers in a household are likely to lower the risk of poverty. Not surprisingly, this effect is strongest in the case of additional full-time workers. But also workers who live together with part-time workers are less likely to be poor. As in the case of additional workers, the working time of the worker him/herself influences the person's risk of

Table 2 Coefficients (log odds) of random intercept logit models on probability of pre-transfer poverty and poverty reduction

	Pre-transfer poverty		Poverty reduction	
	M0	M1	M0	M1
Age				
In years		-0.116***		-0.012
In squared years/10		0.010***		0.002
Gender (ref.: male)				
Female		0.129***		0.321***
Immigrant status (ref.: native)				
Migrant		0.666***		-0.304***
Education (ref.: ISCED 4–6)				
ISCED 0–2		0.936***		-0.127*
ISCED 3		0.379***		0.016
Marital status (ref.: else, male)				
Separated, divorced		0.199 ⁺		-0.199 ⁺
Separated, divorced × female		0.266***		0.077
Number of children/persons in hh (by age)				
0–2 years		0.632***		0.372***
3–5 years		0.457***		0.133***
6–12 years		0.439***		0.114***
13–17 years		0.662***		-0.075**
18+ years		0.363***		0.363*
Number of employed household members (by working time)				
Part-time		-0.919***		-0.224***
Full-time		-1.534***		-0.464***
Employment status (ref.: employee)				
Self-employed		1.211***		-1.019***
Working time (ref.: full-time)				
Part-time		0.807***		-0.024
Occupation, ISCO-88 [ref.: legislators, senior officials, managers (1)]				
Professionals (2)		-0.555***		0.415***
Technicians and associate professionals (3)		-0.167***		0.468***
Clerks (4)		-0.023		0.615***
Service workers, shop/market sales workers (5)		0.554***		0.517***
Skilled agricultural and fishery workers (6)		1.167***		0.160
Craft and trades related workers (7)		0.527***		0.536***
Plant and machine operators, assemblers (8)		0.319***		0.596***
Elementary occupations (9)		0.886***		0.438***
Intercept	-2.183***	-1.284***	-0.512**	-1.436***
σ^2 (between countries)	0.143	0.150	0.599	0.523
ρ	0.042	0.044	0.154	0.137
Log-likelihood	-56762	-44536	-10644	-9859
n (countries)	20	20	20	20
n (observations)	169,428	169,428	18,238	18,238

Source: EU-SILC 2005, own computations.

Significance: *** $P < 0.001$, ** $P < 0.01$, * $P < 0.05$, + $P < 0.1$.

being poor. Part-time workers face a higher risk of poverty than full-time workers. Also self-employed workers are more likely to be poor.¹⁵ When we look at occupation, agricultural workers are at the highest

risk of being poor. Apart from this, there are clear differences between high- and low-skilled workers.

Table 2 (right panel) shows that also the extent of poverty reduction differs according to individual and

Table 3 Coefficients (log odds) of random intercept logit models on probability of pre-transfer poverty

	Models with macro-level variables only			Models with micro- and macro-level variables		
	M2a–e ^a	M3	M4	M5a–e ^b	M6	M7
Unemployment replacement rate	–0.006	0.004	0.004	–0.004	0.002	0.001
Family cash benefits	0.037	0.118	0.096	0.097	0.176 ⁺	0.170
Family services	–0.279 ⁺	0.042	0.049	–0.028	0.230	0.251 ⁺
Young unemployed living with parents	0.011***	0.012**	0.011**	0.006 ⁺	0.009 ⁺	0.005
Bargaining centralization	–1.280**	–0.909**	–0.847*	–1.319**	–1.165**	–0.961*
Unemployment			0.004			0.023
Economic growth			0.040			0.072
σ^2 (between countries)	†	0.053	0.050	†	0.075	0.057
ρ	†	0.016	0.015	†	0.022	0.017
Log-likelihood	†	–56752	–56752	†	–44529	–44526
<i>n</i> (countries)	20	20	20	20	20	20
<i>n</i> (observations)	169,428	169,428	169,428	169,428	169,428	169,428

^aCoefficients of five bivariate models.

^bMacro-level coefficients of five two-level models including all micro-level variables used in M1 (see Table 2).

†Not all information recorded for each of the five models.

Notes: Micro-level coefficients in M5–7 not reported.

Source: EU-SILC 2005 and various sources (see fourth section), own computations.

Significance: *** $P < 0.001$, ** $P < 0.01$, * $P < 0.05$, + $P < 0.1$.

household-related factors. For some groups with high poverty risks, transfers clearly work against their disadvantageous position in the pre-transfer distribution of incomes. As expected, workers with children—in particular young children—are lifted out of poverty by transfer payments more often than others. The same applies to women and workers who are living together with other adults. There are, however, also groups that profit less from transfers, although they also face above average poverty risks. As I have argued, migrants and workers with low qualifications are less likely to claim benefits due to their greater difficulties complying with administrative procedures. The respective negative effects in the model seem to confirm this expectation. The self-employed are a third group with a higher pre-transfer poverty risk and a lower probability that poverty will be reduced via transfers. In addition, workers in households with other workers are less likely to be lifted out of poverty by transfers. If we assume that households with more than one worker are likely to have a higher income than single-earner households, the expectation of lower transfers could explain this result. Regarding occupations, we can differentiate two groups of workers. First, there are higher officials/managers and agricultural workers, who have lower chances of being pulled out of poverty via transfers. Second, there are the rest of the occupations, which show fairly small and

often insignificant differences for the majority of workers.

I have argued above that country-level variation is probably already explained by individual-level factors due to composition effects. As we can see by comparing the variance components of the full models (M1) against the empty models (M0), this holds true only in the case of poverty reduction. But still a large proportion of variance remains unexplained since personal-level variables explain only 13 per cent of the country-level variance ($\sigma^2 = 0.523$ versus 0.599). Therefore, let us turn to the major question of this article, namely whether differences between countries can be explained by institutional factors. In a first step, I look at how country differences in pre-transfer poverty can be explained (Table 3) before I move to the question of poverty reduction. Given the small amount of between-country variance in pre-transfer poverty, we start with models that examine only single factors at the macro level (M2a–e). Step by step, these models are expanded to more complex models. I have argued that bargaining centralization will have the most important effect on pre-transfer poverty but that also the relation of needs and income in a household may play a role. With regard to the latter, I assume that the availability of family services like child care increases the number of earners per household and that intergenerational dependence increases the needs

Table 4 Coefficients (log odds) of random intercept logit models on probability of poverty reduction

	Models with macro-level variables only			Models with micro- and macro-level variables		
	M2a–e ^a	M3	M4	M5a–e ^b	M6	M7
Unemployment replacement rate	0.021*	0.006	0.006	0.021**	0.007	0.007
Family cash benefits	0.520*	0.406*	0.377 ⁺	0.475*	0.350**	0.295
Family services	0.898***	0.708*	0.711*	0.923***	0.761***	0.763***
Young unemployed living with parents	−0.021***	−0.003	−0.004	−0.021***	−0.002	−0.003
Bargaining centralization	1.231	0.243	0.268	1.385	0.452	0.454
Unemployment			−0.002			−0.008
Economic growth			0.033			0.050
σ^2 (between countries)	†	0.223	0.222	†	0.149	0.147
ρ	†	0.063	0.063	†	0.043	0.043
Log-likelihood	†	−10635	−10634	†	−9847	−9847
<i>n</i> (countries)	20	20	20	20	20	20
<i>n</i> (observations)	18,238	18,238	18,238	18,238	18,238	18,238

^aCoefficients of five bivariate models.

^bMacro-level coefficients of five two-level models including all micro-level variables used in M1 (see Table 2).

[†]Not all information recorded for each of the five models.

Notes: Micro-level coefficients in M5–7 not reported.

Source: EU-SILC 2005 and various sources (see fourth section), own computations.

Significance: *** $P < 0.001$, ** $P < 0.01$, * $P < 0.05$, + $P < 0.1$.

of a household. The first column of Table 3 reports the results of five different models, each containing a single indicator. As expected, there is evidence that bargaining centralization and factors which affect the relationship of needs and resources within the household influence worker's pre-transfer poverty risk. Poverty is lower in countries with centralized bargaining systems and higher if the share of young unemployed living with their parents is high. In addition, pre-transfer poverty tends to be lower in countries that spend more on family services. However, the effect is not significant at the 5 per cent level.

The other two influences prove to be robust if we include all indicators in a joint model (M3) and also after controlling for economic growth and unemployment (M4). If we move to more complex models, we see that only the influence of bargaining centralization is robust. If we include micro-level influences (M5a–e, M6), the influence of intergenerational dependence attenuates. It is more than probable that part of the effect is already picked up by the variables on household composition and employment structure at the micro level. As a consequence, the influence of bargaining centralization is the only one that receives support in all models. This confirms the hypothesis that mainly labour market institutions have an impact at the distribution of pre-transfer poverty.

The models presented in Table 4 deal in the same manner with the influence of institutional and economic factors on the extent of poverty reduction. I expect that the country differences in the degree of poverty reduction are primarily affected by welfare state characteristics. As seen above, the degree of country-level variance in poverty reduction is much higher than in the case of pre-transfer poverty. Nevertheless I start with simple models to document how the different factors affect each other. In a bivariate perspective (M2a–e) there are significant influences regarding the degree of decommodification and defamilization. As expected, the extent of poverty reduction is higher in countries with higher replacement rates and more generous family benefits. Furthermore, the degree of poverty reduction is lower in countries with higher intergenerational dependence. There is also a positive influence of family service expenditure. It is, however, difficult to explain why we find a positive effect. We cannot fully rule out that the variable picks up other, unobserved characteristics of welfare states.

Apart from the influence of expenditure on family benefits and services, none of the influences proves to be robust when we move to more elaborate models and include micro-level determinants and institutional macro indicators. Nevertheless the proportion of between-country variance (more than 15 per cent, see M0) is reduced to less than a third. By comparing

Table 5 Coefficients (log odds) of random intercept logit models on probability of pre-transfer poverty and poverty reduction

	Pre-transfer poverty			Poverty reduction
	M8	M9	M10	M8
Macro level				
A: Young unemployed living with parents	-0.006			
B: Family services		-0.137		
C: Bargaining centralization			-1.147**	
D: Family cash benefits				0.230
Cross-level interactions				
A × age	0.0003***			
B × child (0–5 years)		0.299***		
C × ISCED 0–2			-0.641***	
D × child (0–17 years)				0.176***
Micro level (selection)				
Age: In years	-0.133***	-0.117***	-0.116***	-0.012
Education (ref.: ISCED 4–6) ISCED 0–2	0.934***	0.940***	1.187***	-0.130*
Number of children/persons in hh (by age)				
0–2 years	0.626***	0.350***	0.630***	0.114*
3–5 years	0.453***	0.175***	0.455***	-0.137**
6–12 years	0.439***	0.439***	0.438***	-0.152***
13–17 years	0.662***	0.664***	0.662***	-0.337***
σ^2 (between countries)	0.132	0.151	0.101	0.417
ρ	0.039	0.044	0.030	0.112
Log-likelihood	-44502	-44479	-44520	-9817.9
<i>n</i> (countries)	20	20	20	20
<i>n</i> (observations)	169,428	169,428	169,428	18,238

Notes: Models contain same set of micro-level variables as M1 (results only reported if variables are specified as cross-level interaction).

Source: EU-SILC 2005 and various sources (see fourth section), own computations.

Significance: *** $P < 0.001$, ** $P < 0.01$, * $P < 0.05$, + $P < 0.1$.

Model M3, M4, and M6 we see that most of this reduction is due to institutional factors. It is also important to note that bargaining centralization—being the most relevant factor in the explanation of pre-transfer poverty—plays no significant role in the explanation of poverty reduction via transfers. This result highlights the importance of distinguishing between institutional factors that alter the incidence of pre-transfer poverty and factors that have an impact on the extent of poverty reduction. As a preliminary conclusion, we can say that labour market institutions are important for the former while welfare state characteristics are important for the latter.¹⁶

After having examined individual- and country-level influences, I come now to the third and last step of the analysis. As argued above, it is most likely that institutional factors not only influence the general incidence of in-work poverty and the general extent of poverty reduction but also structure group-specific poverty risks. To test the respective hypotheses, we look at models that contain in addition to the

variables used before a number of cross-level interactions (Table 5). Three models deal with pre-transfer poverty, a fourth with the extent of poverty reduction. The results do not confirm all the hypotheses I discussed in the third section. Against the expectations, the poverty risk of employed persons with small children is higher in countries with higher spending on family services. This result is robust even if we do not control for the number of employed persons per household at the micro level, which is expected to pick up part of the institutional influence. The effect is smaller but still significant (results not reported). In contrast, there is evidence that low-qualified workers are less likely to be poor in countries with centralized bargaining systems. This is inline with previous research, which shows that bargaining centralization, in particular, affects workers at the lower end of the wage distribution. The results also support the hypothesis that the risk profile by age differs between countries with high and low intergenerational independence. The respective interaction effect is positive.

Hence, the U-shaped influence of age is flattened out. This means that the poverty risk is shifted from younger to older workers. While younger workers are protected in the family context, older workers face additional needs. The last model deals with the interaction between the generosity of family benefits and the extent of poverty reduction related to children in the household. We find a positive interaction effect, i.e. the more a country spends on family benefits, the more likely it is that workers with children will benefit from transfers and be able to move out of poverty. The fact that we find significant cross-level influences inline with the expectations (with one exception) further supports the hypothesis about the relevance of institutional factors in explaining country differences in the incidence of in-work poverty and the extent of poverty reduction via transfers.

Conclusions

This article has analysed the incidence of in-work poverty and how it is reduced by the payment of social transfers in 20 European countries. This broad comparative perspective allowed for the separation of different institutional influences, namely the influence of the degree of decommodification, defamilization and bargaining centralization. In contrast to previous studies on the working poor, which have mainly described country differences in in-work poverty, this article has focussed how such differences can be explained from a broader perspective which is known from comparative research on poverty, in general, or on low-wage work. The results confirm the overall hypothesis of this article that welfare state measures and labour market institutions both have an influence on in-work poverty. By analysing influences on pre-transfer poverty and poverty reduction separately, I demonstrated that these factors affect in-work poverty in a varying manner. While bargaining centralization proved to be relevant for the distribution of pre-transfer incomes only, the set-up of the transfer system (unemployment replacement rates, expenditure on family cash benefits) mainly impacted the extent of poverty reduction. Against my initial expectations, the availability of family services strongly influences the extent of poverty reduction but has hardly any effect on pre-transfer poverty rates. Furthermore, workers with children are more likely to be poor in countries with higher spending on family services. If we argue that the availability of family services—mainly child-care—is expected to increase the number of workers within family households we would expect the

opposite result. This result proved robust to modifications of the model as well. An alternative explanation is that women with children are pushed into the labour market without being able to secure an income that would prevent them from falling into poverty. This is certainly a question for further research which needs to be addressed in a longitudinal perspective using better measures of the concept of defamilization, which are not yet available for a larger number of countries.

Although the main focus of the article has been to show the influences of welfare state measures and labour market institutions, we should not ignore the fact that individual and household-related factors play an important role in explaining who is working but poor and who is not. The analysis of pre-transfer in-work poverty indicates that the risk profile of the working poor does not differ from the risk profile in general poverty studies. Workers with low resources who are living in households with higher needs and face larger restrictions are more likely to be poor. But the extent of poverty reduction is structured by individual and household-related factors. While workers with children are more likely to be pulled out of poverty, in particular in countries with high family cash benefits expenditures, other groups like migrants not only face a higher risk of being poor relative to the pre-transfer poverty line but are also less likely to receive transfers. It is likely that not only the differing availability of benefits but also differences in take-up rates shape the profile of the working poor after transfers are paid.

Notes

1. There are not many studies on the working poor from either of the two perspectives. In comparison to studies on differences between welfare regimes in poverty at large Peña-Casas and Latta (2004) find less pronounced differences in the incidence of in-work poverty. Lohmann (2007) comes to a similar conclusion, but stresses differences in the composition of the working poor according to welfare regime. The macro approach has been applied often to the analysis of overall poverty. For instance, Moller *et al.* (2003) show an influence of a country's employment structure and mechanisms of wage coordination on pre-transfer poverty and an impact of welfare state generosity on the degree of poverty reduction.

2. Besides wage setting mechanisms, other labour market institutions like EPL may influence in-work poverty in a less direct manner (see the discussion at the end of this section).
3. There is evidence that also take-up rates are influenced by characteristics of transfer systems. However, cross-national evidence is rare (see for an overview Hernanz *et al.*, 2004). On the basis of the existing results, it is difficult to produce sound hypotheses concerning country-specific levels of non-take-up (but see the discussion of individual characteristics affecting benefit take-up in the third section).
4. Social transfers include unemployment benefits, sickness benefits, disability benefits, education-related allowances, family/children-related allowances, social assistance, etc., and housing allowances.
5. The correlations of the poverty rates for each country based on different poverty lines are fairly high (50/60 per cent line: 0.964, 40/60 per cent line: 0.882). The choice of an alternative equivalence scale has an even lower impact on the extent of country differences (correlation of 60 per cent poverty rates using the two different equivalence scales: 0.991). However, Buhmann *et al.* (1988) have demonstrated that also the poverty risk according to household type differs by the choice of equivalence scale. This is addressed in the discussion of results in sixth section.
6. It would also be worthwhile to take into account the influence of taxation. Unfortunately, EU-SILC does not contain information on gross incomes for all countries. Therefore, the analyses deal with the effect of social transfers only.
7. An inherent feature of the approach to comparing poverty rates based on pre- and post-transfer income is that it makes the counterfactual assumption that the pre-transfer distribution would be the same if no transfers were available (Ringen, 1987; Bergh, 2005).
8. The benefit level differs according to household type and previous level of income. Hence, the OECD publishes figures for a number of different constellations. The indicator used in this analysis has been calculated as the average of all group-specific indicators. Replacement rates refer to a 5-year period following unemployment.
9. The post-transfer poverty rates equal the in-work poverty rates published at the EUROSTAT website (State: 21. April 2008). There are, however, differences between figures from national social reporting and the EUROSTAT figures. For instance, poverty rates calculated on the basis of the German Socio-Economic Panel (GSOEP) are much higher than on the basis of EU-SILC, which has led to concern about a potential bias in the German EU-SILC sample (Hauser, 2008).
10. This is due to the fact that two different poverty lines are defined, one on the basis of pre-transfer income, a second on the basis of post-transfer income. Persons with an income near the pre-transfer poverty line who do not receive transfers are the most likely to be pushed into poverty in the process of redistribution.
11. The correlation between the degree of poverty reduction excluding/including old-age benefits is 0.928. The high degree of consistency is also reflected in the ranking by the extent of poverty reduction of the Nordic and Southern countries which are most likely to differ on the basis of the two different measures: Greece 20/20, Spain 19/18, Portugal 18/17, Italy 17/16, Sweden 1/2, Norway 3/3, Denmark 4/6, Finland 6/4. The following analyses focus on the mechanisms behind the payment of social benefits only. The effect of old-age benefits would need to be analysed separately since they are granted on a different basis (but see Lohmann 2007 on the impact of different types of transfers on in-work poverty).
12. For the computation of the intra-class correlation, I assume a personal-level variance of $\pi^2/3$ which is implied by the logistic distribution of the respective residuals (Snijders and Bosker, 1999: 224).
13. The categories of the variable in EU-SILC are not the same in every country. Therefore, the measurement of migrants differs from country to country. In some countries, persons are coded as natives who are coded as migrants in other countries. However, every person coded as migrant is either not born in a given country or/and does not have the nationality of the country he/she lives in.

14. To control for the sensitivity of results to the choice of equivalence scales, the model has been estimated using a poverty indicator calculated using the non-modified OECD scale. According to these results, the poverty risk of persons in households with children and a larger number of adults is higher, as can be expected when using higher weights for additional household members. However, these are only differences in the size of the coefficients. There are no significant coefficients pointing in the opposite direction.
15. Also fixed-term workers are more likely to be poor. Since information on the type of labour contract is missing in a large number of countries, the variable is not included in the analysis. However, the results for a subsample of countries provide additional support for the view that non-standard workers are more likely to be poor.
16. In the second section, I discussed a potential influence of the strictness of EPL on in-work poverty. Since the respective indicator (OECD, 2004: 117) is not available for all countries, it has not been used in the main analysis. Results on the basis of a large subsample show that EPL has no robust influence on pre-transfer poverty or on poverty reduction. In a bivariate perspective, the degree of poverty reduction is lower in countries with strict EPL. This effect attenuates to insignificance when controlling for the level of transfers. Hence, this result supports the view that one function of strict EPL is to provide protection in countries with weak social transfer systems (Esping-Andersen, 1999).

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