COUNTRY DIFFERENCES IN THE EFFECT OF GENDER ON POVERTY IN EUROPE.

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Abstract

This paper uses a multilevel model to explain country differences in the gender gap in the risk of being poor, entering into poverty and exiting from poverty in a large number of countries. Research questions are whether the country differences with respect to the gender effect on poverty can be explained by differences between the countries in the composition of their populations (micro-level or individual perspective) or by structural characteristics of the countries (macro-level or structural perspective). In order to answer our descriptive and explanatory questions, we will make use of the European Union Survey on Income and Living Conditions (EU-SILC) 2008.

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1. Introduction

Since 2005, the risk of poverty rate in the enlarge European Union (EU27) has been nearly stable, varying between 16% and 17%. The highest at-risk-of-poverty rates in 2008 were found in Latvia (25.4%), Romania (23.3%), and Bulgaria (21.4%), and the lowest in the Czech Republic (9.1%), the Netherlands and Slovakia (both 11%). Some literature suggests that poverty is not gender neutral and that the most persisting differences between men and women is that of poverty rates. In many countries more women than men are poor, though countries differ with respect to the gender poverty gap.

The first aim of this paper is to examine the extent of the gender gap in the risk of being poor, entering into poverty and exiting from poverty in a large number of countries. A second step of the analysis investigates whether the country differences with respect to the gender effect in the risk of being poor, entering into poverty and exiting from poverty, can be explained by differences between the countries in the composition of their populations (micro-level or individual perspective) or by structural characteristics of the countries (macro-level or structural perspective). In order to answer our descriptive and explanatory questions, we will make use of the European Union Survey on Income and Living Conditions (EU-SILC) 2008.

Poverty analyses frequently use information on economic resources at the household level, assuming that all individuals in one household are equally poor or rich. Previous studies show that when households are taken as the unit of analysis, the poverty rates of men and women are very similar. However, when you look inside the households, specific forms of female poverty are revealed. Therefore, this 'unitary household assumption' has been questioned in the literature because it has limitations to show gender inequalities in the status and risk of poverty (Haddad and Kanbur, 1990; Lundberg et al., 1997; Baschieri and Falkingham, 2009). As a consequence, researchers who are interested in gender differences in poverty incidence try to avoid the use of this assumption. We think it is appropriate to meet this need, and therefore in this paper we restrict the focus on those households whose gender-specific characteristics are known. Following Wiepking and Maas (2005), we concentrate our analyses on "single" men and women, that is, those households where there is only one adult and is therefore easy to establish a relationship between poverty and the gender of the individual. This group is not literally single because it includes widows and widowers, divorced men and

women, and men and women living with children. Important, though, is the exclusion of households in which men and women live together. It is difficult to differentiate between poor and not-poor individuals within one household. In most research on poverty, therefore, all household members are assumed to be equally poor. Households containing both a man and a woman can thus, by definition, not contribute to a gender-poverty-gap. Obviously, the interesting issue would be to compare poverty incidence of all women with that of all men in a population and not only of households for which gender-specific attributes are known, but the lack of information about intrahousehold resources allocation restricts our analysis.

The literature has been divided between two distinct approaches when explaining poverty: micro-level and macro-level studies of individual poverty across different countries. Both approaches have clear strengths. The micro-level approach effectively scrutinizes the precise mechanisms of individual poverty. In many micro-level studies, there is no information on macro-level characteristics. So, unless such macro-level differences manifest at the individual level, the macro-level context remains unobserved (Brady et al. 2009). Often cited, macro-level studies may suffer from a black-box problem of causal inference because micro-level mechanisms are unobserved (Goldthorpe 2000). Moreover, macro-level studies can only control for individual characteristics such as family structure at the aggregate level (e.g., the rate of single motherhood). Given these considerations, there is a clear need for research that combines micro and macro-levels, which methodologically implies the use of multilevel models. Fortunately, this analytical strategy has made great progress in recent years, and a rich literature exists on multi-level modelling.

Our study add to the existing research by analysing the country differences in the effect of gender on poverty from two different standpoints: the static, where we analyse gender differences on the risk of being poor and the dynamic, where we investigate gender differences in the risk of exiting poverty and in the risk of entering into poverty. We also contribute to the literature of poverty by explicitly adding a structural dimension to the predominantly individually oriented study field of poverty, poverty entries and poverty exits. Our analysis method took advantage of multilevel techniques especially suited for the analysis of such mixed-level data. To our knowledge, our study is among the firsts to estimate a multilevel model of poverty across affluent

democracies (Wiepking and Maas 2005, Brady et al. 2009 and Callens and Croux 2009).

The paper is structured as follows: next section revises some significant papers on the study of gender poverty gap. Section 3 reviews important hypothesis from the individual and structural perspectives on static and dynamic poverty. Section 4 describes the data used and the variables introduced in the study. The method of analysis is explained in section 5. Section 6 presents and discusses the results of our analysis. The final section concludes.

2. Background

There are considerable literature on cross-national differences in poverty between men and women, but very little has been publish on cross-national gender differences in the risk of making transitions into poverty or out of poverty. Most of the studies dealing with the gender differences in poverty are concentrated in industrialized countries. Casper et al. (1994) examine gender differences in the relative poverty of men and women in eight industrialized countries. They conclude that the relative importance of demographic characteristics differs by country and that factors such as religion, culture, and government policies also play a role in determining the gap between women's and men's poverty rates. Wright (1996) studies nine industrialized countries and finds that women are over-represented amongst the poor in some countries, but under-represented in others. He states that the latter part of this conclusion is in sharp contrast with conventional views about the relationship between gender and poverty in industrialized countries, which is that women are more often poor than men.

In a study of developed and transitional economies using the Luxembourg Income Study (LIS), Pressman (1998, 2002, 2003) finds that female-headed households suffer relatively greater poverty in some countries, but not in others. He concludes that there is no single reason for gender differences in poverty, but many country-specific causes (i.e. the type of welfare state and the character of social policies and spending programs).

Among those studies concerning the transitions from and to poverty, one of the first publications on the gender differences in the risk of being poor was by Smeeding et

al. (1990). They pay special attention to single-parent households that are assumed to be largely female headed.

More recently, Wiepking and Maas (2005) describe and explain country differences in the effect of gender on the risk of being poor, using data from the Luxembourg Income Study on 22 industrialized countries. They conclude that both composition and country effects explain a substantial part of country differences in the poverty gap. They finally end up with country effects seeming somewhat more important than composition effects. Fouarge and Layte (2005) study poverty transitions into and out of poverty in eleven European countries, but they do not analyse gender differences. They evaluate how well the different welfare states of Europe perform in terms of preventing recurrent and persistent income poverty and what household and individual characteristics influence poverty duration. They increase our understanding of the effect of the institutional context within which poverty occurs. Brady et al. (2009) analyze how political context, embodied by the welfare state and Leftist political actors, shapes individual poverty. Using the Luxembourg Income Study, they conduct a multi-level analysis of working-aged adult poverty across 18 affluent Western democracies and find that poverty is shaped by individual characteristics and the political context in which the individual resides. Schnepf (2010) use individual data on subjective well-being to examine the extent of gender differences in welfare transition countries. She finds that relatively little of the gender gap can be attributed to gender differences in socio-economic position in transition countries, but certain attributes, such as higher education and unemployment, impact differently on reported well-being for women and men. Callens and Croux (2009) analyse poverty in a dynamic perspective. They use multilevel recurrent discrete-time hazard analysis to simultaneously model the impact of life cycle events and structural processes on poverty entry and exit across European regions. One of the main findings is that regional structural factors only have a slight or no influence on poverty transitions, but the welfare regime turns out to be highly significant for poverty entry. The statistical modelling was done for men and women separately. One could also consider a joint model. And this is what we do in our analysis.

3. Theory

As pointed out in the introduction, in the related literature, there exist two alternatives to explain gender differences in poverty and its dynamics. Usually, the related studies, see for example Pressman (2003), Wiepking and Maas (2005), Callens and Croux (2009), Brady et al. (2009) and Schnepf (2010), consider either the individual or micro-level perspective or the structural or macro-level perspective of poverty. Among those factors that are included into the individual perspective, we present some hypotheses that are commonly considered in the literature.

- Human Capital Hypothesis. Wiepking and Maas (2005) and Callens and Croux (2009) point out the hypothesis that assumes that, first, women not only build up less human capital due to more often interrupts, but also they are less willing to accumulate human capital due to the lower expected returns; and secondly, that employers are also less willing to invest in training for women. Since the possession of human capital leads to better jobs and more financial security, we can derive that women have higher poverty risks than When men are more advantaged with respect to human capital in one country than in another, we also expect the gender-poverty-gap to be larger and more in favour of men in the first country. Therefore, cross-national gender differences in poverty can partly be explained by country level gender differences in human capital.

- Age Hypothesis. As pointed out in Wiepking and Maas (2005), the age hypothesis relies on the demographic composition of the population, that is, while we can find women and men being young singles and middle age divorcees, the majority of old widows and divorcees are women. Poverty rates are larger among older singles than among younger singles because the older ones do not accumulate more human capital, do not participate in the profits of emancipation. Therefore, country level differences in age can partly explain cross-national gender differences in poverty.

- Employment Status Hypothesis. Pressman (2003) studied the influence of occupational sex segregation, in the sense that evidence shows that women are systematically excluded from higher-paying occupations. Wiepking and Maas (2005), also points out women are more likely to have a non-paid job (the paid-

work hypothesis). Callens and Croux (2009) analyze the role of employment in the likelihood of poverty entry and exit. Thus we expect that the employment status will partly explain cross-national gender differences in poverty.

- Household Structure Hypothesis. Related to the human capital hypothesis, Pressman (2003) studied some features of parenthood leads to lower earnings for women, that is, (i) female parents will take care of children, an activity that takes away from earning incomes; (ii) it also prevents women for taking some kinds of jobs (time demanding ones) which usually are highly paid; and (iii) besides, families headed by a single mother are likely to have only one adult earner (not only reducing income but also increasing risk about income). Wiepking and Maas (2005) consider what they called the children hypothesis, that single women more often take care of children than men, either the group of women were never married or cohabited, or the group of divorced women. Children rearing is costly in time, then single women with children are more likely not to work or to work part-time, and even in the case of working full time, the choice of jobs is restricted to those not being time demanding. Similarly, Callens and Croux (2009) analyze the hypothesis that marital status will change the likelihood of poverty entry or exit and the idea that the impact of demographic events is larger for women, due to their dependence on partners' income. Consequently we derived from the Household Structure Hypothesis that those individuals with dependent children exhibit more probability to be poor, stay poor and becoming poor. In the same sense those individuals who have never been married exhibit more probability to be poor, stay poor and becoming poor as those divorced or separated could receive some income through payment alimentation, or widow payments. Both factors can partly explain gender cross-national differences in poverty

There are some other hypotheses that are either based on those presented above, or mix some of the arguments. Callens and Croux (2009) proposed the life cycle hypothesis that assumes that workers are not poor during their whole life, but only during specific moments (children, divorcing, retirement, etc.). Finally, as pointed out by Schnepf (2010), we can think in poverty as being not gender neutral. Women experience more frequently those characteristics that are generally associated with poverty (single-

parenthood, unemployment, less access to high paid job, returns to education larger for men, etc.).

We also present some hypotheses that are commonly considered in the literature that cover the structural perspective.

- Economic Growth Hypothesis. Wiepking and Maas (2005) considered the effect of economic growth, since in countries with high economic growth, there exists less income inequality (last part of Kuznets' U). Poverty is more likely to occur when income inequality is larger. This hypothesis is gender neutral. Therefore differences in growth among countries can help to explain gender differences in poverty.

- Social-Democratic-Government Hypothesis. Wiepking and Maas (2005) explores the idea that in non-communist countries, social democratic governments are more concern about inequality, in particular disadvantages of women, than liberal governments. Callens and Croux (2009) pointed out that policy systems and market institutions might have a different impact on poverty. They consider that if poverty transitions are dominated by labour income (other income) dynamics, the social democratic government leads to higher poverty dynamics. Brady et al. (2009) also pointed out the role of political context. Thus, political context can be another source to explain gender differences in poverty.

- Welfare State Hypothesis. Wiepking and Maas (2005) explore the idea that the higher the social security benefits, the more likely women and men will cross the poverty line. Brady et al. (2009) consider the relationship between welfare state generosity and poverty. Welfare states manage against risk and distribute economic resources more favourable to the poor.

- Emancipation Hypothesis. Wiepking and Maas (2005) explored the idea of that, in countries where emancipation of women is generally high, the poverty gap should be lower.

4. Data and measurement and variables

In this paper we describe and investigate the causes of the differences in the size of the effect of gender on the risk of being poor, entering poverty and exiting poverty between European countries. Consequently we test the following hypotheses, which incorporate the hypothesis described in the introduction:

- There are country differences with respect to the gender effect on the risk of being poor (also on the risk of entering and exiting from poverty)
- These country differences can be explained by different composition of the population of the countries (individual perspective).
- These country differences can be explained by characteristics of the countries, such as growth, social transfers, emancipation, etc. (structural perspective).

In order to answer the descriptive and explanatory hypothesis we make use of the EU-SILC for the year 2008, an international database that consists of country specific comparable data. We work with two different files. The static analysis is carried out over 57,804 observations of individuals living in households with one adult from 27 different countries. The dynamics analysis is based on the information of the years 2007 and 2008 for 32,855 observations of individuals living in households spread over 21 countries[3].

Table 1 and Table 2 include the gender composition of individuals living in households with one adult in the static and dynamic analysis respectively. The former analysis show that the percentage of women is larger than the half of the population in all countries except in Belgium and Hungary, whereas the latter analysis points out that this only happens in Italy.

---------- Insert Table 1 and Table 2 about here ----------

Definition of poverty

Poverty is usually considered as a family characteristic rather than an individual one. That is, people are defined as poor or non-poor depending on the economic status of the family with which they live.

Among the different options to define poverty we have chosen an objective,

[3] We have fewer countries in the dynamic analysis due to missing information on some variables used.

relative definition. Individuals are counted as poor if their disposable[4] equivalent income (y_i^e) falls below 60% of the contemporary median equivalent income of the country where the individual lives.

The first step in the procedure to adjust household income for the composition of the household involves computing the number of equivalent members for each household i with k_i members as $\sum_{j=1}^{k_i} q_j$, where q_j represents the individual equivalent coefficients and is determined by member j's age and role in the household. We use the modified-OECD equivalence scale[5]. Total household income is computed for each household i with k_i members as $\sum_{j=1}^{k_i} y_i^j$, where y_i^j represents each individual member's total annual monetary income. Combining this figure and the number of equivalent members in the household, the total household equivalent income is defined by the following expression:

$$y_i^e = \frac{\sum_{j=1}^{k_i} y_i^j}{\sum_{j=1}^{k_i} q_j}$$

Using this definition we find that 23.7% of all single men are poor, against 31.6% of all single women in the 28 countries analysed. In this case women have greater poverty rates than men in the countries analysed, but this is not the same for all the countries (see Table 3). Poland, Hungary and Finland exhibit greater poverty rates for men. We not only explore poverty gaps from the static perspective, but also from the dynamic perspective.

---------- Insert Table 3 about here ----------

The exit rates at time t refer to persons that are at risk of exiting, so they are in poverty at time t-1. Exit rates are calculated by dividing the number of persons ending a spell at time t by the total number with low income at time t-1. Re-entry rates were calculated analogously. Using these definitions we get that the exit rate for single men is 33.5% against 30.7% for single woman in the 21 countries analysed. On the other hand, entry rate is greater for single women (10.3%) than for single men (7.7%). That is,

[4] Disposable income does not include in-kind transfers, such as health care, housing, and child care, all of which improve economic welfare and vary considerably by country.

[5] This scale assigns a value of 1 to the first adult in the household, 0.5 to each remaining adult, and 0.3 to each person younger than 14.

single women not only have higher poverty rate, but also have higher poverty entry rates and smaller exit rates. This is not the case for all the countries analysed (Table 4). There are many countries where poverty exit rates are lower for women. On the other hand, Slovenia Sweden, Poland, Luxembourg and Estonia show greater entry poverty rates for men.

---------- Insert Table 4 about here ----------

As pointed out in the introduction, we are interested in analysing country differences in the effect of gender on the risk of being poor, on the risk of exiting poverty and on the risk of entering into poverty. To this end, we have posted some hypothesis not only from the individual perspective, but also from the structural perspective. With this in mind we describe the set of variables to cover the proposed hypothesis.

But before that, the key variable in this analysis is *Woman*; recall that our aim is to explain country differences in the effect of gender. *Woman* is coded 1 if the adult in the household is a woman and 0 otherwise. Obviously there are more women than men in the data. This is mainly due to an over-representation of women among older singles in files, the longitudinal and the cross sectional one.

First, to cover all factors that can be grouped as the individual perspective of poverty and its dynamics, we include the following variables. To test the Human Capital Hypothesis, we consider the level of education. In EU-SILC, the educational attainment of a person is the highest level of an educational programme the person has successfully completed and the study field of this programme. The educational classification to be used is the International Standard Classification of Education (ISCED 1997) coded according to the seven ISCED-97 categories. The variable *Tertiary* has been coded 1 if the first stage of tertiary education (not leading directly to an advanced research qualification) or second stage of tertiary education (leading to an advanced research qualification) has been attained and 0 otherwise. In 2008, 29% of all single men had tertiary education compared with 22.4% of single woman.

To include the idea behind the Age Hypothesis, we include two variables related to age. We consider the age groups: below 20 years of age, variable *Young*, between 20 and 65 (the reference group), and over 65, variable *Old*. As pointed out before, the individual's age could be seen as an indicator of work experience and, therefore, of

human capital. Besides, the individual's age reflects the demographic composition of the population, which could cause gender differences in poverty. We find that 60.7% of young singles are women and 55.4% of middle singles are women, while 73.6% of old singles are women. As expected, due to life expectancy, we find that the majority of individuals older than 65 are women.

Work is a variable based on the self-declared main activity status, in principle, determined on the basis of the most time spent. This variable captures the Employment Status Hypothesis. *Work* is coded 1 for those working full time for pay or profit, and 0 otherwise. The distinction between full-time and part-time work should be made on the basis of a spontaneous answer given by the respondent. In 2008, 48.4% of all single men worked full time, compared with 25.7% of single woman.

The Household Structure Hypothesis is modelled through the variable *Children*, that is, represents the number of household members aged 13 or less. Having children is less common among single men (3%) than among single women (18%). In 2008, the mean number of dependent children for single men was 0.06 against 0.28 for single woman. The low number of children is due to the high presence of one person household without children. We also include information about marital status, that is, the variable *Marital* is coded 1 if women were never married, and 0 if women were divorced, separated or widowed.

Secondly, to cover all factors that can be grouped as the structural perspective of the poverty and its dynamics, we include the following variables. To test the Economic Growth Hypothesis, we include the variable *Growth*, which is obtained from records of the United Nations Organization (UNO). We use the growth rate of GDP at constant prices (base 1990) by country for period 2007. Economic growth varies between 0.7 (Iceland) and 12.7 (Germany).

To capture the Social-Democratic Government Hypothesis, we include as an independent variable the sign of the political party. We construct a variable *Political* from the European Union data set. It takes value 1 if the government is not a social democratic government.

EU-SILC contains information on social transfers of households in different countries analysed, which allows us to test the Welfare State Hypothesis. The variable *Transfers* is constructed by defining for each country the ratio of the mean social

transfers (of all individuals in the dataset receiving social transfers) and the median household equivalent income in this country. In this way countries can be compared with respect to the extent that the social security prevents individuals from being poor. Norway and Iceland show the smallest ratios (around 0.3 times the median income) while in Romania and Hungary the amount of social transfer is relatively large compared to median income (0.8 and 0.66 respectively). In these last countries the mean social transfers is greater than the poverty line.

The Emancipation Hypothesis can be captured by the following three variables: the female tertiary students (*FemTer)* which measures the percentage of women with tertiary studies in the country as a percentage of male rate. This variable has been obtained in the EU-SILC dataset.

5. The model

We use a logistic regression to explain differences in the size of the effect of gender on the risk of being poor, entering poverty and exiting poverty among European countries. The equations treat poverty as a function of different variables defined under the individual (micro-level) and the structural (macro-level) perspective. The logistic regression model is typically utilized in order to examine binary dependent variables (e.g., whether or not poor, exiting or not from poverty, and entering or not into poverty). However, as pointed out by Brady et al. (2009), due to the clustering of individuals within countries and the inclusion of country-level variables, the standard logistic regression model violates the assumption of the independence of errors. A natural way to analyse such a hierarchical data structure is to use contextual regression models. Contextual regression models integrate variables at several levels of a hierarchy in one analysis. Kreft and de Leeuw (1998) notice three different approaches in contextual regression modelling: traditional non-hierarchical extensions (e.g. separate regressions), classical contextual models (e.g. analysis of covariance) and modern multilevel models (random components).

Callens and Croux (2009) point that, traditionally, in non-hierarchical models the nested nature of the data has been ignored completely. In classical contextual models and in modern multilevel models, individual and country-level variables can be introduced simultaneously. These methods adequately can split the variation into a between-

individual level and a within-country level, but each in their own way. Classical contextual models let the intercept and/or the coefficients vary in a fixed way, while modern multilevel models allow the intercept and/or the coefficients to vary randomly.

We prefer to model the nesting of individuals i within countries c using mixed effects model. Mixed models contain both fixed effects and random effects. The fixed effects are analogous to standard regression coefficients. The random effects are summarized according to their estimated variances and covariances. We make random effects to take the form of both, random intercepts and random coefficients, and the grouping structure of the data consist of multiple levels of nested groups (individuals nested into countries). The distribution of the random effects is assumed to be Gaussian.

Formally, model (1) for the logit transformed hazard rate for individual i belonging to country c becomes accordingly:

$$\log(p_{ic}/(1 - p_{ic})) = \beta x_{ic} + z_{ic}\,\xi_c + \varepsilon_{ic} \qquad (1)$$

where ε is the error term , which for a binary logistic model is distributed as a logistic cumulative density function with mean of 0 and variance of $\pi^2/3$. ξ_c designate the random effects. ξ_c as random effects is distributed as a known probability distribution (Gaussian in our case). z_{ic} designate both random intercept and random slopes. For random intercept model z_{ic} is 1.

The random deviations ξ_c have intercept variance σ^2. This variance is an extra parameter to be estimated. If it is significantly different from zero, then we can say that country effects are present.

In order to test our hypothesis we propose four models. We define *Poor* as a dummy variable, which takes value 1 if the individual's disposable equivalent income falls below 60% of the contemporary median equivalent income of the country where the individual lives.

Model (A), a random effects (random intercept and random slope) model with only one explanatory variable *Woman*, given by:

$$Log\,(P_{poor,ic}/(1-P_{poor,ic})) = \beta_{i1} \times Woman_i + \xi_c + \zeta_c \times Woman_i + \varepsilon_{ic} \qquad (A)$$

allows us to investigate if there are indeed differences between countries with respect to the effect of gender on the risk of poverty. In this way we will test if the level of the

response varies over the clusters or countries and if the effect of *Woman* varies over countries.

In order to analyze whether the gender differences in poverty among countries can be explained by compositional differences (individual perspective) of their population we estimate model (B). (B) is a random intercept and random slope model that incorporates individual-level explanatory variables. We test the micro-level hypothesis proposed in the introduction.

$$Log\ (P_{poor,ic}/(1-P_{poor,ic})) = \beta_1 \times Woman + \beta_2 \times Tertiary + \beta_3 \times Young + \beta_4 \times Old + \beta_5 \times Work + \beta_6 \times Children + \beta_7 \times Marital + \xi_c + \zeta_c \times Woman_i + \varepsilon_{ic} \quad (B)$$

An extended random effects model (C) will be used to test the macro level hypotheses.

$$Log\ (P_{poor,ic}/(1-P_{poor,ic})) = \beta_0 + \beta_1 \times Woman + \beta_8 \times Growth + \beta_9 \times Political + \beta_{10} \times Transfers + \beta_{11} \times FemTer + \xi_c + \zeta_c \times Woman_i + \varepsilon_{ic} \quad (C)$$

If the country-level intercept variance is zero , then it is said that the country-level variables capture the country variation and there is not significant country heterogeneity left.

We look at country level effects without and with taking individual effects into account. Therefore we also extend model (B) by introducing country level effects:

$$Log\ (P_{poor,ic}/(1-P_{poor,ic})) = \beta_0 + \beta_1 \times Woman + + \beta_2 \times Tertiary + \beta_3 \times Young + \beta_4 \times Old + \beta_5 \times Work + + \beta_6 \times Children + \beta_7 \times Marital + \beta_8 \times Growth + \beta_9 \times Political + + \beta_{10} \times Transfers + \beta_{11} \times FemTer + \xi_c + \zeta_c \times Woman_i + \varepsilon_{ic} \quad (D)$$

We propose analogous models for the risk of entering into or exiting from poverty. Therefore, we estimate, with logistic methodology, the equivalent Model(A)-Model(D) for the dependent variables $Pr(Poor_t=1 \mid Poor_{t-1}=0)$ for the risk of entering and $Pr(Poor_t=0 \mid Poor_{t-1}=1)$ for the probability of exiting from the poverty. As pointed out before, we consider years 2008 and 2007 for the dynamic dimension of poverty. Again we test the explanatory power of either individual level variables or the structural level variables testing a multilevel model.

6. The empirical results

Concerning the determinants of gender differences in the risk of being poor, the four models estimated are presented in Table 5. The determinants of gender differences in the risk of exiting and entering poverty respectively are shown in Table 6 and 7.

For the four considered models (A, B, C, D) in the risk of being, exiting and entering into poverty the variance components are significant. Hence, even after introducing country level explicative variables, there is still a significant part of the unexplained variance due to the country differences that is being picked up by the random effects. As the random slope is significantly different from 0 in all models the effect of the gender over the risk of being, becoming poor or not poor varies over countries, and it is not eliminated by the micro or macro level variables introduced in the models.

---------- Insert Table 5 and Table 6 and Table 7 about here ----------

Results for individual level variables.

In the four models the probability of being poor is larger for women, if we consider the simplest model and if we include either individual level variables or structural level variables.

Model B and D show that being a woman, being less than 20 years old, having children and not being married previously are characteristics that significantly increases the single's odds of being poor. According to the odds ratio the greatest effect is being under 20 years. Being a woman increases the odds of being poor by 1.179 (no structural variables into account). Younger singles have odds of being poor about 10 times higher than middle age singles. Those singles with children have more chances to be poor than those that do not have them. With each additional child the odds of being poor increase by 22%. The fact that the singles were never married increases the probability of being poor by around 30%, related to the ones that although being singles they were married once. This can be due to the fact that those never married do not have other economic resources that come from previous partner.

On the other hand, characteristics that reduce the odds of being poor are: having a better education, being over 65 and having a paid job. The greatest influence regards having a job. Those with a paid job have an 85.5 % reduction in the odds of being poor

compared to those without job. Having more than secondary education reduces to half the odds of being poor. Surprisingly elderly singles have around half the odds of being poor than middle aged singles. Given that poverty is widely known to be greater among elderly, it is important to emphasize that this is net of labour market characteristics (elderly do not have a paid job). Net of the labour market participation, the odds of being poor is actually less for elderly singles. In sensitivity analyses, we estimated a reduced form model – omitting the variable *Work* – and the odds of being poor were significantly greater for elderly singles. But, perhaps unsurprisingly, greater poverty among elderly can be accounted for by labour market status variable introduced in the model.

Given the large sample, the odds ratio and significance levels are fairly stable across models in Table 5. The estimated coefficients in B are close to those of D, indicating robustness of the estimation procedure.

We now turn to the results on poverty exit, reported in Table 6. In this case women present lower odds ratios of exiting poverty than men when we do not control by other variables.

The greater effects in exiting poverty are related to age, labour market status and education. Compared to middle age, not having a job and low education, younger age, having a job and higher education increase the odds of exiting from poverty significantly. On the other hand, older singles, those with children and those never married have lower odds of exiting poverty.

Again, given the large sample, the odds ratio and significance levels are fairly stable across models in Table 6. The estimated coefficients in B are close to those of D, indicating robustness of the estimation procedure.

Finally, in Table 7 the results for poverty entry are shown. For the four models (A to D), women show a significant difference with respect to men in the odds of entering poverty. Women have higher odds of entering poverty. Characteristics that increase the odds of entering poverty are: being younger compared to middle age, having children and never married. The individual variables that reduce the odds of entering poverty are related to labour market status, education and age. Being old, having higher education and having a job are features that reduce the probability of entering into poverty.

As in previous models, given the large sample, the odds ratios and significance levels are fairly stable across models in Table 7. The estimated coefficients in B are close to those of D, indicating robustness of the estimation procedure.

If we observe the three tables at the same time we can conclude that, on the one hand, having a higher education and having a job prevent the individual from being poor, and entering into poverty while help individuals in exiting from poverty. On the other hand, having children and never been married increase the chances of being poor and entering into poverty, and decrease the odds of exiting from poverty. Finally, age have a particular behaviour. Older singles have lower odds of being poor, exiting and entering into poverty. We have previously commented that the lower probability of being poor for elderly can be accounted for the effect of the variable work introduced in the model. In the case of exit and entry from poverty, we can expect elderly to be less likely to experiment transitions in the state of poverty due to the stability of pensions, main income source for elderly.

On the other hand younger singles have higher odds of being poor, entering poverty and exiting from poverty. We see a possible explanation for this effect. Young singles are in the job market with part time and /or low paid and/or unstable jobs and therefore they experiment frequent enters and exits from poverty.

Structural level variables.

We have mentioned before that even after introducing country level variables there is a significant part of the unexplained variance due to the country differences that is being picked up by the random effects. Here we analyse the effects of the country covariates.

For the economic growth hypothesis no support is present in data for the model of the risk of being poor and exiting from poverty while in the model of entries from poverty the effects are not statistically significant. However, such findings should be handled with caution, as the relationship of inequality and poverty stated in the hypothesis could be altered by the fact that we work with a relative poverty line, the 60% of the contemporaneous median income. This means that when there is growth the poverty line also increases and depending on the way growth affects incomes of

individuals around the poverty line, then poverty entries can be more frequent and poverty exits less frequent, making poverty more probable.

The findings confirm neither, the Social-Democratic-Government Hypothesis nor the Emancipation Hypothesis on the likelihood of exiting or entering from poverty. The effects are not statistically significant. The Social-Democratic-Government Hypothesis does not have impact on the likelihood of being poor, while the Emancipation Hypothesis is opposite to what we expected. The increment of one unit in the percentage of women with tertiary education against men with tertiary education reduces increases the odds of being poor. We ca not find any support to this result. Perhaps this finding results from a misspecification of the models.

Welfare states (through transfers) do not impact on the odds of being poor nor in the odds of entering into poverty, while unexpectedly it has a negative effect on the chances of exiting poverty.

However, such findings should be handled with caution, as the indicators we were able to construct were only remote proxies for the concepts of emancipation and welfare states, while the concept of social democratic government should be defined for an elapsed time period, and not only in the actual year.

To sum up, our empirical results are in line with Human Capital Hypothesis, Household Structure Hypothesis and Employment Status Hypothesis. We find mixed evidence of the Age Hypothesis. We find evidence against the Growth Hypothesis, but can be explained by the use of a relative poverty line together with a growth that do not affect all incomes in the same proportion. Finally we find that Welfare State, Emancipation and Social Democratic Government Hypothesis lead to not conclusive results.

7. Conclusions

Social scientists have tended to emphasized individual characteristics to explain poverty. In recent years, there has been a call to contextualize inequality within institutions and social relations. This study answers that call by examining how the composition of the population of the countries and the context effects shapes the odds that single–adults households are poor, exit from poverty and entry into poverty. Our

study aims to advance research on the structural dimension to the predominantly individually oriented study field of poverty. To facilitate an integrated approach of individual and structural dimensions we took advantage of multilevel techniques especially suited for the analysis of such mixed-level data. We offer one of only a few multi-level analyses of individual poverty across affluent democracies (Wiepking and Maas 2005, Brady et al. 2009 and Callens and Croux 2009).

We described and attempted to explain cross-national gender differences in poverty, exits from poverty and entries into poverty in different European countries. We show that, theoretically, cross-national gender poverty gap can be explained by both compositional and context effects. Countries population may differ in the individual characteristics that increase the likelihood for women to become poor. And secondly, the structural context may directly influence the poverty risks of men and women in different ways. We used the EU-SILC data for 2008 to test our hypothesis.

Concerning the explanatory power of the individual level variables we find that the Human Capital Hypothesis, Household Structure Hypothesis, and the Employment Status Hypothesis perform properly for the three models (being poor, exiting from poverty and entering into poverty). In this sense education, having a paid job, not having children and having been married protect against poverty and against entering into poverty and help to exit from poverty.

As a conclusion, being young and having a paid job matter most to estimate the risk of being poor. In the case of the risk of exiting or entering into poverty being young has the greatest effect followed by being more educated.

Concerning the explanatory power of the structural level variables, we find no support on the present data for the structural Hypothesis.

From our analyses we can conclude that individual effects seem somewhat more important than composition effects in explaining country differences in gender poverty gap. Both levels of variables mainly explain the disadvantages of women. However structural factors only have a slight or no influence on poverty.

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Tables

Table 1. Number of individuals living in households with one adult in the static analysis

Countries	Total	% Men	%Women
AT	2145	32.49	67.51
BE	2297	85.38	14.62
BG	996	28.51	71.49
CY	625	26.88	73.12
CZ	3644	30.87	69.13
DE	4663	37.36	62.64
DK	1376	39.46	60.54
EE	1136	27.29	72.71
ES	2559	33.45	66.55
FI	2771	42.30	57.70
GR	1589	31.09	68.91
HU	2704	76.50	23.50
IE	2065	35.45	64.55
IS	548	37.41	62.59
IT	6143	35.29	64.71
LT	1266	24.57	75.43
LU	1091	43.26	56.74
LV	1675	23.46	76.54
NL	3221	36.51	63.49
NO	1573	47.11	52.89
PL	299	26.15	73.85
PT	955	22.83	77.17
RO	2348	32.84	67.16
SE	1919	43.30	56.70
SI	107	26.92	73.08
SK	1198	22.29	77.71
UK	3237	32.87	67.13
N. obs.	57804	19321	38483

Table 2. Number of individuals living in households with one adult in the dynamics analysis

Countries	Total	% Men	% Women
AT	1446	31.81	68.19
BE	1612	36.54	63.46
CY	493	23.12	76.88
CZ	3136	31.66	68.34
EE	846	29.08	70.92
ES	1931	32.73	67.27
FI	1479	44.42	55.58
HU	2073	24.02	75.98
IE	831	38.51	61.49
IT	4447	83.81	16.19
LT	1046	22.66	77.34
LU	995	41.71	58.29
LV	1203	21.78	78.22
NL	201	36.57	63.43
NO	1235	50.04	49.96
PL	2349	25.67	74.33
PT	685	23.50	76.50
SE	1199	46.29	53.71
SI	718	27.58	72.42
SK	904	21.02	78.98
UK	2217	33.83	66.17
	32855	10750	22105

Table 3. Poverty rates of individuals living in households with one adult.

Countries	Total	Men	Women
AT	0.216	0.163	0.248
BE	0.251	0.191	0.292
BG	0.535	0.347	0.630
CY	0.402	0.224	0.494
CZ	0.216	0.146	0.254
DE	0.303	0.272	0.324
DK	0.234	0.220	0.245
EE	0.505	0.404	0.552
ES	0.312	0.212	0.385
FI	0.318	0.323	0.315
GR	0.240	0.213	0.253
HU	0.175	0.213	0.160
IE	0.381	0.367	0.389
IS	0.276	0.216	0.324
IT	0.262	0.164	0.319
LT	0.467	0.355	0.499
LU	0.192	0.152	0.219
LV	0.579	0.487	0.617
NL	0.184	0.183	0.184
NO	0.278	0.224	0.323
PL	0.206	0.250	0.187
PT	0.308	0.260	0.324
RO	0.331	0.249	0.373
SE	0.255	0.224	0.279
SI	0.383	0.342	0.401
SK	0.216	0.187	0.224
UK	0.332	0.259	0.375
	0.285	0.237	0.316

Table 4. Poverty exit and entry rates of individuals living in households with one adult.

	Exit			Entry		
Countries	Total	Men	Women	Total	Men	Women
AT	0.387	0.340	0.403	0.092	0.072	0.105
BE	0.229	0.255	0.218	0.106	0.075	0.130
CY	0.110	0.105	0.111	0.121	0.073	0.147
CZ	0.334	0.261	0.354	0.074	0.059	0.083
EE	0.227	0.218	0.230	0.089	0.108	0.077
ES	0.328	0.409	0.292	0.122	0.071	0.190
FI	0.276	0.238	0.300	0.085	0.076	0.090
HU	0.337	0.267	0.370	0.066	0.053	0.070
IE	0.289	0.171	0.337	0.216	0.162	0.256
IT	0.239	0.296	0.222	0.081	0.066	0.091
LT	0.232	0.241	0.230	0.189	0.152	0.203
LU	0.197	0.227	0.184	0.055	0.061	0.051
LV	0.273	0.322	0.259	0.122	0.076	0.148
NL	0.345	0.332	0.354	0.086	0.054	0.108
NO	0.353	0.359	0.349	0.078	0.054	0.100
PL	0.394	0.354	0.413	0.050	0.084	0.038
PT	0.288	0.161	0.320	0.132	0.114	0.139
SE	0.437	0.337	0.512	0.037	0.045	0.031
SI	0.144	0.128	0.149	0.068	0.069	0.068
SK	0.284	0.239	0.296	0.034	0.012	0.041
UK	0.349	0.396	0.331	0.129	0.113	0.140
Total	0.315	0.335	0.307	0.093	0.077	0.103

Table 5. Logistic estimation results for probability of being poor

Poor	A	B	C	D
Woman	1.499***	1.179**	1.458***	1.156*
	[0.106]	[0.091]	[0.115]	[0.095]
Tertiary		0.446***		0.367***
		[0.004]		[0.013]
Young		10.254***		7.322***
		[0.584]		[1.094]
Old		0.562***		0.706***
		[0.004]		[0.019]
Work		0.146***		0.146***
		[0.001]		[0.005]
Children		1.224***		1.331***
		[0.007]		[0.037]
Marital_status		1.326***		1.464***
		[0.010]		[0.040]
Growth			1.076***	1.096***
			[0.023]	[0.027]
Political			0.888	0.900
			[0.107]	[0.124]
Transf			0.780	0.305*
			[0.415]	[0.185]
Femter			4.242***	3.826***
			[1.014]	[1.045]
Constant	0.335***	0.802**	0.114***	0.376
	[0.027]	[0.071]	[0.083]	[0.314]
Number of groups	27	27	27	27
Chi2	32.524	62543.306	90.197	4661.300

Table 6. Logistic estimation results for probability of exiting from poverty

Exit	A	B	C	D
Woman	0.921***	1.176	1.137	1.178
	[0.014]	[0.110]	[0.101]	[0.110]
Tertiary		1.791***		1.791***
		[0.044]		[0.044]
Young		3.028***		3.027***
		[0.259]		[0.259]
Old		0.892***		0.892***
		[0.016]		[0.016]
Work		2.401***		2.401***
		[0.053]		[0.053]
Children		0.984*		0.984*
		[0.009]		[0.009]
Marital_status		0.598***		0.598***
		[0.010]		[0.010]
Growth			0.505***	0.507***
			[0.123]	[0.125]
Political			1.528	1.397
			[1.189]	[1.104]
Transf			0.000**	0.000**
			[0.001]	[0.001]
Femter			0.031	0.035
			[0.059]	[0.068]
Constant	0.231***	0.202***	0.277	0.388
	[0.102]	[0.089]	[1.408]	[2.000]
Number of groups	21	21	21	21
Chi2	29.558	3314.677	12.935	3324.623

Table 7. Logistic estimation results for probability of entering into poverty

Entry	A	B	C	D
woman	1.399***	1.274**	1.398***	1.274**
	[0.152]	[0.134]	[0.152]	[0.134]
tertiary		0.372***		0.372***
		[0.008]		[0.008]
young		13.405***		13.406***
		[2.609]		[2.609]
old		0.656***		0.656***
		[0.012]		[0.012]
work		0.434***		0.434***
		[0.008]		[0.008]
children		1.253***		1.253***
		[0.014]		[0.014]
marital_status		1.172***		1.172***
		[0.019]		[0.019]
growth			1.348	1.394
			[0.448]	[0.474]
political			1.364	1.476
			[1.969]	[2.179]
transf			610.261	406.745
			[3713.773]	[2530.967]
femter			0.697	0.530
			[1.665]	[1.294]
Constant	0.210**	0.390	0.002	0.006
	[0.144]	[0.273]	[0.011]	[0.029]
Number of groups	21	21	21	21
chi2	9.493	5602.214	11.363	5603.922