Once poor, always poor? Do initial conditions matter? Evidence from the ECHP

Eirini Andriopoulou

Athens University of Economics and Business

peace@aueb.gr

and

Panos Tsakloglou

Athens University of Economics and Business and IZA

panos@aueb.gr

Abstract

The paper analyzes the effects of individual and household characteristics on current poverty status, while controlling for initial conditions, past poverty status and unobserved heterogeneity in 14 European Countries for the period 1994-2000, using the European Community Household Panel. The initial conditions problem arises because the start of the observation period in a panel data set does not concise with the start of the stochastic process that generated the poverty experiences and, therefore, a positive result in terms of state-dependence may be due to the fact that individuals with a higher tendency to remain permanently poor are over-represented in the sample. Four model specifications are tested controlling for initial conditions and unobserved heterogeneity at the same time. The distinction between true state dependence and individual heterogeneity has very important policy implications, since if the former is the main cause of poverty it is of paramount importance to break the "vicious circle" of poverty perhaps using income-supporting social policies, whereas if it is the latter anti-poverty policies should focus primarily on education, training, development of personal skills and other labour market oriented polices. The empirical results are similar in qualitative but rather different in quantitative terms across EU countries. State-dependence remains significant in all specifications, even after controlling for unobserved heterogeneity or when removing possible endogeneity bias. Consequently, social benefits are likely to play an important role if breaking the "vicious circle" of poverty is among the main policy objectives of the policy-makers.

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1. INTRODUCTION

In the last decade, poverty dynamics research focuses on the issue of poverty state-dependence. In other words, the main hypothesis to be examined is whether past poverty experiences determine current poverty status. This may happen, for instance, because poverty spells might result in depreciation of human capital and employment skills, causing low-pay or unemployment spells and finally increasing the duration of poverty spells or the frequency of poverty spells (poverty reoccurrence). If state-dependence is 'genuine' then it is important in policy terms to break the "vicious circle" of poverty and try even at high cost to bring individuals out of poverty using social benefits policy. Nevertheless, the state-dependence usually observed in dynamic panel data models may also be attributed to sorting effects in the sense that the individuals that escape poverty may posses certain observed (e.g. age, education level, employment status) or unobserved characteristics (willingness to escape poverty, cleverness, social networks) and thus differ in a systematic way from the individuals that remain poor. Thus, when examining state-dependence it is important to control for observed as well as unobserved heterogeneity. Furthermore, a positive result in terms of state-dependence may also be due to the fact that individuals with a higher tendency to remain permanently poor may be over-represented in the sample (Cappellari and Jenkins 2004). Therefore, in the case of state-dependence, controlling for the observed and unobserved determinants of initial poverty status (initial conditions) is also important.

In the current paper, we follow the methodology of Wooldridge (2005), which proposes a solution to handle the problem of endogeneity of the initial conditions, while controlling for unobserved heterogeneity at the same time. He suggests using a joint density distribution conditional on the strictly exogenous variables and the initial condition, instead of attempting to obtain the joint distribution of all outcomes of the endogenous variables. In this analysis, a multivariate random effects logit methodology has been applied for examining the issue of poverty state-dependence in 14 EU Member-States for the period 1994-2000 using the data of the European Community Household Panel (ECHP).

In the next two sections, the issues of unobserved heterogeneity and initial conditions problem are discussed drawing evidence from previous studies in poverty, employment and low-pay dynamics. The European Community Household Panel is briefly presented in section 4 along with household income and poverty definitions. Section 5, analyzes the model to be applied and also refers to the econometric details of the analysis. The last two sections present the empirical results and the conclusions of our analysis, along with some policy implications.

2. TRUE STATE-DEPENDENCE VERSUS UNOBSERVED HETEROGENEITY

True state dependence means that the experience of poverty in one year *per se* raises the risk of being poor also in the next year (Heckman 1981a). However, the duration dependence observed in data may also be attributed at least partly to sorting effects (individuals with "favourable" characteristics tend to leave poverty earlier) rather than indicating true state-dependence e.g. due to the depreciation of human capital (Poggi 2003). Therefore it is important along with the effect of time to control also for observed as well as unobserved heterogeneity.

In the last decade, researchers more consciously try to distinguish between true state-dependence and individual heterogeneity. This distinction has very important policy implications. For instance, if true state-dependence is indeed significant compared to the individual heterogeneity, then it is important to break the "vicious circle" of poverty and try even at high cost to bring individuals out of poverty using social benefits policy. On the contrary, if individual heterogeneity defines the duration of poverty then anti-poverty policies should focus on other schemes such as education, development of personal skills and capacities or other labour market and social policies.

Most studies find that poverty state-dependence remains significant even when controlling for unobserved heterogeneity. Canto (1996) examines the duration dependence for poverty entries and exits in Spain using a non-parametric specification for the hazard rate. She controls for unobserved heterogeneity indirectly by testing the homogeneity of the hazard rate between groups which are

likely to have different spell lengths. She finds significant duration dependence both for poverty re-entries and exits. Cappellari and Jenkins (2004) using data from the BHPS for the 1990s conclude that there is substantial state-dependence in poverty, separately from the persistence caused by heterogeneity. Poggi (2007) studies social exclusion dynamics in Spain and also finds that both individual heterogeneity and true state dependence are related to the probability of experiencing social exclusion. Biewen (2003) finds that even after controlling for observed and unobserved individual characteristics, there is negative duration dependence in poverty exit and re-entry behaviour. He also calculates that 6% of the German population has unobserved characteristics that lead to low poverty exit and high re-entry rates, therefore making these individuals possible candidates for chronic poverty.

On the other hand, Giraldo *et al*. (2002) highlight that there are two sources of unobserved heterogeneity which interest the study of poverty related first to the ability of household members to obtain income in a specific period and second to the way which this ability evolves over time. This is the main difference with previous analysis that assume that unobserved characteristics are time-invariant. When allowing for time-variant unobserved heterogeneity, the authors do not find any sign of true state-dependence in their analysis of persistent poverty in Italy. This finding reinforces the theory of incentives of the poor which may vary not only among individuals but also with time.

As underlined by Aassve *et al.* (2006), there is also another issue on whether it is poverty experience or low income experience that really affects individuals with regards to the duration dependence. Poverty spells are not like unemployment spells, during which the individual is completely aware of the situation and his choices and preferences might be affected from his position. Studies that focus on low pay instead of poverty (Stewart and Swaffield 1999; Cappellari 2004) find that the probability of being low paid depends strongly on low pay in the previous year. In the same line, Finnie and Gray (2002), when examining individual mobility across earning quintiles, conclude that the probability of having an upward or downward transition depends negatively on the elapsed time that an individual has spent in a given quintile and this negative duration dependence remains significant when

controlling for unobserved heterogeneity. On the contrary, the observed negative duration dependence in the exit rate proves to be more often spurious in unemployment studies (Cockx and Dejemeppe 2005).

3. THE INITIAL CONDITIONS PROBLEM

The initial conditions problem, developed by Heckman (1981b), in terms of transitions analysis, can be summarised to the fact that those who are poor in the first year of the survey may be a non-random sample of the population. Specifically, a positive result in terms of state-dependence may be due to the fact that individuals with a higher tendency to remain permanently poor may be over-represented in the sample (Cappellari and Jenkins 2004). Therefore, in the case of state-dependence, controlling for the observed and unobserved determinants of initial poverty status is important.

Practically, the problem arises because the start of the observation period does not concise with the start of the stochastic process that has generated the poverty or non-poverty experiences. Arulampalam *et al*. (2000) highlight that even if the model controls for unobserved heterogeneity, in order to disentangle the effect of state-dependence from unobserved heterogeneity, the initial conditions need to be modelled instead of assumed as exogenously given, because the initial conditions may be correlated with the unobservables.

The issue of initial conditions has been tackled more extensively in the literature of unemployment dynamics. Arulampalam *et al.* (2000) examine unemployment dynamics for men using the BHPS and introduce the econometric issues concerning the dynamic panel data models: unobserved heterogeneity (base on Chamberlain 1984), state-dependence (based on Heckman 1981a, 1981c) and the initial conditions problem (based on Heckman 1981b). Even when controlling for initial conditions and unobserved heterogeneity, they find that there is strong state dependence especially for older unemployed individuals that may be attributed to depreciation of human capital, signalling (in the sense that past unemployment spells signal the capacities or productivity of individuals for future employees) and

to the fact that unemployed individuals may accept low quality jobs and this may lead to enterprise closure and future unemployment spells. Arulampalam (2002) extents the above work further in various directions, using different definitions for unemployment.

Cappellari and Jenkins (2004) use first-order Markov model in order to study poverty transitions[1]. The great virtue of this model, which is a complement to hazard and covariance structure models, is that it allows to control for initial conditions effects. In addition, these models control for potential non-random sample retention (for individuals that do no attrite and for whom at least two consecutive household incomes are observed). Models that control for initial conditions are also used in studies of earnings mobility rather than poverty (Stewart and Swaffield 1999; Cappellari 2004).

The methodology that we use in this paper in order to control for initial conditions is based on Wooldridge (2005), which proposes a solution to handle the problem of endogeneity of the initial conditions, while controlling for unobserved heterogeneity at the same time. He suggests using a joint density distribution conditional on the strictly exogenous variables and the initial condition, instead of attempting to obtain the joint distribution of all outcomes of the endogenous variables (Hsiao 1986). For the binary response models of probit and logit form, the main advantage of this method is that it can be applied easily using standard random effects software. Yet, the explanatory variables included in the model must be strictly exogenous and at most one lag[2] of the dependent variable can be used in the estimation. Another restriction of the model is that it can be applied only to

[1] Also Schluter (1997) uses a Markov model with exogenous variables in order to study the German income mobility with some extensions to poverty dynamics and Van Kerm (1998) studies low income turnover in the region of Wallonia in Belgium using Markov chain models. For a discussion of advantages and disadvantages of these models see Jenkins and Van Kerm (2000).

[2] D' Addio and Honore (2002) claim that the probability of exiting poverty may depend not only on the poverty status of the last period, but on the poverty status in the two most recent periods and they model second order state-dependence, while controlling time–varying explanatory variables.

balanced panel data. This reduction from unbalanced to balanced panel data can always result in discarding useful information. For an application of this methodology to social exclusion see Poggi (2007) .

4. THE EUROPEAN COMMUNITY HOUSEHOLD PANEL AND DEFINITIONS

The empirical research of the current paper is based on the data of the European Community Household Panel (ECHP) produced by the Living Conditions Unit (E-2) of the Social and Regional Statistics and Geographical Information System Directorate (E) of EUROSTAT in Luxembourg. The European Community Household Panel (ECHP) can be defined as a harmonized cross-national longitudinal survey, which focuses on income and living conditions of households and individuals in the European Union. Due to its multidimensional nature ECHP provides information at micro-level across countries and across time on: income, employment, health, education, housing, migration, social transfers and social participation, as well as demographics. In other words, as Eurostat describes it, ECHP offers data on EU social dynamics (Eurostat 2003b). The duration of the survey is eight years, thus ECHP consists of eight waves, one for each year, from 1994 to 2001. The ECHP covers all the 15 Member-States of the EU in that period, but not all countries have participated in all waves. In addition some Member-States as UK and Germany used data from existing panel surveys and converted them to ECHP format. In the current paper, we use all eight waves of the ECHP for 14 EU Member-States[3]

Most of the income components in the ECHP have an annual time frame of the calendar year preceding the interview. In all the ECHP countries, apart from the UK, the calendar year coincides with the tax year, which is the reference period for income components. Although, in this way income comparability is ensured, the other variables like the household composition variables, the economic activity status etc. refer to the time of interview and might not relate well to income measured over a period up to twelve months in the past (Eurostat 2001). This is

[3] For Sweden only cross-sectional data are available therefore Sweden has been excluded from the analysis.

particularly undesirable for poverty dynamic analysis that tries to identify changes in income components and does uses also the lag poverty status as an explanatory variable, therefore for the needs of the dynamic analysis that follows, we have reconstructed the household income, transferring all the income components one year back[4].

Following the practice of Eurostat, the poverty line used in the current thesis is set at 60% of the national median equivalised household income per capita, as it has been calculated using the modified OECD scale which assigns 1 to the first adult, 0.5 to the next adults and 0.3 to children.

5. THE MODEL AND ECONOMETRIC DETAILS OF THE ANALYSIS

The main difference of this model with a typical hazard model examining state-dependence is that the dependent variable is the poverty status *per se* (whether someone is poor or non-poor) and not a variable signalling the poverty entry or exit. Moreover, state-dependence is not captured with time-dummies, but with the lagged value of the dependent variable. According to Wooldridge (2005, p. 42), only one lag of the dependent variable can be used when controlling for initial conditions. Nevertheless, this means that we cannot measure how much the chances of exiting poverty fall the longer one is in poverty[5]. Initial conditions are captured by introducing in the regression the value of the dependent variable in the first period. In this way, instead of attempting to obtain the joint distribution of all outcomes of the endogenous variables as it is often attempted, we find the distribution conditional on the initial value and the observed history of strictly exogenous explanatory variables. The assumption of exogeneity of all the

[4] It should be underlined that we do not simply lag one wave back the total net household income, but we take into account the different composition that each household might had in the previous have. The algorithm for the reconstruction of household income is available from the authors on request.

[5] This effect can only be captures when modelling poverty exit with hazard functions using time-dummies so as to capture the increasing effect of state-dependence year by year.

explanatory variables is a strong assumption and therefore is tested at the end of the analysis.

More specifically for a random individual in the population and t=1, 2, … T, the conditional probability that poverty occurs is:

$$P(y_{it}=1 \mid y_{i,t-1},...,y_{i0},z_i,c_i)=\Phi(z_{it}\gamma+\rho y_{i,t-1}+c_i) \quad (1)$$

Where y_{it} is the dependent variable or the poverty state of the individual i at period t (when $y_{it}=1$ the individual is poor in period t and when $y_{it}=0$ the individual is non-poor), $\Phi(x)$ is the logistic function $\Phi(x)=\frac{\exp(x)}{1+\exp(x)}=\Lambda(x)$, which is between zero and one for all real numbers x, γ and ρ are the parameters to be estimated, z_i and z_{it} are the vectors of time constant and time-varying explanatory variables and c_i is the unobserved effect. ρ is the coefficient of the lag value of the explanatory variable and the indicator of state-dependence. If $\rho>0$ being poor (non-poor) at $t-1$ increases the chances of being poor (non-poor) at t.

There are three main assumptions related to equation (1). First, the dynamics are first order, once z_{it} and c_i are also conditioned on. Second, the unobserved effect is additive inside the standard normal cumulative distribution function $\Phi(x)$. Third, all time-constant and time-varying variables are strictly exogenous (Wooldridge 2005, p. 41).

By assuming that the unobserved effect follows a normal distribution given the initial poverty condition y_{i0} and the time-constant explanatory variables z_i:

$$c_i \mid y_{i0},z_i \approx Normal(a_0+a_1y_{i0}+a_2z_i,\sigma_\alpha^2) \quad (2)$$

the parameters of equation (1) can be consistently estimated. a_1 offers information about the relationship between the unobserved effect and initial poverty status, while σ_α^2 indicates the dispersion accounted by unobserved heterogeneity. According to (Wooldridge 2005, p. 46), the density functions occurring from equations (1) and (2)

$$f(y_{it},\ ...,y_{iT} \mid y_{i0},z_i,c_i;\ \gamma,\ \rho)=\Pi_t\{\Phi(z_{it}\gamma+\rho y_{it-1}+c_i)^{yt}\cdot[1-\Phi(z_{it}\gamma+\rho y_{it-1}+c_i)]^{1-yt}\}$$

can be specified in such a way that standard random effects[6] software can be used for the estimation.

The above estimation can be applied only to balanced panels. Therefore there is a loss of information by dropping individuals that are not present in all seven waves[7], while selection and attrition problems might also be present. Nevertheless, the loss of information is compensated by the fact that Wooldridge's methodology allows selection and attrition to depend on initial conditions. Specifically, individuals with different initial poverty status are allowed to have different missing data probabilities. In this way, attrition is controlled for without being explicitly modelled as a function of initial conditions (Poggi 2003; Wooldridge 2005; Poggi 2007). Moreover, since we control for initial conditions, we do not restrict the sample to an inflow sample and we also include in our analysis all the left-censored cases that we would have to exclude if a typical hazard analysis was used.

As in most poverty studies, since the equivalised household income per capita is used for the calculation of poverty status, it is indirectly assumed that the household members pool their income sources, therefore only personal characteristics of the household head are considered as regressors and not the personal characteristics of the household members (e.g. only the age of the household head is taken into account and not the age of each household member). Consequently, members of the same household have the same poverty determinants and thus the same poverty status. Since the panel includes repeated observations from the same individual and from the same family, the problem of possible violation of the homoskedasticity assumption is present. Therefore, we use the "robust" or "sandwich" estimators for the standard errors, which allow observations to be dependent within cluster, although they must be independent between clusters (see Huber 1967; White 1980). The results of this chapter, as in the

[6] For the use of fixed effects when controlling for initial conditions in a different methodological framework see Hahn (1999). For a full discussion of the advantages of random effects versus fixed effects see Honore and Kyriazidou (2000) and Honore (2002).

[7] Six for Austria and Luxembourg and five for Finland.

previous chapter, have been calculated without the use of weights and are reported in terms of odds ratios[8].

6. EMPIRICAL RESULTS: ANALYSIS OF STATE-DEPENDENCE CONTROLLING FOR INITIAL CONDITIONS

We have developed four specifications using the dynamic logit model presented in the previous section. Table 1 describes all the variables that have been used in five different model specifications. The first specification includes only the initial conditions dummy and the lag value of the poverty status. In the second specification, variables controlling for the household and household head characteristics are included in the regression. In the third specification, wave dummies have been included so as to control for the business cycles effect. Finally, in the fourth specification certain variables that may have caused endogeneity bias are removed from the specification so as to test the sensitivity of the results. In order to facilitate comparisons within countries, the probability of the baseline group is reported on the top of each table.

In table 2 the results for the first specification are reported. Both the odds for the lag poverty status and initial status are significant at 99% level of confidence in all 14 Member-States. In most of the countries the initial conditions variable gives a much higher odds ratio than the lag poverty status with the exception of Denmark, Finland, the Netherlands, Portugal and the UK showing that poverty reoccurrence is also an important. issue The likelihood ratio test for rho (not reported in this table) suggests that frailty is important in all countries.

In specification 2 (table 3) we include variables capturing certain characteristics of the household head and the household so as to control for the observed heterogeneity among individuals. The baseline group consists individuals

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[8] An odds ratio compares the relative magnitude of two complementary probabilities: the probability that an event will occur versus the probability that it will not occur: $odds = \frac{probability}{1 - probability}$ (Singer and Willett 2003). The formula for calculating the odds when having the logit coefficients is: odds=exp^{logit}.

that were not poor in the initial and previous year and leave in a household with a national male household head, aged [30,64], which has completed secondary education, is full-time employed. There are no dependent children in the household. Non-of the household members is unemployed, non of the household members has sever disability or chronic disease and finally one of the household members owns the house. The probability of being poor while belonging to the baseline group is 1% or 2% in all countries. The fact that there are not large differences in the baseline probability within countries means that the choice of the baseline group was successful in facilitating comparisons among countries. As expected, the effect of state-dependence decreases in almost all countries, when the household and the household head variables were added in the regression.

Living in a household with a household head aged less than 30 or more than 64 increases the odds of being in poverty in all countries. The effect is very strong for young headed households in Findland (3.57) and Denmark (3.37). The vulnerability of female-headed households to poverty is not given in all countries. Only in Finland (1.43), France (1.26) and Germany (1.20) the odds of being poor are significantly increased ($p<0.01$) when living in a female-headed household. In Spain and Italy the effect is significant only at 10%, while in Portugal, living in a female-headed household significantly decreases the probability of being poor (0.79). The level of education of the household head also plays an important role in defining the chances of being in poverty at a particular point in time. Living in a household with a household head that has completed higher education sharply decreases the chances of being poor, while primary educated household heads increase te odds of being in poverty in all countries but the Nethrelands[9]. As expected, unemployment and inactivity of the household head also increase the probability of poverty. The effect of unemployment is particularly strong in Belgium and Ireland and of inactivity in Denmark[10]. The effect of citizenship status of the household head is mixed with a tendency to increase the probability of being poor both for the EU and

[9] It should be noted that since the odds distribution is only left bounded by zero. This means that a difference in odds under unit translates to a larger difference in terms of probability as compares to a difference of the same magnitude above 1.

[10] This result is in accordance with the high poverty rate for elderly people in Denmark.

the non-EU citizenship whenever the effect is significant. In all countries, the presence of dependent children in the household increases the chances of being poor with the exception of Denmark and Finland where families with children are important recipients of social transfers. Having an unemployed or a disabled household member in the household also increases the chances of being in poverty in the Member-States where the corresponding odd-ratio is significant. Finally, there is no common pattern within EU Member-States with regards to the effect of home-ownership. For example in Greece, paying rent for household accommodation decreases the chances of being poor. This can be easily explained by the fact that there is extensive home-ownership in Greece.

In total, specification 2 (Table 3) fits much better than specification 1, since both the Akaike Information Criterion (Akaike 1973) and the Baysenian Information Criterion (Schwarz 1978) decrease[11]. Yet, as suggested by σ_α unobserved heterogeneity remains large and significant. In specification 3 (table 4), we add wave dummies in order to control for possible business cycles, especially for the time-varying variables such as employment dummies. The model fits better than the previous one and most time dummies are significant. Yet, even though the model specification improves unobserved heterogeneity remains significant at 99% level of confidence for all countries in all specifications[12]. At the same time the effect of state-dependence remains also very strong in all 14 EU Member-States.

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[11] AIC and BIC can be used since the tw model specifications have been used using the same dataset and the same estimation method (Singer and Willett 2003)

[12] We have also run the above four specifications using a standard logit regression without controlling for unobserved heterogeneity[12]. What is interesting to note is that although the odds ratio for the household and household head characteristics are slightly higher when unobserved hetererogeneity is not controlled for, the odds for the state-dependence are much more higher while the odds for the initial conditions much lower. This suggests that we do not control for unobserved heterogeneity we underestimate the magnitude of initial conditions with respect to the poverty status in the previous year and vice-versa. Results are available from the authors on request.

According to Wooldridge (2005, p. 41), when applying the methodology described in section 5, for the estimators to be efficient, all time-constant and time-varying variables must be strictly exogenous. The strict exogeneity assumption means that since we control for the past poverty status and unobserved heterogeneity, current poverty status must be unrelated to the value of the regressors in past or future period. In other words, violation of the exogeneity assumption exists if there are feedback effects from poverty status to future values of the covariates included as regressors in the logit model. Individual characteristics such as age, gender, nationality and education cannot depend on past poverty status. Nevertheless, the existence of past poverty spells might theoretically affect the employment status, fertility decisions (existence of dependent children in the household), employment and health status of household members. There is not any commonly accepted test for testing the exogeneity assumption, therefore a common practise adopted by the researchers is to rerun the model excluding from the specification the variables that might violate the exogeneity assumption and compare the coefficients. In table 5, the variables that may cause endogeneity have been removed from the model. When comparing the results of tables 4 and 5, we do not find significant differences in the estimates. Thus, we conclude that the state dependence effects observed in previous specifications are not biased by endogeneity problems. Given that the AIC and BIC increased as compare to specification 5, there is no reason to remove the above variables from the model specification.

In table 6, the impact of past poverty experience (initial and in the previous year) on the conditional probability of being in poverty now averaged over the other covariates is estimated with and without controlling for unobserved heterogeneity. The estimation probabilities reveal that when we do not control for unobserved heterogeneity the effect of poverty in the previous year is much stronger than the initial poverty status. When unobserved heterogeneity is controlled the result is reversed. However, the general conclusion to be drown form this table is that the probability of being in poverty now is increased for individuals

that have experienced poverty in the past both with or without unobserved heterogeneity.

7. CONCLUSIONS

The aim of this paper was to study the dynamics of poverty and in particular whether past poverty experience affects current poverty status. Our main conclusion is that state-dependence remains significant in all specifications, even when controlling for observed, unobserved heterogeneity and initial conditions. Consequently, social benefits are likely to play an important role if breaking the "vicious circle" of poverty is among the main policy objectives of the policy-makers.

We also find that the coefficient of initial poverty status is significant in all specification and when we control for unobserved heterogeneity the magnitude of the coefficient is higher that the magnitude of the coefficient of lag poverty status. This indicates that an early intervention is necessary. As Finnie (2000) underlines, given the state-dependence and the intergenerational effect that poverty often has, an early intervention offers the maximum of benefits to the poor households and society, because there are greater chances for an early than a late intervention to have long-lasting effects.

Irrespectively of magnitude of state-dependence, unobserved heterogeneity remains also important in all specifications and its magnitude (as captured by sigma_a) does not decrease as the specification of the model improves. Moreover, the results for the observed household and household head characteristics indicate that individual heterogeneity also affects current poverty status. Consequently, anti-poverty policies should include other schemes such as education, development of personal skills and capacities or other labour market and social policies. It is also important to note that having an income over or under the poverty line and thus being characterised as poor or non-poor is not directly observable from individuals (contrary to the unemployment situation for example) and may not affect the behaviour and choices of persons and families as strong as it would be necessary for escaping from poverty. Building good incentives for the poor people to work

harder, take advantage of opportunities and exploit life-chances might also be necessary.

To conclude, the empirical results of this paper indicate that both state-dependence and individual heterogeneity (observed or unobserved) play an important role in keeping individuals into poverty . Consequently, there is no single path into or out of poverty, suggesting that multiple policies can be considered to help people getting out of poverty. Given that the education and development of personal skills is a long-run process, which is also related to household income levels, the importance of the intervention of state in the short-run for breaking the "vicious cycle" should be emphasized.

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APPENDIX

Table 1: Description of variables used in the different specifications of the model

	Variable	Description	Notes
	poor_lag	The poverty status in the previous year. Takes the value of 1 if the individual was poor in the previous year and 0 if the individual was non-poor in the previous year.	
	poor_0	The poverty status in the first year that the individual enters the panel (not necessarily the first wave). Takes the value of 1 if the individual was poor in the initial year and 0 if the individual was non-poor in the initial year.	
	Household head variables		
	Age dummies		
V1	Aged <30	Takes the value of 1 if the household head is less than 30 years old. The household head can only be an adult, meaning over 16 years old	
V2	*Aged [30,64]*	*Takes the value of 1 if the household head is 30 years old or older, but younger than 65*	*Dummy omitted – baseline group*
V3	Aged >65	Takes the value of 1 if the household head is over 65	
	Gender dummies		
V4	*Male*	*Takes the value of 1 if the household head is male*	*Dummy omitted – baseline group*
V5	Female	Takes the value of 1 if the household head is female	
	Education level dummies		
V6	Higher education	Takes the value of 1 if the household head has completed recognised third level education (ISCED 5-7) (Eurostat 2003a, p. 356)[13]	
V7	*Secondary education*	*Takes the value of 1 if the household head has completed second stage of secondary level education (ISCED 3) (Eurostat 2003a, p. 356)*	*Dummy omitted – baseline group*
V8	Primary education	Takes the value of 1 if the household head has completed less than second stage of secondary education (ISCED 0-2) (Eurostat 2003a, p. 356)	
	Employment status dummies		
V9	*Employed*	*Takes the value of 1 if the household head considers himself employed*[14]	*Dummy omitted – baseline group*

[13] In case of missing values in the educational variable, I impute the relevant information from the previous or next year or the closest year with a valid value. In case of measurement error in the educational variable (e.g. an individual that appears to have completed higher education in the first three waves, he then appears to have completed primary education), I compute the frequency of the two values in all waves and I change them all to the value of which the frequency prevails. Yet, if more than two different values are involved, no change is made.

[14] In 1994 and 1995, persons working less than 15 hours are automatically classified as unemployed or inactive; starting 1996, those considering that their main activity is 'working' are classified as employed. The self-defined activity status was preferred in comparison to

V10	Unemployed	Takes the value of 1 if the household head considers himself unemployed	
V11	Inactive	Takes the value of 1 if the household head considers himself inactive	
	Citizenship dummies		
V12	*National*	*Takes the value of 1 if the household head is national*	*Dummy omitted – baseline group*
V13	Other EU citizenship	Takes the value of 1 if the household head is not a national but he/she is an EU citizen	
V14	Other non-EU citizenship	Takes the value of 1 if the household head is a non-EU citizen	
	Household variables		
V15	*Having no dependent children*	*Takes the value of 1 if dependent children are present in the household*	*Dummy omitted – baseline group*
V16	Having at least one dependent child	Takes the value of 1 if the household does not have any dependent children	
V17	*Not paying rent for household accommodation*	*Takes the value of 1 in case of home ownership or accommodation provided free*	*Dummy omitted – baseline group*
V18	Paying rent for accommodation	Takes the value of 1 in case the household pays rent for accommodation	
V19	*Having no unemployed hh member (excluding head)*	*Takes the value of 1 if there is none unemployed household member in the household (excluding the household head)*	*Dummy omitted – baseline group*
V20	Having at least one unemployed hh member (excluding head)	Takes the value of 1 if there is at least one unemployed household member in the household (excluding the household head)	
V21	*Having no hh member with sever disability or chronic disease*	*Takes the value of 1 if there is none disabled household member in the household*	*Dummy omitted – baseline group*
V22	Having at least one hh member with sever disability or chronic disease	Takes the value of 1 if there is at least one disabled household member in the household	

the ILO activity status which was not available with the same classification for all Member-States.

Table 2: Logit analysis of state-dependence

Specification 1 - with only initial and lag value of the dependent variable (controlling for unobserved heterogeneity)

Depvar=poverty exit	Country													
	A	B	D	DK	E	EL	F	FIN	I	IRL	L	NL	P	UK
Baseline probability	**0.03**	**0.02**	**0.02**	**0.03**	**0.05**	**0.05**	**0.03**	**0.04**	**0.04**	**0.05**	**0.02**	**0.02**	**0.04**	**0.04**
poor_lag	6.37***	5.65***	7.10***	6.93***	3.80***	4.36***	6.48***	14.44***	4.12***	6.81***	10.46***	9.04***	9.60***	7.69***
poor_0	10.74***	11.82***	8.02***	6.11***	8.18***	11.94***	11.93***	4.11***	12.87***	7.20***	13.55***	5.16***	8.94***	5.95***
Number of obs	*26,850*	*27,888*	*63,186*	*20,700*	*63,300*	*50,862*	*60,036*	*22,268*	*71,874*	*28,626*	*21,535*	*39,318*	*58,776*	*53,076*
Wald chi2/LR chi2	*3,129*	*2,533*	*5,429*	*1,547*	*6,121*	*5,907*	*6,861*	*2,748*	*7,274*	*3,175*	*2,575*	*3,013*	*11,509*	*6,200*
Prob > chi2	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
Log likelihood	*-7,219*	*-6,668*	*-13,970*	*-4,871*	*-22,854*	*-18,637*	*-16,379*	*-5,064*	*-23,593*	*-9,316*	*-4,170*	*-7,860*	*-19,735*	*-15,934*
AIC	*14,446*	*13,344*	*27,948*	*9,749*	*45,716*	*37,282*	*32,766*	*10,137*	*47,195*	*18,639*	*8,347*	*15,729*	*39,478*	*31,875*
BIC	*14,479*	*13,377*	*27,984*	*9,781*	*45,752*	*37,317*	*32,802*	*10,169*	*47,232*	*18,672*	*8,379*	*15,763*	*39,514*	*31,911*
sigma_a	*1.19****	*1.21****	*1.19****	*0.94****	*1.2***1*	*1.40****	*1.21*	*0.59****	*1.47****	*1.18****	*1.16****	*0.93****	*1.17****	*1.15****

Notes:

1. Source: ECHP UDB 1994-2000 (Dec 2003 - 2nd issue)
2. Odds ratio are reported
3. *p<0.10, **<0.05, ***p<0.01
4. A constant term has been included in the regression
5. d.c. - variable dropped due to collinearity
6. s.n.o - variable dropped due to small number of observations, variable predicts failure or non-failure perfectly
7. For Austria and Luxembourg four year dummies have been used and for Finland three, since these countries jointed the panel one and two years later respectively
8. Baseline probability: non-poor initially and non-poor in the previous year

Table 3: Logit analysis of state-dependence

Specification 2 - with initial and lag value of the dependent variable and other explanatory variables (controlling for unobserved heterogeneity)

Depvar=poverty exit	Country													
	A	B	D	DK	E	EL	F	FIN	I	IRL	L	NL	P	UK
Baseline probability	**0.01**	**0.01**	**0.01**	**0.01**	**0.02**	**0.02**	**0.01**	**0.01**	**0.01**	**0.02**	**0.01**	**0.02**	**0.01**	**0.02**
poor_lag	4.79***	3.82***	4.79***	3.28***	3.16***	4.10***	4.78***	6.37***	3.73***	5.14***	6.53***	5.83***	8.38***	6.09***
poor_0	13.72***	8.01***	7.20***	5.30***	6.62***	7.76***	9.04***	7.64***	8.11***	5.64***	8.67***	4.93***	8.90***	4.15***
Household head														
Aged <30	1.69***	0.95	2.06***	3.37***	1.39***	1.78***	1.86***	3.57***	1.36**	1.27	1.02	2.17***	1.19	2.14***
Aged >64	1.46***	1.57***	0.91	2.29***	1.04	1.63***	0.73***	0.90	1.16**	1.47***	0.88	0.70***	1.73***	1.26***
Female	0.96	0.98	1.20***	1.05	1.14*	0.91	1.26***	1.43***	1.15*	0.96	1.08	1.04	0.79***	1.01
Higher education	0.63**	0.43***	0.52***	0.53***	0.34***	0.38***	0.51***	0.50***	0.56***	0.26***	0.28***	0.31***	0.25***	0.55***
Primary education	1.84***	1.83***	1.52***	1.39***	2.35***	3.02***	1.85***	1.54***	2.43***	1.38***	1.93***	0.23***	3.62***	0.95
Unemployed	2.30***	6.29***	4.59***	2.14***	2.82***	2.72***	3.68***	3.00***	2.98***	5.62***	3.36***	3.95***	2.60***	3.79***
Inactive	1.74***	2.30***	2.45***	4.44***	1.49***	1.31***	3.28***	3.50***	1.26***	3.37***	1.77***	3.09***	1.57***	3.18***
Other EU citizenship	0.23	1.60**	0.91	1.43	2.20	s.n.o.	1.40**	3.17**	s.n.o.	2.70***	1.79***	0.08*	0.36	0.84
Other non-EU citizenship	0.82	0.36**	1.32***	0.71	0.92	1.35	2.49***	4.25*	3.29*	0.86	5.00***	1.01	s.n.o.	1.20
Household														
Having at least one dependent child	1.39***	1.32**	1.48***	1.01	1.97***	1.55***	2.01***	1.23*	2.32***	1.23**	2.49***	2.83***	1.43***	1.85***
Paying rent for accommodation	0.87	1.96***	1.59***	1.64***	1.26***	0.83**	1.67***	1.66***	1.41***	1.90***	1.61***	2.33***	0.72***	2.06***
Having at least one unemployed hh member (excluding head)	1.47**	1.11	1.77***	1.29	1.30***	1.08	1.48***	1.40**	2.12***	1.18*	1.70***	1.34***	1.42***	1.57***
Having at least one hh member with sever disability or chronic disease	1.57***	1.03	1.13*	1.06	1.19***	1.39***	1.26***	0.90	1.08	2.10***	d.c.	1.13	1.07	1.19***
Number of obs	*26,850*	*27,888*	*63,186*	*20,700*	*63,300*	*50,862*	*60,036*	*22,268*	*71,874*	*28,626*	*21,535*	*39,318*	*58,776*	*53,076*
Wald chi2/LR chi2	*2,906*	*2,754*	*5,608*	*1,802*	*6,575*	*6,702*	*6,871*	*2,520*	*8,743*	*3,800*	*2,399*	*3,200*	*10,651*	*6,788*
Prob > chi2	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
Log likelihood	*-7,020*	*-6,206*	*-13,133*	*-4,311*	*-21,978*	*-18,014*	*-15,501*	*-4,550*	*-22,799*	*-8,593*	*-3,898*	*-7,332*	*-19,258*	*-14,962*
AIC	*14,074*	*12,446*	*26,301*	*8,656*	*43,990*	*36,061*	*31,036*	*9,134*	*45,632*	*17,219*	*7,828*	*14,698*	*38,551*	*29,958*
BIC	*14,213*	*12,586*	*26,455*	*8,791*	*44,144*	*36,202*	*31,189*	*9,270*	*45,788*	*17,360*	*7,956*	*14,844*	*38,704*	*30,109*
sigma_a	*1.37****	*1.28****	*1.35****	*1.19****	*1.26****	*1.30****	*1.34****	*0.99****	*1.31****	*1.16****	*1.31****	*1.06****	*1.27****	*1.20****

Notes: 1-7 see table VII.1

8. Baseline probability: non-poor initially and non-poor in the previous year;

hh head: national male, aged [30,64], having completed secondary education, being full-time employed;

hh: without dependent children, being house owner, non-of the household members is unemployed, non of the household members has sever disability or chronic disease

Notes: see table 2

Table 4: Logit analysis of state-dependence

Specification 3 - with initial and lag value of the dependent variable, other explanatory variables and wave dummies (controlling for unobserved heterogeneity)

Depvar=poverty exit	Country													
	A	B	D	DK	E	EL	F	FIN	I	IRL	L	NL	P	UK
Baseline probability	**0.02**	**0.02**	**0.01**	**0.01**	**0.02**	**0.02**	**0.01**	**0.01**	**0.01**	**0.02**	**0.01**	**0.03**	**0.01**	**0.02**
poor_lag	4.84***	3.83***	4.81***	3.17***	3.16***	4.12***	4.74***	6.07***	3.73***	4.96***	6.60***	5.92***	8.37***	6.12***
poor_0	13.71***	8.10***	7.22***	5.64***	6.60***	7.77***	9.18***	8.08***	8.11***	5.83***	8.59***	4.92***	8.96***	4.15***
Household head														
Aged <30	1.69***	0.96	2.08***	3.44***	1.40***	1.80***	1.89***	3.64***	1.36**	1.33	1.04	2.21***	1.19	2.17***
Aged >64	1.47***	1.55***	0.90	2.22***	1.02	1.63***	0.71***	0.89	1.15*	1.46***	0.88	0.70***	1.75***	1.24**
Female	0.96	0.97	1.19***	1.03	1.12	0.91	1.23***	1.42***	1.14*	0.94	1.06	1.03	0.80***	1.00
Higher education	0.63**	0.44***	0.52***	0.53***	0.34***	0.38***	0.51***	0.50***	0.56***	0.26***	0.28***	0.30***	0.24***	0.55***
Primary education	1.83***	1.89***	1.57***	1.45***	2.41***	3.06***	1.87***	1.60***	2.47***	1.41***	1.96***	0.22***	3.53***	0.95
Unemployed	2.31***	6.40***	4.66***	2.22***	2.91***	2.75***	3.70***	3.04***	2.99***	6.31***	3.53***	4.02***	2.59***	3.86***
Inactive	1.74***	2.27***	2.44***	4.41***	1.51***	1.30***	3.31***	3.53***	1.25***	3.47***	1.77***	3.12***	1.56***	3.22***
Other EU citizenship	0.24	1.53**	0.89	1.41	2.26*	d.c.	1.40**	3.17**	s.n.o.	2.71***	1.77***	0.08*	0.36	0.86
Other non-EU citizenship	0.83	0.36**	1.31**	0.75	0.97	1.34	2.49***	4.56**	3.39*	0.86	4.93***	1.06	s.n.o.	1.24
Household														
Having at least one dependent child	1.40***	1.33***	1.51***	1.02	2.03***	1.56***	2.04***	1.26**	2.36***	1.29***	2.54***	2.88***	1.42***	1.86***
Paying rent for accommodation	0.86	1.96***	1.59***	1.63***	1.30***	0.82**	1.67***	1.65***	1.42***	1.91***	1.63***	2.34***	0.72***	2.06***
Having at least one unemployed hh member (excluding head)	1.50***	1.12	1.80***	1.35	1.33***	1.09	1.50***	1.47***	2.14***	1.20*	1.73***	1.34***	1.41***	1.58***
Having at least one hh member with sever disability or chronic disease	1.58***	1.04	1.13*	1.05	1.19***	1.38***	1.25***	0.90	1.08	2.14***	d.c.	1.13	1.08	1.20***
Wave dummies														
w2		0.73***	0.75***	0.58***	0.68***	0.91	0.85**		0.80***	0.81**		0.89	1.11*	0.88*
w3	0.90	0.65***	0.65***	0.65***	0.77***	1.01	0.76***		0.76***	0.60***	0.74**	0.79**	1.34***	0.90
w4	1.03	0.71***	0.65***	0.85	0.63***	0.76***	0.82***	0.64***	0.77***	0.66***	0.80*	0.72***	1.19***	1.10
w5	0.76***	0.63***	0.67***	0.91	0.76***	0.95	0.88*	0.88	0.78***	0.94	0.69***	1.04	1.02	0.95
w6	0.90	0.74***	0.68***	0.95	0.76***	0.96	1.02	0.95	0.81***	1.06	0.81*	0.83*	1.11*	1.06
Number of obs	*26,850*	*27,888*	*63,186*	*20,700*	*63,300*	*50,862*	*60,036*	*22,268*	*71,874*	*28,626*	*21,535*	*39,318*	*58,776*	*53,076*
Wald chi2/LR chi2	*2,915*	*2,765*	*5,633*	*1,814*	*6,623*	*6,716*	*6,875*	*2,524*	*8,760*	*3,772*	*2,404*	*3,213*	*10,635*	*6,805*
Prob > chi2	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
Log likelihood	*-7,010*	*-6,189*	*-13,096*	*-4,291*	*-21,920*	*-17,994*	*-15,480*	*-4,535*	*-22,773*	*-8,547*	*-3,891*	*-7,318*	*-19,235*	*-14,949*
AIC	*14,062*	*12,422*	*26,236*	*8,626*	*43,884*	*36,029*	*31,003*	*9,110*	*45,590*	*17,138*	*7,822*	*14,680*	*38,514*	*29,942*
BIC	*14,234*	*12,603*	*26,435*	*8,801*	*44,083*	*36,215*	*31,202*	*9,270*	*45,792*	*17,319*	*7,982*	*14,868*	*38,712*	*30,138*
sigma_a	*1.37****	*1.28****	*1.35****	*1.19****	*1.26****	*1.30****	*1.34****	*0.99****	*1.31****	*1.18****	*1.30****	*1.06****	*1.27****	*1.20****

Notes: see table 3

Table 5: Logit analysis of state-dependence

Specification 4- with initial and lag value of the dependent variable, other explanatory variables and wave dummies (controlling for unobserved heterogeneity, excluding variables that may cause endogeneity)

Depvar=poverty exit	Country													
	A	B	D	DK	E	EL	F	FIN	I	IRL	L	NL	P	UK
Baseline probability	**0.02**	**0.02**	**0.02**	**0.02**	**0.04**	**0.03**	**0.02**	**0.02**	**0.03**	**0.03**	**0.01**	**0.05**	**0.01**	**0.03**
poor_lag	4.95***	4.18***	5.34***	3.22***	3.25***	4.21***	4.91***	6.22***	4.15***	5.57***	6.94***	5.18***	8.46***	6.21***
poor_0	13.88***	9.79***	8.56***	6.39***	7.62***	7.80***	10.52***	8.10***	9.71***	6.13***	10.79***	7.24***	8.99***	5.14***
Household head														
Aged <30	1.49**	0.83	1.78***	3.90***	1.20*	1.67***	1.58***	3.93***	1.03	1.13	0.88	1.55***	1.14	1.92***
Aged >64	1.74***	1.80***	1.06	5.74***	0.86***	1.54***	0.99	1.80***	0.81***	2.29***	0.78*	0.66***	1.77***	1.70***
Female	1.04	1.23*	1.36***	1.18	1.03	0.91	1.33***	1.55***	0.97	1.21**	1.01	1.48***	0.89*	1.35***
Higher education	0.59**	0.42***	0.46***	0.47***	0.34***	0.36***	0.48***	0.45***	0.53***	0.23***	0.28***	0.27***	0.23***	0.54***
Primary education	1.99***	2.02***	1.63***	1.65***	2.59***	2.91***	2.08***	1.75***	2.49***	1.67***	2.07***	0.22***	3.56***	1.05
Other EU citizenship	0.23	1.70***	0.90	1.26	3.11**	d.c.	1.43**	3.34**	s.n.o.	2.60***	1.89***	0.09*	0.30	0.79
Other non-EU citizenship	0.92	0.56	1.54***	0.73	0.99	1.39	3.15***	3.87*	3.36*	1.19	5.78***	1.83	s.n.o.	1.45
Household														
Paying rent for accommodation	0.85*	2.23***	1.62***	2.01***	1.31***	0.84*	1.72***	1.96***	1.48***	2.75***	1.59***	2.57***	0.75***	2.45***
Wave dummies														
w2		0.72***	0.76***	0.57***	0.77***	0.91	0.86**		0.89**	1.01		1.14	1.13*	1.01
w3	0.92	0.67***	0.67***	0.64***	0.86***	1.01	0.78***		0.82***	0.74***	0.85	0.94	1.37***	0.96
w4	1.06	0.73***	0.68***	0.84	0.70***	0.76***	0.87**	0.67***	0.82***	0.76***	0.93	0.82*	1.22***	1.14*
w5	0.78**	0.65***	0.73***	0.91	0.81***	0.94	0.91	0.88	0.82***	1.00	0.73**	1.14	1.03	0.97
w6	0.90	0.74***	0.68***	0.93	0.78***	0.95	1.03	0.96	0.84***	1.08	0.83	0.87	1.11*	1.04
Number of obs	*26,850*	*27,888*	*63,186*	*20,700*	*63,300*	*50,862*	*60,036*	*22,268*	*71,874*	*28,626*	*21,535*	*39,318*	*58,776*	*53,076*
Wald chi2/LR chi2	*2,871*	*2,558*	*5,184*	*1,662*	*6,079*	*6,619*	*6,577*	*2,431*	*8,039*	*3,405*	*2,355*	*2,465*	*10,636*	*6,256*
Prob > chi2	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
Log likelihood	*-7,068*	*-6,340*	*-13,511*	*-4,408*	*-22,291*	*-18,122*	*-15,830*	*-4,654*	*-23,276*	*-8,926*	*-3,961*	*-7,538*	*-19,370*	*-15,398*
AIC	*14,167*	*12,714*	*27,056*	*8,850*	*44,615*	*36,276*	*31,695*	*9,339*	*46,586*	*17,887*	*7,955*	*15,110*	*38,774*	*30,830*
BIC	*14,299*	*12,854*	*27,210*	*8,985*	*44,769*	*36,418*	*31,848*	*9,459*	*46,742*	*18,027*	*8,083*	*15,256*	*38,927*	*30,981*
sigma_a	*1.37****	*1.34****	*1.37****	*1.26****	*1.30****	*1.30****	*1.36****	*1.00****	*1.37****	*1.21****	*1.34****	*1.35****	*1.27****	*1.26****

Notes: 1-7 see table 3

8. Baseline probability: non-poor initially and non-poor in the previous year;
hh head: national male, aged [30,64], having completed secondary education
hh: being house owner

Table 6: Prediction probabilities for being poor at t given initial and lag poverty values

Without controlling for unobserved heterogeneity

		Probability of being poor at t													
Initial poverty status	***Poverty status at t-1***	**A**	**B**	**D**	**DK**	**E**	**EL**	**F**	**FIN**	**I**	**IRL**	**L**	**NL**	**P**	**UK**
Non-poor	*Non-poor*	0.03	0.02	0.02	0.02	0.03	0.04	0.02	0.02	0.02	0.04	0.01	0.04	0.02	0.03
Non-poor	*Poor*	0.32	0.20	0.20	0.15	0.20	0.29	0.23	0.21	0.19	0.29	0.17	0.33	0.26	0.29
Poor	*Non-Poor*	0.11	0.07	0.05	0.05	0.08	0.10	0.06	0.07	0.06	0.12	0.03	0.09	0.05	0.06
Poor	*Poor*	0.63	0.42	0.39	0.29	0.60	0.52	0.46	0.48	0.39	0.62	0.36	0.54	0.50	0.44

Without controlling for unobserved heterogeneity

		Probability of being poor at t													
Initial poverty status	***Poverty status at t-1***	**A**	**B**	**D**	**DK**	**E**	**EL**	**F**	**FIN**	**I**	**IRL**	**L**	**NL**	**P**	**UK**
Non-poor	*Non-poor*	0.01	0.01	0.01	0.01	0.02	0.02	0.01	0.01	0.01	0.02	0.01	0.02	0.01	0.02
Non-poor	*Poor*	0.07	0.05	0.03	0.04	0.05	0.08	0.04	0.08	0.04	0.09	0.03	0.13	0.07	0.10
Poor	*Non-Poor*	0.17	0.09	0.05	0.06	0.10	0.13	0.08	0.09	0.08	0.17	0.04	0.13	0.07	0.07
Poor	*Poor*	0.49	0.28	0.21	0.17	0.49	0.39	0.29	0.39	0.25	0.53	0.23	0.42	0.40	0.31

Notes:

1. Source: ECHP UDB 1994-2000 (Dec 2003 - 2nd issue)
2. Other variables have been set to the baseline group:

hh head: national male, aged [30,64], having completed secondary education, being full-time employed;

hh: without dependent children, being house owner, non-of the household members is unemployed, non of the household members has sever disability or chronic disease