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Duration of Poverty Spells in Europe

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The European Panel Analysis Group (EPAG) is a consortium of European social and economic researchers who have been collaborating since 1990 in the development and analysis of household panel surveys in the European Union. Most recently it has been engaged in the study of flexible labour and its impact on earnings and poverty under a Eurostat contract, and a programme of research on social exclusion as part of the EU's Targeted Socio-Economic Research programme. The group has set up new comparative datasets based on five-year sequences of the British, German and Dutch national household panels, and is analysing the early data from the European Community Household Panel (ECHP). Most of the research to date has been in the fields of family formation, employment, household income and 'deprivation'.

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ABSTRACT

The increasing number of waves available form the European Community Household Panel (ECHP) now makes comparative research of poverty dynamics in EU countries possible. In this paper, we use the first five waves of ECHP to examine the structure of spells, their average duration and the determinants of duration. We do so using ordered logit and hazard rate models. The paper seeks to 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. Because we use cross-national data on longitudinal poverty we are able to increase our understanding of the effect of the institutional context within which poverty occurs. We show that the country welfare regimes strongly influence long run poverty. In particular, countries in the social democratic tradition are found to do a better job of preventing poverty and long-term poverty. Countries in the liberal tradition and southern European countries display much higher rates of poverty and longer durations of poverty spells. Surprisingly, however, the Netherlands is found not to stand up to its social democratic image in term of exits from poverty: exits rates from poverty are low compared to other EU countries. We provide evidence on the efficiency of labour market mechanisms in terms reducing the risk of long-term poverty, and on the effect of the (changing) household context on the poverty risk. Jobless households are not only more likely to become persistently poor, but they are also less likely to exit poverty.

Key words: poverty dynamics, comparative analysis, welfare states, panel data

NON-TECHNICAL SUMMARY

There is now a large corpus of cross-sectional poverty studies, many of which include international comparisons. The best known and comprehensive programme of research is that of the Luxembourg Income Study. Yet poverty is not a static phenomenon and knowing the length of time that a household has been poor is crucial for understanding the impact of poverty on individuals and households in both the short and long run. Only by using longitudinal data can we understand the processes behind cross-sectional statistics: the events leading individuals into and from poverty and the impact of this poverty on their living standards. Such longitudinal poverty data are also important for understanding the institutional context within which poverty occurs. Research has shown that country welfare regimes strongly influence both the probability of experiencing poverty and the impact that poverty has. Moreover, longitudinal analyses can also reveal how regimes influence long run social inequality. For example, if the poverty patterns that we observe from cross-sectional data result from short-run income fluctuations within the population, the burden of poverty in the long run will be shared relatively equally since poverty will be spread more widely and the duration experienced will be relatively short. If, on the other hand, cross-sectional poverty is actually made up of longer spells, incomes are rather immobile and, over the life cycle, the burden of poverty will fall on a smaller section of the population. The presence of highly persistent income inequalities may thus indicate inflexible institutional arrangements affecting life-cycle incomes, while temporary income inequalities could indicate more flexible institutions fostering income mobility.

The increasing number of waves available from the European Community Household Panel (ECHP) now makes the comparative analysis of poverty dynamics in the EU countries possible. In this research paper, we 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. These policy achievements are assessed on the basis of the first five waves of the ECHP, covering the period 1994–8. The paper is divided into three parts. Firstly, we state the theoretical position adopted, the research questions to be tackled and the data to be used. Second, we use a poverty profile to examine the differential experience of persistent and recurrent poverty across EU member states and analyse the determinants of this experience. Finally, we turn to duration analyses of spells of poverty, first using descriptive methods and then hazard rate models to examine the structure of spells, their average duration and the determinants of this duration.

The paper provides insights into the social efficiency of the various EU welfare states over the longer run. We provide evidence on the extent to which EU welfare states promote their citizen's welfare, the efficiency of labour market mechanisms in terms reducing the risk of long-term poverty, and on the effect of the (changing) household context on poverty risk.

We show that country welfare regime strongly influences long run poverty. In particular, countries in the social democratic tradition are found to do a better job of preventing poverty and long-term poverty. Countries in the liberal tradition and Southern European countries display much higher rates of poverty and longer

durations of poverty spells. However, the Netherlands is found not to stand up to its social democratic image in term of exits from poverty: exits rates from poverty are low compared to other EU countries.

Jobless households are not only more likely to become persistently poor, but they are also less likely to exit poverty. The employment status of male and female partners – and change thereof – is found to have a larger effect on the poverty status.

1   Introduction

There is now a large corpus of cross-sectional poverty studies, many of which include international comparisons. The best known and comprehensive programme of research is that of the Luxembourg Income Study (Mitchell, 1991; Smeeding et al., 1993; Atkinson et al., 1995; Deleeck et al., 1992; Van den Bosch et al., 1993). Yet it is by now widely recognised that poverty is not a static phenomenon. It is important whether cross-sectional data recorded at different points in time find the same, or different people in poverty. For example, de Beer (2001) has shown that high levels of economic growth and a large increase in labour market participation in the 1980s and 1990s did not reduce poverty in the Netherlands. However, he also showed that a high turn-over rate at the lower end of the income distribution meant that in general, poverty spells were short in duration and a small minority remained in poverty across the whole period. Apart from the magnitude (the poverty gap) and the duration (spell-length) of low income, attention should be paid to the extent to which poverty is recurrent (Walker, 1994). The higher income mobility or income volatility during a certain time period and the shorter the spell-duration, the higher the prevalence of poverty in society; i.e. the higher the proportion of people experiencing poverty at least once during the period. Similarly, the lower the share of recurrent poverty, the higher the prevalence.

This means that, if there is very little income mobility over a given period of time, it is likely that the same individuals will remain poor and the prevalence of poverty over time will equal the cross-sectional poverty rate. If, on the other hand, income mobility is high and poverty is experienced for a short period by a larger proportion of the population, then the probability of being poor is more equally shared. It could be argued that the latter scenario is preferable on the grounds of Rawls's principle of distributional justice (Rawls, 1971). In between these two situations, poverty can be a 'revolving door' process in which it is the same group of people who experience poverty, but they do so recurrently in different periods, returning to poverty shortly after their previous exit. Whether or not long spells of poverty are worse than recurrent short spells depends, to a large extent, on the degree of one's aversion towards uncertainty. Risk adverse individuals may prefer low but stable incomes to higher but unstable ones. Thus, for a complete picture, information on the volatility of income positions must complement data on the duration of low-income spells.

What matters then is how poverty statuses evolve over time and because of this, time itself should be part of the definition of poverty. Knowing the length of time that a household has been poor is crucial for understanding the impact of poverty on individuals and households in both the short and long run. Although short spells of poverty are always unwelcome, they do not usually threaten subsistence or damage long-term life-chances as individuals and households can reduce expenditure, run down savings or borrow. However, these tactics are unlikely to be sufficient in the long run. Only by using longitudinal data can we understand the processes behind cross-sectional statistics: the events leading individuals into and from poverty and the impact of this poverty on their living standards.

Longitudinal poverty data are also important for understanding the institutional context within which poverty occurs. Research has shown that country welfare regimes strongly influence both the probability of experiencing poverty (Layte and Whelan, 2003) and the impact of that poverty has (Gallie and Paugam, 2000). Moreover, longitudinal analyses can also reveal how regimes influence long run social inequality. For example, if the poverty patterns that we observe from cross-sectional data result from short-run income fluctuations within the

population, the burden of poverty in the long run will be shared relatively equally since poverty will be spread more widely and the duration experienced will be relatively short. If, on the other hand cross-sectional poverty is actually made up of longer spells, incomes are rather immobile and, over the life cycle, the burden of poverty will fall on a smaller section of the population. The presence of highly persistent income inequalities may thus indicate inflexible institutional arrangements affecting life-cycle incomes, while temporary income inequalities could indicate more flexible institutions fostering income mobility.

Comparative studies of income and poverty dynamics are now becoming more common, but have been confined to a small number of countries (the US, Germany, Netherlands and the UK) which have long running panel studies (c.f. Duncan et al., 1993; Headey et al., 1997, 2000; Goodin et al., 1999; Jenkins, 2000; and more recently, Fouarge, 2002; Layte and Whelan, 2003; Jenkins and Schluter, 2003). These studies have shown that there is a great deal of mobility and turnover in the stock of people living in poverty and that the majority of poverty spells are rather short in duration. However, it is also clear that many of those who have left poverty return relatively quickly and a substantial minority experience persistent poverty. The increasing number of waves available from the European Community Household Panel (ECHP) now makes comparative research of poverty dynamics a larger number of EU countries possible. In this paper, we seek to 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. This is assessed on the basis of the first five waves of the ECHP, with panel data on income covering the period 1993–7.

The paper is divided into three groups of sections. In Sections 2 to 4 we state the theoretical position adopted, research questions to be tackled and the data to be used. Sections 5 and 6 use a typology of poverty profiles to examine the differential experience of persistent and recurrent poverty across EU states and analyse the determinants of this experience. In Sections 7 and 8 we turn to duration analyses of spells of poverty, first using descriptive methods and then hazard rate models to examine the structure of spells, their average duration and the determinants of duration. In the ninth and final section we attempt to draw some general conclusions from the findings from the paper.

The paper provides insight into the social efficiency of the various EU welfare states over the longer run. We provide evidence on the extent to which EU welfare states promote their citizen's welfare, the efficiency of labour market mechanisms in terms reducing the risk of long-term poverty, and on the effect of the (changing) household context on the poverty risk.

2   Poverty Dynamics and Welfare Regime Theory

In the context of this paper, the most crucial issue is how different country institutions and regulations impact on the distribution of poverty over time and duration of poverty events. Different socio-economic structures and welfare regimes may well 'decommodify' individuals to varying degrees and smooth income flows (Esping-Andersen, 1990; Gallie and Paugam, 2000) and this may well influence poverty dynamics in ways that can be formalised in terms of theoretical expectations. Welfare regime theory which has been relatively successful at explaining cross-sectional poverty rates would predict that where country benefit systems offer universal income support payments at a relatively high replacement rate, and with a wide entitlement in the population, we should see fewer lower incomes and poverty

spells and where poverty does occur, a quicker exit than in the case where benefits are more difficult to access and are at a lower level (Gallie and Paugam, 2000: 4). Moreover, if the welfare regime is characterised by an emphasis on active, rather than passive labour market policies, this will also decrease transitions into poverty and increase transition rates from poverty (Gallie and Paugam, 2000: 5).

Previous research which has examined the influence of welfare regimes (Layte and Whelan, 2003) on poverty dynamics shows that in social democratic welfare regimes such as in Denmark and the Netherlands, individuals are far less likely to experience poverty than in liberal or Southern European welfare regimes and also that the experience is distributed more equally across the population when viewed from a longitudinal perspective. Moreover, social democratic regimes also had far lower levels of persistent income poverty in terms of the proportions experiencing three or more years of poverty over a five-year observation period. These results suggest that country institutions do indeed impact on poverty dynamics with social democratic and employment centred regimes leading to a lower average experience of poverty compared to liberal and Southern regimes which does suggest that income mobility is lower. However, the research by Layte and Whelan (2003) did not attempt to analyse whether welfare regimes affected the extent to which poverty was recurrent (it examined the total number of years poor across a five year period) or the duration of poverty spells. Although the overall risk of poverty is lower in certain regimes, higher risk of recurrent, or more extended spells of poverty for those who do experience it cannot be ruled out on the basis of the analyses presented there. This is the reason why this paper examines the extent to which poverty is recurrent, the temporal structure of poverty spells and how both are related to different welfare regimes.

In this paper, we make use of the welfare regime typology of Esping-Andersen (1990), which makes a distinction among the corporatist, social democratic and liberal regime type. The typology was however extended to include a Southern regime type (see for example Ferrera, 1996). As explained in Section 4, each of the EU countries in our data is assumed to belong to one of these four regime types. Our hypothesis is that the use of four regime types will not lead to a significant loss of information compared to the use of separate country identifiers. Using this framework we expect that social democratic regimes would lead to fewer poverty entries and greater exits than corporatist regimes as although levels of payment in the latter may be relatively high, entitlements tend to be restricted to 'core' groups with a history of employment. The higher levels of active labour market policy in social democratic regimes should also have a negative impact on the probability of experiencing poverty and the spell duration. However, corporatist and social democratic regimes should both have more effective anti-poverty policies than either liberal or Southern European type regimes which tend to have means tested, low-level universal benefit systems in the case of liberal and piece-meal or non-existent benefit systems in the case of Southern European regimes. This pattern would be supported by the general absence of active labour market policies in these types of regimes.

However, as has been pointed out by researchers studying income dynamics, deriving hypotheses about income and poverty dynamics from welfare regime theory is more difficult than one may imagine. For example, the more generous and higher level benefits available in Social Democratic regimes has been shown to lead to a lower risk of income poverty, but once in poverty, lower levels of incentives and greater income stability may actually mean that poverty spells are lengthened. In Liberal and Southern regimes on the other hand, less

generous and proactive welfare benefit systems may be less effective at initially moving people out of poverty, but higher levels of incentives may actually mean that exit rates remain quite high. However, it is also possible, as Fritzell (1990) has pointed out that the greater income dispersion in Liberal compared to Social Democratic states may mean lower exit rates from poverty as income ranks are further apart. Therefore, although we may be able to discern different exit patterns across regimes using transition rates, together these different processes may lead to very similar net poverty durations across regimes.

3 Research Questions

In the previous sections we outlined the theoretical framework within which this paper is working and the importance of longitudinal analyses for understanding the structure and determinants of poverty risk. In the coming sections we seek to answer four specific questions about the relationship between country institutions and regulations in the form of the welfare regime and poverty dynamics. First, to what extent does the level of recurrent and persistent poverty vary across countries? Second, to what extent is this a function of the distribution of different socio-economic variables in the country rather than the welfare regime?[1] Third, are transition rates from poverty and average durations of poverty in different countries related to the welfare regime and fourth, to what extent is the probability of leaving poverty influenced by particular socio-economic predictors – such as employment status, human capital and the household context – rather than welfare regime type?

We test the following hypotheses in the sections to come:

Hypothesis 1: Using the theoretical framework outlined the last section, we should find that the social democratic countries will have lower rates of both recurrent and persistent poverty compared to corporatist, with the latter having lower rates than liberal and Southern European Welfare regime countries.

Hypothesis 2: Disadvantaged groups and particularly those who are unable to participate in the labour market will have a higher risk of recurrent and persistent poverty in all other regime types compared to the social democratic.

Hypothesis 3: The social democratic welfare regime countries will have higher initial exit rates, but lower levels of incentives will lead to sharply falling exit rates from poverty as duration increases. In Liberal and Southern regimes on the other hand, low initial exit rates compared to Corporatist and Social Democratic countries will be maintained leading to roughly similar poverty durations across different regimes.

4 The Data

The results presented in this paper are based on the User Data Base (UDB) containing data from Waves one to five (1994 to 1998) of the ECHP.[2] Since a given level of household income will support a different standard of living depending on the size and composition of

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[1] It should be born in mind that the distribution of different socio-economic statuses is not unrelated to the welfare state structure. To take a basic example, the very different distributions of unemployment across the population among countries is a substantial extent the result of different employment protection regimes in these countries.

[2] For a discussion of the quality of the ECHP data see Whelan et al. (2000).

the household, we adjust for these differences using an equivalence scale. The scale we employ is often termed the "modified OECD" equivalence scale where the first adult in a household is given the value 1, each additional adult is given a value of 0.5 and each child a value of 0.3.[3] We calculate the number of equivalent adults in each household using this scale, and construct equivalised income by dividing household income by this number. The equivalised income of the household is then attributed to each member, assuming a common living standard within the household, and our analysis is carried out using the individual as the unit of analysis.

Although the full ECHP UDB data file includes data for fifteen countries we made the choice in this paper to select only those countries that contributed respondents to the data file in each year between 1994 and 1998. This means that we have to drop Luxembourg, Austria, Finland and Sweden from the analyses leaving us with eleven countries. Table A1 in the Appendix gives the numbers of individuals with valid income by wave. Our dataset includes a total of 127,253 respondents in 1994 across all eleven countries falling to 107,425 in 1998.[4] A total of 85,713 individuals are available for analysis across the five waves from 1994 to 1998.[5] Such attrition has been shown to not effect the reliability of the data, which remains representative of the country populations for the years in question.[6]

Given attrition in the panel sample across years, the case weighting used in the analyses is important. In sections five and six we use a balanced panel of 'survivors' who remained in the sample from 1994 to 1998 and use the 1998 'base weight' for this group as specified by Eurostat. Unfortunately this weighting regime is not possible in sections seven and eight when we carry out duration analyses because it is not possible to specify the base population to which the sample would be compared at each point at which the hazard of exit from poverty is being computed (c.f. Kalton and Brick, 2000) since individuals were not necessarily in the sample in 1994, but could have joined later. Attrition is not a problem in these sections because the transition rate takes into account the censoring of cases through the calculation of the denominator in the transition rate, but this would not adjust for any initial sample errors. Instead we choose to use independent variables in the models to adjust for the factors that are used in the Eurostat weights to control for the distribution of these factors within countries (see Eurostat DOC.PAN 165).

The income measure employed is total disposable income, including transfers and after deduction of income tax and social security contributions, with the household taken as the income recipient unit. The principal accounting period for income employed in the ECHP is the previous calendar year. This can present certain problems for dynamic poverty analyses which seek to use changing individual and household characteristics. One way that this problem can be dealt with is by lagging the income information (see Layte and Whelan, 2003), but this too presents problems since the income information at year t-1 is that for the household members at t. This means that any demographic changes in the household which impact on income are also lagged by one year. Using lagged information also means that the

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[3] The level of measured income inequality can vary depending on the choice of equivalence scale (see e.g. Buhmann et al., 1988).
[4] Using the cross-sectional weight in each year.
[5] Using the base weight in 1998.
[6] For discussions of the quality of the ECHP data set see Eurostat (1999a), Eurostat (1999b), Watson & Healy (1999) and Watson (2002).

final year of the data cannot be used, and this shortens an already short run of panel years.[7] Tests showed that results using lagged and unlagged income variables were comparable, thus here we use the unlagged specification and retain the extra year of data.

As in all poverty research we need to define both a yardstick upon which we can measure the concept and a threshold at which it can be said to begin. Throughout the paper we operationalise poverty as income poverty and set the poverty threshold as 60% of median equivalised income. The use of a fraction of median income means that our definition and operationalisation of poverty is relative and the poverty line will be set at a lower absolute level in less affluent countries. Relative income lines are widely used in poverty research and particularly poverty dynamics research, though there are other options available (c.f. Layte, 2001).

One of the most important aspects of this paper is the analysis of the impact of welfare regimes on poverty recurrence and persistence. As stated earlier, here we use an adapted version of the Esping-Andersen (1990) typology and group the country data available in the ECHP in the following manner. The social democratic regime is represented by Denmark and the Netherlands. The corporatist regime is represented by Germany, Belgium and France. The liberal regime is represented by the UK and Ireland and the Southern European regime by Italy, Spain, Greece and Portugal. Esping-Andersen (1990) did not include a Southern European regime in his typology and in fact grouped Italy along with Germany and France in the Corporatist regime, but he did realise the distinctive familiaristic characteristics of Southern European welfare states and has subsequently used this grouping (c.f. Esping-Andersen, 1999).

5   Profiles of Poverty in Europe

A number of different methodologies have been used to examine poverty dynamics, each allow different questions to be examined. Early US (Duncan and Rodgers, 1991; Duncan et al., 1993) and more recent European research (Atkinson et al., 2002; Layte and Whelan, 2003) defined poverty persistence as being below the poverty line for a set number of years out of the total observed. From the perspective of this paper however, the main drawback of this method is that it does not allow one to examine recurrent poverty in the form of separate spells across the observation period. The time dependent nature of poverty is characterised by four dimensions: 1) the length of the observation period; 2) the extent of recurrent poverty; 3) the length of the poverty spell; 4) the volatility and stability of poverty statuses over time. Together, these four dimensions determine the pattern – or profile – of poverty for each individual over time (Walker, 1994). Given this, here we develop a typology of poverty profiles that will allow us to examine both the persistence and recurrence of poverty.

We distinguish among four types of poverty profiles:
  - The persistent non-poor: never poor during the accounting period;
  - The transient poor: poor only once during the accounting period;
  - The recurrent poor: poor more than once, but never longer than two consecutive years;
  - The persistent poor: poor for a consecutive period of at least three consecutive years.[8]

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[7] It is also possible to lag the income information and only use the income information for respondents present at *t*-1. However, this presents problems as respondents present at *t*-1 also have to be present at t to have income information included.

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In a previous research, we applied this notion of poverty profiles to longer running panel data for the Netherlands, Germany and the UK with considerable success (see Fouarge, 2002). It may seem that the measure of poverty persistence used is rather arbitrary, however, from empirical research (Bane and Ellwood, 1986; Stevens, 1994, 1999), it is known that the likelihood of escaping poverty diminishes rapidly after having been poor for two or more years. A good understanding of the distribution of poverty over time can be obtained from such poverty profiles, which include information on the prevalence, periodicity and duration. These profiles are different for various population groups, depending on their income and money flows over time. Table 1 shows how poverty is distributed across the various profiles in the eleven countries for which data are available, using the 60 percent of median income poverty line.

Table 1: Poverty Profiles in Europe, 60% of Median Income (Percentages)*

	Never poor	Transient poor	Recurrent poor	Persistent poor	Total
Social democratic	77.7	10.6	6.1	5.6	100
Denmark	77.4	13.2	6.0	3.5	100
The Netherlands	77.9	9.6	6.1	6.4	100
Corporatist	70.7	11.0	8.0	10.3	100
Germany	73.4	11.1	7.7	7.8	100
Belgium	63.9	13.4	10.8	11.9	100
France	68.4	10.4	7.9	13.3	100
Liberal	61.6	13.2	11.0	14.2	100
Ireland	63.8	10.7	10.6	14.9	100
UK	61.4	13.4	11.1	14.1	100
Residual	60.8	13.1	13.0	13.1	100
Italy	62.1	12.6	12.3	13.2	100
Greece	58.5	13.9	12.4	15.2	100
Spain	60.0	13.5	15.1	11.4	100
Portugal	58.8	13.7	9.5	18.1	100
Europe	66.2	12.0	10.1	11.7	100

* No attempt has been made here to account for left and right-censoring when constructing the poverty profiles.
Source: ECHP UDB 1994–8.

Looking at the results presented in the table, we must conclude that a third of the EU population was found to experience poverty at least once in the 1994–8 period. This is much more than the 17 to 18 percent found when using cross-sections (see European Commission, 2002: 186). Approximately a third of those ever poor are only poor for a single year while the others are poor for a longer period of time. Almost 12 percent of the EU population is found to be persistently poor according to our definition. The differences between countries are, however, substantial. The lowest poverty incidence is found in the Netherlands, but even here 22 percent of the population experienced poverty in the second half of the 1990s. The highest poverty incidence is found in Greece and Portugal. Both countries also display the highest rate of persistent poverty. Although the country differences are large, it does seem that grouping by welfare regime does make sense. In view of our first hypothesis, we conclude that, overall, the countries of the social democratic type display lower rates of poverty. The next highest rates are found in the countries of the corporatist type. In countries belonging to the residual and liberal welfare regime, poverty is not only higher, but it also tends to be more

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[8] The definition is based on the length of the longest poverty spell in the period. Note that the poverty profile depend on the time window in which measurement is made. Extending the observation period changes the distribution of the poverty profiles.

recurrent and persistent. In the next section, we will see whether the differences found can be explained by differences in household structure, human capital and labour market behaviour.

6   Determinants of Poverty Profiles

Recurrent poverty appears to be less of a problem for the different welfare regimes than persistent poverty, although the number of people in recurrent poverty, particularly in Liberal and Southern welfare regimes, is quite high. This reasoning holds only when recurrent poverty is not a preliminary state or entrance gate to persistent poverty. This issue will be examined in more detail in this section. To what extent are the persistently poor different from the transient and recurrent poor? Even if persistent poverty is, on average, low it should be of concern for policy makers because the likelihood of an extended stay in poor living conditions rapidly rises with increasing spell length and may well create social and psychological problems. Persistent poverty is also of concern since it is very unevenly spread across the population and particularly hits vulnerable groups in society. In this section, the events that trigger membership in the various poverty profiles are examined.

In Muffels et al. (1999) and Fouarge (2002), multinomial logit models are estimated for the likelihood of belonging to each of the longitudinal poverty profiles for three European welfare states (the Netherlands, Germany and UK). The models estimated there suggest that the variables explaining membership of the transient, recurrent or persistent poor categories are the same. However, the magnitude of the effects is larger for the recurrent than the transient poor and larger still for the persistent than for the recurrent poor. This suggests that there is an ordering among the profile categories and as such, in this paper, we estimate ordered logit models rather than multinomial logit models and extend the estimation to other EU Member States.

In the model, two types of variables are included which are likely to be important factors predicting these different profiles: 1) household formation events (divorce or separation) and 2) labour market events (increase or decrease in the number of employed adults in the household or in the number of hours worked). In addition, a number of control variables were introduced in the models: 1) personal and household characteristics (age, sex, marital status, household composition, number of children, marital status); 2) socio-economic characteristics (education level, labour market participation at the household level, health situation). The variables are measured just before the beginning of the poverty spell. Changes in the variables are measured at the time of entry into the poverty profile.[9] Both aspects constitute an improvement compared to Muffels et al. (1999) and Fouarge (2002). The model estimated distinguishes the four poverty states where the 'never poor' act as the reference category. The probability of being in either state, as compared to the reference state, is given by the following equation:

$$\Pr(profile_j = i) = \Pr\left(\alpha_{i-1} \prec \sum_{k=1}^{K} \beta_k x_{kj} + u_j \leq \alpha_i\right),$$

where the coefficients β_k ($k=1\ldots K$) and the cut points α_i ($i=1\ldots I$). K is the number of explanatory variables x and I is the number of possible outcomes (four in this case). In order to gain a better understanding of the labour market status and events associated with poverty

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[9] We use information from the last wave and changes between the first and the last wave in the case of the reference category 'never poor'.

spells, the analyses were limited to individuals living in a household where both the head and the partner – if any – are of working age (aged 25 to 64). Hence, the results in the remainder of this section are concerned with those who fit the above conditions.

People's welfare is expected to depend to a large extent on their attachment to the labour market, but household income may well be crucially affected by the employment status of the head of the household. In fact, both cross-sectional and longitudinal studies show that the employment status of the household head is a strong determinant of the poverty status as well as the probability of making a transition either into or out of poverty (see, for example, Deleeck et al., 1992). However, the employment status of the spouse might be relevant too. Because of the increasing participation of women in the labour market, household welfare – and hence the poverty risk – is expected to be influenced by the partners' labour market decision. Using the ECHP, we constructed a variable that measures labour market participation among household members and includes a gender dimension. The categories are as follows: we create four categories for couples differentiating between couples where both partners are working at least 15 hours a week, only the male or female is employed on the labour market, or where neither is employed. For singles or single parent families – or broadly speaking households where the head has no partner – either the head of the household is employed or he/she is not. Here, we also make a distinction with respect to the gender of the household head in order to test whether or not female heads have a more precarious income position.

Several models were estimated. Model 1 includes labour market and household status variables just before the start of the poverty spell as well as variables measuring change in household characteristics and labour market status in the year proceeding the poverty spell and the first year of the spell. Because for spells starting at wave 1 we could not observe the variables, these spells have been left out of the analysis. In addition to the variables of Model 1, Model 2 also includes country dummies. This enables us to see whether, aside from individual and household characteristics, country specific features influence poverty risk. Model 3 is the same as Model 2 except that the country dummies are replaced with regime type dummies. Using this procedure we can test whether or not the country groupings suggested in Section 2 make any sense from an empirical point of view.

Looking at Table 2 it is clear that compared to couples without children, singles, couples with children but especially single parents have a greater probability to experience poverty. This, and the positive and significant effect for the number of children, adds to the already available evidence regarding child poverty (see also Vleminckx and Smeeding, 2001, Bradbury et al., 2001). Changes in the number of children – either more or less children – are both associated with an increased and decreased poverty risk. At first sight this finding seems contradictory but can be explained through the effect changes in household composition have on both household income and household needs (see Layte and Whelan, 2003 for a treatment of this issue). A tentative explanation in this context is that young children coming into the household induce an additional financial burden that is generally less than compensated by child benefits. Children leaving the household are generally older and have their own market income, which may have negative consequences on the household's income position. Separation, as we can see from the model estimates, also has a positive effect on the poverty risks.

Table 2: Results of Ordered Logit Model for Poverty Profiles, 60% of Median Income, Persons in Households where Head and Partner Are Aged 25–65

Reference group: never poor	Model 1		Model 2		Model 3	
	β	Sig	β	Sig	β	Sig
Female head (ref: male)	-0.008	n.s.	0.016	n.s.	-0.012	n.s.
Head aged 40–54 (ref: <40)	0.063	n.s.	0.060	n.s.	0.064	n.s.
Head aged 55–64	-0.190	*	-0.189	**	-0.184	*
Head separated/widowed (ref: married)	-0.068	n.s.	-0.021	n.s.	-0.038	n.s.
Head unmarried	0.231	*	0.273	*	0.254	*
Couple with child (ref: couple, no child)	0.221	**	0.195	**	0.194	**
Single, no child	0.229	**	0.270	**	0.265	**
Single parent	0.857	**	0.831	**	0.840	**
Other household type	-0.047	n.s.	-0.075	n.s.	-0.074	n.s.
Number of adults	0.134	**	0.143	**	0.134	**
Number of children	0.244	**	0.252	**	0.250	**
Head has average education (ref: high educ)	0.260	**	0.304	**	0.296	**
Head has low education	0.680	**	0.658	**	0.653	**
Person reports (very) bad health	-0.076	n.s.	-0.054	n.s.	-0.074	n.s.
Household head reports (very) bad health	0.262	*	0.277	**	0.271	**
Only male employed (ref: both partners empl.)	0.548	**	0.558	**	0.541	**
Only female employed	0.626	**	0.632	**	0.627	**
None employed	1.076	**	1.087	**	1.073	**
Single male working	0.326	**	0.284	**	0.280	**
Single female working	0.396	**	0.338	*	0.358	*
Single male not working	1.376	**	1.350	**	1.337	**
Single female not working	1.258	**	1.187	**	1.200	**
Unemployment spell in past 5 years	0.424	**	0.440	**	0.423	**
Head lost job (ref: no change)	0.257	**	0.257	**	0.255	**
Head found job	-0.354	**	-0.359	**	-0.361	**
Partner loses job (ref: no change)	0.263	**	0.269	**	0.265	**
Partner finds job	-0.383	**	-0.402	**	-0.395	**
Less children (ref: no change)	-0.667	**	-0.671	**	-0.662	**
More children	-0.410	**	-0.430	**	-0.421	**
Separation	0.492	**	0.501	**	0.500	**
Ireland (ref: UK)			-0.207	n.s.		
Denmark			-0.334	**		
The Netherlands			-0.285	**		
Germany			-0.131	*		
Belgium			-0.449	**		
France			-0.063	n.s.		
Italy			0.188	**		
Greece			-0.130	n.s.		
Spain			-0.307	**		
Portugal			-0.309	**		
Social democratic (ref: Liberal)					-0.257	**
Corporatist					-0.194	**
Southern					-0.038	n.s.
α_1	2.389		2.269		2.262	
α_2	2.854		2.738		2.729	
α_3	3.628		3.520		3.506	
N	75,888		75,888		75,888	
Pseudo-R^2	0.147		0.152		0.150	

* significant at 5%; ** significant at 1%; n.s. non-significant.
Source: ECHP UDB 1994–8.

The model coefficients with respect to the educational level of the household head demonstrate the private returns of investments in human capital in terms of reduced poverty risk, an effect which holds even after correction for labour market status. It is interesting to note that, as Fouarge (2002) shows, the effect of low educational attainment on the poverty risk is stronger for persistent than for transient poverty. A second indicator of human capital, health status,

shows a strong relationship with the poverty risk. Other things being equal, living in a household where the head reports bad health increases the probability being poor.

Turning to the second hypothesis we formulated in Section 3, we must indeed conclude that households with a weak labour market attachment run a higher risk of being poor. This is particularly the case among couples where none of the partners are employed or when only the female partner is employed, because in these households the 'needs' are relatively high while the 'resources are low'. Jobless singles also run a proportionally higher risk of poverty. Poverty risk is not only positively affected by the unemployment history but also by changes of labour market status. Hence, a job loss by either the household head or their partner tends to increase poverty risk. Job gain, however, reduces the poverty risk. Viewing the relative size of the coefficients, we can furthermore conclude that changes in the employment status of the partner, other things being equal, have a slightly stronger effect than similar changes for the household head. This illustrates the fact that additional income from the partner's employment can play an important role in the determination of the poverty risk. However, tests have shown that this finding is sensitive to the choice of the poverty line. When we set he poverty line to half median income, the head's employment position is found to have a stronger effect on the poverty risk than a similar change of the partner's job status.

The effects just described are rather similar across models. Once we control for observed characteristics of the individuals and the households, only Italy turns out to have a higher poverty risk than the reference country Great-Britain. Although most of the country dummies included in Model 2 turn out to be significant, their added value in terms of explained variance is limited: the pseudo-R^2 increases from 0.147 to 0.152. Replacing the country dummies by regime type dummies induces a small reduction of the explained variance from 0.152 to 0.150. Hence, we can conclude that replacing the country dummies by regime dummies leads to deterioration of the explanatory power of the model. It should however be noted that the effects for most of the regime dummies are significant and conform our to expectations (see hypothesis 1) with the risk of poverty being lower in social-democratic and corporatist regimes compared to corporatist and liberal regimes. When controlling for background characteristics the residual and liberal models display similar levels of poverty incidence.

7   The Duration of Poverty

In the last two sections we have examined the patterning of recurrent and persistent poverty across EU states and analysed some of the individual and household determinants. These analyses have been very revealing showing that across welfare regimes and countries certain vulnerable groups such as single parents and the jobless are more likely to experience more persistent and more frequent poverty spells. It was clear though that countries differed widely in terms of the distribution of the poverty profiles, but that the variation across countries could be represented fairly successfully using welfare regime types with the social democratic regime performing considerably better than the other three types.

However, the analyses in the last section did not take account of the fact that many of those found in poverty at the beginning of the observation spell (1994) may well have been in poverty for a considerable period before this date, even though they may have left poverty in the next year. Similarly, if a person was in poverty at the end of the observation period, this spell was treated in exactly the same manner as a single year of poverty in the middle of the

period, even though it may actually have continued for some time after. To control for such left and right 'censoring' we need to move to a duration perspective which identifies spells of poverty and examines their characteristics. In this section we begin with some descriptive analyses of poverty spells from the ECHP data before moving on to multivariate methods and specifying a hazard rate model of exit from poverty.

Poverty Spells

Although there had been some research in the US using components-of-variance models (Lillard and Willis, 1978), it was the now classic paper by Bane and Ellwood (1986) which first applied exit probability analyses to poverty spells data derived from panel surveys. This technique naturally controls for right censoring by excluding censored cases from the denominator of the hazard rate function whilst making it possible to derive estimates of exit rates at a given spell duration and mean duration for someone entering poverty. Bane and Ellwood also examined the individual/household 'events' associated with transitions into poverty which uncovered the main factors leading to poverty spells. The methodology was extended by Stevens (1994, 1999) who applied hazard rate models which permitted the estimation of the effects of covariates, controls for unobserved heterogeneity and the inclusion of multiple spells of poverty for the same individual. Since that paper there have been a number of developments in research including the joint estimation of entry and exit from poverty controlling for unobserved heterogeneity (Jenkins and Rigg, 2001).

In this section we apply hazard rate techniques to the ECHP using data gathered at interview in each wave of the panel survey to construct 'spells', or durations of poverty. Thus, if a person is found to be in poverty in contiguous years of the panel data they are regarded as being in poverty for the entire period covered by those panel years. It should be said immediately that these spells can be no more than approximations of the true experience of poverty since the income and the needs of the household in which the person lives may well have fluctuated a great deal between the yearly 'snapshots' of the panel survey and thus they may not have actually been in poverty for the whole period. Nonetheless, the method will provide interesting insights into the factors that determine exit from poverty. It should also be noted that, at the time of writing, we only have five years of panel data at our disposal. By comparison, the US Panel Study of Income Dynamics used by Bane and Ellwood (1986) and Stevens (1999) contained twelve years of income data. This restricts the estimates we can make of the average duration of spells since, by definition, we will not have any poverty spells longer than five years. An additional problem is that some spells are ongoing – left-censored – when we first observe the person in 1994. Although transition rate analysis can control for right-hand censoring, it is not possible to control for the period that respondents may have been poor before the observation period began. Therefore, left-censored cases cannot be used. This means that only spells beginning in or after 1995 are included in the analyses and this shortens the period available to four years. Spells where we observed the beginning, but which were censored at the end of the sample period were included in the calculations. As in Stevens (1999), all poverty spells for individuals are used and we are thus estimating multiple spell analyses.

Exit Probabilities

Before we go on to model exit from poverty, it is first useful to examine some descriptive statistics on the duration of poverty. One of the central concerns of both researchers and

policy makers is the speed at which people leave poverty and thus the resulting duration of poverty spells. We can gain a descriptive picture of the probability of leaving poverty at intervals in the poverty spell and an estimate of average duration using exit probabilities. These are calculated by dividing the number of exits or transitions from poverty in each year by the population at risk of exiting (i.e. the number still poor). This means that sample sizes are quite large for the first year, but become steadily smaller and thus less reliable the longer the spell period. Unfortunately the short run of years available prevents us from offering an analysis of the true distribution of poverty durations since no spell can be more than three years long if completed, or four years if censored, but the durations derived from the exit probabilities can be compared between countries.

Table 3 shows the overall exit probabilities for the ECHP sample of poverty spells at each year of their duration. The figures show that the exit probability falls quickly between the first and second years of poverty from 46% to 31%, but then the decrease slows to around 24% by the third year (remember there are no transitions after the third year to calculate exit probabilities from). There are two interpretations that we could make of these results. First, it may be that it is indeed harder to leave poverty the longer the poverty spell lasts, perhaps because one's ability to get a job decreases as resources wane. However, it could also be that what we observe here is just the result of particular socio-demographic characteristics on the part of some individuals that increase the duration of poverty which are unrelated to poverty duration itself. We will be in a better position to decide between these hypotheses in the next section.

Table 3: Exit Rates from 60% Median Income Poverty by Spell Duration 1995–8

Spell Length to Date	Exit Probability	Standard Error	Sample Size	95% Confid. Interval
1	0.460	0.004	17621	0.456 – 0.464
2	0.313	0.006	5273	0.307 – 0.319
3	0.237	0.010	1809	0.227 – 0.247

Source: ECHP UDB 1994–8.

Extrapolating from these results we can see that almost 72% of people just beginning a spell of poverty will have left after three years. Interestingly, these results are very similar to those found by Bane and Ellwood (1986), who found that the exit probabilities in their US sample was 44.5% in the first year, 28.5% in the second and 24.6% in the third. Luckily they had access to the PSID panel survey which has twelve years of usable poverty data and so were also able to estimate long-run transition rates. Using this data they found that exit probabilities carried on decreasing after the third year reaching just over 7% by the eighth year.

Exit Probabilities Across Regimes

It is likely that exit probabilities also differ between countries in the EU so in Table 4 we examine country specific exit probabilities. Although there are differences in the exit rates in Table 4, the overall spread of rates is actually quite small with only 15% separating the highest and lowest rates and seven of the countries being within 8% of each other, although the Danish rate in the first year is clearly higher than in the other countries. After one year of poverty, the Danish exit rate of 55% is 6 percentage points higher than the next highest rate in Spain. At the other end of the scale Portugal, the UK and Greece have the lowest exit rates –

the Portuguese rate being less than three-quarters of the Danish rate. However, as the duration of poverty lengthens, the country order changes quite substantially with the Dutch rate falling by 51%, the Belgian rate by 46 % and the Irish rate by 40% between the first and second years. Similarly, between the second and third years, the French rate drops by over 55% so that whereas in Denmark approximately 77% of those entering poverty will have left by the third year, in the Netherlands this rate is 70%, in Belgium 68% and lowest in France at 67%. Interestingly, the slower decrease in the exit probability in Portugal means that after three years, 72% of those who entered a spell of poverty will have left, the forth-highest rate. What implications do the results from this section have for our hypotheses in this paper?

In many respects the results from this descriptive analysis are congruent with our third hypothesis. It is clear that Denmark, our prime Social Democratic country has the highest initial exit rate, although the Netherlands, the other representative of the social democratic regime has more average transition rate around the same range as the Corporatist countries of France, Germany and Belgium. Greece, Portugal and the UK have low initial exit rates, but Italy, Ireland and Spain all have rates close or greater than the Corporatist countries. However as hypothesised, we do see large decreases in the exit rates of the Social Democratic and Corporatist countries after the first year with the Dutch, Belgium and French rates dropping quickly whilst the Liberal and Southern regime rates tend to be maintained. These patterns mean that after three years, the proportions who have left poverty are very close across countries with only 10% separating the highest and lowest rates and nine countries being with 7% of each other.

Table 4: Exit Rates from 60% Median Income Poverty by Spell Duration 1995–8 and Country (S.E in Parentheses)

Spell Length	Denmark	Netherlands	Belgium	France	Ireland	Italy	Greece	Spain	Portugal	Germany	U.K
1	0.552(.023)	0.477(.016)	0.479(.018)	0.428(.012)	0.472(.016)	0.486(.009)	0.421(.011)	0.497(.009)	0.405(.012)	0.476(.012)	0.417(.013)
2	0.370(.050)	0.233(.027)	0.259(.032)	0.328(.020)	0.282(.026)	0.372(.016)	0.297(.017)	0.325(.017)	0.299(.018)	0.330(.022)	0.272(.020)
3	0.192(.077)	0.246(.046)	0.179(.045)	0.140(.028)	0.254(.039)	0.169(.023)	0.259(.027)	0.220(.028)	0.327(.030)	0.157(.031)	0.345(.034)

Source: ECHP UDB 1994–8.

8   Duration Models

In this section we estimate a set of hazard rate models of exit from poverty conditional on a number of independent predictors, the most important of which in the context of this paper is country. However, we will also be testing the hypothesis that it is the type of welfare regime that a country exhibits that is important. In estimating the models we will be using all poverty spells which began after 1994 so we do not estimate exit rates for left-censored cases, but we do include multiple spells for the same individuals and test whether subsequent events to a first are longer in duration controlling for other factors[10].

Following Stevens (1999) and Jenkins and Rigg (2001) we specify a discrete-time hazard rate model which estimates the probability of making a transition from poverty and it's dependence on time. We thus measure the conditional probability that the transition will occur, given that it has not occurred already up to time *t*. This can be expressed as a discrete-time hazard rate H_{it}:

$$H_{it} = \Pr\left(T_i = t \mid T_i \geq t, X_{it}\right)$$

Here, the hazard of individual *i* making the transition from poverty at time *t* is dependent upon them not having reached the end of the spell (T_i) and a set of covariates X_{it} which may or may not vary with time. The discrete-time hazard rate relies upon the reorganisation of data from a spell centred unit of analysis to one based upon the spell year that allows the data to be analysed using standard regression techniques for binary variables. In the duration models we use exactly the same independent variables as used in the ordered logit model in section six including the sex, age, marital status, health status and unemployment history of the person responsible for the accommodation, plus variables that represent the labour force status of partners, the household type, the number of adults and children and whether their is a sick person in the household. Unlike in section six, here we cannot estimate variables that represent the type of change that occurs in household circumstances as this would lead to collinearity among right-censored cases.

As well as these covariates we also fit variables that represent the year in question (1995–8)[11], the number of previous spells of poverty and the time-dependence of the process. This specification of the hazard requires an expression (among the many) for the hazard rate. We have already seen that the transition rate declines substantially across all countries (although not at the same rate) thus specifying a function that reflects this process is essential. However, there are several forms that may be applicable thus we choose to use two commonly used specifications and decide between these according to an established empirical yardstick. We also test an exponential distribution to test whether the assumption of a declining hazard rate is indeed warranted. The two decreasing specifications are the weibull and the log-normal. To decide among the models we adopt the Akaike information criterion (AIC; Akaike 1974)

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[10] The exclusion of left-censored spells could lead to bias in duration dependence as those poor in the first year observed who subsequently fell back into poverty would not have the left-censored spell counted. We avoid this by counting left-censored spells in a variable which denotes the number of previous spells of poverty.

[11] Spells still underway in 1998 cannot end in a transition as the observation period ends in that year therefore a dummy variable to represent this year would perfectly predict failure. Given this, a dummy representing 1997 and 1998 is used.

which penalises each log-likelihood to reflect the number of parameters being estimated in a particular model.[12]

The AIC tests on the three hazard distributions shows that the weibull specification has the lowest value and is thus chosen as the most appropriate specification.[13] Using this specification we can now estimate a set of hazard rate models. Given our aim of comparing country hazard rates and doing so whilst controlling for the distribution of individual and household characteristics in the country, our modelling strategy is to first fit a basic model with variables for time dependence, multiple spells and year plus household and individual covariates. In the second model we include country dummies and examine their significance controlling for other characteristics before fitting a third model using variables representing welfare regime types. Here we test whether regime variables are as effective at predicting exit from poverty as the country variables. If so, we have good evidence that welfare regime theory is at least partially correct in its understanding of how country welfare institutions and regulations impact on poverty dynamics.

The model specification does not take account of unobserved heterogeneity which may lead to negative duration dependence which is in fact due to the characteristics of the respondents, rather than being a process germane to the duration of poverty itself. To take account of this an unobserved individual specific error term ε_i with zero mean and normal (Gaussian) distribution is added to the models. In the tables to come we report the standard deviation of the heterogeneity variance (σ_v) and the ratio of this variance to one plus the variance (ρ). If ρ is significantly different from zero, then individual heterogeneity in the models is important. The two bottom rows of Table 7 show that heterogeneity is indeed a significant factor in all models and as we will go onto see contributes to the negative duration dependence that we observed in the descriptive analyses.

Moving first to Model 1, Table 5 shows, contrary to the descriptive findings that the hazard of exit from poverty increases with duration. Tests show that when no control is taken of unobserved heterogeneity this coefficient is negative suggesting that unmeasured personal and household characteristics account for the negative relationship between duration and the hazard of leaving poverty rather than pure duration dependence. The year is also of importance with the rate of exit decreasing in 1996 compared to 1995 and then decreasing further in 1997–8.

Looking at the other covariates we can see that having a household reference person in the oldest age group slows exit, as does being in a 'couple' household with children. When we control for country in Model 2 we find that being both single and a single parent also slows exit, although the latter effect disappears when we control for regime rather than country. The number of children and adults have both a negative influence on the rate of exit, although the number of adults does not become significant until the addition of the country and regime controls. The effect for number of children is not unexpected as much work shows that in many countries (although France is an exception), larger numbers of children are associated with a greater poverty risk.

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[12] The AIC is defined as AIC=-2(LL)+2(c+p+1) where c is the number of model covariates and p is the number of model specific ancillary parameters. The preferred model is that with the lowest AIC value.
[13] The AIC value for the Weibull hazard function is 38,796.9. The AIC values for the log-normal and the exponential function are 38,798.1 and 38,810.1, respectively.

Table 5: Results of Weibull Discrete-Time Hazard Rate Models of Exit from 60% Median Income Poverty Controlling for Unobserved Heterogeneity, 25–65 years

	Model 1		Model 2		Model 3	
	β	Sig	β	Sig	β	Sig
Logged duration in poverty	0.70	**	0.50	*	0.72	**
Number of previous poverty spells	-5.27	**	-5.71	**	-5.31	**
Year 1996 (ref: year 1995)	-1.31	**	-1.19	**	-1.33	**
Year 1997–8	-6.41	**	-6.29	**	-6.49	**
Female head (ref: male head)	0.28	n.s.	0.35	n.s.	0.10	n.s.
Head aged 40–54 (ref: head aged < 40)	-0.13	n.s.	-0.36	n.s.	-0.04	n.s.
Head aged 55–64	-0.86	**	-1.21	**	-0.82	**
Head separated/widowed (ref: head married)	-0.35	n.s.	-0.19	n.s.	-0.13	n.s.
Head unmarried	-0.50	n.s.	-0.82	*	-0.23	n.s.
Couple with child (ref: couple, no child)	-1.51	**	-2.39	**	-1.51	**
Single, no child	-1.58	n.s.	-2.97	**	-1.82	*
Single parent	-0.86	n.s.	-2.35	**	-0.89	n.s.
Other	0.47	n.s.	0.14	n.s.	0.48	n.s.
Number of adults	-0.12	n.s.	-0.28	**	-0.17	*
Number of children	-0.55	**	-0.54	**	-0.58	**
Head has average education (ref: high education)	0.05	n.s.	-0.17	n.s.	0.01	n.s.
Head has low education	-2.42	**	-2.83	**	-2.65	**
Only male employed (ref: both partners employed)	-0.45	*	-0.67	**	-0.43	*
Only female employed	-1.73	**	-1.63	**	-1.76	**
None employed	-3.78	**	-4.19	**	-3.67	**
Single male working	1.52	*	1.98	**	1.30	n.s.
Single female working	-0.75	n.s.	-0.09	n.s.	-0.64	n.s.
Single male not working	-2.91	**	-2.83	**	-3.19	**
Single female not working	-1.97	*	-1.58	*	-1.77	*
Unemployment in past 5 years	0.92	**	1.09	**	0.94	**
Person reports (very) bad health	-0.21	n.s.	-0.39	n.s.	-0.31	n.s.
HH head reports (very) bad health	-0.46	n.s.	-0.19	n.s.	-0.31	n.s.
Ireland (ref: UK)			1.48	**		
Denmark			-0.07	n.s.		
Netherlands			-0.39	n.s.		
Belgium			0.88	n.s.		
France			-0.20	n.s.		
Italy			1.36	**		
Greece			-0.86	*		
Spain			0.77	*		
Portugal			0.59	n.s.		
Germany			-1.22	*		
Social democratic (ref: Liberal)					-1.23	**
Corporatist					-1.13	**
Southern					-0.41	n.s.
Constant	12.68	**	14.05	**	13.49	**
Observations	27434		27434		27434	
Log-Likelihood	-12731.6		-12690.6		-12723.4	
Standard Deviation of σ_v	9.210453		9.67275		9.221945	
$\rho = \sigma_v/1+\sigma_v$	.9883494		.9894249		.9883781	
Significance of ρ		**		**		**

* significant at 5%; ** significant at 1%; n.s. non-significant.
Source: ECHP UDB 1994–8.

The effect for the number of adults shows that once we have controlled for the number working persons in the household, the increased needs implied by a higher number of adults delays exit from poverty. As expected we also see that if the head of the household has a lower level of education, this can slow exit from poverty.

As expected the employment status of household members is important with unemployment and non-participation being associated with a slower exit from poverty with the effect being particularly pronounced in households with married or cohabiting partners, neither of whom

work or single non-working individuals. This finding is in line with expectation 2. Lastly, there is a positive effect associated with a household head having a history of unemployment which is a rather unexpected result.

In Models 2 and 3 we turn to the examination of whether the differences between countries can be represented as differences between welfare regimes as we suggest in hypothesis three. We hypothesised that the overall hazard of exit between countries controlling for duration would be rather similar because of the different processes involved, but what we actually see in Model 3 is that the social democratic and corporatist regimes have lower exit rates than the Liberal (the reference) and the Southern European.

9   Conclusion

With the increasing number of waves available form the European Community Household Panel (ECHP) we are now able to make genuine comparative research of poverty dynamics in EU countries. In this paper, we used the first five waves of ECHP – covering the years 1994 through 1998 – to examine the structure of spells, their average duration and the determinants of duration. For this purpose, we used ordered logit and hazard rate modelling techniques. In the paper we have seeked to evaluate how well the different welfare states of Europe perform in terms of preventing income poverty and what household and individual characteristics influence poverty duration. We have introduced the notion of poverty profiles which summarizes information on poverty incidence and duration. Poverty profiles distinguish among the transient, recurrent and persistent poor and could be a useful tool for monitoring poverty in Europe. Using this poverty measurement, we have shown that even in the richest countries of Europe, poverty is still a widespread phenomenon: a third of the EU population was poor at least once in the 1994–8 period. However, most of these people escaped poverty more or less rapidly, leaving still almost 12 percent in persistent poverty. From a policy perspective, it is important to know who these people are and to understand the processes that lead to poverty persistence. In this paper we have looked in more detail into the institutional context, labour market mechanisms and household context.

We have argued that the institutional context within which poverty occurs matters and have found evidence supporting this view. We show that the country welfare regimes strongly influence long run poverty. In particular, countries in the social democratic tradition are found to do a better job of preventing poverty and long-term poverty. Countries in the liberal tradition and southern European countries display much higher rates of poverty and longer durations of poverty spells.

Looking at demographic characteristics of the household, we found that singles, but especially single parents, are more likely to be persistently poor and have lower probabilities of exiting poverty. Other things being equal, additional children or adults – by adding to the needs of the household – increase the poverty risk. We also provided some evidence on the efficiency of labour market mechanisms in terms reducing the risk of long-term poverty. Jobless households are not only more likely to become persistently poor, but they are also less likely to exit poverty. Human capital, as measured by the educational level, is found to have a significant impact on the poverty risk, even after when we control for the employment status.

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Appendix

Table A1: Weighted Number of Individuals in Each Wave of the ECHP

	1994	1995	1996	1997	1998	Present 94–8
Denmark	5,903	5,503	4,994	4,628	4,187	3,168
The Netherlands	9,407	9,151	9,277	9,089	8,826	6,332
Germany	12,233	12,542	12,295	12,059	11,562	9,368
Belgium	6,710	6,454	6,145	5,741	5,339	4,445
France	14,333	13,306	13,051	12,143	11,209	9,629
Ireland	9,904	8,531	7,487	6,868	6,324	5,186
UK	9,028	8,825	8,949	8,932	8,868	6,543
Italy	17,729	17,780	17,736	16,594	15,934	13,189
Greece	12,492	12,271	11,602	10,968	9,985	8,233
Spain	17,893	16,263	15,640	14,819	13,779	10,785
Portugal	11,621	11,858	11,706	11,625	11,412	8,835
Total	127,253	122,484	118,882	113,466	107,425	85,713

Source: ECHP UDB 1994–8.