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Leaving Home and the Chances of Being Poor: The Case of Young People in Southern European Countries

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Non-technical summary

Research has shown that young people in southern European countries (SECs) leave home at much later ages than do young people in other European countries. One explanation why young people in SECs remain with their parents longer may be that their income is higher than it would be were they to leave home. This issue leads to the two research questions addressed in this paper: does leaving home to live with a partner lead to a low income in SECs? And are individuals who leave a parental home in which income is relatively low more likely to have a low income in their new household? I analyse these two questions using data derived from the European Community Household Panel about youths aged 18–32 years from Italy, Spain, Portugal, and Greece. An individual's income is defined to be the total income of the household in which he or she lives, including money income from all sources (labour earnings, investments and savings, social security benefits, etc.) and after the deduction of income taxes and social insurance contributions. An individual in a given country is considered to be poor if his household's income is less than 60% of the contemporary median income of that country. When examining the determinants of the poverty status of a young person who leaves home, I take account of factors such as: income in the former parental home, educational qualifications, how often the individual meets people outside the family, whether the individual is a member of a club or organization, the quality of the neighbourhood measured in terms of the presence of crime, noise or pollution in the area where the young person lived, and a number of demographic characteristics. I find that, controlling for these various factors, leaving home is associated with a higher chance of having low income. Moreover, the poorer the family of origin, the more likely is the leaver to be poor. Higher chances of having a low income are associated with having lower education qualifications, not meeting people outside the family very often or belonging to a club or organization. I also find that the longer a young person delays leaving the parental home, the more likely the individual is not to be poor if he or she does leave. The explanation is straightforward: remaining in the parental home longer increases the chances of getting a higher educational qualification and hence a better paid job. Perhaps surprisingly, there appear to be no differences in these various patterns across the four southern European countries studied.

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Abstract

This paper analyses, for Southern European countries, the link between the poverty status of young people who leave home and the economic status of their family of origin. First we model the poverty status of those who leave home while also accounting for the fact that youths from better-off households are more likely to leave home (a sample selection model). Second we address the time at risk of leaving home using a competing risks duration model. Estimates from both approaches suggest that young people delay leaving home because it may increase their chances of being poor. Moreover both approaches indicate that young people who have left home are more likely to be poor if their family of origin is poor and that differences across countries are not statistically significant.

JEL classification: I3

Keywords

Youth poverty, leaving home, sample selection model, survival analysis

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1 Introduction

Young people in southern European countries (SECs) leave home at much later ages than do young people in other European countries.[1] Moreover leaving home typically occurs at the same time as partnership formation: the median age of leaving home and partnering is the same in SECs (Iacovou (2004)). These facts lead to the two research questions addressed, in this study, for SECs: does leaving home to live with a partner lead to a low income? And, are individuals who leave a parental home in which income is relatively low more likely to be poor in their new family?[2]

When examining young people leaving home in SECs, we both adopt a wider age range, than in most studies on youth poverty, and we consider only young people who leave home to form a stable union (either legal marriage or cohabitation). Therefore, the definition of 'young people' in this paper differs from the one generally used in the literature. Young people are usually 'those who are no longer children, but who belong to an age group many of whose members have not yet completed all the processes of transition to adulthood' (Aassve et al., 2005, p. 1). 'Youth' is usually considered as starting around 15 years old and ending around 25.[3] In this paper young people are aged 18-32 years and they have completed most of the steps of

[1] According to Iacovou (2004), for men the mean is 30 years in Italy and 28 years in Spain, Portugal and Greece. For women, the mean is 27 in Spain and in Italy, 25 and 23 in Portugal and Greece respectively. In UK (e.g.) the mean age of young men leaving home is 25.5 and is 22.8 for young women.

[2] A family is defined as a group of people with parental links consisting of a married or cohabiting couple, single male or female, with or without children. It can also include grandparents or grandchildren living at home. The household is a wider concept including different units living in the same house without parental links (see Atkinson 1990). In this work we refer to the nuclear family.

[3] International organizations, such as the United Nations and the European Union, have adopted a definition of youth based on upper and lower age limits. They define young people as individuals between 15 and 24 years of age. However, the most appropriate way to address this issue is to find a definition that is suitable for the analysis and the countries that one is going to analyse.

transition to adulthood, namely leaving the parental home and forming a partnership.

There are several reasons why young southern Europeans leave home later than their northern European counterparts. The decision could be driven by factors such as a high rate of unemployment or high housing prices. In addition, living in the parental home may increase the utility of both parents and children. On the one hand, children may prefer to live at their parental home because of the care provided by their parents. This applies even if they have already found employment or have formed a stable relationship, whether cohabiting or marriage. On the other hand, parents may greatly value having children at home longer and so offer transfers to keep their own children at home as long as possible.[4] (Their children's income is higher than it would be if the children were to leave home.) Also young adults may stay at home in order to help to reduce the poverty risk of their parents.[5]

In sum, there are several potentially offsetting effects. Young people may prefer to live on their own but they may delay leaving home because this might increase the probability of being poor. The focus, in this study, is on the relationship between youth poverty after leaving home and parental income in the year prior to leaving home. Factors such as unemployment or housing prices are not considered.

Many studies find a strong link between leaving home and youth poverty and emphasize that leaving home is more important in explaining poverty among young people than other factors like employment, presence of children or cohabitation. Aassve at al. (2005b) found that young southern Europeans delay leaving home because they know that they are more likely

[4]Manacorda and Moretti (2006).
[5]Cantó-Sanchez and Mercader-Pratz (2001).

to enter poverty than those who decide to stay in the parental home. Across countries, the higher the proportion of youth (aged 20–24 years) leaving home, the bigger the gap in poverty rates between those at home and those leaving.

Unlike previous research[6], this paper focuses on the impact of parental income on young people's poverty status, conditional on whether they leave home.

Youth poverty status at $t+1$ is assumed to be associated with parental income at t and other variables (see equation 1). We distinguish between a direct and an indirect effect of income of family of origin (y_t) on the probability of being poor after leaving: $Pr(y_{t+1} < z_{t+1})$.[7] The indirect effect works through the following channel: the lack of material resources in the parental context influences the choice of the neighbourhood in which the family lives (N_t), the social network of the young person (S_t) and the educational qualification (E_{t+1}), and so the probability of being poor after leaving home. Demographic characteristics at time $t+1$ (X_{t+1}) are also included as influences on $Pr(y_{t+1} < z_{t+1})$.

$$Pr(y_{t+1} < z_{t+1}) = f(y_t, N_t, S_t, E_{t+1}, X_{t+1}) \tag{1}$$

This paper focuses on a sub-sample of young people who have left home in order to analyse youth poverty after leaving home. There may be an association between parental income and leaving home to become part of a couple: the higher the parental income, the less likely a youth is to leave home and be part of a couple or vice versa. This suggests a potential sample selection bias because there are some observable and unobservable factors

[6]The closest study is Aassve at al. (2005b).

[7]Where y_{t+1} is the income of a young person after leaving home and z_{t+1} is the poverty line.

that determine whether a young person has left the parental home and, at the same time, affect the outcome of primary interest (youth poverty status). We use a standard sample selection model in order to address this issue. This approach does not consider how the chances of being poor, conditional on leaving, vary with how long the young person remains in the parental home. This aspect is addressed in the second model, which takes a duration modeling approach allowing the probability of being poor to vary with time at risk.

The estimates show that leaving home is associated with a higher chance of having low income: there is a positive association between the probability of leaving home and the probability of being poor. Moreover, the poorer the family of origin, the more likely it is that the leaver will be poor. Higher chances of being poor are associated with having lower educational qualifications, not meeting people outside the family very often and belonging to a club or organization.

In addition, the longer a young person delays leaving the parental home, the more likely the individual is not to be poor if she or he does leave. One explanation might be that remaining in the parental home longer increases the chances of getting a higher educational qualification and hence a better paid job.

Perhaps surprisingly, there appears to be no differences in these various patterns across the four southern European countries studied.

The paper is structured as follows. In the next section we describe the methodology. In the third we summarize the data. In the fourth section the results are presented. Finally, the last section summarises and concludes.

2 Methods

The first approach used is a sample selection model. The empirical model incorporates unobservable factors that influence both the probability of being poor and the probability of leaving home but the approach does not consider the length of time at risk of leaving home. We use a duration modelling approach to address the latter aspect. These two models are complementary ways to address the research questions.

2.1 The sample selection model

The first model is a type of first-order Markov approach. It takes into account pairs of observations in two consecutive years t and $t+1$ for each individual ($i = 1, ..., N$); where t is the year when a young person lives with his parents and $t+1$ is the year when she or he has left home to live with a partner. In this analysis an individual must leave home and live with a partner (either living in consensual union or married at $t+1$) in order to observe income at time $t+1$.

A potential selection bias may arise driven by the potential association between y_t and the inclusion in the sub-sample. We use a Heckman selection approach in order to address the issue, when estimating the following equation:

$$y_{it+1} = (y_{it}\beta + N_{it}\gamma_0 + S_{it}\gamma_1 + E_{it+1}\gamma_2 + X'_{it+1}\alpha + u_i > 0) \tag{2}$$

where y_{it+1} is observed if and only if a second, unobservable latent variable exceeds a particular threshold:

$$L^*_{it} = X'_{it}\xi + q_{it}\varphi + e_i \tag{3}$$

where

$$L_{it} = 1 \quad \text{if} \quad (L_{it}^{*} > 0) \qquad L_{it} = 0 \quad \text{otherwise} \tag{4}$$

$$\text{Corr}(e, u) = \rho \tag{5}$$

The Outcome equation (2) is the probability of being poor after leaving home, $Pr(y_{t+1} < z_{t+1})$. The dependent variable is observed only for a subset of the sample: young people who leave home to live with a partner. The main interest is the association between the poverty status of young southern Europeans after leaving and the income of their former household, y_t. This association is estimated by including directly the economic status of the family of origin (y_t) and also neighbourhood characteristics (N_t) and social networks at t (S_t), and education (E_{t+1}). Other demographic characteristics are also included (X_{t+1}).

The selection equation (3) is the probability of leaving home to live with a partner (L_t). Whether a young person has left home or not is observed for all the individuals in the sample. The probability of leaving home depends on explanatory variables that reflect demographic characteristics, family structure and neighbourhood characteristics (X_t). The selection equation includes also a crowding index[8] as explanatory variable (q_t) in order to address the identification issue. Children from larger families are more likely to leave home early, and over-crowded accommodation is a factor that raises the chances of moving out of the parental home. The probability of living in a crowded house (i.e. having a small number of rooms and/or a large number of adults) could be negatively associated with parental income. However we assume that the household size itself at time t (relative to the number of

[8]The crowding index is defined as the number of adults divided by the number of rooms, excluding the kitchen and bathroom in the household.

adults among with the household is shared) is not a factor directly affecting the income at time $t+1$ (after leaving).

We test whether or not the correlation between the error terms (ρ) is significantly different from zero. If ρ is significantly different from zero, standard probit techniques applied to the outcome equation would yield biased results. We would therefore use the Heckman probit to provide consistent estimates of all the parameters.

2.2 The competing risk duration model

The previous model considers the potential selection in the sample but not the time spent in one state before exit to another. The independent competing risk duration model provides a method to address this issue. It is a discrete time hazard model allowing for multiple destinations: leaving home and being poor, leaving home and not being poor, attrition and right-censored case (k states where $k = 1, ..., 4$). The independent competing risks model takes account of differences in the length of time at risk of leaving home, but it assumes that unobservables in the latent hazards are uncorrelated.

The survival time is discrete but the underlying transition process may occur in continuous time, so the data are interval-censored (i.e. they are grouped in years). The overall interval hazard is only approximately equal to the sum of the destination-specific discrete hazard rates.[9]

Let the discrete hazard rate for exit at time j to the destination k (described above) be $h_k(j)$. The hazard of exit to any destination, $h(j)$, is the sum of the destination-specific hazard rates only if the product of them is approximately equal to zero.

[9] Jenkins (2005).

The model is estimated using a multinomial logit specification. Since the hazard rate is small, we assume that the transitions can only occur at the boundaries of the interval (i.e. any year).[10]

3 Data

The analysis is based on the European Community Household Panel (ECHP) supplied by Eurostat. The panel is a harmonised longitudinal survey focusing on household and living conditions.

The sample analysed differs across the two estimation approaches, though there are similarities. The countries analyzed are Italy, Spain, Portugal and Greece. The focus is on young people aged 18–32 years who leave home to live with a partner (either in a consensual union or a legal marriage). All the explanatory variables used are time-varying, with the exception of sex.

The following paragraphs describe the samples used to estimate the sample selection and the competing risk models.

3.1 The sample selection model

The sample consists of young people aged 18–32 years when first observed in the ECHP (in year t). The number of youths who were living with their parents at time t and who were at risk of leaving home is 18,676, pooling the four countries together. A young person is observed for at most 7 waves (from the 1994 to 2000). Each individual may contribute more than one pair-year observation (the two consecutive years t and $t+1$).[11]

Pooling the four countries and the individual-pair-year observations, the

[10] The estimation method is due to Allison (1982).

[11] For example, a young person present in the panel for all 7 waves is characterized by 6 pair-year observations (1994-1995, 1995-1996 and so on).

sample has 66,397 observations.[12] In the sample selection approach, attrition is ignored and the sample reduces to 59,362.

Four destinations can occur at $t+1$: young people remaining in parental home, young people leaving home to live with a partner, young people leaving home alone, and young people no longer present in the panel. The percentage of young people in each destination is presented in Table 1.

Table 1: Destination at $t+1$, by country (row %).

	At home	**Left home with partner**	**Left home alone**	**Not present in the panel**
Italy	87.2	3.3	1.1	8.5
Greece	84.4	2.8	1.3	11.5
Spain	81.5	3.4	1.0	14.1
Portugal	86.3	4.9	0.5	8.3
SEC	84.9	3.5	1.0	10.6
no. of observations	56,327	2,366	669	7,035

Note: Sample is for sample selection model

Few young people leave home in any year. The smallest fraction is in Italy, 13%. The country with the highest percentage of young people who leave home to live with a partner is Portugal. Very few young people in SECs leave home to live alone and the evidence (Iacovou 2004) has shown that the most common reason for this is in order to study. This confirms that, in SECs, the decisions to leave home and to form a partnership occur at the same time. The sample is characterized by a high rate of panel drop out. The highest rate is in Spain: 14% of young people at t are not present in the panel at $t+1$.

[12] 22,175 for Italy, 11,339 for Greece, 19,544 for Spain and 13,339 for Portugal.

3.2 The competing risk duration model

The sample consists of youths aged 18–32 years when first observed in the ECHP (in year t). In this study, a young person is assumed to be at risk of leaving the parental home from 18 years of age. Duration is defined as the number of years elapsed from age 18 until the decision to leave home. As with the previous approach, each individual may contribute more than one observation, but, here, each individual is observed at most 13 times while in the sample selection approach it was six times.[13]

If a young person leaves home, there are many possible destinations depending on whether, at $t+1$, the respondent is poor or not and whether she or he has left home with a partner or alone. Some young people are not observed to leave home during the life of the panel. These observations are right-censored. In addition, in the competing risk model, attrition is modeled as one of the destinations, while it was ignored in the previous approach.

Table 2: Destination at $t+1$, by country (row %).

	At home	**Left home with partner**	**Left home alone**	**Not present in the panel**
Italy	85.3	2.8	0.9	11.0
Greece	83.5	2.4	0.6	13.5
Spain	80.3	2.7	0.7	16.3
Portugal	84.9	4.4	0.4	10.4
SEC	83.6	3.0	0.7	12.7
no. of observations	52,296	1,887	426	8,057

Note: Sample is for competing risk model

However, in order to compare sample sizes and destinations across meth-

[13] In principal, the sample for the competing risk approach should be larger than the previous one. It is not because many person-year-observations are dropped when the time-varying covariates are included.

ods Table 2 shows the percentage of person-year-observations in each of the following destinations: young people remaining in their parental home, young people leaving home to live with a partner, young people leaving home alone, and young people no longer present in the panel.

As before, most young people remain at home, but here attrition is more severe.

3.3 Definitions of key variables: incomes y_t and y_{t+1}

The variable of main interest is income. Income is used to determine the poverty line and all the other income measures used in the regressions. Appendix A describes in detail the method used to construct the income variable.

Net household income is constructed as the sum of net personal income at $t+1$ (all income variables are collected retrospectively). The net household income is divided by a scaling factor taking into account the economies of scale within the household. This scaling factor reflects the number of adults and children amongst whom the income has to be shared and it is the modified OECD equivalent scale (provided in the survey).[14] Income has been converted to a common scale using purchasing power parities.

The poverty line is set at 60% of the contemporary median equivalent household income, computed using all individuals in each wave and for each country. A young person is considered poor if his equivalized income is below the national poverty line.

When income is used as an explanatory variable (y_t) different specifications of the income measure are provided: a categorical income measure (four dummy variables for different income categories where the boundaries

[14] Sensitivity analysis using the OECD equivalence scale indicated the results are robust.

are expressed in terms of fraction of the median i.e. 60%, 100%, 150%) and a logarithmic transformation of the income.

3.4 Descriptive statistics

Poverty transitions rates for young people observed in two consecutive years (at t at home and at $t+1$ leaving to live with a partner) are reported in Table 3.

There are four categories: (1) young people poor both at t and at $t+1$; (2) young people poor at t and non-poor at $t+1$ (i.e. exiting poverty); (3) young people non-poor at t and poor $t+1$ (i.e. entering poverty) and (4) young people never poor.

Table 3: Poverty Transitions rates, by country (column %).

	SEC	**Italy**	**Greece**	**Spain**	**Portugal**
Poor at t and at $t+1$	5.5	8.9	2.4	5.4	3.3
	0.005	*0.011*	*0.009*	*0.009*	*0.007*
Poor at t and non-poor at $t+1$	8.5	11.6	9.4	8.5	4.7
	0.006	*0.012*	*0.017*	*0.011*	*0.009*
Non-poor at t but poor at $t+1$	8.7	8.3	6.6	11.1	7.5
	0.006	*0.011*	*0.014*	*0.013*	*0.011*
Non-poor at t and at $t+1$	77.3	71.1	81.5	74.9	84.5
	0.009	*0.018*	*0.023*	*0.018*	*0.015*
No of observations	2,092	638	287	591	574

Note: Sample consists of young people at home at t and leaving to live with a partner at $t+1$. Standard errors in italics

Taking the four SECs altogether, young people leaving home are more likely to enter than to exit poverty. However, looking at the countries individually shows that in Italy and Greece the opposite is true.

The relative risks of entry (exit) poverty of a young person who has left home compared to a young person who has stayed at home at $t+1$ are

plotted in Figure 1. The black (white) bar is the risk of entering (exiting) poverty for a young person who has left home relative to the risk for a young person that stayed at home.

Looking at the four SECs together, the risk of entry is higher than the risk of exit.[15] The biggest difference is in Portugal where a young person who has left home is twice as likely to enter poverty than exit if she or he had left home at $t+1$.[16] However Italy and Greece differ. In Greece there are no big differences between 'stayers' and 'leavers' (i.e. the relative risk of entry is 1 meaning that leavers are as likely as stayers of entering poverty). In Italy there is a higher proportion of 'leavers' both entering and exiting poverty.

Overall, staying at home is a protection against poverty.

4 Model estimates and implications

The estimates for the model, pooling all four SECs and considering two specifications of economic status in the family of origin (y_t), are presented in the following section.

Two specifications are used in order to control for the potential endogeneity of y_t. The endogeneity may arise because all income measures are constructed at household level. Therefore the correlation between income at t and income at $t+1$ could be driven by the proportion of youth income which contributes both to y_t and to y_{t+1}.

The economic status at t is defined as (1) a categorical income measure (based on equivalised income); or (2) the log of total net household income. In order to control for the endogeneity, specification (1) includes as

[15] The black bar shows that the proportion of youths entering poverty after leaving is greater (of 40%) than the proportion of youths entering poverty but staying at home

[16] Odds of entry divided by odds of exit, i.e. 1.7/0.85.

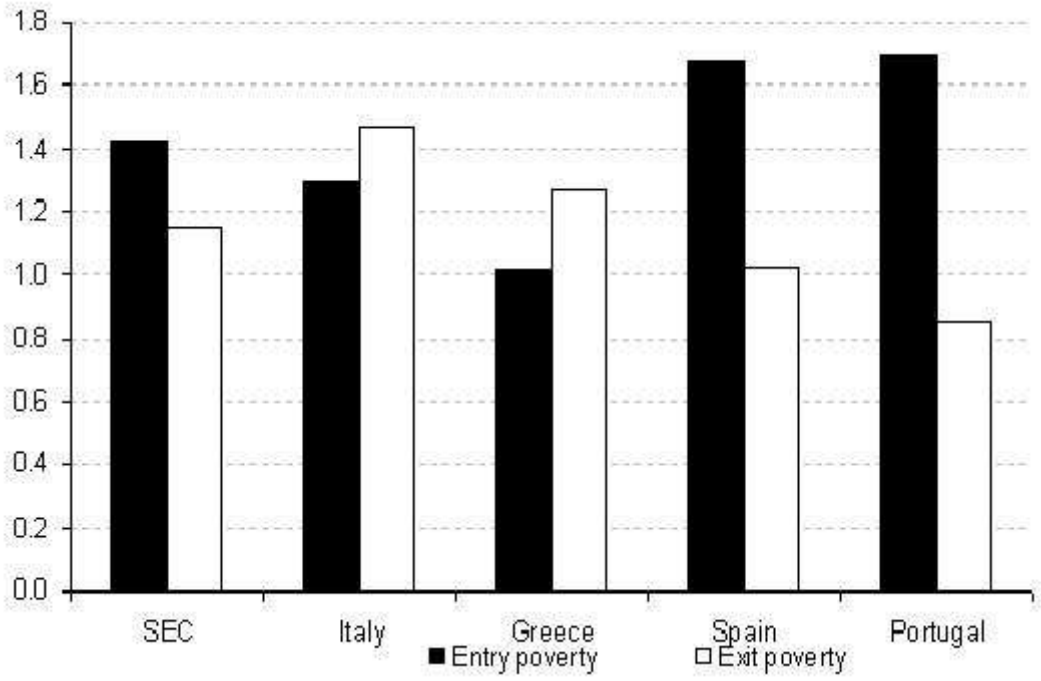
a regressor, the income of the young person expressed as a fraction of total household income at t. Specification (2) uses the log of the total household income net of the income of the young person leaving.

An investigation of differences across SECs was undertaken by including interactions between country and y_t and testing whether the predicted probabilities differ. The estimates are shown in Appendix B.

4.1 The sample selection model

In the sample selection model, any individual is observable for up to six times, so in each period the sample of potential movers is made up of a stock of stayers inherited from past periods and a flow of new young entrants in the panel. This could bias estimates because a correlation between the propensity to move and that of being poor (ρ) changes over time. One way

Figure 1: Risk of entry (exit) into (out of) poverty for a young person who has left home relative to the risk for a young person who stayed at home



to solve the problem is to estimate, year by year, the Heckman probit to obtain six estimates of ρ. (See Appendix B.) These individual ρ estimates are not different from the ρ estimate from the pooled model (see Table 4), that has the advantage of a larger sample and much more variability.

A Wald test of independence of the equations is rejected. The correlation between the error terms is positive and significantly different from zero in both specifications. Thus, controlling for observed factors, the more likely a young person is to leave home, the more likely is she or he to be poor. Staying at home is a protection against poverty, in SECs. It may provide a better opportunity for the young person to find a better job to avoid poverty.

The estimates also show that the poorer the parental family, the more likely the youth is to be poor at $t+1$ (see Table 4). The association also holds when controlling for the effects of education and social networks and when including the young person's income expressed as a fraction of total household income at t. In specification (2) the log of income (net of youth income) is negatively associated with the probability of being poor at $t+1$.

We also find that having a higher educational qualification decreases the probability of being poor at $t+1$.

There are three measures of social networks (S_t): (1) *good social life* indicates whether or not a young person usually goes out, eats out and meets people; (2) whether or not a young person is *member of clubs and organizations*; and (3) *good social relationships* indicating whether or not a young person usually talks to and meets neighbours. The first two are statistically different from zero: having a good social life decreases the probability of being poor at $t+1$, whereas being a member of a club increases it. The sociological theory of the strength of weak ties[17] states that the weaker the

[17]Granovetter (1973).

Table 4: Probability of being poor at $t+1$, pooled model for SECs: outcome equation. (Heckman probit)

	(1)	**(2)**
y_t		
Income fraction 1 †	0.62***	
Income fraction 2	0.35***	
Income fraction 3	0.19**	
Log of income		– 0.13***
E_{t+1}		
Tertiary education	– 0.32***	– 0.35***
Secondary education	– 0.17***	– 0.24***
S_t		
Good social life	– 0.14*	– 0.10
Member of club or organization	0.18**	0.22***
Good social relationships	0.10	0.11*
N_t		
Living in a good environment	– 0.05	– 0.03
x_{t+1}		
Male	0.06	0.10**
Age	0.02**	0.02**
Spain	0.12*	0.61***
Greece	– 0.26***	0.36**
Portugal	– 0.09	0.40***
Couple without children ‡	– 0.02	– 0.12
Couple with children	0.22**	0.13*
Good health	0.01	0.02
Fraction of youth income at t	– 0.09	
Constant	– 3.47***	– 1.76***
ρ	0.90***	0.95***
Log likelihood	– 8,590.50	– 8,227.5

Notes: † Income fractions are based on equivalised income (EI), the reference category is EI above 150% of the median. Fraction 1 is EI under 60% of the median, Fraction 2 is EI between 60% and 100% of the median, Fraction 3 is EI between 100% and 150% of the median. ‡ Reference category: other family but not single. No. of observations 52,401, standard errors adjusted for 15,383 clusters. $*: p < 0.1$; $**: p < 0.05$; $***: p < 0.01$

ties, the better the opportunities for success in life. One could argue that the ties formed by going out, eating out and meeting people are weaker than the ties of a network created in a club or organization. Hence having a good social life could help young people to avoid poverty more than being a member of a club or an organization.

Finally, the characteristics of the neighbourhood at t do not affect the probability of being poor at $t + 1$.

4.2 The competing risk duration model

The estimates for the competing risk duration model are reported in Tables 5 and 6. The reference category is the right-censored group that includes the stayers and also the young people leaving alone (either poor and non-poor).

Estimates from models with the same explanatory variable are presented except that, in the competing risk model, an additional variable is included, namely the log of time.

The hypothesis that leaving home is not a strategy to escape poverty is confirmed by the coefficient on the log of time. As time passes a young person is more likely to leave home and not be poor whereas there is no effect on the probability of leaving home and being poor. One explanation may be that a young person stays at home longer in order to invest in education and look more carefully for a job. When she or he leaves, the chances of avoiding poverty are higher compared to a young person who has left earlier.

A higher parental income has a negative impact on the probability of leaving home and being poor and a positive effect on the probability of leaving home and not being poor. All the results are in line with the estimates of the sample selection model.

The competing risk model shows clearly that women are more likely to

Table 5: Probability of leaving home to live with a partner and being poor at $t+1$, pooled model for SECs. (Multinomial Logit)

	(1)	**(2)**
y_t		
Income fraction 1	2.99***	
Income fraction 2	1.67***	
Income fraction 3	– 0.15	
Log of income		– 0.55***
E_{t+1}		
Tertiary education	– 0.55**	– 0.85***
Secondary education	– 0.69***	– 0.92***
S_t		
Good social life	0.25	0.17
Member of club or organization	– 0.38	– 0.53**
Good social relationships	0.01	0.08
N_t		
Living in a good environment	0.60**	0.68**
x_{t+1}		
Male	– 0.83***	– 0.95***
Age	0.06	0.03
Greece	– 0.81***	1.57***
Spain	– 0.25	1.92***
Portugal	– 0.52**	1.33***
Single with children	0.22	0.02
Couple with children	0.39	0.27
Good health	0.64**	0.54**
Fraction of youth income at t	0.58**	
House crowded at t	– 0.50	– 1.45*
Log of time	0.27	0.39
Constant	– 9.20***	0.59

Notes: The reference category for Multinomial Logit includes stayers and leavers alone. Number of observations 45,056, standard errors adjusted for 13,503 clusters $* : p < 0.1$; $** : p < 0.05$; $*** : p < 0.01$

Table 6: Ctd. Probability of leaving home to live with a partner and not being poor at $t+1$, pooled model for SECs. (Multinomial Logit)

	(1)	**(2)**
y_t		
Income fraction 1	– 0.85***	
Income fraction 2	– 0.07	
Income fraction 3	0.06	
Log of income		0.11***
E_{t+1}		
Tertiary education	– 0.09	– 0.13
Secondary education	– 0.30***	– 0.33***
S_t		
Good social life	– 0.04	– 0.03
Member of club or organization	0.04	0.04
Good social relationships	0.07	0.07
N_t		
Living in a good environment	0.09	0.11
x_{t+1}		
Male	– 0.39***	– 0.29***
Age	0.07**	0.07**
Greece	– 0.15	– 0.58***
Spain	0.13*	– 0.28
Portugal	0.56***	0.27
Single with children	– 0.56***	– 0.47***
Couple with children	– 0.1	– 0.08
Good health	0.15*	0.14
Fraction of youth income at t	0.99***	
House crowded at t	1.30***	1.24***
Log of time	0.63***	0.63***
Constant	– 7.70***	– 8.48***

Notes: The reference category for Multinomial Logit includes stayers and leavers alone. Number of observations 45,056, standard errors adjusted for 13,503 clusters $*: p < 0.1$; $**: p < 0.05$; $***: p < 0.01$

leave home than men, whether poor or non-poor.[18]

4.3 Robustness checks

Differences across SECs were investigated in three ways. First, we estimated the model separately for each country. The likelihood ratio test comparing the pooled model (restricted model) with the country-specific model (unrestricted model) rejected the second one (estimates not shown). Second, country interaction terms with y_t were included. They were not statistically different from zero in any specification. The interaction terms between a young person's income, expressed as a fraction of total household income at time t and country shows that Portugal negatively differs from Italy (see Table 9 in Appendix B). Third, after calculating the predicted probabilities we tested for differences between them in order to investigate for differences among countries.[19] None of them were statistically different from zero (see Tables 11 and 12 in Appendix B).

Leaving home to live as part of a couple involves considerations related to matching in the marriage market, i.e. who marries whom? The income measure at $t+1$ is measured at household level, and so the partner's income is crucial in the analysis. As a proxy for partner's income, we use partner's education and, although the sample reduces dramatically, the relationship of main interest i.e. the effect of y_t on y_{t+1} remained with the same sign (tables not reported).

Finally studies of poverty may be sensitive to the equivalence scale used.

[18]The difference here could be driven by sample selection as women are more likely to leave home and marry younger than men and this is a necessary condition to be included in the sample at $t+1$

[19]The predicted probabilities were calculated using the pooled model with interaction terms between y_t and countries. The covariates were fixed, being a man of 32 years old with secondary education, living at t in a good environment but with a bad social life and no social network and no crowded house. Analyses, using different cases, indicated that the results were robust.

Estimates based on the modified OECD and OECD scales led to similar conclusions (tables not shown).

5 Conclusion

The analysis is consistent with the hypothesis that young people delay leaving home because leaving may lower their income. The hypothesis is confirmed by the estimates from the sample selection model where the more likely a young person is to leave home, the more likely she or he is to be poor after leaving and by the estimates from the competing risk duration model: young people who leave home at later ages are less likely to enter poverty when they do leave.

The analysis also examined some other factors associated with youth poverty. First, the poorer the family of origin, the more likely it is a young person will be poor after leaving home. The association between parental economic status and the probability of being poor after leaving home also works through the indirect channel: the more educated a youth is, the less likely it is they will be poor if they leave. There is also a negative association between having a good social network and the probability of being poor.

Interestingly, there appears to be no statistically significant differences between SECs.

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Appendix A: Definition of Income

The ECHP includes many income variables for each household. For instance, the total net household income (the sum of the income of each member of the family from earnings, private and state benefits and from other sources) or the personal net income (the income of each member of the household). All income variables are collected retrospectively, and so, each wave contains information on the income received over the previous calendar year. Therefore, we cannot use the total net household income because household composition changes from year to year so it can include the personal income of some individuals who are no longer in the household. At the same time we cannot use the net personal income provided in each wave as it refers to the previous wave.

The analysis is based on the comparison between two points in time (before and after a young person has left home) and it focuses on young people who are more likely to leave home, and the panel, than older people. The estimates can be very sensitive to the way in which the income variable is constructed.

We follow the approach suggested by Iacovou (2004) constructing the net household income in each year t as the sum of the net personal income, reported at $t+1$, of individuals present in the household at t. This approach could lead to a number of missing values on the income variable because of attrition. In order to avoid this, we used the following procedure when facing the three situations: (1) all members of the household are present for two consecutive years in the panel; (2) one member of the household is not present in the panel at $t+1$; (3) all members of the household (i.e. the household itself) are not present in the panel at $t+1$. In case (1), the most likely, we constructed the household income in each year t as the sum of

the net personal income reported at $t + 1$; in case (2) we constructed the household income as above but imputing the income reported at t to the member that is not present at $t+1$; in case (3) we generated a missing value.

Appendix B: Tables

Table 7: Ctd. Probability of leaving parental home at $t+1$, pooled model for SECs: selection equation. (Heckman probit)

	(1)	**(2)**
y_t		
Income fraction 1	– 0.16***	
Income fraction 2	– 0.14***	
Income fraction 3	– 0.06**	
Log of income		– 0.03***
E_{t+1}		
Tertiary education	– 0.01	– 0.02
Secondary education	– 0.13***	– 0.12***
S_t		
Good social life at t	0.07*	0.06
Member of club or organization at t	0.10***	0.08***
Good social relationships at t	0.07**	0.06**
N_t		
Living in a good environment at t	– 0.03	– 0.03
x_t		
Male	– 0.27***	– 0.19***
Age	0.05***	0.06***
Spain	0.03	0.15**
Greece	– 0.10***	0.07
Portugal	0.12***	0.32***
Fraction of youth income at t	0.82***	
Single with children	– 0.33***	– 0.23***
Couple with children	– 0.13***	– 0.10***
Good health	0.09***	0.10***
q_t		
House crowded at t	0.39***	0.53***
Constant	– 3.54***	– 3.71***

Notes: ‡ Reference category: other family with children. Number of observations 52,401, Standard errors adjusted for 15,383 clusters. $* : p < 0.1; ** : p < 0.05; *** : p < 0.01$

Table 8: Ctd. Probability to drop out to the sample at $t+1$, pooled model for SECs. (Multinomial Logit)

	(1)	**(2)**
y_t		
Income fraction 1	– 0.34***	
Income fraction 2	– 0.31***	
Income fraction 3	– 0.26***	
Log of income		0.11***
E_{t+1}		
Tertiary education	0.02	0.06
Secondary education	– 0.07**	– 0.05
S_t		
Good social life at t	0.02	0.02
Member of club or organization at t	– 0.06	– 0.04
Good social relationships at t	– 0.11***	– 0.12***
N_t		
Living in a good environment at t	– 0.17***	– 0.18***
x_{t+1}		
Male	– 0.09***	– 0.09***
Age	0.18***	0.18***
Greece	0.06	– 0.43***
Spain	0.34***	– 0.12
Portugal	– 0.12***	– 0.54***
Single with children	– 0.01	0.04
Couple with children	– 0.07*	– 0.05
Good health	– 0.04	– 0.04
Log of time	– 0.70***	– 0.72***
Fraction of youth income at t	0.46***	0.50***
House crowded at t	0.05	0.13
Constant	– 4.73***	– 6.28***
Log Likelihood	– 23,854	– 23,824

Notes: Reference category for multinomial logit includes stayers and leavers alone. Number of observations 45,056. Standard errors adjusted for 13,498 clusters $* : p < 0.1; ** : p < 0.05; *** : p < 0.01$

Table 9: Probability of being poor at $t+1$, pooled model for SEC's with interactions between countries and y_t: outcome equation. (Heckman probit)

	(1)	**(2)**
y_t		
Income fraction 1	0.83***	
Income fraction 2	0.43***	
Income fraction 3	0.13	
Log of income		– 0.38***
Country*y_t		
Greece*Income fraction 1	– 0.3	
Spain*Income fraction 1	– 0.21	
Portugal*Income fraction 1	– 0.04	
Greece*Income fraction 2	– 0.14	
Spain*Income fraction 2	– 0.09	
Portugal*Income fraction 2	0.07	
Greece*Income fraction 3	0.35	
Spain*Income fraction 3	0.03	
Portugal*Income fraction 3	0.13	
Greece*Log of income		0.02
Spain*Log of income		0.08
Portugal*Log of income		0.15
E_{t+1}		
Tertiary education	– 0.35***	– 0.45***
Secondary education	– 0.17***	– 0.23***
S_t		
Good social life	– 0.18*	– 0.22**
Member of club or organization	0.18**	0.18**
Good social relationships	0.11	0.12
N_t		
Living in a good environment	– 0.05	– 0.03
x_{t+1}		
Male	0.09	0.12
Age	0.01	0.00
Spain	– 0.22	1.1
Greece	0.21	0.52
Portugal	0.04	– 0.67
Couple without children	0.01	– 0.12
Couple with children	0.27**	0.22*
Good health	– 0.01	0.00
Fraction of youth income at t	0.06	– 0.18
Greece*Youth Income fraction	– 0.20	0.14
Spain*Youth Income fraction	– 0.02	0.00
Portugal*Youth Income fraction	– 0.93**	– 0.93**
Constant	– 3.37***	1.5
Rho	0.92***	0.81***
Log likelihood	– 8,588.50	– 8599.5

Table 10: Ctd. Probability of leaving home at $t+1$, pooled model for SEC's with interactions between countries and y_t: selection equation (Heckman probit)

	(1)	**(2)**
y_t		
Income fraction 1	– 0.05	
Income fraction 2	– 0.04	
Income fraction 3	– 0.05	
Log of income		0.05*
Country*y_t		
Greece*Income fraction 1	– 0.27**	
Spain*Income fraction 1	– 0.04	
Portugal*Income fraction 1	– 0.29***	
Greece*Income fraction 2	– 0.20**	
Spain*Income fraction 2	– 0.1	
Portugal*Income fraction 2	– 0.15*	
Greece*Income fraction 3	– 0.11	
Spain*Income fraction 3	0.01	
Portugal*Income fraction 3	0.04	
Greece*Log of income		0.07
Spain*Log of income		0.06
Portugal*Log of income		0.19***
E_{t+1}		
Tertiary education	– 0.01	– 0.02
Secondary education	– 0.13***	– 0.13***
S_t		
Good social life	0.07*	0.07*
Member of club or organization	0.10***	0.11***
Good social relationships	0.08**	0.08***
N_t		
Living in a good environment	– 0.03	– 0.03
x_t		
Male	– 0.27***	– 0.28***
Age	0.05***	0.05***
Spain	0.17**	– 1.27*
Greece	0.01	– 1.14**
Portugal	0.24***	– 2.85***
Couple without children	– 0.33***	– 0.28***
Couple with children	– 0.13***	– 0.11***
Good health	0.09***	0.08**
q_t		
House crowded	0.35***	0.42***
Fraction of youth income at t	0.91***	0.91***
Greece*Youth Income Fraction	– 0.58***	– 0.54***
Spain*Youth Income Fraction	0.21*	0.26**
Portugal*Youth Income Fraction	– 0.21*	– 0.1
Constant	-3.60***	-4.24***

Table 11: Predicted probabilities of being poor at $t+1$ (Heckman Probit)

	y_t	$Pr(y_{t+1} < z_{t+1})$	**95% Confidence Interval**	
Italy	Income fraction 1	0.14	0.0729	0.2122
	Income fraction 2	0.10	0.0665	0.1251
	Income fraction 3	0.07	0.0517	0.0909
	Income fraction 4	0.06	0.0436	0.0811
Greece	Income fraction 1	0.09	0.0439	0.1267
	Income fraction 2	0.06	0.0396	0.0891
	Income fraction 3	0.08	0.0436	0.1165
	Income fraction 4	0.05	0.0228	0.0725
Spain	Income fraction 1	0.14	0.0660	0.2155
	Income fraction 2	0.11	0.0588	0.1519
	Income fraction 3	0.09	0.0543	0.1255
	Income fraction 4	0.08	0.0461	0.1065
Portugal	Income fraction 1	0.15	0.0486	0.2430
	Income fraction 2	0.11	0.0644	0.1501
	Income fraction 3	0.08	0.0586	0.1101
	Income fraction 4	0.06	0.0393	0.0891

Note: Income fractions are based on equivalised income and are defined as follows: 1 under 60% of the median; 2 between 60% and 100% of the median; 3 between 100% and 150% of the median and 4 above 150% of the median.

Table 12: Predicted probabilities of leaving home and being poor at $t+1$ (Multinomial logit)

	y_t	$Pr(y_{t+1} < z_{t+1})$	**95% Confidence Interval**	
Italy	Income fraction 1	0.015	0.0109	0.0190
	Income fraction 2	0.004	0.0020	0.0053
	Income fraction 3	0.001	0.0000	0.0016
	Income fraction 4	0.001	– 0.0001	0.0020
Greece	Income fraction 1	0.007	0.0027	0.0119
	Income fraction 2	0.002	0.0003	0.0043
	Income fraction 3	0.000	0.0000	0.0000
	Income fraction 4	0.000	0.0000	0.0000
Spain	Income fraction 1	0.010	0.0057	0.0145
	Income fraction 2	0.004	0.0020	0.0054
	Income fraction 3	0.001	– 0.0001	0.0014
	Income fraction 4	0.001	– 0.0003	0.0016
Portugal	Income fraction 1	0.010	0.0043	0.0163
	Income fraction 2	0.002	0.0003	0.0033
	Income fraction 3	0.002	0.0003	0.0033
	Income fraction 4	0.000	– 0.0004	0.0011

Note: Income fractions are based on equivalised income and are defined as follows: 1 under 60% of the median; 2 between 60% and 100% of the median; 3 between 100% and 150% of the median and 4 above 150% of the median.

Table 13: Probability of being poor at $t+1$. Model estimated year by year pooling SECs: outcome equation (Heckman probit)

	94-95	**95-96**	**96-97**	**97-98**	**98-99**	**99-00**
y_t						
Income fraction 1	1.08***	1.58*	0.83**	0.47**	0.95	0.62
Income fraction 2	0.51**	0.72	0.81**	0.14	0.46	0.62
Income fraction 3	0.34	0.54	0.33	– 0.05	0.18	0.26
E_{t+1}						
Tertiary education	– 0.46*	– 0.14	– 0.64*	– 0.24	– 0.16	– 0.56
Secondary education	– 0.02	– 0.07	– 0.22	– 0.29**	– 0.05	– 0.01
S_t						
Good social relationship	0.13	– 1.03**	0.2	0.13	– 0.32	– 0.3
Member of club	0.53**	– 0.04	0.39	0.26	0.06	0.01
Good social relationships	– 0.01	0.4	– 0.11	0.14	0.17	0.02
N_t						
Living in a good environment	– 0.16	0.09	0.10	0.12	– 0.08	– 0.37
x_{t+1}						
Male	0.25	0.37	0.20	– 0.02	0.17	0.23
Age	0.04**	– 0.02	0.02	0.01	– 0.04**	– 0.07**
Spain	0.13	0.52	0.13	0.03	– 0.20	– 0.03
Greece	– 0.08	– 0.13	– 0.78**	– 0.05	0.01	– 0.61
Portugal	0.01	0.16	– 0.42*	– 0.12	– 0.51**	– 0.54
Couple without children	– 0.14	0.60	– 0.63**	0.00	0.55	0.24
Couple with children	0.37	0.66	– 0.14	– 0.01	0.73	0.44
Good health at	0.00	0.55*	– 0.38	0.22	– 0.15	– 0.24
Fraction of youth income at t	– 0.07	– 1.28	– 0.19	– 0.4	– 0.82**	– 0.86
Constant	– 5.01***	– 2.4	– 3.53***	– 3.67***	2.04	3.22**
No. of observations	10,388	10,649	10,012	9,399	9,280	8,787
Log likelihood	– 1585	– 1634	– 1465	– 1540	– 1221	– 1193
rho	0.78**	0.37	0.90	0.95***	– 0.96	-0.79

Note: $*: p < 0.1$; $**: p < 0.05$; $***: p < 0.01$

Table 14: Ctd. Probability of leaving home at $t+1$. Model estimated year by year pooling SECs: selection equation. (Heckman probit)

	94-95	**95-96**	**96-97**	**97-98**	**98-99**	**99-00**
y_t						
Income fraction 1	– 0.09	– 0.15*	– 0.17**	– 0.24***	– 0.17*	– 0.24**
Income fraction 2	– 0.05	– 0.16**	– 0.20***	– 0.12*	– 0.13	– 0.22***
Income fraction 3	– 0.01	– 0.02	– 0.17**	– 0.04	– 0.03	– 0.08
E_{t+1}						
Tertiary education	0.02	– 0.09	0.09	0.02	0.00	– 0.21**
Secondary education	– 0.15***	– 0.22***	– 0.04	0.02	– 0.07	– 0.27***
S_t						
Good social life	0.1	0.07	– 0.06	0.14	– 0.02	0.19*
Member of club	0.13**	0.08	0.19***	0.18***	0.00	– 0.07
Good social relationships	– 0.06	0.17**	0.20***	0.1	0.01	0.08
N_t						
Living in a good environment	0.02	– 0.01	0.04	– 0.05	– 0.07	– 0.02
x_t						
Male	– 0.28***	– 0.29***	– 0.29***	– 0.30***	– 0.19***	– 0.31***
Age	0.05***	0.05***	0.04***	0.06***	0.05***	0.04***
Spain	0.08	– 0.04	0.03	– 0.14**	0.09	-0.02
Greece	0.06	– 0.07	– 0.08	– 0.29***	0.08	-0.27***
Portugal	– 0.02	0.20***	0.10	0.03	0.22***	0.13*
Single with children	– 0.41***	– 0.52***	– 0.39***	– 0.67***	– 0.15	– 0.39
Couple with children	– 0.25*	– 0.27**	– 0.21*	– 0.44***	0.04	– 0.19
Good health	0.18**	0.00	0.09	0.20**	– 0.03	0.02
q_t						
House crowded	– 0.16	0.67**	0.56*	0.52**	0.65*	0.52
Grandparent at home	– 0.34**	– 0.33**	– 0.13	– 0.52***	– 0.03	– 0.27*
No. of children	0.04**	0.08***	0.04*	0.08***	0.08***	0.07**
Fraction of youth income at t	0.85***	0.94***	0.78***	0.88***	0.81***	1.04***
Constant	– 3.23***	– 3.89***	– 3.82***	– 4.12***	– 3.90***	– 3.19***

Note: $*: p < 0.1$; $**: p < 0.05$; $***: p < 0.01$