Does leaving home make you poor?
Evidence from 13 European countries

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ISER Working Paper
2005-24

Acknowledgement:

This paper forms part of the project "Poverty Among Youth: International Lessons for the UK", funded by the Joseph Rowntree Foundation Grant no. 803554 under the Ladders Out Of Poverty programme. The ECHP data used in the analysis were produced and made available by Eurostat. All errors and inconsistencies in the paper are our own.

Readers wishing to cite this document are asked to use the following form of words:

> Aassve, Arnstein, Davia, Maria A., Iacovou, Maria, and Mazzuco, Stefano (November 2005) 'Does leaving home make you poor? Evidence from 13 European countries', ISER Working Paper 2005-24. Colchester: University of Essex.

The on-line version of this working paper can be found at http://www.iser.essex.ac.uk/pubs/workpaps/

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The support of both the Economic and Social Research Council (ESRC) and the University of Essex is gratefully acknowledged. The work reported in this paper is part of the scientific programme of the Institute for Social and Economic Research.

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ABSTRACT

This paper examines the extent to which the relationship between leaving home and entry into poverty among young people is causal: that is, how far poverty entry is the *result* of leaving home, rather than arising from heterogeneity or selection. Using propensity score matching, we estimate the effect of home-leaving on entry into poverty and deprivation, with data from the European Community Household Panel. We find that leaving home *does* have a causal effect on poverty entry, particularly in Scandinavian countries; cross-national differences are partly, but not fully, explained by differences in destinations on leaving home.

NON-TECHNICAL SUMMARY

Previous work in the area of youth poverty has found a strong link between young people's living arrangements and the incidence of poverty. Young people who have left home are more likely to be poor than those who remain living with their parents, and of all the events likely to trigger entry into poverty, the home-leaving event is the most important. Research across the 15 countries of the pre-enlargement European Union has found that the relationship between home-leaving and poverty is rather modest in Southern European countries (where home-leaving occurs relatively late) but very strong in the Scandinavian countries (where it occurs much earlier).

However, it is not clear from previous research whether the observed relationship between home-leaving and poverty is causal (that is, that leaving home *causes* poverty) or whether it arises as the result of selection. For example, if young people with a certain set of characteristics (such as low educational levels), which pre-disposed them to becoming poor, were more likely to leave home early than other youngsters, we would observe a relationship between home-leaving and poverty, without the home-leaving event actually causing the poverty.

This paper uses a statistical estimation technique known as propensity score matching to examine these issues of causality. Under this technique, individuals who are observed to leave home in a particular year are matched with individuals who are identical, or almost identical, on a wide range of characteristics (sex, age, employment status, educational levels, income, family structure, and so on) *except* that these matched individuals did not leave home in that year. The difference between the two matched samples gives an estimate of the degree to which home-leaving "causes" poverty.

Once we control for selection, we find that our estimates of the effect of leaving home on poverty are actually *higher* than estimates which do not take account of selection: in other words, young people whose characteristics mean they are *less* likely to experience poverty are *more* likely to leave home. Differences between countries remain very pronounced, with the effect of leaving home in Spain and Portugal being very small, while it is extremely large in Denmark and (especially) Finland. In Spain and Portugal, young people who leave home are only around 5 percentage points more likely than those who remain at home to enter poverty, while this difference rises to 32 percentage points in Denmark and 55 percentage points in Finland.

As a check on the robustness of our estimates, we repeat this analysis examining entry not into poverty, but into two different measures of material deprivation, and find a similar pattern.

One possible explanation for the big differences between countries in the effect of leaving home is that in the Southern European countries, young people tend to leave home in order to get married, while in the Scandinavian countries it is much more common for young people to leave home to live alone – and that couples are less likely to be poor than single-person households. However, if we look at entry into poverty among young people who leave home to form a couple, we see a similar pattern: poverty entry rates are very high in Finland, and much lower in Southern European countries. Thus, differences in poverty entry rates may be partially explained by cross-national differences in destinations on leaving home, but they cannot be fully explained in this way.

1. Introduction

Young adulthood is a stage of life characterised by dramatically changing circumstances for many individuals. Around the middle of the twentieth century, the transition to adulthood was typically a rather brief and well-structured phase of the life cycle, but in recent decades it is has become considerably more complex, and in many countries more protracted. Among the population as a whole, many events which figure prominently in the transition to adulthood have been shown to be importantly related to the risk of poverty: finding (or failing to find) employment, childbearing, union formation and changes in living arrangements. However, hardly any studies have been made of the impact of these events among the group in which they are arguably most common: young adults.

In this paper, we focus on the event which is the single most powerful predictor of poverty entry among young people, namely leaving the parental home. The importance of this event is not surprising: as poverty is defined over the net equivalised household income, it is clear that a move out of the parental home will often bring a about a reduction in household income for the young person. There are large differences between European countries both in terms of youth poverty rates and in terms of the mean age of leaving home; here, we examine the association between the leaving home event and the risk of entering poverty, and how this association varies between countries.

Using data from the European Community Household Panel (ECHP), we present figures which show that entry into poverty is significantly related to the home-leaving event in all countries. But this does not measure the causal effect of leaving home, since young people who leave home may have different characteristics to those who leave. We control for this heterogeneity using propensity score estimation techniques, and find that the event of leaving home does have what we might consider to be a causal impact on poverty entry. Our results are confirmed by parallel analysis of non-monetary deprivation rates.

The strongest effect of leaving home on poverty is found for Scandinavian countries, whereas the effect is weakest among Mediterranean countries. One possible explanation for these differences is that young people's destinations on leaving home differ between countries: in Mediterranean countries young people typically leave home in order to live with a partner, while in Scandinavian countries it is much more common for young people to leave home to live alone. We explore this explanation, and find that while it accounts for a proportion of the differences into poverty entry between the two groups of countries, it does not account for all the differences.

Our estimates suggest that young individuals in Scandinavian countries, though experiencing higher poverty rates on leaving home, realise that for most individuals this is a temporary state, and is

alleviated through good job prospects and a generous welfare system protecting young individuals from adverse economic events and long term poverty.

Section 2 of this paper discusses the relevant literature and presents background statistics. Section 3 introduces our data set: the European Community Household Panel (ECHP). Section 4 discusses the estimation methods used. In Section 5 we present and discuss our estimates; Section 6 concludes.

2. Background

There is little research on youth poverty in general, which contrasts with the rather extensive evidence on poverty amongst other groups, particularly children (Bradbury and Jantti 1999, Cantillon and Van den Bosch 2002, and many others). What research exists shows that in many European countries, young people as a group face a higher than average risk of poverty. Kangas and Palme (2000) use LIS data to study variations in poverty rates over the life cycle in eight OECD countries. They find high rates of poverty among those aged 24 and under, when these are considered as an age group, and also when childless young people under 24 are considered as a life-cycle stage. Eurostat (2002) reports that the incomes of young people below age 24 are below national averages, and that these lower incomes translate into a higher poverty risk.

The factors relating to youth poverty are rather more complicated than child poverty and poverty in general. Young adults are likely to experience a range of important life cycle events, some of which are potential triggers for economic disadvantage, and some of which are potential pathways out of poverty. Education, employment, partnership formation, having children, and setting up in one's own dwelling, are all crucial life events contributing to a changing risk of poverty. The literature includes studies of the impact of range of such factors.

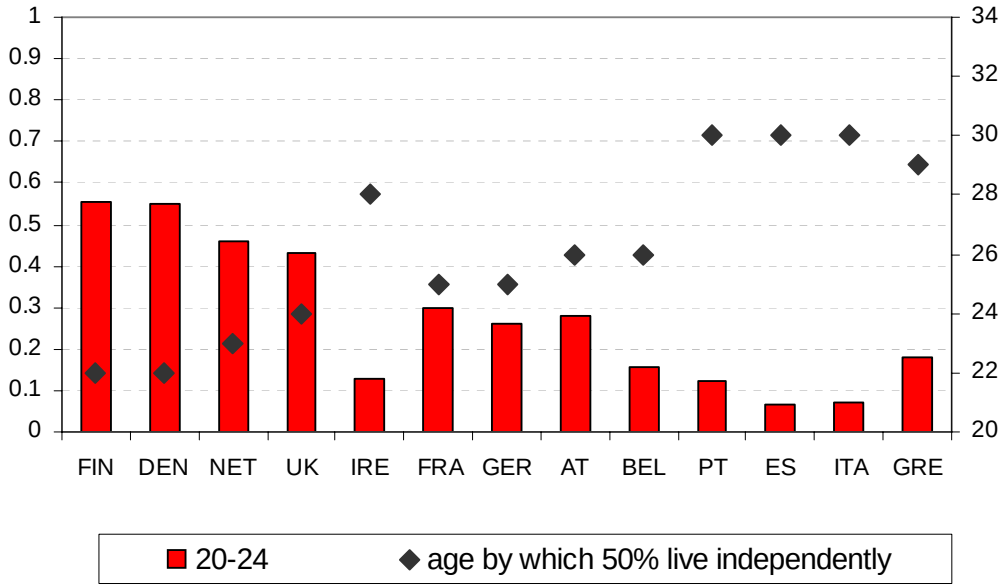
Cantó-Sánchez and Mercader-Prats (1999) study entry-level jobs held by new school leavers (aged 16 to 29). They find that labour market conditions vary markedly between countries, and they assert that these variations are important determinants of youth poverty rates. In a later contribution, the same authors (Cantó-Sánchez and Mercader-Prats (2001)) relate youth poverty in Spain to living arrangements and precarious jobs. They observe that, sometimes, despite their low quality jobs, young people may help their parental households to escape poverty, particularly when the head of the household does not work. Pavis, Platt and Hubbard (2000) highlight the key role of education, showing that simply obtaining a job is not sufficient to avoid social exclusion. Smeeding et al (1999) and Berthoud and Robson (2003) show that in Anglo-Saxon nations, single parenthood is a strong risk factor for youth poverty. Magadi et al (2005) examine the effect of timing and sequence of transitions to

parenthood and partnership formation among young females aged 16-35 years, showing a rather strong association between timing of first birth and the risk of household poverty.

Aassve et al (2005b) examine the impact of a range of household and labour market factors on entry into and exit from poverty. Both studies find that leaving the parental home has a substantial effect on entry into poverty: Aassve et al (2005b) find that leaving the parental home is a more important predictor of entry into poverty than any other factor. For this reason, the association between youth poverty and leaving the parental home forms the focus of this paper.

Figures 1, 2A and 2B show how living arrangements, poverty rates and the association between living arrangements and poverty rates vary between countries.

Figure 1: Proportion of youths (20-24 year olds) living independently from parents (1994-2001)



Source: Iacovou (2002) using ECHP for 1994.

Figure 1 shows the proportion of young people living independently from their parents, and the age by which 50% of young people are living independently. There are huge variations between countries: early home-leaving is much more common in the Scandinavian countries and the UK, while leaving home occurs much later in the Southern European countries and Ireland.

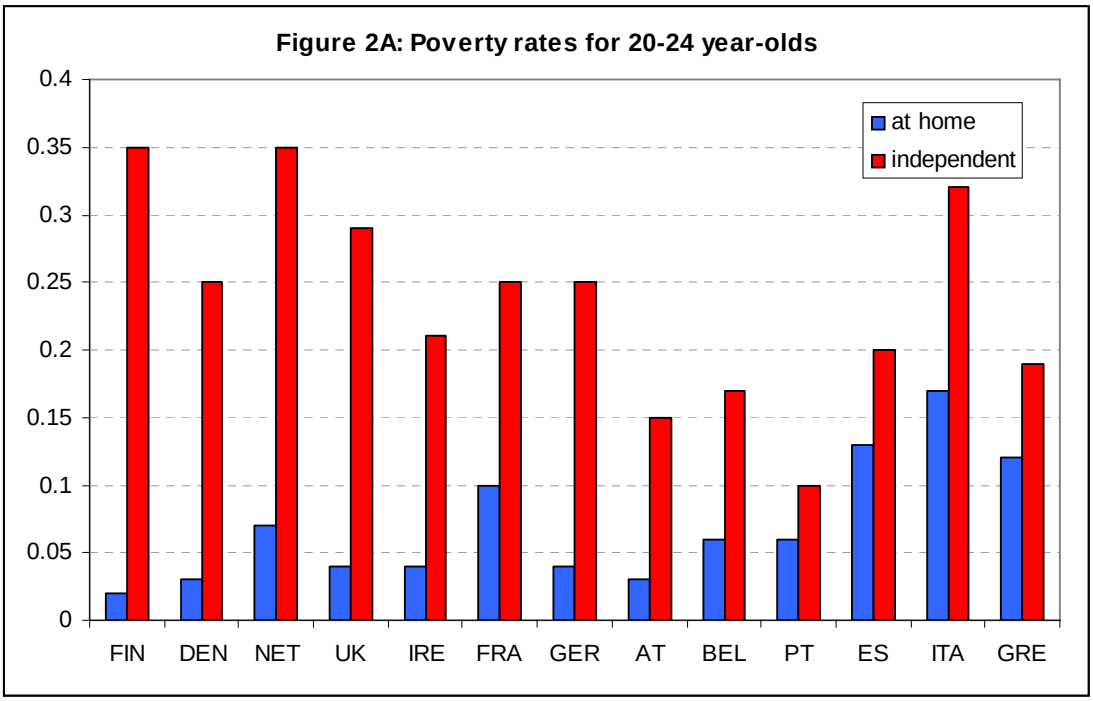


Figure 2A shows poverty rates among young people, divided into those who have and have not left the parental home. It is clear that everywhere, young people who have left home are more likely to be poor than those who remain living with their parents. Within this pattern, however, there are some interesting inter-country differences. Among those living at home, young people in the Scandinavian countries are least likely to be poor, while those in the Southern countries are most likely to be poor. Among those living away from home, the pattern is reversed, with young Scandinavians more likely to be poor than those in the Southern countries. Taking Figures 1 and 2A together, we see that the increased probability of being poor associated with having left home is highest in those countries where leaving home occurs earlier, and lowest in those countries where it typically occurs later.

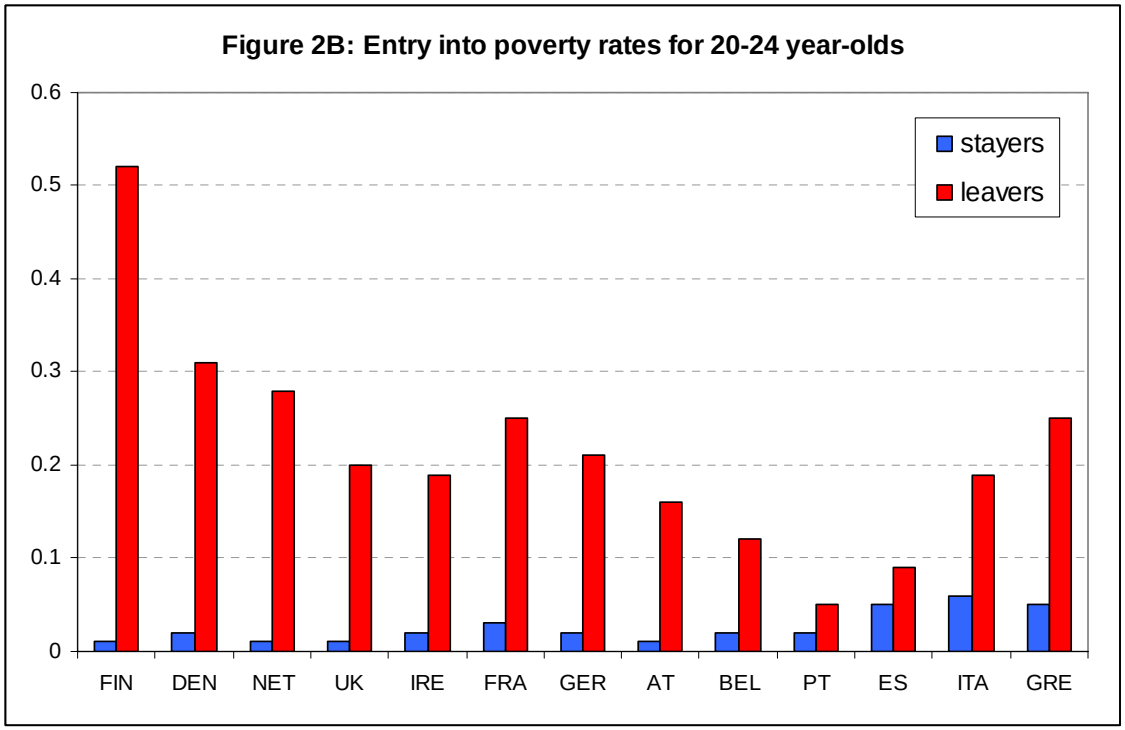


Figure 2B shows a similar finding in a dynamic context: taking the sample of all young people who lived in the parental home and who were *not* poor in a base year t, Figure 2B plots the proportion of young people who *became* poor in year *t*+1, by whether or not they remained in their parents' home. The differences are quite striking, with the increased probability of becoming poor on leaving home being much higher in the Southern European countries than the Northern European countries, and particularly the Scandinavian countries.

The association between leaving home and becoming poor seems very strong, and is analysed at some length in Aassve et al (2005b). However, the extent to which this relationship may be thought of as causal is not clear: it may be that those young people who choose to leave home are different in some respects, and this may account to some extent for the poverty which they experience on leaving home. The purpose of this paper is to analyse to what extent the increased risk of poverty on leaving home is in fact *caused* by leaving home.

3. Data

The European Community Household Panel (ECHP) is a set of comparable large-scale longitudinal studies set up and funded by the European Union. The first wave of the ECHP was collected in 1994 for the original countries in the survey: Germany, Denmark, the Netherlands, Belgium, Luxembourg, France, the UK, Ireland, Italy, Greece, Spain and Portugal. Three countries were late joiners to the project: Austria joined in 1995, Finland in 1996 and Sweden in 1997. All countries except

Luxembourg and Sweden are included in the analysis; Luxembourg is omitted because of small sample size, Sweden because the data do not form a panel[1]. Eight waves of the ECHP were collected in total, with the last wave collected in 2001.

The ECHP has a number of advantages, among them that it provides probably the best opportunity to date for meaningful cross-country comparisons using micro-level data. There are, however, some drawbacks to the ECHP. Retrospective information on demographics and labour market experiences are limited (see Nicoletti and Peracchi, 2002 and Peracchi, 2002, for a general review of the quality of the ECHP). Of particular relevance to the current study is its lack of retrospective information on an individual's family of origin: information on a respondent's parents cannot be recovered if the respondent had left the parental home before the first wave of interviews.

The ECHP was designed to provide information on income and social cohesion, and is therefore rich in information on income, which facilitates easy calculation of poverty status. The income information is, however, collected retrospectively, and covers the calendar year prior to the survey interview. Thus, for example, Wave 1 interviews in 1994 contain information about individuals' income in 1993, Wave 2 interviews in 1995 contain information about individuals' income in 1994, and so on. Adding together the incomes of all individuals present in a household in Wave 2 (for example) gives the sum of all the 1994 incomes for those present in the household in 1995 – but because household composition changes year-on-year, this total may include some individuals who were not living in the household in 1994, and may omit some individuals who *were* present in that year. For population groups for whom household structure is relatively stable, the problems arising from this inaccuracy may not be serious. However, for young people, for whom household structure is likely to be fluid, and highly dependent upon the sufficiency of current incomes, the problems are potentially serious. To compute household equivalent income in year t, we use income data pertaining to year t collected at year $t + 1$, summing this over all the individuals present in the household at year t and using an equivalence scale based on the numbers and ages of individuals present at year t (Heuberger, 2003). The reader should note that this procedure was not possible using Finnish data, and thus for Finland, all data relates to incomes for year $t - 1$.

In order to confirm our findings, and to widen the evidence on the effects of leaving home on well-being, we will perform the same analysis using two measures of deprivation.

The first is an index of monetary deprivation, treating poverty as a matter of degree: it takes values ranging from 1 for the poorest to 0 for the richest, and is determined by the individual's rank in the income distribution, and the individual's share in the total income received by the population. This

[1] For the purposes of cross-sectional analysis this is not a problem – but because household income is measured retrospectively, it makes it impossible to analyse the links between living arrangements and incomes.

approach is a "fuzzy set approach to multidimensional poverty measurement" based on Cerioli and Zani (1990), Cheli and Lemmi (1995) and Betti and Verma (1999). There are several advantages of treating poverty in this way: the interested reader may find them all in Verma and Betti (2005).

The second measure of deprivation is a non-monetary index of multiple deprivation, based on information on the enforced lack of certain goods or facilities, and the quality of the home in which the individual lives. Approaches of this kind applied to poverty analysis of European countries are becoming quite common (Eurostat (2002), Aassve *et al.* (2005)).

For our analysis, we combine all available waves of data for each country. This provides large numbers of observations on young people in all countries. However, cell sizes are reduced because we split the sample into three age groups (20-24, 25-29 and 30-34). In addition, the matching technique we employ requires sufficient numbers of young people both who leave the parental home, and who remain in the parental home, in each cell. In order to obtain satisfactory matches, we did not analyse cells with fewer than 500 observations; in addition, we decided not to analyse cells where fewer than 25% of the age group remained in the parental home, on the grounds that these young people may be rather atypical of their age group among their compatriots. There was a large degree of overlap between the cells targeted by these two sets of restrictions. For the Southern countries, it was possible to analyse all age groups; for Ireland, France, Germany and Austria, we were able to analyse the two younger groups, and for the remaining countries, we were able to analyse only the 20-24 age group. Table A1 (Appendix) shows sample sizes for all cells.

4. Empirical approach: propensity score matching

As we discussed in Section 2, there is a strong relationship between independent living and youth poverty. However, the extent to which the event of leaving home leads to poverty is not clear. The problem is that the leaving home event cannot be considered exogenous with respect to household income, and therefore to the young person's future risk of poverty. Studies using multivariate regression analysis, such as those of Aassve et al (2005b) do not take into account this possible endogeneity, and if the leaving home decision is indeed endogenous, they will generate biased estimates.

A standard approach to this problem is to implement an Instrumental Variables specification, utilising as instruments variables that are correlated with the endogenous variable, but independent of the error term. However, it is difficult to find valid and powerful instruments in our application. We therefore take the alternative approach of implementing Propensity Score Matching techniques, which are described below.

A simple explanation

Our interest lies in estimating the effect of leaving home on poverty entry, *net* of other observed factors which influence the likelihood of entering poverty. Ideally, we would like to compare the risk of poverty for individuals leaving home, with the risk for the *same* individuals if they did *not* leave home (the "counterfactual" situation). The problem is, of course, that for any given individual the two scenarios are mutually exclusive, preventing a direct comparison between the two. Propensity Score Matching (PSM) techniques were developed as a means of generating an approximation to the counterfactual situation (Rosenbaum and Rubin 1983). In simple terms, the application of this method for our case is as follows.

A "treatment" is defined, which in this case is leaving the parental home. Youths who are observed living in the parental home in time period *t* are divided into two groups:

- $D_i = 1$ those who undertook the "treatment" (ie, who left home by time t+1)
- $D_i = 0$, a "control" group (those who were still living at home at t+1)

Each youth in the "treatment" group is then paired with one or more youths in the "control" group, who are as similar as possible in terms of a range of observable characteristics *measured prior to the event*, and the difference between groups in the outcome variable (in this case, poverty or deprivation in year *t*+1) is measured. If the differences in characteristics between the "treatment" and "control" groups are captured by the observable covariates, then matching methods yield an unbiased estimate of the average impact of leaving home on the treated (i.e. those who actually left home).

Matching is implemented in the following way. From the data, each individual is assigned a probability of falling into the treatment group, conditional on a set of covariates *X*. This probability may be estimated using either *logit* or *probit* regression; we use *probit*. This conditional probability is referred to as the individual's "propensity score". The propensity score for individual *i* is defined as:

$$P(X_i) = Pr(D_i = 1 \mid X_i) \qquad (1)$$

where $P(X_i)$ is the propensity score, and X_i is the vector of explanatory variables measured at time *t*, prior to the leaving home event.

Rosenbaum and Rubin (1983) showed that conditioning on this propensity score is equivalent to conditioning directly on the set of background variables *X*. If exposure to treatment is random within

each cell as defined by X_i, it will also be random within cells defined by the propensity score variable $P(X_i)$. This is commonly referred to as conditional independence or strong ignorability.

The matching procedure

At the matching stage, individuals in the treated and control groups are paired according to their propensity scores. There are several different algorithms by which individuals may be matched: these are explained in Becker and Ichino (2002), Smith and Todd (2005) and Caliendo and Kopeinig (2005). We use the "nearest neighbour" algorithm, whereby each individual in the treatment group is matched with the individual(s) in the control group whose propensity score(s) are closest to his or her own. Rather than use a single nearest neighbour, we work with an average of the individual's 3 nearest neighbours, in order to reduce the variance of our estimates[2]. In order to exclude poor "matches", we impose a calliper of 0.01, which means that all matched pairs must have propensity scores within 0.01 of each other: individuals in the treatment group without a sufficiently near neighbour are excluded from the sample. In practice, the calliper is not a particularly stringent constraint: in most cases, it is binding only for a small number of observations. The number of excluded observations in each country/age group combination may be found in table A.2.[3]. The set of observations which remain in the sample after the matching procedure is called the common support θ.

In this paper, the matching procedure is carried out using the following variables measured in year t: year of interview, age, sex, the number of siblings in the parental household, log of household income and the young person's labour market income, the labour market status of the young person and his or her parents, the educational attainment of the young person and his or her parents, whether one of the parents was absent from the household, whether the young person was married and/or had children, and whether lack of space was reported in the parental household. The exact specification varies between countries: in several cases additional terms were included, such as higher order terms for income, and interaction terms between the different sets of variables.

[2] All of the reported analysis is implemented using the psmatch2 module in STATA (Leuven and Sianesi 2003). In all PSM algorithms, there is a trade-off between bias and variance. We found that nearest neighbour methods gave the best reduction in bias. Increasing the number of neighbours reduces the variance of estimates (since more information is used), but increases bias (since the mean quality of the matches will be lower). In this analysis, we found that using 3 neighbours gave the most acceptable balance between reduced variance and increased bias.
As a consistency check, we also perform the same analysis using radius matching with a bandwidth of 0.01, which is analogous to the nearest neighbour method with calliper 0.01, except that the control group is based on a distance-weighted average of many more observations, some with worse matches. Therefore, the variance is lower, but the bias higher. For the sake of brevity, we do not report these estimates in the paper, but they are available from the authors on request.

[3] Table A2 also contains a number of indicators of the quality of the matching process, namely, the reduction in bias due to matching and the number of cases lost of cases due to trimming and conditioning on the common support.

After the matching process, we check that a "balancing property" holds for the matched sample: i.e., that each of the observable covariates within the treatment group has the same average value within the matched control group. Equality of the first moments does not imply equality of the entire distribution of covariates, but for binary variables - and most of covariates used here are of this type - there is no need to compare higher order moments.

Evaluation parameters

We may think of an outcome *Y*, defined under two observed or hypothetical scenarios: Y^0, which is the outcome in the case that the young person receives the treatment, and Y^1, which is the outcome in the case that he or she does not receive the treatment.

	Outcome if leaves home	Outcome if stays at home
Treatment group (leavers)	$Y^1 \mid D=1$ (observed)	$Y^0 \mid D=1$ (unobserved)
Control group (stayers)	$Y^1 \mid D=0$ (unobserved)	$Y^0 \mid D=0$ (observed)

We are interested in the effect of the "treatment" on both the treatment and the control groups. For the treatment group, this effect is termed *ATT* (Average Treatment Effect on the Treated) and measures the difference between the average outcome measure for those who leave home, and the average outcome measure for the same group under the hypothetical scenario that they had not left home.

$$ATT = E(Y_i^1 \mid D_i = 1) - E(Y_i^0 \mid D_i = 1) \qquad (2)$$

However, the second argument in equation (2) is not observed, so we replace it with the observed values of Y^0 over the matched sample of stayers, estimating

$$ATT_{PSM} = E(Y_i^1 \mid D_i = 1, i \in \theta) - E(Y_i^0 \mid D_i = 0, i \in \theta) \qquad (3)$$

Similarly, we may estimate the average treatment effect on the control group (ATC) as

$$ATC_{PSM} = E(Y_i^1 \mid D_i = 1, i \in \theta') - E(Y_i^0 \mid D_i = 0, i \in \theta') \qquad (4)$$

This measure refers to the group who do not leave home, and estimates the difference between the average outcome measure in (a) the hypothetical case that they did leave home, and (b) the actual case in which they did not leave home. Note that equation (4) is identical to equation (3), except that it is defined over a different common support (denoted θ' instead of θ). The common support for *ATT* consists of all "matchable" members of the treatment group, plus the controls which are chosen to match them, whereas the common support for *ATC* consists of all "matchable" members of the control group, plus those members of the treatment group which are chosen to match them.

It is possible to estimate both *ATT* and *ATC* via a single procedure in psmatch2. However, while this procedure ensures that the balancing property is satisfied over the common support used to estimate *ATT* (θ in the above notation), it does not ensure that it is satisfied over the common support θ' used to estimate *ATC* – and therefore, the assumption of conditional independence may not be valid for *ATC*. To circumvent this problem, we implement a second set of estimates where the treatment is defined as *not* leaving the parental home. Here, the estimated *ATT* is equivalent to the *ATC* calculated in the first set of estimates (it is identical in the majority of cases we estimated, and very close in the others), and this way we are able to verify that the balancing property holds for our estimates of *ATC* as well as *ATT*.

Under the assumption of homogeneous treatment effect *ATT* and *ATC* should give the same results. However, as Heckman et al. (1997) have shown, treatment effects are rarely homogeneous. In our setting, there it is not clear *a priori* which way the selection effect would go. It may be that young adults who would face a higher risk of poverty if they left home are more likely to stay home for longer because they are aware of this higher risk. This would imply that the "true", "causal" effect of leaving home was actually higher than that suggested by the unadjusted relationship between home-leaving and poverty rates. On the other hand, it may be that certain characteristics are associated with *both* a higher propensity to leave the parental home, *and* a higher risk of poverty on leaving home. In this case, the raw figures would exaggerate the extra risk of poverty experienced by home-leavers, and the effect attributable to the home-leaving event would be lower.

Difference-in-difference estimators

Where we estimate the effects of leaving home on deprivation scores (rather than the dichotomous poverty measures used in the first set of estimates) we combine a difference-in-differences (*DD*) estimator with the matching procedure. In essence, this involves comparing the mean change in deprivation scores between time periods *t* and *t*+1, of home leavers, with the mean change in

deprivation scores over the same time period for a group of home stayers who are most similar in their attributes to those who left home.

$$DD = E((Y^1_{t+1} - Y^1_t) \mid D_i = 1, i \in \theta) - E((Y^0_{t+1} - Y^0_t) \mid \mathrm{D_i} = 0, i \in \theta) \qquad (5)$$

$$= E(\Delta Y^1) - E(\Delta Y^0)$$

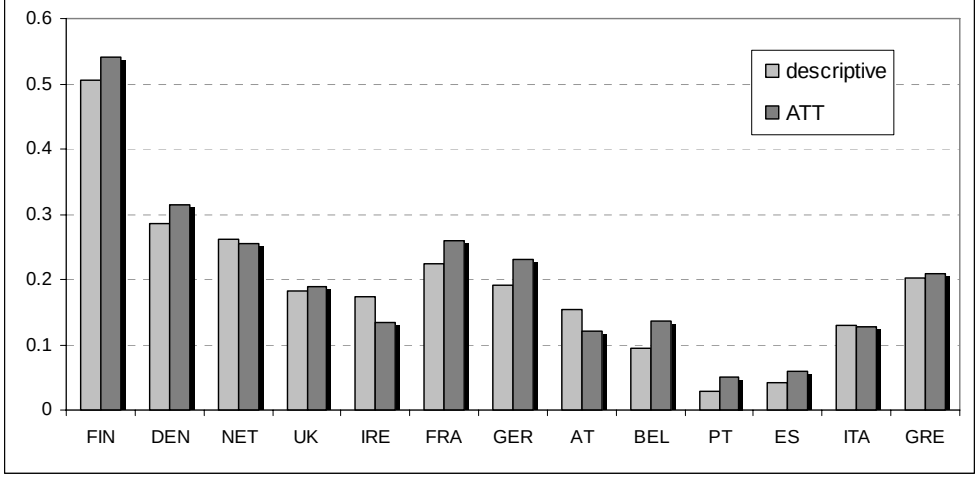
An important advantage of the *DD* estimator is that it allows us to control for selection into the treatment group caused by unobserved variables. That is, provided unobserved heterogeneity is fixed over time, its effect will be netted out by taking first differences in deprivation scores (Heckman *et al.*, 1998). As a result, it has been argued (Dehejia and Wahba, 1999, 2002 and Smith and Todd, 2005) that the DD-PSM estimator is more robust since it eliminates temporally invariant sources of bias.

5. Results

Figure 3A presents poverty entry rates in year *t*+1 for 20-24-year-olds who were living with their parents in a non-poor household in year *t*. For each country, the first column presents raw figures showing the extra risk of poverty entry associated with leaving home (that is, poverty entry rates for leavers minus poverty entry rates for stayers). The second column presents estimates of ATTs obtained via PSM techniques, as explained in the previous section[4]. These PSM estimates are analogous to the first set of figures, in that they represent the extra risk of poverty associated with the home-leaving event. However, the PSM results control for selection into leaving home. Therefore, the difference between the two sets of results gives an indication of the size of the selection effect.

[4] The results discussed in this section focus on the 20-24 age group; however, ATTs for all age groups, plus bootstrapped standard errors, are shown in Table A3 in the Appendix. In general, the effect of leaving home on poverty entry is lower for older age groups, which is not surprising, given that older youths tend to have higher income and more stable employment.

Figure 3A: Descriptive versus PSM impact of leaving home on poverty (20-24 year olds only)

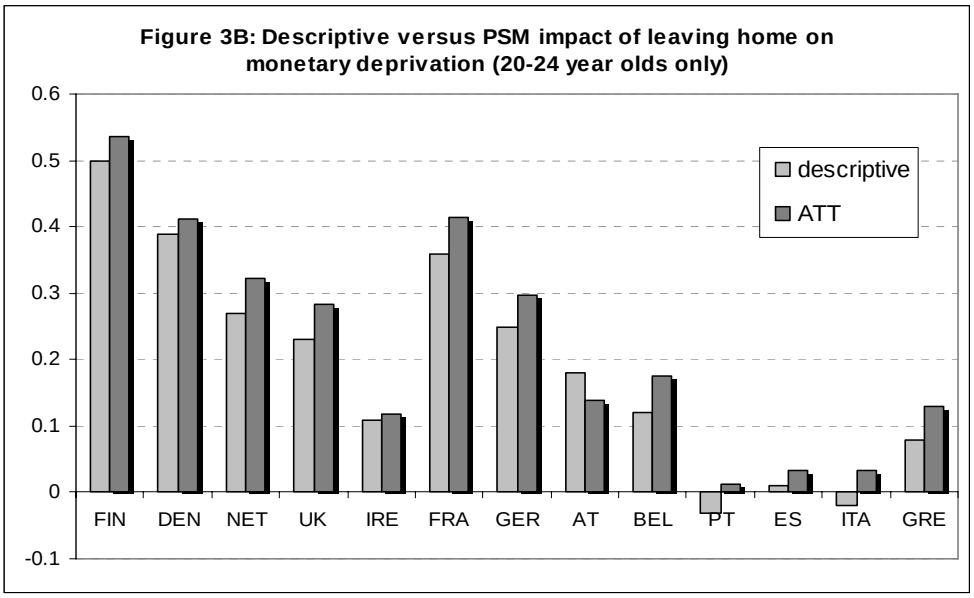


In many cases, the difference between the bars appears very small, indicating that the selection effect is small. However, t-tests using the standard errors of the two sets of estimates indicate that these differences are significant in every country except for the Netherlands. The selection effect is not enormous in any country, but in several countries it is sizeable: descriptive analysis underestimates the "effect" of leaving home on poverty entry by up to 5 percentage points in Finland, Denmark, France, Germany, Belgium and Portugal, while it overestimates the effect by a similar amount in Ireland and Austria.

It is worth making two points: first, that the existence of significant selection effects demonstrates the usefulness of propensity score matching in this context, and second, that although selection effects are apparent, controlling for these effects does not change the pattern of our results. Leaving home is still associated with higher poverty entry rates in the Scandinavian countries than elsewhere: indeed, controlling for selection slightly *increases* the estimated difference between the Scandinavian countries at the one extreme, and Portugal and Spain at the other.

Overall, the estimates do not lend themselves to a clear clustering of countries consistent with modern welfare-regime theory such as that of Esping-Andersen (1990 and 1999). While there is a clear "Scandinavian" effect, with a high poverty entry risk on leaving home (55% for Finland and 32% for Denmark), there is a good deal of heterogeneity among three of the four other welfare-regime groups. The risk of entering poverty in the "Liberal" cluster is relatively low; in the "conservative" cluster (including the Netherlands) it is moderate – though a good deal higher in France and the Netherlands (26% and 25%) than in Belgium and Austria (14% and 12%). In the "southern" cluster, Portugal and Spain show the lowest risks of all, at around 5%, but in Italy it is 12% and in Greece it is over 20%.

Figure 3B presents similar figures, showing the estimated effect of leaving home on changes in monetary deprivation. The changes in deprivation are sizeable: across all countries, young people living at home have mean deprivation scores of 0.16 with a standard deviation of 0.27. However, the changes associated with leaving home vary between countries: descriptive analysis indicates small *negative* mean changes on leaving home in Portugal and Italy, while changes in France and Germany and (particularly) Finland and Denmark are much higher. This is a similar pattern to that observed when we considered poverty rates; however, we observe a rather higher degree of selection, with PSM estimates visibly higher than descriptive estimates in almost all countries (Ireland, where the difference is small, and Austria, where it is still negative, are the exceptions).



Results relating to non-monetary deprivation (Figure 3C) are less clear: although the non-monetary deprivation indicator has a similar mean and standard deviation to the monetary deprivation indicator, the estimated changes on leaving home are generally smaller, with PSM estimates ranging from -0.08 in Portugal to 0.22 in Denmark. Additionally, the direction of the selection effect is much more mixed, with the PSM estimates being smaller than the descriptive estimates in Finland and Denmark (and in the UK, Ireland and France, though differences in these countries are small), and larger in the Netherlands, Germany, Austria, Belgium, and the Southern European countries. However, the same general pattern still holds, with leaving home associated with a far lesser degree of disadvantage in the Southern countries than in most other countries, and in particular the Scandinavian countries.

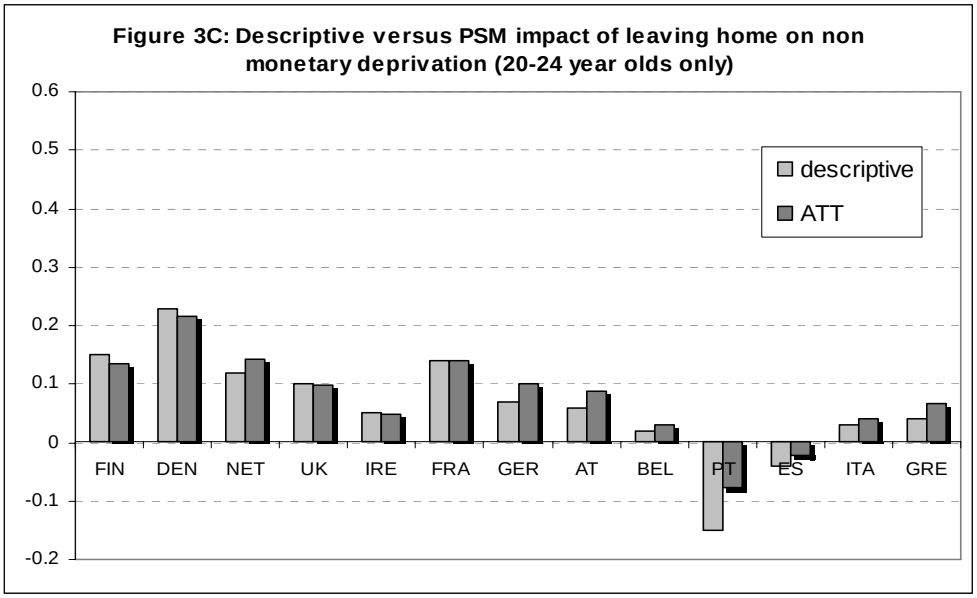
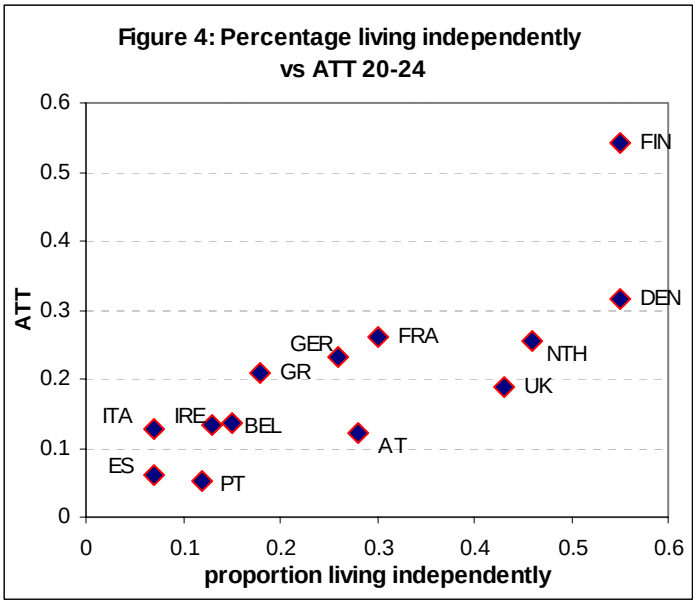


Figure 4 below plots ATTs for each country against the proportion of young people living independently in each country. There is a clear correlation: in those countries where home-leaving occurs early, the extra risk of poverty associated with the home-leaving event is higher, whereas in those countries where home-leaving occurs later, the associated extra risk of poverty is lower. Thus age is likely to be an important driver behind the observed patterns. Since in Finland (and other Scandinavian countries) young individuals leave home at such young age, they are also more likely to experience poverty. Though this is a likely explanation, it is important to bear in mind that our empirical approach does not actually measure the effect of age directly, it merely confirms that the event of leaving home in Scandinavian countries is a much more stronger driver behind youth poverty than what it is Mediterranean countries for instance. This of course opens the question: why do young individuals in Scandinavian countries leave home at such an early age, when the likelihood of experiencing poverty is so high? We return to this question below.



Destination on leaving home

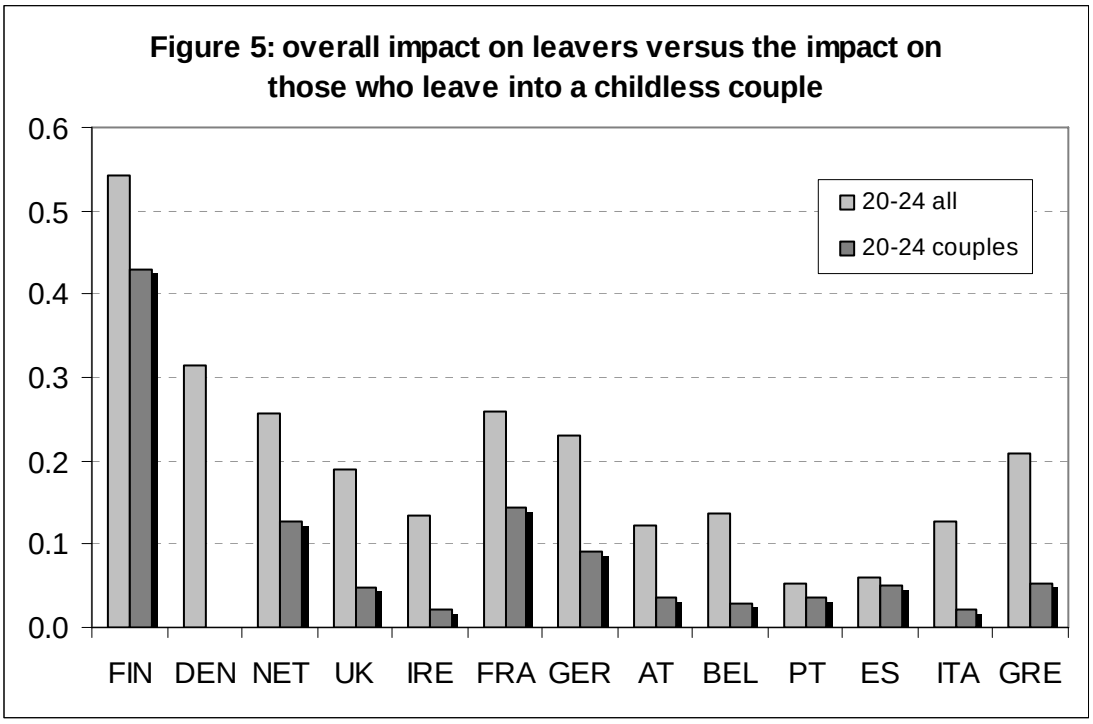
One possible explanation for the large inter-country differences in poverty entry rates on leaving home is that the young people's destinations on leaving home vary markedly between countries. Iacovou (2002) shows that the predominant pattern of home-leaving in the Southern European countries is to move out of the parental home into a home shared with a husband or wife. By contrast, young Scandinavians are likely to spend a protracted period living alone. Since poverty rates are generally higher for single-adult than for two-adult households, it is likely that at least a proportion of inter-country differences in poverty entry rates would be associated with differences in housing destinations.

For the 20-24 age group, Figure 5 shows ATT estimates of poverty entry rates for all home-leavers (these are the same figures as presented in Figure 3A) and for the sub-sample of those who leave home to live as part of a (childless) couple[5]. Two features of this graph are noteworthy. First, in all countries, poverty entry rates are (as expected) lower for those who leave home to form a couple than for those who leave as singles. Second, while compositional effects may account for some of the differences between countries in poverty entry rates, they do not account for all differences. In Finland[6], the extra risk of poverty on leaving home as part of a couple is far higher than for any other country: even if *all* young people in Finland left home to form couples, they would still face a higher risk of

[5] Quality indicators and bootstrap errors for these new ATT are not shown in the Appendix, but are available from the authors upon request.

[6] Unfortunately, small sample size did not allow this ATT to be estimated for couples in Denmark, so we cannot say whether this is a "Scandinavian" effect, or an effect restricted to Finland.

poverty entry than young people in any other country. Similarly, even if *all* young people in Netherlands and France left home as part of a couple, they would face a higher risk of poverty entry than young people in three out of the four Southern European countries.



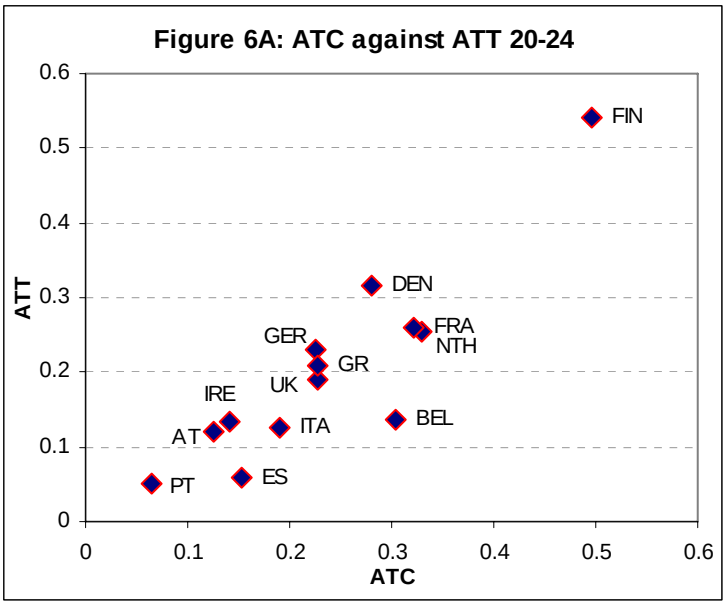
Comparing ATT with ATC

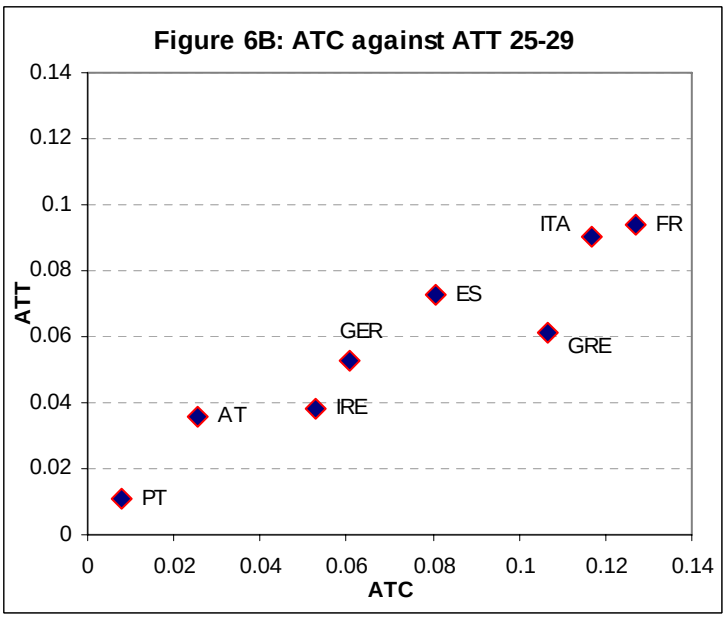
All the analysis presented earlier in this section has focused on estimates of *ATT*: that is, the effect of leaving home on those young people who are actually observed to leave home. However, it is interesting to compare the *ATT* with its counterpart, *ATC*, which estimates the effect on those who *do not* leave home, in the hypothetical event that they were to leave home.

Figure 5 plots the two sets of estimates for each country. In Finland and Denmark, the ATT is higher than the ATC, implying that young people who remain living at home would actually face a *lower* risk of falling into poverty if they left home, than those who actually leave home. This is highly counter-intuitive, since if young adults as a group were behaving as rational economic agents, one would expect those with a lower risk of poverty to leave home. In all other countries, this is in fact the case: either by a small margin (Portugal, Austria, Ireland and Germany) or by a more substantial margin (all other countries: the margin is greatest in Belgium and Spain, but is also sizeable in Italy.

The second panel in Figure 5 shows ATT and ATC for the 25-29 age group (as discussed earlier, these are available only for 8 countries). Note that the two panels have different scales on their axes, reflecting the fact that poverty entry rates are higher for the younger age group. Again, all

countries except for Austria and Portugal lie below the 45 degree line, indicating that in the majority of countries young people who leave home face, as a group, a lower average poverty risk than those who do not leave home – and that there is, therefore, a degree of rationality to the decision.





The results in this section therefore leave us with two puzzles to explain. First, why do we observe the earliest home-leaving in precisely those countries where young people lose most economically by leaving home? And second, how do we explain the highly counter-intuitive result in a few countries of home-leavers having a *higher* risk of poverty than stayers? The explanations behind these issues are discussed in the final section.

6. Concluding remarks

Using the European Community Household Panel, we have analysed the effect of leaving home on entering poverty among young individuals in Europe. We have adopted a technique that provides a precise estimate of the net effect of this event by matching individuals who are observationally equivalent, but differs in the leaving home event. In general leaving home is the strongest predictor behind youth poverty. Our most interesting finding concerns Scandinavian countries, here reflected by Denmark and Finland. Out of the countries studied, they have by far the highest rate of leaving home, which is reflected in the lowest median age of leaving home, but also the highest youth poverty rate. By comparing estimates of ATT and ATC we find that in most cases the former is smaller than the latter, which is the result we would expect: young adults tend to stay at home if leaving home increases the poverty risk. As a result, our analysis shows that young individuals do take into account perceived poverty risk (or their economic circumstances) when making decisions about leaving home. In other words, young individuals opt to stay at home longer as a means to avoid economic hardship. Interestingly, this is not the case for Finland and Denmark. In these two cases ATT is slightly larger than the ATC, implying that young adults choose to leave home, despite the fact that would be lower if they had stayed at home. In essence this means that in those countries where young adults have the most to loose, they also leave home earlier. Moreover, in these very same countries, poverty would have been lower if they did not choose to leave home. Whereas past studies have focussed on explaining why young individuals in Mediterranean countries leave home so *late*, perhaps the more relevant question in this setting is why do young adults in Scandinavian countries leave home so *early*? Certainly, leaving home in Scandinavian countries implies dramatically higher poverty rates, and it is of interest to know why young individuals indeed choose to leave home under such circumstances. There are several plausible explanations. One can be found in the age profile for poverty in Scandinavian countries. Whereas poverty rates in Finland and Denmark peaks around age 23 to 25, mainly as a result of leaving home, they drop dramatically from then onwards, and by the early thirties, young Scandinavian adults have by far the lowest poverty rates of all countries included in our analysis. Thus, young adults in Scandinavian countries who leave home at an early age might very well be aware that this increases their poverty risk, but they might be equally aware that if they indeed do face economic hardship, this will in most cases be of a temporary nature. Important factors are of course the well functioning labour markets in Scandinavian countries together with generous welfare benefits and high wages. From a statistical point of view this implies that there is low “state dependence”. In other words, experiencing poverty during the young adult years, do not have serious scarring effects for their adult life. The situation is different in Mediterranean countries. We know that youth unemployment rates are high (bar Portugal) and very often young individuals find it difficult to

obtain stable employment. Moreover, youth wages in Mediterranean countries are low. As a result, the parental home provides for many young adults an important shelter against economic hardship, as is clearly indicated by our estimates of the ATT and ATC. Another issue concerns educational infrastructure. Whereas the Scandinavian norm (but also many conservative countries and the UK) is for young individuals to move away from home to undertake university studies, the picture is very different in Mediterranean countries. An essential part of the education policy has been to ensure geographic spread in the location of universities, with the aim to assist young adult staying at home whilst attending higher education. Social norms play an important part in this picture. Clearly, living in the parental home until the early thirties in a Scandinavian country is very much against the norm, whereas it would be widely accepted as normal behaviour in a Mediterranean country. In the long run social norms are of course not exogenous, but depends on the institutional setting in which young individuals reside. Such differences in social norms are reflected by the fact that the destinations from leaving the parental home differ widely across countries. We have showsn that leaving home in Mediterranean countries frequently coincides with marriage, whereas the majority of those leaving home in northern countries do so to live alone. But we have also shown that this is only part of the explanation.

Our analysis has certain limitation that we need to bear in mind. For instance, we are only considering the short term effect of leaving home on poverty. This is because individuals are matched at time *t*, the outcome of interest (i.e. entering poverty) is measured at time *t+1*. It is obvious that the estimates will be different once we consider the effect on poverty two or three periods ahead. The most likely observation from such an extension is that the effect of leaving home on entering poverty in Scandinavian countries, will be much smaller, reflecting the Scandinavian age pattern of poverty. For the other countries, it is more difficult to predict the patterns for two or three time period ahead.

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Table A1: Selection of the sample

	Proportion of young adults living with, at least, one parent			Number of cases in the PSM estimations (Outcome: entry into poverty)			Number of cases in the PSM estimations (Outcome: increase in deprivation)		
	20-24	25-29	30-34	20-24	25-29	30-34	20-24	25-29	30-34
FIN	**0.45**	**0.11**	**0.07**	**978**	**265**	**159**	**1039**	**289**	**177**
DEN	**0.45**	0.08	0.03	514	68	34	576	99	44
NET	**0.54**	**0.14**	0.03	**1,329**	**332**	75	**1520**	**576**	**159**
UK	**0.57**	**0.23**	**0.08**	**1,743**	**645**	**264**	**1892**	**1035**	**462**
IRE	**0.87**	**0.54**	**0.22**	**3,419**	**1,481**	**657**	**3664**	**1582**	**854**
FRA	**0.7**	**0.27**	**0.1**	**3,747**	**1,224**	**456**	**4134**	**1290**	**530**
GER	**0.74**	**0.34**	**0.15**	**3,384**	**1,502**	**662**	**3586**	**1578**	**788**
AT	**0.72**	**0.39**	**0.21**	**2,050**	**1,176**	**640**	**2135**	**1224**	**700**
BEL	**0.85**	**0.37**	**0.12**	**1,611**	**560**	**169**	**1776**	**752**	**291**
PT	**0.88**	**0.6**	**0.28**	**5,546**	**2,912**	**1,473**	**6064**	**3127**	**1631**
ES	**0.93**	**0.68**	**0.37**	**7,246**	**4,335**	**2,000**	**8447**	**4713**	**2147**
ITA	**0.93**	**0.68**	**0.35**	**7,914**	**5,760**	**2,679**	**9386**	**6644**	**3049**
GRE	**0.82**	**0.58**	**0.28**	**3,897**	**2,838**	**1,384**	**4560**	**3058**	**1504**

Source: ECHP (Eurostat) (1994-2001)

Note: the figures in bold are the ones actually used in the analysis, which was restricted to those countries and age groups where the proportion of youths living with their parents was at least 25% and the number of cases was at least 600 (with the single exception of Denmark).

Table A2: Indicators of covariance balancing, before and after matching

	ENTERING INTO POVERTY				MONETARY AND NON MONETARY DEPRIVATION			
20-24 year-olds								
	A	B	C	D	A	B	C	D
FIN	0.423	6.7	4.17	0.016	0.417	7.99	2.62	0.017
DEN	0.627	7.82	2.02	0.033	0.641	9.16	3.78	0.026
NET	0.135	8.62	5.06	0.019	0.152	14.06	2.75	0.029
UK	0.219	4.92	3.96	0.021	0.229	4.54	1.82	0.023
IRE	0.060	11.96	2.16	0.011	0.065	10.12	2.08	0.012
FRA	0.160	4.3	2.23	0.022	0.151	7.45	2.29	0.029
GER	0.127	8	2.89	0.023	0.128	8.23	1.88	0.023
AT	0.075	9.62	3.95	0.007	0.075	11.82	4.4	0.007
BEL	0.095	13.69	4.97	0.017	0.101	16.53	4.85	0.027
PT	0.063	11.21	2.46	0.006	0.061	12.11	2.66	0.006
ES	0.033	10.74	2.5	0.003	0.033	14.61	1.34	0.003
ITA	0.031	13.93	3.46	0.003	0.027	12.27	3.87	0.003
GRE	0.055	8.39	2.33	0.003	0.050	8.43	2.54	0.005
25-29 year-olds								
	A	B	C	D	A	B	C	D
IRE	0.080	8.47	4.7	0.016	0.088	7.32	2.09	0.008
FRA	0.225	8.28	2.37	0.010	0.214	7	3.55	0.020
GER	0.203	8.8	1.37	0.005	0.206	10.44	2.73	0.005
AT	0.088	9.54	2.25	0.009	0.084	12.38	2.87	0.007
PT	0.101	4.35	2.18	0.009	0.096	4.37	1.56	0.009
ES	0.116	7.25	3.29	0.011	0.107	5.47	2.03	0.010
ITA	0.104	9.07	2.76	0.004	0.081	6.74	2.29	0.007
GRE	0.071	9.53	3.47	0.007	0.064	14.77	2.39	0.003
30-34 year-olds								
	A	B	C	D	A	B	C	D
PT	0.079	12.69	4.94	0.007	0.076	11.75	2.63	0.006
ES	0.110	11.56	3.16	0.008	0.104	9.74	2.16	0.006
ITA	0.108	6.6	2.45	0.005	0.096	9.09	2.19	0.004
GRE	0.069	12.69	4.43	0.005	0.063	14.6	6.59	0.005

Source: ECHP (Eurostat) (1994-2001)

A: treated as a proportion of non treated before matching

B & C: median absolute standardised bias before and after matching, median taken over all the regressors. Following Rosenbaum and Rubin (1985) for a given covariate X the standardized difference before matching is the difference of the sample means in the full treated and non treated samples as a percentage of the square root of the average of the sample variances in the full treated and non treated groups. The standardised differences after matching is the differences of the sample means in the matched treated and matched non treated samples as a percentage of the square root of the average of the sample variances in the fool treated and non treated groups. For a precise definition, see Sianesi (2004).

D: treated out of the common support area lost due to matching ((calliper 1%, diverse trimmings differing across countries).