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The effect of Employment on Leaving Home in Italy

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Abstract

The paper examines simultaneously the leaving home and the employment decision of young Italians (aged 18-34). Stylized facts and previous studies have shown that when studying leaving home decision in Italy the probability of finding a job should also be analysed. The sample consists of young Italians (aged 18-34) drawn from European Union Statistics on Income and Living Conditions (EU-SILC) for the period 2004-2011, thus the time span gives us the possibility to look at individuals before and after the economic crisis. Moreover, the paper analyses the association between the economic status of the family of origin and the nest-leaving decision. We have estimated a bivariate probit model for the probability of leaving home and being employed allowing the error terms to be correlated. Results have shown that employment is a key factor to escape from parental home. According to the existing literature, individuals from richer family have higher probability of leaving home. As expected, after 2008 young Italians are less likely to leave parental home and to be employed.

Introduction

The transition of young adults from their parental home to other living arrangements has linked to many economic and social outcomes such as school completion, starting a job and also forming a family as possible. Young Italians tend to enter the labour market rather later than youth in other nations; they live with their parents rather longer than their peers elsewhere; they form a partnership via marriage or cohabitation later, and now they also tend to have their first child later (Billari and Tabellini 2010). This pattern has been defined as the "latest- late transition to adulthood" (Rondinelli, Aassve, and Billari 2006).

The first aim of this paper is to analyse two important steps to adulthood all together namely the leaving home decision of young Italians (aged 18-34) and the probability of being employed after leaving.

Billari and Tabellini (2010) consider that the peculiarity of the Italian pattern of transition to adulthood is due to two different explanations; the first one emphasizes culture or cultural change, the second focuses on economic and institutional factors that are peculiar to Italy. Our study focuses mainly on the latter and in particular we argue that the decision of leaving home and the probability of being employed could be due to the economic status of the family of origin (Iacovou 2010; Farace, Mazzotta, and Parisi 2014).

The decision of delay nest leaving has important economic consequences: first, it may affect young adults' reservation wages, their participation rates and their wage trajectories. Billari and Tabellini (2010) show that Italians who leave the parental home earlier in life earn a higher income in their mid-30s. They estimate that leaving home one year earlier would increase income by about as much as 1.5 additional years of education. Individuals who become adult later have less incentive to work, less motivation, they are less independent-minded, and they have less ability to learn (Alessie, Brugiavini, and Weber 2005). Second, leaving home later in life can affect marriage and fertility: Rondinelli (2006) state that the timing of home-leaving is quite homogeneously concentrated at relatively late ages among lowest-low fertility countries. Third, staying at home could be a protection against poverty: Parisi (2008) finds that in Southern European Countries, young people are more likely to enter poverty after they have left home compare to young people at home.

Figure 1 shows some stylized facts for Italy compare with some other European countries and when available the EU-15 mean. First, Italy shows the highest percentage of young people living with their parents (above 60% in all the year considered, Fig.1).

Figure 1 *Employment and unemployment rate, and share of individual living with their parents for Italy, France, United Kingdom, Spain, Greece, Germany and Euro 15 (when available).*
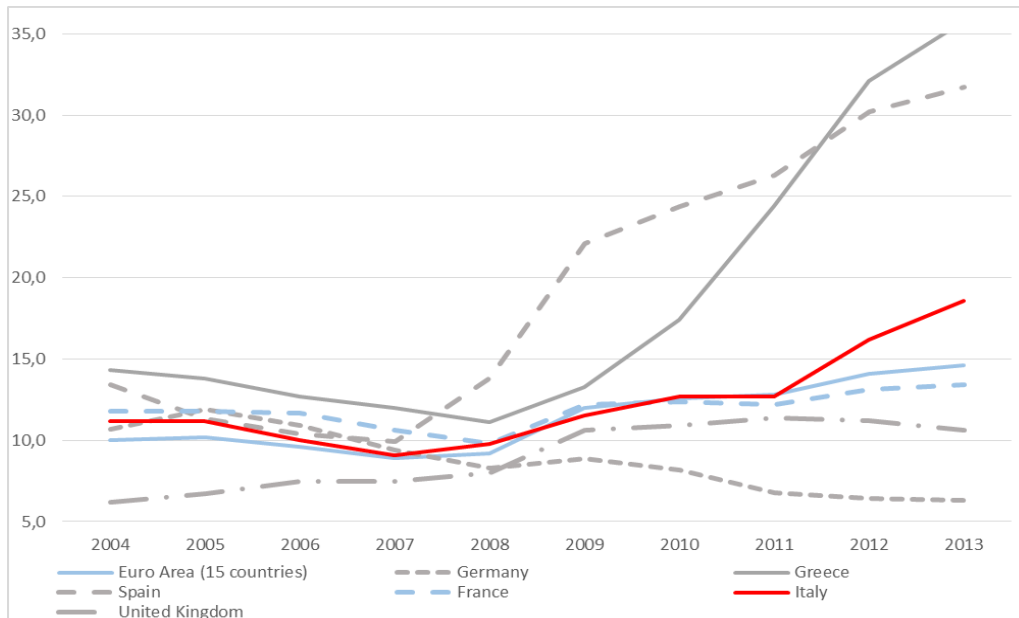
Employment rate (15-39)
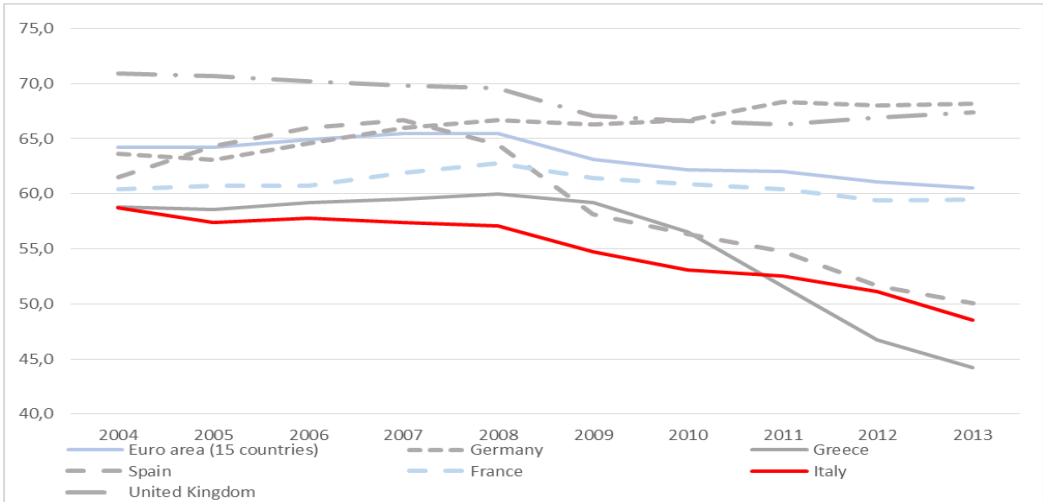
Share of individual living with their parents(18-39)
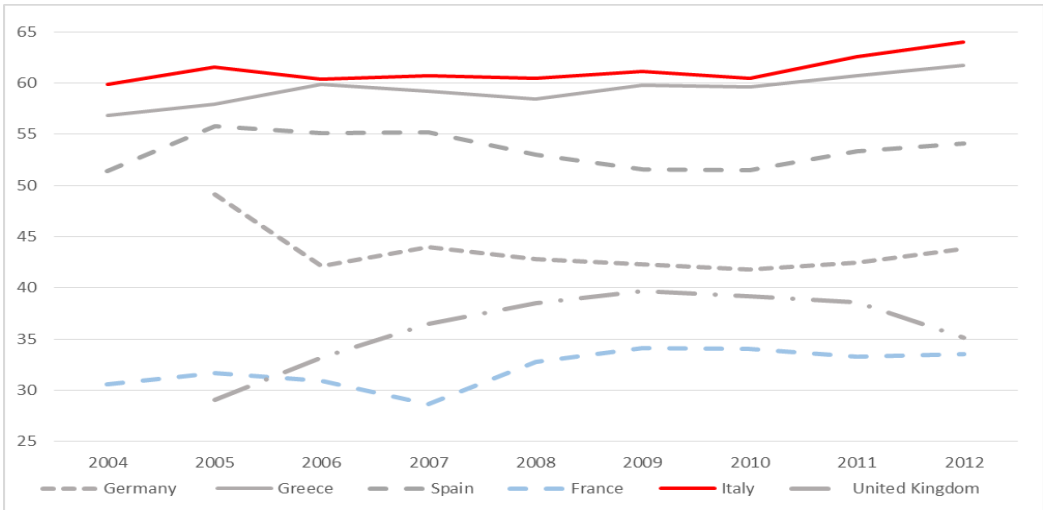
Unemployment rate (15-39)

There are several reasons why young Italians leave home later than their European counterparts do. The decision could be due to 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 in 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 they offer transfers to keep their own children at home as long as possible (Manacorda and Moretti 2006) Also young adults may stay at home in order to help to reduce the poverty risk of their parents (Sanchez and Mercader-Prats 1998).

Second, Fig. 1 shows that as employment rate decreases, the share of young people living with their parents increases in Italy and this evidence is important above all after the economic crisis: employment rate is stable until 2008, after then it sharply decreases until 2012. Thus, employment seems to be a key factor explaining leaving home pattern in Italy.

Figure 2 shows the average age of leaving home and the results present some peculiarity. With regard to Italy, the average age of leaving home does not change across years while it increases in France, and other Southern European Countries, finally it decreases in Germany and UK. Italy, however, has the highest average age in each year under consideration.

Figure 2 *Average age at leaving home for Italy compare to some other European countries.*
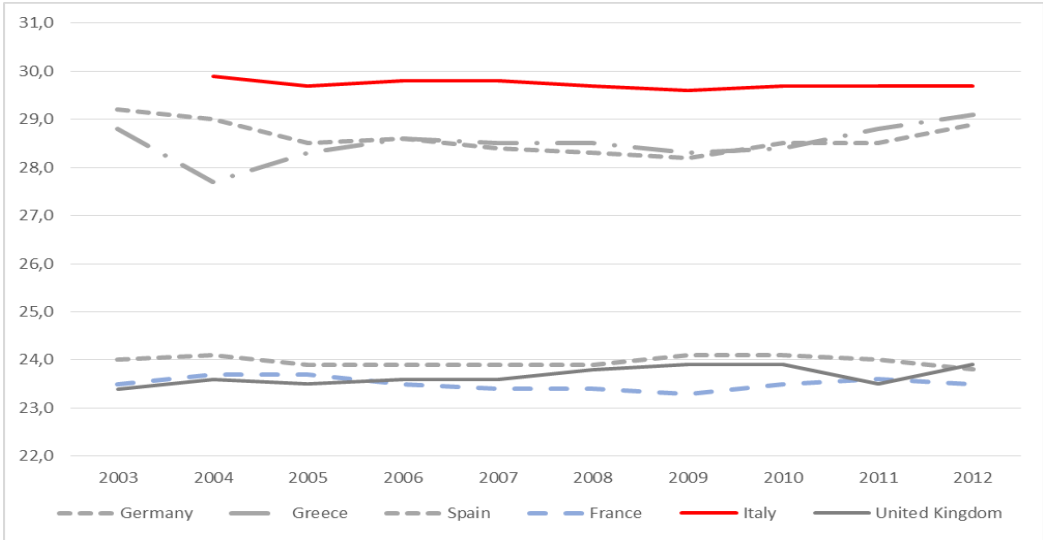
Stylized facts and previous studies have shown that when studying leaving home decision, the probability of finding a job has to be considered too. Moreover it is also clear (Fig.1) that there are some differences before and after the economic crisis, in particular it seems that after 2008 employment rate decreases and, at the same time, the share of young Italians staying at home increases. We use a bivariate probit model to analyse simultaneously the decision to leave home and to be employed. Results show that employment is one of key factor to escape from parental home. Moreover, individual from richer family are more likely to leave given that they are more likely to find a job. The paper is structured as follows: next section describes theoretical and empirical framework, Section 3 describes data and the analysis sample, Section 4 presents the method while the last section shows results and discussion.

1. Theoretical and empirical framework on leaving home and employment

Several studies have analysed the decision of leaving home both from a theoretical and from an empirical point of view. Voluntary nest leaving can be explained by three different approaches (White, (1994). The first one is about *life-course*: a wider variety of transition and counter-transition are age related outcomes[1], such as school completion, career initiation and family formation. Quite all the empirical studies include individual aspects to capture life course explanation of leaving home. The second one is about *macrostructural and institutional factors*: employment, wage, cost of housing, social support, demographic contest, culture affect the probability of leaving. For instance (O' Higgins 2006)) following Card & Lemieux (2000) model, analyse whether aggregate economic factors (namely labour demand index and a wage index) contributed (or did not contribute) to the evolution of the transition processes, for Italy. He also considers four transition processes: employment, educational participation, marriage and living arrangement. He finds substantial differences in the responses of young people of different ages. Other authors (S. O. Becker et al. 2005; Fogli 2004) argue that moving-out decisions are irreversible and therefore higher job insecurity tends to decrease the probability of leaving the parental nest. Giuliano (2004) argues that the more liberal attitudes brought by the sexual revolution have allowed Southern Europeans to cohabit with their parents without having to give up their sexual activity. Finally, the third explanation concerns r*ational choice/exchange perspectives and preferences*: children are assumed to assess the costs and benefits of living with their parents compared to alternative living arrangements and to choose the arrangement that offers the most highly valued benefits (e.g. (McElroy and Horney 1981; Ermisch 1999; Manacorda and Moretti 2006; McElroy 1985; Rosenzweig and Wolpin 1993). This framework suggests that parents are altruistic toward their children i.e., their utility is a function of the utility of their own child as well as their own consumption of housing and other goods. For Italy, for instance, Manacorda and Moretti (Manacorda and Moretti 2006) use a non-cooperative model and focus on the role that preferences and intra-household transfers play in shaping living arrangements. They show that

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[1] In general, for Italians born between 1966 and 1970, the median ages at various events were as follows, for men and women, respectively: for completing education: 19.2 and 19.3; for first job: 21.4 and 24.0; for leaving home: 27.2 and 25.1; for first birth: 33.4 and 29.3 (Mencarini, Mazzuco, and Rettaroli 2015).

if cohabitation is a *good* for parents and a *bad* for children, parents will be willing to trade off some of their consumption in order to bribe their children, that is, to compensate those children who remain at home by offering them higher consumption in exchange for their presence at home. One testable implication of their model is that, all else equal, an exogenous rise in parental income should be associated with a rise in the probability of co-residence (opposite to (Rosenzweig and Wolpin 1993; Rosenzweig and Wolpin 1994). Decision of co-residence could depend also from parents' needs, as outlined by Cameron and Cobb-Clark (2001) for Indonesia. They find that coresidency appears to be a result of evolving household structure, rather than an explicit form of support for elderly.

With regards to employment, the probability of being employed according to the search theory (Mortensen 1986; Barron and Mellow 1981) depends from the probability to receive an offer and the likelihood that this offer has been accepted. The acceptance of the wage offer depends on the probability that the wage offer received is higher than the reservation wage or minimum acceptable wage offer. Consequently, the probability of being employed is affected by the following: all the variables that influence the labour market conditions and the opportunities to receive higher wage offer; the distribution of the wage offers; all the variables that influence the individual's reservation wage (preferences, expectation, marginal cost and marginal benefit of search activity). As regards leaving home, we can divide the variables affected employment condition in three categories: individual characteristics (such as age, sex education and so on), market characteristics (such as geographical area, type of job, sector and so on), finally the costs and the job search intensity.

As we stated above, the focus of this paper is on parental background. There are many studies focussing on the association between leaving home and parental characteristics.

For instance, Rosezweig and Wolpin (1993) formulate an altruistic, imperfect foresight overlapping generation model incorporating human capital investments, inter-household transfer and decision concerning household residence. As the monetary transfer costs are lower when the child live at home, parents prefer to have children at home if their income is low and they need to transfer money to them. For the same reason a rise in parental income increases the chances for children to living at home. Rosezweig and Wolpin test their model using U.S. National Longitudinal Survey. They assume that parents are altruistic while adult

offspring are indifferent to residence state. They find that cohabitation rates tend to fall as parental income rises (Rosenzweig and Wolpin 1993; Rosenzweig and Wolpin 1994), this suggest that for U.S. fathers privacy is a normal good:as income increases and privacy increases the cohabitation decreases.

Becker et al. (2005) assume that parents are partially altruistic toward their children and they will provide financial help to an independent child when his\hers income is low relative to the parents. However, if a child live at home, he\she will have access to a greater share of total family income than granted to him\her through financial transfers in the state of independence. Their analysis identifies parental altruism as the very source of the ambiguous impact of higher income on the child's residential status. An unintuitive conclusion follows from the comparison of the altruistic versus non-altruistic cases: parents will no longer give transfers to independent children when altruism is absent, thus an increase of parents' income raises the child's current income threshold for independence and makes children less willing to leave.

Ermisch (1999), for UK, suggests that parental income positively influences the decision of living home, if the parents have a sufficiently high preference for cohabitation and if children are relative poor respect to parents, parental income should have a negative effect on the probability of leaving. Moreover Ermisch (1999) finds that a young person's own unemployment increase departure to live alone or with friends/others. Unemployment spells also dramatically increase the rate of return to the parental home among these apart from parents.

Parisi (Parisi 2008) focuses on four southern European countries, she finds that leaving home to enter couple living arrangements increased young people's risks of entering poverty in Portugal and Spain but not in Italy and in Greece, moreover higher parental income is associated to higher probability to leave home.

Iacouvou (2010) examines the factors influencing young people's decision to leave parental home in Europe, focusing on the role of income: the young person's own income, and the income of his or her parents. In all groups of countries, the young person's own income is positively associated with the probability of leaving home. However, the effects of parental income are more complex. Everywhere, higher parental income is associated with a lower

likelihood of leaving home to live with a partner at young ages, and a greater likelihood at older ages. But whereas in Nordic countries, higher parental incomes accelerate home leaving to partnership at all ages after the late teens, this effect is not seen until a much later age in Southern Europe, and not until after age 35 for Southern European men. This is consistent with existing theory about cross-country differences in the nature of family ties, suggesting that parents' preferences for independence versus family closeness differ between countries, and contribute (together with differences in young people's socioeconomic situations) to the widely differing patterns of living arrangements observed across Europe.

One of the most recent study, (Angelini and Laferrère 2012) takes advantage of the retrospective data collected in the third wave of the Survey of Health, Ageing and Retirement in Europe (SHARE). It tests the prediction of the theoretical model in an historical perspective. They analyse the leaving home for different cohort focusing on the impact of parental resources on the decision to leave the nest. They use a model based on altruism distinguishing two channels: the first one consider the fact that parents help their children to pay for expenses when independent. The second focuses on the fact that parents subsidising child's consumption when she\he co-resides more than would be when she\he is independent, this is because either they are more altruistic in the former situation, or because it is cheaper to transfer in the first case. Thus, the model allows for both a positive and a negative effect of parental income on nest leaving. In fact they find that high skilled non constrained parents help their daughters to settle, while the most constrained parents cannot keep their daughters at home. Low educated sons of high-skilled and technicians parents are helped to move out compared to middle and working-class children. Finally, high educated sons of high-skilled workers leave later than those of low-skilled workers.

Finally, Ayllon (2014) uses a dynamic trivariate probit model for poverty, employment, and leaving parental home in Europe. Her model allows for feedback effects between the three processes. That way she can properly deal with the endogeneity problems that arise when studying life transitions that are possibly taking place in a sequential manner. The main results show that economic hardship today increases *in itself* the likelihood of being poor tomorrow among young individuals. However, in Italy, fewer young people live in economic hardship but they have greater difficulties in leaving it behind. Moreover, she finds that

leaving home and employment are closely related phenomena in the cases of Mediterranean and Continental Europe. However, she uses quite dated survey (ECHP) and she cannot observe the situation during the economic crisis given their date stopped at 2001. We can overcome both drawbacks of her study.

Family background influences also the duration of unemployment among children and consequently the permanence in parental home (Farace, Mazzotta, and Parisi 2014). The theoretical and empirical literature defines three channels of transmission: the family's financial and cultural circumstances (as education), and family networks. The first two channels affect both the opportunity to access better education and support their children's job search efforts. At the micro level, economic theory (G. Becker 1965) provides a framework to analyse the association underlying the positive correlations between parents' and children's education and consequently parents' and young people's income. The intergenerational mobility literature has explored this link. The strong link between parents' and children's incomes means that Italy is one of the least mobile OECD countries, trailing only the United Kingdom in terms of intergenerational earnings elasticity (OECD 2009; Checchi, Ichino, and Rustichini 1999; Mocetti 2007).

Family background can also influence the offspring's reservation wages, accepted starting salaries and the decision of whether to accept a given wage offer. For instance, high family income enables parents to provide financial support during their offspring's employment search. According to standard job search theory, increasing benefits during the search raises the young person's reservation wage and accepted starting salary. Consequently, wealthier families can mitigate liquidity constraints, allowing their children to devote less effort to (and also extending) the job search process (i.e., allowing them to be unemployed for a longer period) to achieve a better match in the labour market. However, individuals from less advantaged families are credit constrained hence, they might be forced to accept any job offer and reduce their unemployment duration. This interpretation would suggest a positive relationship between higher family socioeconomic status and unemployment duration and then delay leaving parental home. Clearly, financial support and education are not the only channels through which family members can influence the employment prospects of youths. In the Italian case, networks play an important role by providing information on the quality of

education and jobs, thereby increasing the children's opportunities. Farace *et al.* (2014) analyse the unemployment duration of children as affected by their family background. They find a residual effect of parental economic condition on unemployment duration that could be the result of educational quality and/or network effects. Children from the wealthiest families may be able to afford high-quality school and university and also may have better information and search strategies, thereby reducing their unemployment duration. According to the evidence, leaving home is positively correlated with the probability of finding a job, thus higher family income can have an ambiguous effect on the unemployment duration and consequently on leaving home, fasten or delay entry in a job.

2.   Methods

The model used in this paper 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\hers parents and t + 1 is the year when he\she has left home.

$L^*_{it+1} = \beta y_t + \alpha_0 Gender_{t+1} + \alpha_1 Age_{t+1} + \alpha_2 Education_{t+1} + \alpha_3 Heatlh_{t+1} + \alpha_4 Employment$ $condition_{t+1} + \alpha_5 Marital\ Status_{t+1} + \alpha_6 Territorial\ Area_{t+1} + \alpha_7 Crisis + \alpha_8 Crowd\ Index_t +$ $\alpha_9 House's\ price_{t+1} + e_i$ (1)

$E^*_{it+1} = \lambda y_t + \gamma_0 Gender_{t+1} + \gamma_1 Age_{t+1} + \gamma_2 Education_{t+1} + \gamma_3 Heatlh_{t+1} + \gamma_4 Employment$ $condition_t + \gamma_6 Territorial\ Area_{t+1} + \gamma_7 Crisis + u_i$ (2)

where
$L_{it} = 1\ if\ (L^*_{it} > 0),\ L_{it} = 0\ otherwise$ (3)
$E_{it} = 1\ if\ (E^*_{it} > 0),\ E_{it} = 0\ otherwise$ (4)
$Corr(e,\ u) = \rho$ (5)

Equation (1) is the probability of leaving home at time t+1 (L_{t+1}), equation (2) is the probability of being employed at time t+1 (E_{t+1}). We estimate a bivariate probit model that is a simulation method to maximum likelihood estimation of the multivariate probit regression model. The model controls for unobservable factors that influence both the probability to leave home and to be employed and allows these factors to be correlated Rho (ρ). Rho, in fact, indicate if there is a further correlation besides those showed by the coefficient α_4 in equation (1). ρ accounts for unobserved heterogeneity between employment and leaving home: when positive (negative) it means that unobservable that make young people more likely to be employment make them more (less) likely to be emancipated.

The independent variable of main interest is household income (y_t). We are interested to test whether β and λ are greater than zero or not. Net total disposable household income is constructed by Eurostat 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).

When income is used as an explanatory variable (yt) different specifications of the income measure are provided: a categorical income measure (four dummy variables for different income categories where the boundaries are expressed in terms of fraction of the median i.e. 60%, 100%, 150%) and a logarithmic transformation of the income.

The estimates include the economic status of the origin family (i.e. income at time t). Ayllon (2014) argued that economic hardship in the family of origin does not seem to precipitate leaving the parental home. Nevertheless, an explanation for it is difficult to unravel. In those contexts where family ties are strong, young individuals may feel more responsible for their parents' well-being and thus remain in the parental home to offer help and companionship. Moreover individuals from poorer backgrounds may have not only fewer opportunities in the labour market but also fewer residential emancipation possibilities. If it is so, we could expect a positive sign of β.

On the other hand, Manacorda and Moretti (2006) find a positive relation between parental income and cohabitation: as cohabitation is a normal good for Italian parents, parental preferences might contribute to explain the remarkably high rate of cohabitation between Italian children and their parents. Even if alternatives explanations cannot be entirely ruled out. For example, it's impossible to completely rule out the possibility that cohabitation is undesirable for Italian parents, but children prefer to live with richer parents because of the potential gains from such cohabitation, or it's possible that the rise in parental income makes it possible for children to attend college, by relaxing parents' liquidity constraints[2]. Thus in this context, we could expect a negative sign of β.

Less clear is the association of lagged economic status with employment. On the one hand, amongst those living in the parental home, one may think that economic hardship may precipitate young individuals entering the labour market in order to help his/her family. If that were the case, we could expect a negative sign of λ. On the other hand, it is also well known that poverty is intergenerationally transmitted thus individuals from an economically deprived background have fewer opportunities in the labour market (Ayllón 2014; Farace, Mazzotta, and Parisi 2014). If it is so, we can expect a positive sign of λ.

Moreover, both the probability of leaving home and the probability of being employed depend on explanatory variables that reflect demographic characteristics (see equation 1 and 2).

In order to address the identification issue, equation (1) includes as explanatory variable a crowding index[3], marital status and house prices. 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 but we believe is not associated directly with the probability of being employed. Marital status is also a factor affecting leaving home decision above all in Italy: Parisi (2008) using ECHP data, finds that for Southern European Countries leaving

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[2] This is a potential problem because many Italian children live at home while attending college. Thus the rise in cohabitation rates could be the by-product of a higher probability of school enrolment. To take into account for this, we try to estimate the model also excluding students

[3] The crowding index is defined as the number of adults divided by the number of rooms, excluding the kitchen and bathroom in the household. We would therefore use the Heckman probit to provide consistent estimates of all the parameters.

home and being a part of a couple are strictly correlated. Finally, we also include in our model housing prices (calculated for every year under considerations and for macro area of residence with PPP based at 1998) Ermish (Ermisch 1999)estimates a model on the probability of leaving home including also housing prices. His model predicts that the impact of the price of housing on the probability of living apart is related to the price elasticity of parents' housing demand. When this is less than a critical value (e.g., unity in the case of CES preferences) a higher price of housing reduces the probability that the young adult lives apart from the parents, but the opposite is true if housing demand is above the critical value. These predictions reflect the fact that a higher housing price reduces the child's utility in the parental home as well as when he\she lives away from home. Several studies includes housing prices to predict the probability of leaving home such as Giannelli and Monfardini (2000) Ermisch and Di Salvo (1997) and Becker et al (2005).

Finally, we assume that the household size itself at time t (relative to the number of adults among with the household is shared), housing prices and marital status are not factors directly affecting the probability of being employed (after leaving).

3.   Data

The analysis is based on European Union Statistics on Income and Living Conditions (EU-SILC), in particular we use the 5 periods available: 2004-2007, 2005-2008, 2006-2009, 2007-2010, 2008-2011. Longitudinal data aim to analyse individual-level changes over time, observed periodically over a four-year period. Housing information are collected mainly at household level while labour, education and health information are obtained for persons aged 16 and over. Income, at very detailed component level, is collected at personal level.

When examining young people leaving home in Italy, we adopt a wider age range, than in most studies on youth poverty. 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, Iacovou, and Mencarini 2005 p. 1). 'Youth' is usually considered as starting around 15 years old and ending around 25. In

this paper young people are aged 18–34 years and they are completing most of the steps of transition to adulthood, namely leaving the parental home, starting a job and forming a partnership. To select our sample we consider couple of consecutive years namely 'year t' where young people were living with their parents and were at risk of leaving home and 'year $t+1$' where young people have left home. Moreover, we consider young people aged 18–34 years when first observed in year t. A young person is observed for at most 4 consecutives waves (from the 2004). Each individual may contribute more than one pair–year observation (i.e. two consecutive years t and t + 1). The first variable we consider is the probability of leaving home (L_{t+1}). L_{t+1} describes whether young Italians, that were living in the family of origin at t, are still living with their parents at t+1. If the individual is not in the family of origin at t+1 we know exactly his/hers own destination: whether he/she has left home alone, whether he/she has left home to live with a partner, whether he/she has left home and he/she is not in the panel anymore (attrition). Table 1 shows the number of observations and percentage in each destination before and after the economic crisis

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Table 1: *Destination at t+1*

	At home	Left home with partner	Left home alone	Not in the panel anymore	Total
Before 2008	12,548	285	183	976	13,992
	89.68%	2.04%	1.31%	6.98%	100.00%
After 2008	10,704	174	130	1,562	12,570
	85.16%	1.38%	1.03%	12.43%	100.00%
Total	23,252	459	313	2,538	26,562
	87.54%	1.73%	1.18%	9.56%	100.00%

The number of youths who were living with their parents at time t and who were at risk of leaving home is 26,562 (pooling the individual–pair–year observations). As attrition is

ignored, the sample reduces to 24,024 cases. 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. Before the economic crisis 3.3% of young people were leaving home (considering 2.04% leaving with a partner plus 1.31% leaving alone), the figure reduces to around 2.4% after 2008.

Children leaving home are more likely to be employed, both at t and at t+1, this indicates the fact that in Italy individuals leave parental home only after they find a job. Not surprisingly, after the economic crisis, overall children are less likely to be employed (45.01% vs. 39.95%) however when we look at the selected sample of children leaving home the figure is opposite (63.89% vs. 70.72%). This should become blear according to Becker et al., (2005) and Fogli (2004) that argue that moving-out decisions are irreversible and therefore higher job insecurity tends to decrease the probability of leaving the parental nest, only children with a job would move to other living arrangements rather than parental home.

Table 2*: Economic condition before and after 2008.*

	Before 2008			After 2008		
	All children	ChildrenLeaving Home		All children	ChildrenLeaving Home	
	time t	time t	time t+1	time t	time t	time t+1
Employed	45.01	63.89	75.85	39.95	70.72	78.95
Equivalent Household Income*	17314.14	18355.83	14226.57	17475.19	20268.29	14488.21

*Mean in Euro, real value, GDP deflator in national currency from the April 2012 version of the World Economic Outlook (WEO) database

With regards to the economic conditions we notice that the equivalent household income at t for children leaving parental home, is higher after the economic crisis, instead when looking at the income at time t+1 this is lower. The income at t for children leaving home is mainly based on parental income while at t+1 it is the income of the new family of the young son or daughter who has left home.

5. Results and discussion

Table 3 presents estimates for two specifications of bivariate probit model. The first one (column 1-4) includes the economic status of the family of origin defined as a categorical income measure. Four dummies are included, for different categories of income where the boundaries are expressed in terms of fraction of the median i.e. less than 60%, from 60 up to 100%, from 100 up to 150 and above 150% being the reference category). Column 5-8 presents estimates with economic status expressed as a logarithmic transformation of the household equivalent income. Moreover, each specification has been run including or not the employment condition in the equation of leaving home (using a recursive bivariate probit, see column 3, 4, 7 and 8). Finally, columns 2, 4, 6, and 8, perform the same models but we have a restricted sample i.e. excluding students.

First of all the analysis shows that the correlation between the error terms of the probability of being employed and the probability to leave parental home is positive and significant except when we include the employment condition in columns 3, 4, 7, and 8. We include employment to estimate its effect on the probability of leaving home: employment increases the probability to leave parental home from 1.22% to 2.74% (i.e. 1.52 percentage points) considering the entire sample. This effect reduces when we exclude from the estimates the students (employment increases the probability of leaving home by only 0.1 pp). Thus employment condition and being in education are two important factors in determining the probability of living at parental home moreover, by definition, they are mutually exclusive: children are either employed or student. Given that our children are aged 18-34 students are mostly included in the secondary education category so they are not employed. When we use the restricted sample (i.e. excluding students), the employment condition reduces its effect probably because of less variability.

With regard to our main aim (i.e. the effect of parental background on the probability of leaving home and being employed), we can say that both the coefficient β and λ are positive and highly statistic different from zero. This confirm that leavers are young people from better off family (in line with Parisi 2008 and partly with Angelini and Laferrere (2012) and children from richer families have higher probability to be employed (as in Farace, Mazzotta,

and Parisi 2014). Those children, in fact, may find job with higher salaries thanks to the fact that their parents are able to finance their job search and they may have better networking (as founded Farace, Mazzotta, and Parisi 2014).

Moreover, leavers are young people with higher education: graduates are 1.2 percentage points more likely to leave home. Leaving home increases with age and good health. There is a gender difference in the probability of leaving parental home, in fact men are more likely to stay at home longer, as in Parisi (2008), although this is true only when we control for employment condition and for the restricted sample. This could mean that given the same chances of employment and given that young children are not in education, men have a higher preference to stay at home longer than women do.

The highest effect on the probability of leaving home is the marital status: young people married are 37 (42 for the sample of no-student) percentage points more likely to leave home. Looking at the time dummies, after the economic crisis (2009) there is a reduction in the probability of leaving home. Finally, the probability of nest leaving increases with age but after a maximum (29/30 years old) it starts to decrease (inverted U-shaped).

With regard to the probability of being employed all the variables included in our model are significant and with the expected sign. The economic crisis in Italy reduces the probability of being employed only after 2010 (of about 4 pp). As expected the South part of the country has the lowest probability of being employed (minus 15/17 pp compare to the North of Italy). The probability of being employed increases with age but after a maximum (31 years old for all sample and 27 years for the restricted sample) it starts to decrease (inverted U-shaped). Having good health increases the probability to work. It is peculiar the effect of education given that it appears very different with regard to the sample considered. In particular, considering the sample of all young children, we do find that children with secondary education have a lower probability to find a job than those with compulsory education. When we exclude students, we do find the opposite i.e. the higher the level of education the more likely are the children to find a job. The reason why has been underlined above: the incidence of unemployed children is higher between individual with secondary education by construction, our children are aged 18-34 so the students are almost all in the secondary education category and by definition they are student so not employed. When we exclude

them, the employment condition reduces its effect and we do find the right effect of education.

Finally, there is a strong state dependence on the probability of employment and previous employment condition; the lagged employment variable it is positive and significant.

Table 3: *Probit model (Not conditional Marginal Effect at Mean)*

Variables	All (1)		No-student (2)		All (3)		No-student (4)		All (5)		No-student (6)		All (7)		No-student (8)	
Leaving Home																
Eqinc under 60%Me	-0.0099	***	-0.0150	***	-0.0066	***	-0.0111	***								
Eqinc between 60%&100%Me	-0.0010		-0.0031		0.0006		-0.0010									
Eqinc between 100%&150%Me	-0.0021		-0.0041		-0.0018		-0.0035									
Log of eq.income at t									0.0048	***	0.0074	***	0.0026	**	0.0046	**
Time dummy (2004)	0.0140		0.0137		0.0111		0.0125		0.0142		0.0135		0.0112		0.0123	
Time dummy (2005)	0.0135		0.0126		0.0115		0.0118		0.0137		0.0125		0.0116		0.0117	
Time dummy (2006)	0.0046		0.0016		0.0035		0.0012		0.0047		0.0015		0.0035		0.0010	
Time dummy (2007)	0.0068		0.0071		0.0058		0.0067		0.0068		0.0069		0.0058		0.0065	
Time dummy (2009)	-0.0084	***	-0.0126	***	-0.0076	***	-0.0121	***	-0.0087	***	-0.0129	***	-0.0078	***	-0.0123	***
Time dummy (2010)	0.0030		0.0006		0.0034		0.0012		0.0028		0.0004		0.0032		0.0010	
South	-0.0007		-0.0008		0.0023		0.0023		-0.0011		-0.0016		0.0023		0.0021	
Centre	-0.0034	*	-0.0052	*	-0.0021		-0.0040		-0.0035	*	-0.0055	*	-0.0021		-0.0041	
Male	-0.0018		-0.0051	**	-0.0032	**	-0.0062	***	-0.0019		-0.0052	**	-0.0033	**	-0.0064	***
Age	0.0079	***	0.0088	***	0.0046	**	0.0072	**	0.0080	***	0.0089	***	0.0046	**	0.0071	**
Age squared	-0.0001	***	-0.0002	**	-0.0001	**	-0.0001	**	-0.0001	***	-0.0002	**	-0.0001	**	-0.0001	**
Tertiary education a t+1	0.0103	***	0.0185	***	0.0119	***	0.0184	***	0.0100	***	0.0181	***	0.0115	***	0.0180	***
Secondary education a t+1	0.0045	**	0.0091	***	0.0047	***	0.0081	***	0.0045	**	0.0091	***	0.0046	**	0.0080	***
Good health at t	0.0058	**	0.0078	**	0.0047	**	0.0065	*	0.0059	**	0.0079	**	0.0047	**	0.0065	*
House crowded at t	0.0006		0.0026		0.0006		0.0023		0.0018		0.0044		0.0013		0.0036	
Married at t+1	0.3781	***	0.4179	***	0.3675	***	0.4158	***	0.3759	***	0.4155	***	0.3657	***	0.4138	***
House's Price	0.0004		0.0005		0.0003		0.0141		0.0004		0.0005		0.0003		0.0149	
Employment Condition at t+1					0.0152	***	0.0005	***					0.0157	***	0.0005	***
															0	

obs. P Leaving Home	3.21	4.41	3.21	4.41	3.21	4.41	3.21	4.41
pred. P Leaving Home	1.37	2.10	1.22	1.98	1.40	2.13	1.24	2.00
Employed								
Eqinc under 60%Me	-0.1516 ***	-0.2559 ***	-0.1509 ***	-0.2557 ***				
Eqinc between 60%&100%Me	-0.0606 ***	-0.1197 ***	-0.0601 ***	-0.1196 ***				
Eqinc between 100%&150%Me	0.0002	-0.0354 ***	0.0001	-0.0357 ***				
Log of eq.income at t					0.0753 ***	0.1133 ***	0.0749 ***	0.1131 ***
Time dummy (2004)	0.0850 ***	0.0671 ***	0.0856 ***	0.0676 ***	0.0916 ***	0.0766 ***	0.0920 ***	0.0769 ***
Time dummy (2005)	0.0539 ***	0.0416 ***	0.0544 ***	0.0420 ***	0.0595 ***	0.0511 ***	0.0599 ***	0.0514 ***
Time dummy (2006)	0.0509 ***	0.0431 ***	0.0512 ***	0.0434 ***	0.0539 ***	0.0479 ***	0.0542 ***	0.0481 ***
Time dummy (2007)	0.0477 ***	0.0396 ***	0.0479 ***	0.0399 ***	0.0480 ***	0.0407 ***	0.0482 ***	0.0411 ***
Time dummy (2009)	0.0241 *	0.0371 ***	0.0244 *	0.0373 ***	0.0208	0.0320 **	0.0211	0.0322 **
Time dummy (2010)	-0.0460 ***	-0.0538 ***	-0.0466 ***	-0.0540 ***	-0.0481 ***	-0.0563 ***	-0.0487 ***	-0.0566 ***
South	-0.1524 ***	-0.1702 ***	-0.1522 ***	-0.1703 ***	-0.1654 ***	-0.1897 ***	-0.1652 ***	-0.1897 ***
Centre	-0.0520 ***	-0.0666 ***	-0.0520 ***	-0.0667 ***	-0.0551 ***	-0.0721 ***	-0.0551 ***	-0.0723 ***
Male	0.0657 ***	0.0435 ***	0.0651 ***	0.0432 ***	0.0661 ***	0.0443 ***	0.0654 ***	0.0440 ***
Age	0.1072 ***	0.0413 ***	0.1063 ***	0.0409 ***	0.1066 ***	0.0411 ***	0.1056 ***	0.0406 ***
Age squared	-0.0017 ***	-0.0008 ***	-0.0017 ***	-0.0007 ***	-0.0017 ***	-0.0007 ***	-0.0017 ***	-0.0007 ***
Tertiary education a t+1	-0.0241	0.0393 ***	-0.0243	0.0391 ***	-0.0200	0.0458 ***	-0.0201	0.0456 ***
Secondary education a t+1	-0.0430 ***	0.0412 ***	-0.0431 ***	0.0411 ***	-0.0398 ***	0.0433 ***	-0.0400 ***	0.0431 ***
Good health at t	0.0733 ***	0.1056 ***	0.0733 ***	0.1056 ***	0.0722 ***	0.1027 ***	0.0723 ***	0.1027 ***
Employment Condition at t	0.6627 ***	0.5094 ***	0.6646 ***	0.5105 ***	0.6648 ***	0.5142 ***	0.6667 ***	0.5152 ***
Rho	0.2559 ***	0.2084 ***	0.0328	0.0440	0.2564 ***	0.2091 ***	0.0311	0.0371
Statistics								
N	24024	16619	24024	16619	24024	16619	24024	16619
Ll	-11300.0	-8790.0	-11300.0	-8790.0	-11300.0	-8830.0	-11300.0	-8820.0
obs. P Employed	46.31	66.95	46.31	66.95	46.31	66.95	46.31	66.95
pred. P Employed	45.99	73.32	46.00	73.35	46.05	73.31	46.07	73.34

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