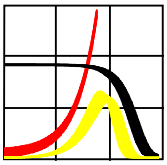

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The impact of income and employment status on leaving home: evidence from the Italian ECHP sample

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Abstract

In this paper we investigate the role economic resources play in the decision of young Italian adults to leave the parental home. This is of particular interest given that, in Italy, young people leave home considerably later than in other European countries. We use the first two waves of the Italian sample of the European Community Household Panel. We use a Heckman selection-type probit procedure to account for left censoring and unobserved heterogeneity. We find that economic circumstances are important. In particular, we find personal income resources, as well as parental income levels, to be crucial in leaving home. Our results suggest that stable employment is an important prerequisite for men to start their own household. For women, on the other hand, finding a partner seems to the most important factor in becoming independent of their parents.

Key words: leaving home, Italy, left censoring, selection, economic resources, ECHP.
JEL classification: J1, C3

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1. Introduction: Italians are champions in late home-leaving

In this paper we deal with the impact of personal and household economic resources on the decision to leave home for Italian men and women. This is a particularly important issue: most of the literature available so far on this issue is focused on the United States or (more rarely) on Northern Europe. But the Italian and, broadly speaking, Southern European pattern of leaving home is particularly striking and peculiar. While in Northern Europe men and women leave home at relatively young ages, in Southern Europe, particularly in Italy and Spain, young people stay with their parents for a much longer time, and recent cohorts are leaving home later and later. The age of 30, for instance, can no longer be considered a limit for studying young people staying at home in such countries. In addition, many people still don't leave home until they get married. In fact, this tendency is even on the rise to some extent. This makes Italy the country with the latest age at home-leaving among industrialised western societies (Billari et al., 2000). There is also a distinct pattern in the relationship between family formation and labour market behaviour in Southern European countries (Bettio and Villa, 1998), and this can be connected to gender roles (González et al., 2000).

There is lively debate about the causes for this pattern of late home-leaving. Some scholars have spoken of a "Mediterranean" or "Southern European" pattern of leaving home (see i.e. Jones, 1995 and Reher, 1998), emphasising above all the underlying cultural roots of the late home-leaving and of the strong synchronisation between

leaving home and first marriage. The cultural argument is based on some historical evidence concerning a tradition of late home-leaving or even of lifelong co-residence with one's parents.

Other scholars (see e.g. Fernández Cordón, 1997) have emphasised the importance of economic conditions for young adults in Southern Europe. Esping Andersen (1999) focussed on the peculiarities of the Southern European welfare state and on the absence of support for young people who are unemployed. Italian evidence certainly indicates that one's working career matters. Having an occupation seems to be a necessary but not sufficient condition for leaving home (Billari and Ongaro, 1998), though the potential endogeneity of decisions on the labour market and on living arrangements has not been addressed. There is also some evidence that in poorer areas the economic conditions for young adults have a larger effect than in richer areas.

There has so far been no in-depth investigation on the impact of economic resources on leaving home in Southern Europe. This is to some extent due to a lack of suitable (longitudinal) data for empirical analysis. In this article we investigate, separately for men and women, the effect of labour-force participation, personal income potential, household income, and housing status on the probability of leaving home. We use the Italian sample of the European Community Household Panel (ECHP), waves 1 and 2 (1994 and 1995), and estimate a probit model corrected for sample selection.

The paper is organised as follows. Section 2 reviews the relevant literature and introduces the research questions. Section 3 describes the sample and the data we use and presents some descriptive results concerning the variables of interest for the analysis. Section 4 introduces the model we use for the joint analysis of selection into the sample and of the probability of leaving home. Section 5 examines the results and discusses them in light of the literature. Section 6 contains some concluding remarks.

2. Theoretical considerations and previous research

In the process of leaving the parental home, young adults are viewed as being forward-looking individuals who make decisions about their living arrangements by comparing the present and future benefits and costs of alternative actions. Thus, individuals will evaluate their expected income as well as other utility sources associated with the various options open to them. The choice of staying on in the parental home, as opposed to leaving, is therefore assumed to result from the individual's utility maximisation behaviour. In general, the economic perspective predicts a positive association between entering a specific state and the income associated with that state. For instance, a high level of parental income makes living independently less desirable. A high level of income from personal labour, on the other hand, is likely to make living independently more attractive.

The fact that home-leaving is closely associated with union formation complicates the analysis since leaving the parental home becomes dependent upon finding a marriage partner. Marriage formation is frequently analysed in terms of search and matching behaviour, which is similar to that assumed in job search models[1]. In the latter framework, the individual's income tends to have ambiguous effects on the likelihood of marriage and thus of independent living (Aassve et al., 2001). On the one hand, a high level of personal income reduces the importance of parental support (in terms of living in the parental home). This can be thought of as a self-*reliance effect*, which

[1] See, for instance, Keeley (1977) for an application of search models on marriage formation. Other important theoretical contributions include Burdett and Vishvaneth (1995) and Burdett and Cole (1993). In more recent studies game theoretic and bargaining models have become popular: see for instance McElroy and Horney (1991) and Manser and Brown (1991).

predicts that young adults become more likely to leave the parental home as their personal income increases. This will also have an effect on individual partnership formation. For instance, a woman with a high income is less dependent on a husband as an income source and might therefore delay marriage. However, high-income individuals are likely to receive more marriage offers, and this might accelerate the partnership formation process. This can be called a *good-catch* effect, which will have a positive effect on the rates of marriage. However, individuals realising that they are a good catch might raise their reservation threshold in response to the high level of marriage offers. The insight from this theoretical perspective is that one's own income has an ambiguous effect on leaving home, and any empirical analysis is unlikely to uncover anything other than the net effects.

The empirical literature concerned with leaving the parental home in a European setting is limited, and it sometimes presents contradictory results. Here we provide a brief summary of the main findings of the literature, most of which stems from the USA. Whittington and Peters (1996) examine the impact of economic variables of children *and* parents on the probability of making a transition to independent living. They use the National Longitudinal Survey of Youth (NLSY)[2]. An important feature of this study is that it recognises that the process of leaving the parental home is a decision taken jointly by young adults and their parents. The authors investigate not only the childrens' incentive to leave the parental home; they also include the parents' (dis-)incentive to keep the children in the household. They find that a young person's predicted wage level increases the probability of independent living, whereas the parents' income level is negatively associated with leaving the parental home. They also find a negative association between leaving home and the level of welfare payments. Avery, Goldscheider, and Speare (1992) find that parental income is negatively associated with transitions to marriage, whereas no strong effect was found on the transition to independent living. They find that a high level of personal income is positively associated with leaving the parental home. Haurin, Henderschott, and Kim (1991) use the NLSY to analyse the impact of real rents for housing and other income variables on the household formation process. Their results indicate a relatively strong positive correlation between the individual's earning potential and leaving the parental home whereas rental costs have a strong negative effect.

In Europe, Ermisch (1999) finds evidence that housing market conditions, evaluated mainly by regional relative housing prices, affect the decision of young adults to leave the parental home. Using the British Household Panel Survey he finds that tight housing markets tend to delay moving from the parental home, and they also make returns to the parental home more likely. Young people with high current income levels are more likely to leave home and less likely to return. De Jong et al. (1991), using Dutch panel data, show that a high level of transferable material resources in the parental household, mainly measured in terms of income and property as well as of the father's job, translates into a faster rate of leaving home. In contrast, non-transferable material resources such as space in the parental household, the preparation of meals and housework etc, have the opposite effect, as long as leaving home is not due to the continuation of education. "Non-material" resources are also shown to have an impact on the decision of young adults to leave the parental home. Using retrospective data on Italy, Billari and Ongaro (1999) study (among other variables) the impact of the father's educational level and of the number of siblings on the rate of leaving home. The latter factor is viewed as a proxy of transferable

[2] The NLSY is an American data set of young adults first surveyed in 1979 and then reinterviewed annually.

material resources per capita, and the educational level of the father is a proxy of both cultural and economic factors. The authors show that a higher number of siblings raises the probability of leaving home for union formation and for job-related reasons while it lowers the probability of leaving home for continued education. Though the effects are slightly different for men and women, it seems that transferable and non-transferable material resources have an important impact on the rate of home-leaving. A similar pattern is evident in the case of the father's educational attainment.

Social scientists and other researchers have been focusing for some time now on the strong gender differentials in leaving the parental home, a feature that most certainly shapes the transition pattern of leaving home in Southern Europe. It is clear that in Italy, as well as in other Mediterranean societies, gender differences and gender inequalities are still widespread even in the 1990s (see e.g. González et al., 2000), implying that the impact of personal and parental resources is likely to be different for men and women. There is some evidence that for Italian women, finishing formal education speeds up home-leaving, independently of their labour market position. Among young men, on the other hand, the impact of future job prospects is more important (Billari and Ongaro, 1999).

3. The data

3.1 The need for longitudinal information on economic variables

Any study of the impact of economic variables on leaving home requires reliable information on income, occupational status, housing, and longitudinal information on the living arrangements of young adults. Up until recently, most of the surveys undertaken in Italy have been retrospective, with a strong focus on the reconstruction of the timing of life course events. These surveys have generally been weak on economic variables – information on income is typically missing. Proxies such as the educational level of the parents, the number of siblings, and one's own labour force participation have then been used, with the problem of confounding cultural and economic effects. Cross-sectional surveys have provided most of the economic variables, but they have not provided any dynamic information on the residential choices of young adults. The European Community Household Panel is the only data set which provides both the necessary information on economic variables and a dynamic reconstruction of living arrangements for Italy. In this paper we use this data source to investigate the influences of personal and parental economic resources on the decision of young adults to leave the parental home (independent of the actual reasons for leaving). We generally expect a positive relationship between one's personal economic situation, mainly measured in terms of labour market position, and the likelihood of leaving home. We do not have a strong a priori hypothesis concerning the impact of parental resources. Given the unequal division of labour within families and the fact that leaving home means forming a family for the vast majority of Italians, we expect that the impact of economic variables to differ by gender.

3.2 Selecting the sample

The ECHP is a large-scale longitudinal survey managed and funded by the European Union. Because it is a household survey, it provides information related to both the household and the individual. Moreover, in each wave data is collected on a wide range of variables including demographic characteristics, income and expenditure, education and training, employment and unemployment, health, social relations,

dwelling, and various measures of individual satisfaction/dissatisfaction. In this way it is possible to analyse the changes in an individual's living arrangement status across waves using both personal and household variables.

To investigate the role of economic variables in leaving the parental home, we constructed our sample according to the following procedure. The first wave of the Italian sample (1994) consists of 7,989 households corresponding to 24,063 individuals which are representative of the population as a whole. We restricted the sample to include individuals aged 18 to 39 years only. In this way we obtained a sub-sample of 7,612 units, which were classified according their living arrangement: i) those living with at least one parent (referred to as "children"); ii) those living out of the parental home prior to the first wave. We then looked at the living arrangement of the first group in the second wave (1995). We assume that those who were classified as "children" in 1994 but were no longer living with at least one parent in 1995 left the parental home at some time between the two waves; the others were considered to still be living in the parental home.

The definition of "children" is quite broad, as it includes all individuals living with at least one parent, independent of their marital status. This means that people living with their own family in the parental home are still classified as children. Furthermore, a person is also recorded as having left the parental home when the parents have moved out of the household of origin[3]. The changes in living arrangements observed here thus cover a wide range of situations, including singles who leave the parental home for the first, second, or even the third time, and individuals with their own family who decide to have an autonomous dwelling.

As a final step, we divided the sub-sample of individuals aged 18-39 in 1994 into three groups: those who were already out of the parental home in 1994; those who were classified as children in 1994 but who left home in the following year; those who were classified as children both in 1994 and in 1995.

[3] In the case of the death of (the only) parent(s) between the two waves we removed the record from the sample.

Table.1: Men and women of different age groups by their status in 1994 and 1995

Statuses	18-29		30-39		*Total*
	Men	Women	Men	Women	
Already out of the par. home in 1994	317	552	1168	1455	3492
Children in 1994, no longer in parental home in 1995	75	80	32	26	213
Children in 1994, still in parental home in 1995	1866	1503	344	194	3907
Total	2258	2135	1544	1675	7612

3.2 Descriptive analysis of the sample

Table 1 presents these groups by gender and age. Slightly less than 50 per cent of the individuals selected have already left the parental home in the first wave. However, Table 1 shows that these percentages are quite different for men and women and for the different age groups. It is as low as 20% among respondents aged 18-29 and rises to 81% for those aged 30-39. Differences in the process of leaving home are also to be observed between men and women. The percentage of women no longer living with their parents is 39%, whereas this figure is 53% for men. Moving to individuals still in the parental home in 1994 (4,120 cases), we note that only a small percentage of them (5%) formed an autonomous household in the following year. However, there are substantial differences between the age groups (among the younger individuals the percentage of transitions is 4%, while 10% of the older group leave home).

Next we consider “children” in 1994 in terms of demographic and economic characteristics. Three quarters of them belong to the age-group 18-29, and there are more men (56%) than women (Table 1) in this group. Table 2 provides additional insights. There is a prevalence of "children" living in the center and in the south of the country. More than 80% of them have never been married, and the percentage is as high as 98% among men and women aged 30 and under. Separated and divorced individuals are more or less non-existent. We can thus conclude that young people leave home almost exclusively before entering a cohabiting partnership, as has been shown in the literature on Italy. The educational level attained by the "children" is highly dependent on their age. Those aged 18-29 generally have a compulsory or a medium-level qualification (and women are more educated than men). Among the older group the level of education is much more heterogeneous, and individuals with a high-level qualification represent 16-20% of the group.

Personal economic resources vary both by age and gender, and in general we observe a greater degree of economic independence among men. Individuals aged 30 or over and still living with their parents are mostly employed (60-75%). Most of them are employed as dependent workers and their income seems relatively high (nearly 50% have a net monthly income of 1.5 million Italian lire, which is equivalent to about 750 Euros). This income would be sufficient to live on one’s own. On the other side of the coin, however, the following is also to be observed for the same group: a) 20% are unemployed and among women 13% are classified as *inactive* (housewives); b) 30%

of individuals experienced spells of unemployment in the previous five years. “Children” aged 18-29 years are economically less autonomous. A relatively high percentage of them – 30% of the men and 40% of the women – are students, and around 23% of men and women are recorded as unemployed. The remainder is registered as employed. The majority of employed people are dependent workers, and 80% of them have a net monthly income below 1.5 million Italian lire. There is also a relatively high percentage (more than 35%) of individuals in this group who have experienced periods of unemployment in the recent past.

The majority of “children” (nearly 80%) live in a dwelling owned by the household, possibly together with several relatives. The size of the household tends to vary from 2 to 5 members, normally parents and siblings. The size of the household does not seem to exhibit a relevant decrease with the age of the respondent. The main sources of income of these households are wages and salaries (more than 50%). However, among the individuals aged 30 or over, we find income sources to be more heterogeneous, with other sources (e.g. pensions) seeming to play a more important role. This might indicate that there are more old people living in the households of the older respondents. The net annual household income of the “children” seems quite evenly distributed between the first two categories (less than 30 and 30–60 million Italian lire, which is equivalent to about 15,000 and 15,000–30,000 Euros, respectively). In many cases this amount of money seems inadequate for taking care of household needs. In fact, a relatively large proportion of the sample report difficulties in making ends meet, and only around 37 per cent report that they have no difficulties covering household expenses on a regular basis.

Table.2: Individuals living with at least one parent in 1994 according to personal and household characteristics

Personal and household characteristics	Age 18-29		Age 30-39	
	Men	Women	Men	Women
Region of residence[4]				
	16.98	17.22	15.16	19.09
North-west	14.40	16.20	23.67	15.91
North-east	24.92	21.96	20.27	20.45
Centre	27.66	26.01	20.74	25.00
South	16.05	18.61	16.22	19.55
Isles				
Marital status	1.49	2.02	14.10	15.45
Married	0.00	0.25	1.06	3.18
Married in the past	98.51	97.73	84.84	81.36
Never married				
Level of education	43.45	34.52	45.90	38.36
Medium-low	52.98	60.03	34.43	45.21
Medium-high	3.57	5.46	19.67	16.44
High				
Main activity status	31.80	25.65	48.13	48.40
Employed	8.71	3.41	25.13	10.50
Self-employed	23.35	23.82	17.91	23.29
Unemployed	31.29	41.63	4.55	4.11
Student	4.85	5.50	4.28	13.70
Other inactive				
Net monthly income (only employed): Millions of Italian Lire				
<=1.2	39.38	55.91	12.71	30.19
1.2-1.5	37.12	31.28	36.46	29.25
1.5-1.75	12.97	7.64	25.41	16.98
>1.75	10.53	5.17	25.41	23.58
Spells of unempl. in the past 5 years				
No	64.74	63.11	69.83	68.84
Yes	35.26	36.89	30.17	31.16
Household's main source of income (previuos year)				
Wages, salaries	65.76	64.23	51.09	52.78
Self-employment	16.56	16.06	12.77	9.26
Other sources	17.68	19.71	36.14	37.96

continued

[4] North-west: Valle d'Aosta, Piedmont, Liguria, and Lombardy; North-east: Trentino Alto-Adige, Veneto, Friuli Venezia-Giulia, and Emilia-Romagna; Centre: Tuscany, Umbria, Marche, Lazio, and Abruzzo-Molise; South: Campania, Puglia, Basilicata, and Calabria; Isles: Sicily and Sardinia.

Continued				
Household total net income (previuos year): x million Italian lire				
<=30	42.36	48.24	38.86	39.81
30-60	46.53	40.73	44.84	48.61
60+	11.11	11.03	16.30	11.57
Household able to make ends meet				
With difficulties	25.50	26.22	20.74	29.55
With some difficulties	39.31	39.48	35.64	33.64
With no difficulties	35.19	34.30	43.62	36.82
Household size				
2-3	23.85	21.98	37.77	34.55
4	38.23	39.48	31.91	32.27
5+	37.92	38.53	30.32	33.18
Own-rent dwelling				
Own	79.50	78.52	80.59	79.09
Rent	16.80	17.56	16.22	16.82
Other	3.71	3.92	3.19	4.09
Number of cases=100	1941	1583	376	220

In the following we extend the descriptive analysis to include highest level of education, main activity status at the time of the interview, and net monthly income for people in paid employment. We also include a variable that measures whether individuals experienced unemployment spells in the preceding five years. The only household resource variable is total net household income from the previous year standardized by household size[5].

Table 3 presents descriptive statistics of these variables by gender and living arrangements. The figures suggest that one's own resources have an impact on the risk of leaving the parental home. The educational level seems to be important. Having a high-level qualification speeds the formation of one's own household. This is most certainly true for men (the percentage of men with a high level of education among those who left home in 1995 is twice that of stayers). For women the effect of the variable is also present, but the relationship is non-monotonic. In fact, a low level of education is also a condition that accelerates home-leaving for women. The activity status has a clear effect for men. Employment, including self-employment, is positively associated with leaving home. As an example we observe that the percentage of men in paid employment is 52% among those who left home in 1995 and only 34% for those who continued to stay at home. In contrast, not having a job has a negative effect on residential autonomy, especially for students and the unemployed. Among women we find a similar pattern, although there are some exceptions. As is the case for men, having a job promotes departure from the parental home, whereas being a student delays formation of new households. In contrast to men: a) being unemployed seems to have little significance as far as becoming residentially autonomous; b) being *inactive*, appears to accelerate the departure from

[5] It is obtained by dividing the annual net household income by the household size, where the last variable has been transformed according to a size equivalence scale attached to the panel by Eurostat itself.

the family home. The fact that experiencing spells of unemployment in the previous five years has a different impact for men and women (the deterring effect of unemployment on home-leaving is much more evident for men than for women), indicates the presence of gender differences among Italians as regards leaving home. There are also some differences in terms of income. Individuals with relatively low earnings (up to 1.5 million Italian lire per month) stay in the parental home longer. As earnings increase, individuals are more at risk of living independently. This picture is quite clear for men; for women it is true only for the two extreme categories of income.

Table.3: Men and women living with at least one parent in 1994 by living arrangement status in 1995 and personal and household resources

Resources	Men		Women	
	Left par.home in '95	In the par.home in '95	Left par.home in '95	In the par.home in '95
Level of education				
Medium-low	38.68	44.09	40.57	34.64
Medium-high	50.94	49.98	42.45	59.21
High	10.38	5.93	16.98	6.16
Main activity status				
Employed	52.34	33.57	42.45	27.54
Self-employed	22.43	10.83	5.66	4.19
Unemployed	13.08	22.93	22.64	23.82
Student	8.41	27.87	14.15	38.50
Other inactive	3.74	4.80	15.09	5.96
Net monthly income (only employed): x million Italian lire				
<=1.2	25.00	33.96	40.00	51.61
1.2-1.5	33.93	37.20	26.67	31.26
1.5-1.75	21.43	15.36	8.89	9.64
>1.75	19.64	13.48	24.44	7.49
Spells of unempl. in the past 5 years				
No	74.73	65.23	65.12	63.87
Yes	25.27	34.77	34.88	36.13
Annual equivalised household income (1993) x million Italian lire:				
<= 8	31.78	36.24	36.79	38.01
8-12	21.50	22.58	28.30	24.87
12-18	25.23	25.93	21.70	23.34
18+	21.50	15.25	13.21	13.79
Num. cases=100	107	2207	106	1696

The impact of household resources[6] on leaving the parental home is less straightforward. The figures suggest that household income have a positive effect for men only when the income is very low or very high. No association is found for the middle income groups. For women the effect is less clear. A positive effect seems to exist only at a low or medium-low level of income. At the high or medium-high level the effect is very weak.

4. Methodology

4.1 Motivation and background

In this section we outline our modelling approach of the leaving home process. Given the emphasis of our analysis and the nature of the data source, we adopt a two-equation probit model as developed by van de Ven and van Praag (1981). This methodology is similar to the more commonly known Heckman (1976) two-step selection procedure, in which a binary selection equation, normally a probit, is estimated simultaneously with a continuous regression equation. The difference here is that both the selection and the regression equations take the probit form, since the dependent variable is binary. In contrast to the standard Heckman selection model, for which there has been an impressive range of different applications[7], there are only rather few examples of the selection probit that are reported in the literature. In particular, no applications of the van de Ven and van Praag model to longitudinal data have appeared in the literature up to now.

The motivation for adopting this procedure for our work is straightforward. Recall that our primary aim is to analyse the impact of economic variables on leaving the parental home where this is recorded by changes in the living arrangements from the first to the second wave. Of course, when individuals are observed in the first wave, a considerable proportion will have already left the parental home. We do not know when these people left home, as there is no retrospective information on this in the ECHP. We only know that they had left before the interviews were conducted for the first wave. This means, of course, that there is no way of associating time-varying economic variables with these early home-leaving events.

If one excludes individuals not living in the parental home from the analysis, one is faced with a considerable problem: they might have left the observable sample in a non-random fashion. Thus, due to unobserved characteristics or preferences, they might have had a higher probability of leaving the parental home than those who are observed as staying. The sample of people living in the parental home at the first wave is thus likely to contain individuals who have a relatively low probability of leaving home. Consequently, running a probit without control for self-selection will yield a downward bias in its predictions of leaving home. Given that this is the case and that we estimate a model with controls for selection we should observe a negative correlation between the selection equation and the leaving home equation. The simple probit will in this case produce a lower predicted probability of leaving home than does the model with selection.

[6] Data on household resources are available only for those individuals who lived with their parents in 1994. The panel does not give retrospective information about the family of origin for those who already were out of the parental home at the time of the first wave.

[7] Greene (1997) provides numerous examples of applications of and extensions to the Heckman selection procedure.

There is, however, an additional factor that influences the parameter estimates in an important way. This is the effect of left-hand censoring, which is best explained in terms of hazard models. Suppose we had information on the timing of leaving home for all individuals in the sample. We could then fit a duration model where departure from the parental home would be the event of interest. We would expect the hazard rate of leaving the parental home to be increasing at least up to a certain age (as has been shown for Italian data by Billari, 2000). This means that the probability of leaving home conditional on not having yet done so at time *t* increases with age. This will have important implications for our estimation. In particular, we will observe the predicted probability of leaving home from wave 1 to wave 2 to be higher than the probability of leaving home for the entire sample. As a result we would expect a simple probit to over-estimate the probability of leaving home, as compared to the results of a probit with a selection mechanism included[8]. If, on the other hand, the hazard rate were falling, we would expect the overall probability of leaving home to be higher than the predicted probability of leaving home from wave 1 to wave 2[9]. In sum, this means that we have two opposing effects, one producing an upward bias (left censoring), and the other a downward bias (unobserved heterogeneity). Of course, in our estimation we only observe the net effect. Section 5 demonstrates the effect and the magnitude of the self-selection problem.

4.2 Endogeneity of employment and predicted wages

The employment status is potentially endogenous with respect to the leaving home decision. As McElroy (1985) points out, young adults are likely to leave home in the anticipation of finding a job. Consequently, leaving home and finding a job are determined jointly. In addition we might suspect educational choice to be of a similar nature. In a gender-divided society like Italy, this endogeneity may be especially relevant for men. An obvious remedy to this problem is to use the individuals' earnings potential rather than their employment status as a regressor. Here we use the predicted wage rate, estimated by a standard Mincerian approach (Mincer 1974), as an exogenous measure of the young adults' earnings capacity. We apply a two step procedure in order to control for self-selection into the labour force, where individuals are defined to participate in the labour force if they report the usual hours worked in a week to be positive. The first step consists of a Probit model of participation, from which the Inverse Mills Ratio (IMR) is computed. This is then included as a covariate in the second step, which is an Ordinary Least Squares (OLS) estimator of the log wage. The two stage earnings equations are estimated separately for men and women[10]. The results are given in Appendix 1 and conform to our expectations. Labour force participation increases with age, but at a declining rate.

[8] An implication of this is that ρ, which is the correlation between the selection and the leaving home equation, is going to be larger if the mean of the age distribution of those leaving home in 1995 is higher.

[9] The fact that we are recording individuals leaving home in the course of one specific year implies essentially that we are undertaking stock sampling. This means that we observe the stock of individuals who live at home, in order to then observe the number of persons leaving within the next year. See Chesher and Lancaster (1983) for a detailed exposition of stock sampling in continuous time duration models. It is essential to control for the fact that the behaviour of the current stock of individuals might be different from that of those who are not in the stock (ie, those who left the parental home prior to 1994). This is the standard unobserved heterogeneity argument as discussed by Chesher and Lancaster. However, it is not a straightforward task to translate this into a discrete time setting.

[10] A substantial proportion of men do not participate in the labour force, thus the two step procedure is warranted for the male sample as well.

Men have a higher participation rate when they are married, whereas married women have a lower rate. Both men and women in education have a considerably lower participation rate. There are also large differences between the regions. In particular we notice that labour force participation is considerable lower in the South. Finally, we find those who suffer bad health, and experienced spells of unemployment in the past five years, to be less likely to be in the labour force.
The parameter estimates of the earnings equation are within the range reported in the literature. It increases with age at a declining rate. Married men and women earn higher levels, although the coefficient for women is not large. Earnings levels increase with educational attainment as well as with vocational training. Being a foreign female immigrant has a negative effect on the wage levels, whereas male immigrants are at the same level as native Italian men. Finally, having controlled for self-selection into the labour force we find no significant differences in wage rate for the different regions. From these estimates we have constructed the predicted wage both for working and non-working individuals.

4.3 Econometric specification of leaving home
The probit model assumes a latent relationship between an "index" measuring the phenomenon of interest and a vector of explanatory variables:

$$y_t^* = x_t\beta + u_{1t} \text{ where } u_{1t} \sim N(0,1) \quad (1)$$

The fact that equation (1) expresses a latent relationship implies that we do not observe the actual values of y_t^*. Instead we observe its sign, which will determine the value of the observed binary variable y_t in our probit equation. In the standard probit model, therefore, we find the probability that y_t =1 is given as:

$$\Pr(y_t = 1) = \Pr(y_t^* > 0) = \Phi(x_t\beta) \quad (2)$$

where Φ denotes the normal distribution function. The problem in this application is that y_t is not always observed. In particular, we will not observe y_t if the individual has left the parental home before the first wave of the panel is recorded. To control for this we introduce a selection equation of the form:

$$y_t^s = z_t\gamma + u_{2t} \text{ where } u_{2t} \sim N(0,1) \quad (3)$$

where y_t^s takes the value 1 if individual *t* is observed in the sample of individuals who have not left home and zero if the individual had left home prior to 1994 (the first wave). We assume that this event is determined by a vector of explanatory variables z_t, which is different from the set of explanatory variables included in x_t, although they might have variables in common. The correlation between u_{1t} and u_{2t} is denoted by ρ, and the likelihood function for this model is given by:

$$L = \prod_{i=1}^{N_1} \Phi_2(x_t\beta, z_t\gamma; \rho) \prod_{i=N_1+1}^{N} \Phi_2(-x_t\beta, z_t\gamma; \rho) \prod_{i=N+1}^{M} \Phi(-z_t\gamma) \quad (4)$$

Here Φ_2 refers to the cumulative bivariate normal distribution function, whereas Φ is the standard cumulative normal distribution function. N is the number of observations for which y_t is observed. The first N_1 observations include the individuals who leave the parental home, the next N_1+1 to N are the individuals who stay at home, whereas the final N+1 to M observations are those individuals for which y_t is unobserved[11].

4.4 Covariates

In deciding whether to leave the parental home or not, individuals will consider the expected utility of living independently with the expected utility of staying in the parental home. Thus we are interested in the resources which will influence the utility associated with those states. The personal income level is crucial for the wellbeing of independent living. As outlined above, we use the predicted wage rate as an exogenous measure of this personal earnings capacity. High levels of household income will increase the utility of staying at home. Here household income is the total net income of the household, minus the income of the respondent, which is then divided by the OECD equivalence scale. This should provide a fairly good measure of the level of resources the child receives while still living in the household. Of course high household income might reflect higher levels of transfers when the young adult has left the home. Unfortunately we are not able to adequately capture such transfers. We include other variables as well. First we include a measure of the respondent's own satisfaction with his or hers financial situation. This will influence the individuals' perception of the well being in the parental home, and therefore affect the decision to leave. To build on this we include a subjective measure of whether the household finds it difficult to make ends meet. We also include a measure of the quality of the dwelling. Finally we include four dummy variables to capture regional differences and in order to capture the impact of labour market conditions on leaving home we include the regional unemployment rate[12]. Provided having a job is an important means to gain independence, we expect poor labour market conditions to have a negative effect of leaving the parental home.

Different covariates are included in the selection equation. Recall that the purpose is to reconstruct behaviour of leaving home in a retrospective view. Consequently we provide detailed control for the age pattern of leaving home. We also control for regional differences and their educational attainment. Finally we include a variable measuring the age when the respondent started their working life. We would in general expect those who start their working life late also to leave the parental home later. Note that the latter variable, together with the educational attainment dummy identifies the selection equation. Identification is therefore not necessarily very strong.

5. Estimation results

[11] A problem here is that we do not know if the event of leaving the parental home is the first such occurrence. It is possible for individuals to leave the parental home and return. This might be problematic if leaving the parental home the first time is a different process from that of subsequent leaving home events. The ECHP does not give us any information on this so we maintain the assumption that subsequent occurrences of leaving the parental home are similar to the first such occurrence. This hypothesis is particularly tenable for the Italian case, where leaving home is late.

[12] By regional we mean the NUTS2 level. The unemployment figures were taken from Regions, Annual Yearbook, 1996, Eurostat, Luxembourg.

Two versions of the leaving home process are estimated. The first specification, for which the results are reported in Table 4, includes activity status as an explanatory variable. Furthermore, we used the 25^{th}, 50^{th}, and 75^{th} percentiles of the net monthly income to define those employed into four distinct income groups. In the second specification we control for self-selection into employment, and consequently use the predicted wage rate. This is our preferred specification and it is reported in Table 5. Table 6 presents the marginal effects of the parameters for both specifications.

We discuss the results in Table 4 first. First consider the selection equation. The parameters conform to our expectations. The coefficients associated with the age variables (*age 1 – age 9*) show that the likelihood of having left the parental home increases with age. Consequently, young individuals are more likely to be in the selected sample of individuals who have not left home by the first wave. There are important differences between men and women. At very young ages (age group 1 and 2) more women than men stay in the parental home. This is likely to stem from the fact that there is compulsory military service for men and that a relatively higher proportion of men enters the labour force at a young age. At age 22 – 23 (age group 3) the roles are reversed, and more men stay at home than women. It is customary in Italy to stay at home while attending university, and it has been shown that finishing formal education is, more for women than for men, an event which speeds up the rate of leaving home (Billari and Ongaro, 1999). The correlation coefficient between the error terms in the selection and the leaving home equations (ρ) is positive and highly significant for women, but less significant for men. Its significance suggests that the overall hazard rate of leaving home is increasing and that the simple probit over-predicts the probability of leaving home, especially for women. Individuals with low educational attainment are less likely to live in the parental home in wave 1. This is probably a reflection of the delaying effect education has on family formation. Low educational attainment enables individuals to set up their own household earlier than those who spend a longer time investing in human capital. Educational attainment is more important for women than it is for men. This is consistent with past findings based on cross-sectional surveys (Billari and Ongaro, 1998). We also find that those who start their working career late are more likely to remain in the sample of individuals not having left the parental home. Our results suggest that there is not much difference in nest-leaving patterns between the different regions. The exceptions are in the North-West, where we find a higher proportion of men who have left the parental home than women[13].

We now turn to the parameter estimates of the leaving home equation. They show that for men being employed is important. The coefficients are positive for all income groups but strongest for the highest one. But the relationship is not monotonic, and the differences in the coefficients of the four income groups are not significantly different from each other. For women, the pattern is more unexpected. Our estimates indicate that there is a J-shaped relationship between income level and leaving home. The coefficients associated with the income groups become smaller as income is increased, except in the highest income group, where we find a significantly larger coefficient. This suggests that income is not generally important unless your net income is very high. Women in this group are likely to be employed full-time with high salaries. In contrast to women who have only a low income (part-timers and women working in the family business), these women are sooner in a

[13] We also tried a specification where the regional unemployment rate was included as an explanatory variable, but this did not have significant effect, and was consequently omitted from the final specification.

position to set up their own household. They are, to a much larger extent, independent of the need to find a partner/husband as a means for setting up their own household. They will also consider living at home with their parents to be a less attractive option than living on their own or in a partnership with another adult. It might also be that high-paid jobs are less likely to be in close proximity to the parental home. In other words, leaving home might be a necessary prerequisite to finding a well-paid job. A noticeable feature, however, is that women who are *inactive* (i.e., they do not participate in the labour force) are significantly more likely to leave the parental home than those in paid employment. This is in strong contrast to men, for whom employment seems to be a crucial factor enabling them to leave the parental home. Men who are inactive (which would include pensioners and the chronically ill but is mainly connected with military or community service), are more likely to leave than those who are unemployed. Furthermore, men who have experienced an unemployment spell in the past are less likely to leave home[14], indicating that those who have less stable employment conditions are less likely to have the resources needed to set up their own household[15]. For women the effect is considerably smaller. The coefficient is negative, but is smaller in magnitude as well as being insignificant. Finally, we find that higher household income delays the transition from the parental home, although the coefficient is not significant for men, and only significant at the 10 percent level for women. The coefficient is also larger for women.

In terms of the geographical regions we find men living in the Central area and those in the North to leave home significantly later than those in the South. Furthermore, we find labour market conditions to have a significant effect. The negative sign associated with the regional unemployment rate implies that men finding it difficult to find work also find it harder to leave the parental home. It is interesting to see that for women none of these covariates are important. Poor labour market conditions do not seem to be an important deterrent for women to leave the parental home.

These results suggest that for men, being in stable employment is the most important criterion for starting an independent household. For women, on the other hand, employment does not seem to be the crucial factor. Possibly, the crucial trigger for nest-leaving among women, is the financial resources they can obtain through marriage. That is, the means needed for living apart from one's parents – for the majority of women – are still most likely to be provided by the prospective husband rather than a woman's own income and employment. In general, our results are consistent with the "male breadwinner model" which shapes much of the social policy and the dynamics of household formation in Italy.

Of course the significance of the employment parameters adds to our suspicion that they are indeed endogenous with respect to the leaving home decision. In table 5 we report the result where we have controlled for the labour force decision explicitly. First, the parameter estimates in the selection equation are very similar to the ones reported in Table 4. A very noticeable feature of the results, however, is that the selection effect for men disappears when we control for the self-selection into the

[14] This particular variable contains 886 missing values among those classified as "children". It is assumed that these individuals had not experienced a spell of unemployment in the previous five years. Consequently, our estimate of the effect of having experienced unemployment in the past on the likelihood of leaving the parental home is likely to be on the conservative side.

[15] We included other variables based on the men's own assessment of their working conditions, including a measure of their job security. These variables were generally not significant in explaining leaving home patterns.

labour force. The correlation coefficient falls from 0.133 to 0.028. This is an interesting result, because it means that employment choice nets out the selection effect evident in table 4. This feature confirms not only our hypothesis that for men employment is the driving force in determining home leaving, but also that it is highly endogenous with respect to the leaving home decision. However, care is needed in interpreting this result. Recall that we argued that both unobserved heterogeneity and left hand censoring influence the parameter estimates. We are still unable to identify how self-selection of employment affects these factors. Still interesting is the fact that controlling for self-selection into employment does not solve the selection effect for leaving home for women. This result confirms the fact that employment is the driving force in leaving home for men, but not for women.

Own personal earnings capacity is important for both men and women. Our results indicate that high levels of earnings induce a *self-reliance effect*, which dominates the *good catch effect*. Thus high level of personal resources is associated with a higher likelihood of leaving home. The coefficient is somewhat smaller for women, although they are not significantly different from each other. Again, we find high levels of household income to delay exit from the household, although the coefficient is not significant for men. The other household characteristics have less of an effect, although we do find women who feel not satisfied with their financial situation to leave the parental home earlier. In contrast we find no significant effect for individuals living in a household with strained economic situation and of poor quality. Having experienced spells of unemployment over the last five years remains significant. Thus both men and women with lower attachment to the labour force delays the transition. Again we find important differences between the regions for men, whereas we find no regional differences between women. The regional employment conditions remain important, and have a significant negative effect on men's decision to leave the parental home, whereas it remains insignificant for women.

Next consider the marginal effects reported in Table 6. In general the estimates indicates that men's behaviour are more sensitive to changes in income and employment. For instance we see that the marginal effect of the predicted wage rate is 0.137 for men, but only 0.09 for women. The marginal effects of the different employment/income groups are also stronger for men, apart from the group with highest income, in which the marginal effect for women is substantially larger. We also notice that changes in the regional unemployment rate have a stronger effect for men. Nevertheless, holding the marginal effects together with their associated standard errors, show that most of the differences between men and women are not statistically significant at the 5 percent level.

Table 4. Specification using employment status & income groups as explanatory variables

	Men			Women		
Leaving Home equation	Coeffcient	Std.Err		Coeffcient	Std.Err	
Employed & income 0 - Q25	0.517	(0.278)	*	0.566	(0.142)	**
Employed & income Q25 - Q50	0.765	(0.169)	**	0.587	(0.233)	**
Employed & income Q50 - Q75	0.725	(0.197)	**	0.494	(0.263)	*
Employed & income Q75+	0.873	(0.295)	**	1.238	(0.265)	**
Self employed	0.873	(0.205)	**	0.432	(0.331)	
Currently unemployed	0.220	(0.137)		0.312	(0.144)	**
Inactive (out of lab force)	0.423	(0.173)	**	0.814	(0.241)	**
Household income	-0.046	(0.046)		-0.077	(0.042)	*
Bad financial sit. (self reported)	-0.161	(0.113)		0.280	(0.111)	**
Difficult to make ends meet	0.205	(0.162)		-0.255	(0.180)	
Live in bad dwelling	0.117	(0.128)		-0.004	(0.118)	
Any unemployment in last 5 yrs	-0.227	(0.076)	**	-0.127	(0.105)	
North East	-0.594	(0.131)	**	0.366	(0.397)	
North West	-0.473	(0.160)	**	0.369	(0.400)	
Central	-0.652	(0.106)	**	0.345	(0.326)	
Regional unemployment rate	-0.030	(0.009)	**	0.019	(0.016)	
Constant	-1.508	(0.251)	**	-2.671	(0.598)	**
Selection equation	Coeffcient	Std.Err		Coeffcient	Std.Err	
Age 18-19	1.657	(0.127)	**	2.575	(0.165)	**
Age 20-21	1.646	(0.121)	**	1.969	(0.117)	**
Age 22-23	1.326	(0.143)	**	1.084	(0.088)	**
Age 24-25	1.029	(0.074)	**	0.552	(0.107)	**
Age 26-27	0.395	(0.099)	**	0.070	(0.102)	
Age 28-29	0.019	(0.074)		-0.163	(0.093)	*
Age 30-31	-0.412	(0.092)	**	-0.420	(0.070)	**
Age 32-33	-0.661	(0.110)	**	-0.753	(0.124)	**
Age when started working life	0.032	(0.005)	**	0.014	(0.002)	**
Low educational attainment	-0.298	(0.051)	**	-0.534	(0.061)	**
North East	-0.062	(0.067)		-0.082	(0.088)	
North West	-0.277	(0.087)	**	-0.137	(0.125)	
Central	0.117	(0.082)		-0.029	(0.080)	
Constant	0.454	(0.125)	**	-0.085	(0.071)	
Correlation	0.132	(0.086)	**	0.280	(0.081)	

** Significant at the 5% level

* Significant at the 10% level

Note: Q25: 1.2 mill lire, Q50: 1.5 mill lire, Q75: 1.745 mill lire, all computed without those with zero earnings.

Table 5. Specification with predicted wage rates and control for self selection into the labour force.

	Men			Women		
Leaving Home equation	Coeffcient	Std.Err		Coeffcient	Std.Err	
Predicted wage rate	1.285	(0.310)	**	0.926	(0.156)	**
Household income	-0.054	(0.045)		-0.112	(0.042)	**
Bad financial sit. (self reported)	-0.305	(0.116)	**	0.198	(0.088)	**
Difficult to make ends meet	0.181	(0.183)		-0.191	(0.200)	
Live in bad dwelling	0.083	(0.139)		-0.018	(0.127)	
Any unemployment in last 5 yrs	-0.199	(0.076)	**	-0.127	(0.099)	
North East	-0.872	(0.169)	**	0.252	(0.389)	
North West	-0.714	(0.194)	**	0.238	(0.393)	
Central	-0.847	(0.139)	**	0.231	(0.314)	
Regional unemployment rate	-0.040	(0.010)	**	0.017	(0.016)	
Constant	-3.109	(0.558)	**	-3.773	(0.591)	**
Selection equation	Coeffcient	Std.Err		Coeffcient	Std.Err	
Age 18-19	1.656	(0.128)	**	2.575	(0.165)	**
Age 20-21	1.645	(0.121)	**	1.966	(0.116)	**
Age 22-23	1.332	(0.141)	**	1.083	(0.089)	**
Age 24-25	1.035	(0.073)	**	0.555	(0.108)	**
Age 26-27	0.404	(0.099)	**	0.073	(0.102)	
Age 28-29	0.025	(0.074)		-0.160	(0.092)	*
Age 30-31	-0.405	(0.094)	**	-0.416	(0.071)	**
Age 32-33	-0.659	(0.110)	**	-0.751	(0.124)	**
Age when started working life	0.032	(0.005)	**	0.014	(0.002)	**
Low educational attainment	-0.302	(0.050)	**	-0.542	(0.062)	**
North East	-0.062	(0.067)		-0.083	(0.088)	
North West	-0.278	(0.086)	**	-0.138	(0.125)	
Central	0.118	(0.082)		-0.031	(0.079)	
Constant	0.454	(0.126)	**	-0.081	(0.071)	
Correlation	0.028	(0.088)	**	0.298	(0.089)	

** Significant at the 5% level
* Significant at the 10% level

Table 6. Marginal effects for both specifications (Table 4 and Table5), not including selection equations

	Men			Women		
Specification 1	Marg.e.	Std.Err		Marg.e.	Std. Err	
Employed & income 0 - Q25	0.069	(0.048)		0.080	(0.030)	**
Employed & income Q25 - Q50	0.115	(0.042)	**	0.084	(0.049)	*
Employed & income Q50 - Q75	0.103	(0.041)	**	0.068	(0.050)	
Employed & income Q75+	0.133	(0.068)	**	0.265	(0.095)	**
Self employed	0.132	(0.043)	**	0.057	(0.060)	
Currently unemployed	0.023	(0.016)		0.037	(0.022)	
Inactive (out of lab force)	0.054	(0.029)	*	0.113	(0.051)	**
Household income	-0.004	(0.004)		-0.007	(0.004)	*
Bad financial sit. (self reported)	-0.014	(0.009)		0.029	(0.012)	**
Difficult to make ends meet	0.021	(0.018)		-0.022	(0.015)	
Live in bad dwelling	0.011	(0.014)		-0.000	(0.012)	
Any unemployment in last 5 yrs	-0.019	(0.007)	**	-0.012	(0.009)	
North East	-0.040	(0.008)	**	0.044	(0.057)	
North West	-0.035	(0.009)	**	0.044	(0.057)	
Central	-0.046	(0.008)	**	0.040	(0.045)	
Regional unemployment rate	-0.003	(0.001)	**	0.002	(0.002)	
Specification 2	Marg.e.	Std.Err		Marg.e.	Std. Err	
Predicted wage rate	0.138	(0.037)	**	0.090	(0.024)	**
Household income	-0.006	(0.005)		-0.011	(0.004)	**
Bad financial sit. (self reported)	-0.031	(0.011)	**	0.020	(0.009)	**
Difficult to make ends meet	0.021	(0.023)		-0.017	(0.017)	
Live in bad dwelling	0.009	(0.017)		-0.002	(0.012)	
Any unemployment in last 5 yrs	-0.020	(0.008)	**	-0.012	(0.008)	
North East	-0.061	(0.012)	**	0.028	(0.048)	
North West	-0.055	(0.013)	**	0.026	(0.048)	
Central	-0.066	(0.013)	**	0.025	(0.038)	
Regional unemployment rate	-0.004	(0.001)	**	0.002	(0.002)	

** Significant at the 5% level
* Significant at the 10% level

6. Concluding remarks

On one hand, our results indicate important gender differences. For men, work and employment are important factors for leaving the parental home. Our results have also demonstrated the endogeneity of employment with respect to leaving home. Controlling for this endogeneity, we show that income, both personal and parental, matters. The stability of future income streams seems to be the crucial factor for the household formation of Italian men. This result is supported by the fact that individuals who have experienced unemployment spells are less likely to start their own independent household. For women the picture is different. Employment does

not appear as a crucial trigger for leaving the parental home. Consequently partnership formation is more important for women as a means to leave the parental home. Given that this is the predominant pattern for women, it is not surprising that income and work are so important for men. They require financial resources not only to set up their new household but also to attract a spouse. Only women with a very high income seem to behave in a fashion similar to that of men. This is mainly due to their relatively high level of financial independence. Thus, they can afford to start their own household and are less dependent on a husband's income.

However, in terms of marginal effects of the covariates, we have seen that the differences between men and women's behaviour are not so strong. Men's behaviour is in general more sensitive to changes in earnings and employment opportunities, but statistically, our estimates show that the difference between the genders is not great.

Although we believe our research provide interesting insight into the process of leaving home among young Italian adults, further research into these issues are needed. More in dept studies will be feasible as more waves of the ECHP becomes available. An important extension, not possible with our current sample, is to distinguish various destination states, such as marriage and living alone. Another interesting avenue for future research is comparative work between different countries, for which the ECHP should be ideal. As has been demonstrated in this paper the Italian pattern of leaving home is quite different from what is normally reported in the literature, and it would be useful to compare it with nest-leaving patterns in the other European countries. Our study should be considered as a preliminary stage in this process.

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Appendix 1. Earnings equation

	Men			Women		
Probit of working/not working	Coefficient	Std.Err.		Coefficient	Std.Err.	
Age	2.279	(0.716)	**	2.020	(0.596)	**
Age squared	-0.775	(0.327)	**	-0.733	(0.262)	**
Age cubed	0.090	(0.044)	**	0.087	(0.035)	**
Married	0.852	(0.082)	**	-0.470	(0.060)	**
In education	-2.697	(0.148)	**	-2.449	(0.144)	**
North West	1.055	(0.083)	**	1.005	(0.064)	**
North East	0.999	(0.086)	**	1.010	(0.066)	**
Central	0.689	(0.072)	**	0.676	(0.062)	**
Bad health	-1.093	(0.143)	**	-0.702	(0.161)	**
Any unemployment in last 5 yrs	-0.308	(0.059)	**	-0.192	(0.051)	**
Constant	-1.929	(0.455)	**	-1.872	(0.395)	**
OLS of Log Wage	Coefficient	Std.Err.		Coefficient	Std.Err.	
Inverse Mills Ratio	-0.282	(0.048)	**	-0.233	(0.057)	**
Age	0.101	(0.044)	**	0.098	(0.056)	*
Age squared	-0.007	(0.008)		-0.002	(0.010)	
Married	0.042	(0.022)	*	0.126	(0.028)	**
Medium Level Education	0.106	(0.016)	**	0.208	(0.022)	**
High Level Education	0.304	(0.029)	**	0.427	(0.036)	**
Attended vocational training	0.091	(0.025)	**	0.156	(0.031)	**
North	0.015	(0.019)		0.006	(0.030)	
Immigrant	0.061	(0.045)		-0.138	(0.055)	**
Constant	1.930	(0.071)	**	1.774	(0.093)	**

** Significant at the 5% level
* Significant at the 10% level