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WORKING PAPER SERIES

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exploring gender differences and institutional characteristics**

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Working paper No. 09/2007

Università di Torino

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November 2007

Abstract

While several social, economic and financial indicators point to a growing convergence among European countries, striking differences still emerge in the timing of leaving home for adult children. In Southern countries (as Spain, Italy or Portugal) in 2001 more than 70 percent of young adults between 18 and 34 years of age live with their parents, whereas the corresponding number for Northern countries (like Denmark or the UK) is well below 40 percent. Existing literature highlights several factors explaining the different patterns in Europe: preferences and culture, labor market conditions, housing market as well as differences across the welfare states. In our work, we consider living arrangements of people 18-34 years old from 14 European countries (ECHP). We augment the informational content with indicators of labor, housing and marriage markets characteristics as well as proxy for the welfare states and culture. We investigate how they are intertwined with gender differences.

Keywords: living arrangements, gender differences, social policies, culture

Acknowledgements This research is supported by MIUR (COFIN 2006). We thank Collegio Carlo Alberto for hospitality and support and Salvatore Nunnari for excellent research assistance.

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1. Introduction

While several social, economic and financial indicators point to a growing convergence among European countries, striking differences still emerge in the timing of leaving home for adult children. As Figure 1 illustrates, in Southern countries, such as Spain, Italy and Greece, more than 70 percent of young adults between 18 and 34 years of age lived with their parents in 2001,whereas the corresponding number for Northern countries, like Denmark and Finland, was well below 40 percent.

There are several reasons for young adults to leave home and to settle in a new living arrangement. Some of them leave home to move in with a partner, others leave to pursue higher education, some settle in a different area due to their job, whereas others simply desire independence (either living alone or sharing a flat with other house-mates).

However, the existing differences across countries reflect the presence of cultural characteristics related to the strength of inter-generational ties as well as economic differences which constrain in various ways households' choices. For instance, in several countries young adults are more likely to attend higher education and encouraged to attend higher education at universities with on-campus accommodation, while in other countries local universities are widespread and their proximity provide strong incentives for young adults to co-reside with their parents for longer period of time[1]. Similar considerations regard the different characteristics of the housing and mortgage markets. Different regulations across countries affect the development of mortgage markets, the availability of housing and the age at which young individuals buy their homes (see Chiuri and Jappelli, 2003). Needless to say that in some Southern European countries employment protection legislation systems favoring in job adult workers combined with a severe lack of social policies instruments might have induced younger workers to cohabit with their parents in order to enjoy intra-household income transfers and insure against unemployment risks.

While documenting the role of markets, public institutions and culture for each European country, we also explore how they interrelate with gender differences as we find a common international pattern: young women leave home earlier than men.

A further contribution of this paper is that we can study the determinants of youth living arrangements exploiting a large international dataset on households, complementing its

[1] For example the percentage of children attending universities in Italy and Spain is much lower than in the rest of Europe. Moreover, the universities in those countries are widely spread in most cities, therefore it is not necessary to leave home to attend them.

informational content with indicators of local marriage markets and labor markets and controlling for other potential effects, such as country differences in financial markets imperfections, welfare state and social values.

Some might argue that cross-country differences depend in large part on the prevailing views of intergenerational relationships as well as, more in general, on cultural traits within each society. However, in this analysis, while we take into account the differences of institutional arrangements we consider them as exogenous in order to focus on the impact of personal, family, economic and labor market situation of young adults on the propensity to leave home.

In what follows, in Section 2 we review various reasons why the coresidence rates can vary across countries and above all we deal with some institutional features of marriage markets, labor and financial markets, welfare systems and culture. In Section 3 we present the microeconomic data set and the characteristics of the sample. The heart of the paper is in Sections 4 and 5, where we present our econometric strategy and discuss the empirical estimates. We find that personal and household characteristics as well as institutional settings remarkably determine the choice of coresidence patterns. Moreover, *ceteris paribus*, the size of their impact differ with gender. Understanding the reasons for the differences in coresidence patterns has important policy implications. Section 6 summarizes the evidence found and draws some policy conclusions.

2. What determines different living arrangements?

Existing theoretical models mainly view coresidence as the result of a non-cooperative game between parents and children. They usually assume that children value their independence and, everything else being equal, would live on their own. However, in case of coresidence parents and children share income, as well as housing and domestic goods. Thus their final optimal choice would also depend on respectively parents and children utility levels in the outside option, i.e. the case of separate living arrangements.

Previous theoretical and empirical research analyzed how poor institutional and markets characteristics might lower the utility from living alone, rendering more appealing the coresidence choice. In particular, in analyzing the living arrangements of young adults across European countries several approaches have been proposed.

A first line of research has focused on *family income and labour market conditions*. In particular, the youth labor market conditions are important determinants of young individuals living arrangements and various authors have emphasized the role of the family as an insurance mechanism against employment risk (see Card and Lemieux, 2000, Rosenzweig and Wolpin, 1993, Fogli, 1999 and Becker, Bentolila, Fernandes and Ichino 2005). Thus, youths would stay as a mean of obtaining the insurance that the market would not supply them.

Both studies of Card and Lemieux (2000) and Rosenzweig and Wolpin (1993) find that the probability of living with parents increases when negative income shocks occur, as it is higher among unemployed and low-income groups in Canada and the US. In particular, Card and Lemieux find that poor labor market conditions in Canada explain why the fraction of youth living with their parents has recently increased in Canada relative to the US.

Becker *et al.* (2005) test whether coresidence is associated with higher job insecurity. In other words, young adults when facing income risks are more likely to postpone irreversible choices, such as household formation. They use aggregate evidence for 13 European Union member countries on co-residence rates and perceived job insecurity and according to their estimates, for every 10 percentage-point rise in the percentage of youths feeling that their job is insecure, the co-residence rate increases by 1.5-1.7 percentage points. The underlining theoretical model can be found in Fogli (2004). She shows by means of an overlapping generations model that coresidence is the optimal solution when young adults are credit constrained and the legislation that protects the employment of mature workers is more strict. The results found in Becker *et al.* as well as in Card and Lemieux can be explained if parents are altruistic and share income risks with their children.

The working status of parents, especially the mother's one, appears to be another important factor. In McElroy (1985) theoretical model the reservation wage of young adults who live with their parents, and their utility as a member of their parents' household, decrease with their mother's wage. Therefore, as their mother's wage increases, their probability of moving out increases as well. Cantó-Sánchez and Mercader-Prats (1996) and Diaz and Guillo (2005) find that children living in households where both parents are working may experience low unemployment rates, whereas those living in households where the mother is not working, or she is just a discouraged seeker, will experience high unemployment rates.

In order to understand the determinants of youths' home leaving decision we need to take into account that their response to their mother's market activity differs greatly from their response to their father's. There might be several explanations supporting this view. On one hand a working mother reduces the amount of goods and services produced in the household, rendering less appealing living with parents; on the other, her status increases the household income, providing a better insurance to all members. Mother's working status can also be interpreted as a proxy for the family attitude towards women independence. A household that views women working in the labor market favorably may support children's early independence (Del Boca *et al.* 2000, Fernandez *et al.* 2005, Farrè and Vella, 2007). Finally, a working mother may serve as a role model for daughters' labor market behavior.

Another important factor affecting the cost of children leaving the parental home has to do with the *housing market*. Analyzing European data (the European Community Household Panel), Martins and Villanueva (2006) test whether limited access to credit markets explains why young adults live with their parents. They show that differences in credit market imperfections within Europe can explain up to 20 percent of the cross- country variance of establishing a new household. In particular, they stress the importance of access to housing in order to leave the parental home. Similar results emerge in individual countries research. Ermisch (1999) for the UK, Martínez-Granado and Ruiz-Castillo (2002) for Spain and Giannelli and Monfardini (2003) for Italy.

However economic constraints are not the only explanations for the different living arrangements. *Cultural differences* characterizing the relationship between parents and children are also important. Giuliano (2006) starts from the recognition that until the '70s Northern and Southern European countries had similar coresidence patterns, but it changed remarkably afterwards. She tests the hypothesis that the sexual revolution of the '70s had a different impact on living arrangements in Northern and Southern Europe. Due to the closer parent-child ties in the latter countries, after the sexual revolution, Mediterranean youth can live happier in their parents' house, postponing marriage decisions. The test is implemented on a sample of second-generation immigrants in the US in order to disentangle the cultural effects from contemporaneous economic factors (as poor labor or housing market conditions). The set of variables used to identify the effect of Southern European culture has a positive and significant impact on the probability of staying at home.

Manacorda and Moretti provide additional evidence on the cultural differences of Southern European countries using the World Value Survey data and showing that in all countries for both parents and adult children unhappiness is associated with coresidence except in Southern Europe. Parents in Italy and Spain seem to be significantly happier if their children live with them, while the opposite is true in the United States.

Two aspects characterize the specificity of the Southern European countries: the type of welfare state characterized by a familialistic approach with important transfers towards the older generations associated with a very limited direct help towards youth (Ferrera 1996) and the relative stronger family ties than in other countries. Whereas weak ties prevail in the Northern part of Europe, strong ties are a particular characteristic of Southern Europe. According to Reher (1998) while in the Northern Europe young adults normally leave their parental households when they have acquired a certain degree of maturity so as to start out their adult lives on their own, in Southern Europe, the process of leaving the parental household tends to coincide more or less closely with their marriage and/or a stable occupation.

In Southern Europe employment status and parental income play in fact a more relevant role compared to Northern, especially Scandinavian countries (Aassve et al. 2001) given the weakness of the welfare state. The welfare states implicitly or explicitly favors various types of living arrangement (Pezzin et al 2005). Thus, it is difficult to disentangle between the relative importance of these aspects since they are strongly interdependent[2]. A meager welfare state in the South is compensated by strong family ties while a generous one in the North is associated with weak intergenerational ties.

The analysis of the determinants of adult children's coresidence with parents beyond mature age has several important implications. On one hand the implication of the delay in independence is related to the delay in cohabitation, marriage and fertility with negative effect of birth rate (see Rosina, 2004). On the other hand it has important implications on the economic independence of adults children in the labor market. Recent papers examines the interactions between leaving home and entry into poverty: that is, how far poverty entry is the result of leaving home, rather than arising from heterogeneity or selection. Aassve *et al.* (2006) estimate the effect of home-leaving on entry into poverty and deprivation, with data

[2] Although Guiso at al. (2006) limiting the analysis to only cultural aspects, like religion and ethnic background, that can be treated as time invariant over an individual's life, show that culture can affect economic outcomes as well as political preferences.

from the European Community Household Panel (ECHP henceforth). They find that leaving home does have a causal effect on poverty entry, particularly in Scandinavian countries.

The differences across countries allow to investigate further differences in economic constraints, preferences and culture. By means of international comparisons, our research focuses on how the choice of leaving the parental house of adult children depends on personal, family as well as institutional and cultural characteristics; a special emphasis will be given to how they are intertwined with gender differences.

3. Data description

In our empirical analysis we use the ECHP, a longitudinal survey coordinated and supported by EUROSTAT. The survey involves a representative sample of households and individuals interviewed for eight years (1994-2001) in each of the 15 European countries (EU-15)[3]. The standardized methodology and procedure in data collection yield comparable information across countries, making the ECHP a unique source of information for cross-countries analyses at the European level. The aim of the survey, in fact, is to provide a comparable information on EU population, representative both at the longitudinal and the crosswise level. The data collected cover a wide range of topics on living conditions (income, employment, poverty and social exclusion, housing, health, migration, and other social indicators). The unit of analysis of the ECHP are the family and, within the households, all individuals older than 16, even if it is possible to retrieve information (mainly demographic information) also on children under 16. The ECHP has many advantages: it covers the whole population, including non-working persons; as a household data set, it includes a lot of useful and harmonized information (for example number and age of children, or marital status). Moreover, it is possible to link household-level information to individual data so that it allows to study, for instance, the labor supply decisions of the female partner in a couple accounting for her own personal characteristics but also for those of the male partner.

For our empirical analysis we selected fourteen countries of the dataset, representative of the different geographical areas of Europe[4]. For the fourteen countries we consider all

[3] Austria (from 1995), Belgium, Denmark, Finland (from 1996), France, Germany, Greece, Italy, Ireland, Luxembourg (1995), the Netherlands, Portugal, Spain, Sweden (from 1996) and U.K..
[4] We excluded Sweden as it was designed as a cross- sectional sample.

available waves, creating an unbalanced panel. We also selected all households in which adult children are in the age range 18-34. The sample size is 80,723.

We combine them in four groups: Southern European countries (Italy, Greece, Portugal and Spain), Central West-European countries (Austria, Belgium, France, Germany, Luxembourg and the Netherlands), Northern Continental European countries (Denmark and Finland) and Northern non-continental European countries (the U.K. and Ireland). The four groups of European countries identify not only geographical contiguity, but also similar culture as well as alike welfare states.

Figure 2 contains the coresidence age profiles showing differences across countries and homogeneity within. The two most homogenous groups are the Scandinavian countries and the Southern countries. In Denmark and Finland, children leave the household between 18 and 22 and after that age a very negligible proportion still cohabit with their parents. At the opposite side of the spectrum, in the Southern countries, a negligible proportion leave the household between 18 and 22 and a large proportion is still there until 30.

Figure 3 illustrates gender differences in all countries, showing a similar co-residence pattern: women leave parental house at a younger age than men. Differences are larger in Greece and Italy, consistent with the fact that women leave home earlier than men in part because they marry and marry younger than men.

Table 1 show the temporal pattern of coresidence rates and the sample size by country. While in Austria. Belgium, Greece, Ireland we see a remarkable growth in the period we consider, in Luxembourg, Denmark, Finland, Portugal and Spain the coresidence rates decline.

The distributions by educational groups and gender reported in Table 2 show further discrepancies across countries. While in Italy, Ireland, Greece, Austria and Belgium a greater proportion of young adults has a second level education relatively to the primary, in Portugal Spain, the UK and Denmark the proportion is larger among youth with less than secondary level education. In countries as Belgium, Denmark, France and Ireland a non negligible proportion of men and women is still studying varying from 10 to 30 percent, in most the percentage is not worth to be considered and above all in countries like Spain, Austria and Italy it is below 0.5. In all countries, except for Germany and Luxembourg, the percentage of co-resident women with a college degree is relatively higher than the one for young men.

The independent variables we use to explain adult children decision can be divided in four main groups. The first type regards personal characteristics: adult children's age and squared age, adult children's gender and a dummy variable controlling for third educational level (college degree and further).

The second group includes household's characteristics: i.e. number of siblings living in the household, presence of grandparents, mother's education and father's education (defined as for the children) and mother's working status (dummy variable).

The information given by the ECHP dataset has been also augmented with additional information taken from various statistical sources. They are referred to as the third group of regressors. In particular, we consider a labor market indicator, computed on the basis of annual female and male unemployment rates defined at the regional level and a proxy for the local marriage market, i.e. the local sex ratio computed as the probability of finding a partner of the same age band in the region of residence (they both are computed from the EUROSTAT REGIO dataset, years 1994-2001). We also examine the loan to value ratio, which measures the availability of mortgage finance by country: it refers to conventional home-purchase loans to first-time buyers. Even though the loan to value ratio might have changed during a decade, we consider the average values for two decades, i.e. the 90s and 2000s as reported in Chiuri and Jappelli (2003) and in Maclennan et al. (1998). The country average values for the three indicators are reported in Table 3, columns 1-3.

The forth set of variables controls for welfare states type and cultural contiguities. While following the standard time invariant grouping of the countries considered (Esping Andersen 1999) mimicking (not only) the various welfare state types, we also consider an alternative and time varying measure of the country welfare state. In particular, we include the annual youth social expenditures as percentage of total public expenditure, computed on the basis of the OECD SOCX (2006) (see the note in Table 3 for a definition). This proxy shows that Southern European welfare states are less oriented towards helping young people in starting out and being economically independent compared to Scandinavian countries.

Finally, in order to find key indicators capturing cross country differences of social values, we use the World Values Survey, which periodically collects information regarding individuals' opinion and family attitudes since 1981, based on a representative sample of the whole population. We look at the percentage of the sample aged from 35 to 70 that answer positively to the following question: "*Here is a list of qualities that children can be*

encouraged to learn at home. Which if any do you consider to be really important: independence?" and we use it as an indicator of the relative importance of children's independence as social value in a country (see Table 3 column 4). We select two waves (1990 and 2000) as we need both cross-sectional and cross-temporal evidence on family attitudes to disentangle the role of social perception from other specific country effects.

However, we should reckon that welfare regimes are deeply intertwined with culture. As such they both cannot be taken as purely exogenous. Although potentially relevant, we prefer not to analyze explicitly this issue, but to leave it for future work.

As a preliminary evidence we report results from a univariate analysis. Figure 4 plots the average co-residence rate by country against the loan to value ratio (LTV). The size of the co-residence rate correlates negatively with the loan to value ratio, that is countries with deepest mortgage markets are also those that features the lowest coresidence level.

Figure 5 shows that in countries more oriented towards helping young people in starting out and being economically independent, youth social expenditures (as % of total public expenditure) are higher and the proportion of children living with their parents is smaller.

The World Values Survey data show that in Southern European countries a smaller proportion of individuals report that independence is an important child quality. Figure 6 and 7 show that the smaller is the proportion of individuals aged from 35 to 70 valuing independence by country, the greater the number of individuals aged 18-34, distinct by gender, living with their parents.

4. The statistical model

In our model, the decision of living arrangements of adult children are the outcome not only of personal and household characteristics, but also of variables related to the characteristics of the socio-economic environment the individual and the household face as well as some cultural proxy. In order to estimate the effects of individual's, household's and environmental characteristics on the decision to coreside we use a probit model. The econometric specification of the coresidence decision rule are assumed to be quasi-reduced form representations of the optimization problem. A latent variable structure is assumed. Let the net value of co-residence with parent/s for an adult child in period *t* be given by:

$$L^*_{i,c,t} = H_{i,c,t}\beta_1 + HH_{i,c,t}\beta_2 + E_{c,t}\beta_3 + I_{c,t}\beta_4 + W_c\beta_5 + u_{i,c,t} \quad (1)$$

where $H_{ic,t}$ is the row vector containing the observed variables measuring the children i's human capital, age and gender at time t in country c; $HH_{i,c,t}$ is the vector of household's characteristics at time t in country c and it includes variables such as the number of children as well as the presence of grandparents, parents' education and the mother working status[5]. $E_{c,t}$ is the vector of variables describing the socio-economic environment (labor market characteristics, marriage market, the degree of financial market development as proxied by the down payment ratio). The vector $E_{c,t}$ varies by country and year, but is constant for all individuals surveyed in a particular year and country. The fourth group of vectors is given by $I_{c,t}$ and $W_{c.}$ The first one varying by country c and time t contains the youth social policy expenditure in percent of total public expenditure and the proportion of the WV sample aged from 35 to 70 that declared independence as an important child quality. The W_c vector is a set of dummy variables, controlling for the four groups of countries. Finally, the term $u_{ic,t}$ is a standard normally distributed disturbance term.

Define the variable $d_{i,c,t} = 1$ if the adult child cohabits with the parents and 0 otherwise. Then we have that:

$$d_{i,c,t} = 1 \Leftrightarrow L^*_{i,c,t} > 0 \qquad \text{and}$$

$$d_{i,c,t} = 0 \Leftrightarrow L^*_{i,c,t} \leq 0 .$$

Therefore we have that the conditional probability:

$$P\left(d_{i,c,t} = 1 \middle| \mathbf{X} \right) = \Phi(H_{i,c,t}\beta_1 + HH_{i,c,t}\beta_2 + E_{i,c,t}\beta_3 + I_{c,t}\beta_4 + W_c\beta_5) \quad (2)$$

where $\Phi(\cdot)$ is the cumulative distribution function for the standard normal.

In this model we use both individual data and data at regional and country level to describe the environment adult children face. However, if the disturbances are correlated within regions that are used to merge aggregate with micro data, then even small levels of correlations can cause the standard errors to be seriously biased downward. The bias of the standard errors can result in spurious findings of statistical significance for the aggregate

[5] We restrict the analysis to the sample of those that were coresiding at least for one wave. Thus for individuals not cohabiting in a certain year t we imputed information concerning their family of origin on the basis of the value reported in the previous years.

variable of interest (Moulton, 1990). We correct this bias by "clustering" the observations by individual and alternatively by region[6].

Under the assumption that all regressors might have a different impact on the living arrangement choice depending on the child's gender, we then estimate separately the same model for males and females *m* and *f:*

$$P(d_{im,c,t} = 1) = \Phi(H_{i,c,t}\alpha_1 + HH_{i,c,t}\alpha_2 + E_{c,t}\alpha_3 + I_{c,t}\alpha_4 + W_c\alpha_5) \quad (3)$$

$$P(d_{if,c,t} = 1) = \Phi(H_{i,c,t}\delta_1 + HH_{i,c,t}\delta_2 + E_{c,t}\delta_3 + I_{c,t}\delta_4 + W_c\delta_5) \quad (4)$$

In particular, we are interested in comparing the coefficients of parental characteristics, labor and marriage markets, financial markets imperfections as well as welfare state and social values obtained from the two specification, in order to disentangle how each of them interplay with gender differences.

Finally, as a sensitivity analysis, for each group of country $W_j=1,...,4$ we estimate the following model:

$$P(d_{i,W,c,t} = 1) = \Phi(H_{i,c,t}\gamma_1 + HH_{i,c,t}\gamma_2 + E_{c,t}\gamma_3 + I_{c,t}\gamma_4 + C\gamma_5) \quad (5)$$

where the vector *C* is a set of country dummy variables.

5. Empirical results

Table 4 reports the results of three different models. In Model I (Column 1), we estimate the impact of personal and household characteristics (age, gender, household composition and personal and family members education).

The results show that the older is the adult child, the less likely to leave with their parents. Gender appears also to affect significantly: young men are more likely to co-reside with parents than young women. Finally, having a tertiary education reduces the probability of coresidence increasing the likelihood to be economically independent.

Parental education (proxy for permanent income) is also important. In households where mothers and fathers have a higher education it is less likely that adult children co-reside (increasing the resources which allows children to move out). We also include the occupational status of the mother which has a similar effect. This variable can be interpreted on one hand as additional income which increases the resources to the household, following

[6] Results from the latter case are not reported as they are similar to the ones reported below, but can be distributed by the authors upon request.

McElroy's (1985) and Diaz Guillo (2005) . On the other hand it can be also interpreted as a proxy for family culture of women's independence (Del Boca, Locatelli and Pasqua 2000, Fernandez et al 2005, Giuliano 2006). When the mother works it may become less important whether the child stays at home or not given that she does not share a lot of time with them. However given the contemporaneous relationship, there is an issue of endogeneity that has to be taken into account. Given the explorative and descriptive nature of the present research we do not deal with this issue now.

The presence of grandparents has a positive sign confirming early results of potential need of coresidence of adult children in order to help to take care of the elderly (Pezzin et al 2006).

We now turn to discuss the impact of marriage and labor markets characteristics, as well as the degree of mortgage market imperfection (Model II). The sex ratio (indicator of the probability of finding a partner in a given area) has a negative and significant effect on the probability of coresidence. In regions with higher unemployment rate the probability of coresidence is higher (confirming earlier results of Card and Lemieux, 2000, and Rosenzweig and Wolpin, 1993 and Becker, Bentolila, Fernandes and Ichino, 2005). The coefficient of the downpayment ratio is positive and statistically different from zero at the 1 percent level. This evidence is supportive of the view that mortgage market imperfections affect the choice of coresidence of adult children with parents (Martins and Villanueva, 2006).

Finally (Model III), we include the proxies for the welfare states and culture. The results show that lower levels of public expenditure devoted to the youth are associated with a higher probability of coresidence. The proxy for culture has also a similar effect: coresidence is more likely the less parents value child's independence. The further significance of some of the *W* dummy variables indicates that there are further institutional differences not captured by the set of indicators selected. In particular we find living in Northern Continental or Central West countries relatively to Southern countries significantly reduces the probability of co-residence.

Given the significance of the gender coefficient we now turn to estimate separately their probability of coresidence. Table 5 reports the coefficients of the specification (3) and (4) for males and females, respectively. The coefficients related to age, number of siblings and presence of grandparents have similar signs, but they are larger in magnitude for females.

Parents education (proxy for income) affect negatively the probability of coresidence and are significant only for male. This is coherent with previous research which report the low significance of parents resources on females coresidence rates (Aasve *et al*. 2001).

The coefficients related to mother's work, although significant in both, are instead larger for females. As we discussed above, these variables can be interpreted in various ways. On one hand mother's occupational status potentially increases family resources which can be used to subsidize children in their choice of living independently. On the other hand these resources can be used to supply larger space and support in the parental house for children prolonging their coresidence (in order to finish schooling or achieve their preferred position in the labor market). The coefficient can also be interpreted as a proxy for family culture of women 's independence which coherently is greater for women than for men.

While the variables related to the labor market and to the mortgage market are almost identical for males and females, the impact of the marriage market has different signs and magnitude. The marriage market reduces the probability of cohabiting for women but, although less significant, it increases the probability of cohabiting for men. For women marriage is still one of the most important reason to leave the parental home and tend to marry younger than men especially in Southern countries (see Fiori and Pinnelli, 2006).

Although we find that the measure of youth social expenditure has a similar impact for men and women, we instead find that our indicator for social values plays a greater role for women than for men. This evidence is consistent with previous evidence found in other contexts (Algan and Cahuc, 2005; Fortin, 2005 and Farrè and Vella, 2007)

The differences in the coefficients of Northern and Central countries relatively to the South are statistically significant both for males and females which may be interpreted with differences in strength of family ties as well as differences in the welfare states.

Given the non linearity in the probit model, we report in Table 6 the probability change in coresidence due to a partial change in each regressor, considering the specification (2), (3) and (4).

Finally, as a sensitivity analysis, Table 7 reports results from the estimation of equation (5), by group of country, controlling for country fixed effects. Although most regressors confirm previous results, some of them shows a bigger impact in some group of countries compared to others. In particular, child's education and mother working status have the biggest impact in Central West countries, whereas the sex ration is most relevant in the

Mediterranean countries. For both groups of countries social values have comparatively the highest impact, whereas for Northern Continental countries neither youth social expenditure nor social values seem relevant.

6. Conclusion

In this paper we provide an explorative analysis attempting to interpret the very complex phenomenon of co-residence behavior of adult children with their family. We have explored the relevance of several factors including age, gender, education, family structure and institutional characteristics. We find that age and gender are very important factors indicating that older and more educated children are less likely to live with their parent. We also find that gender is an important dimension explaining the decision of leaving parental home.

Parents' characteristics are also important. Mothers and fathers education who have a higher education are less likely to have adult children cohabiting (increasing the resources which allows children to move out). We also include the occupational status of the mother which has a similar effect. This variable can be interpreted not only as additional income which increases the resources to the household, but also as a proxy for family culture of women's independence. While parents education are significant only for males, the coefficients related to mother's work are instead larger for females.

The presence of grandparents in the household while significant in both equations has a larger coefficient in women equation indicating a persistence of traditional role.

While the variables related to the labor market is almost identical for males and females, the impact of the marriage market has different signs and magnitude. The marriage market reduces the probability of cohabiting only for women. For women marriage is still one of the most important reason to leave the parental home and tend to marry younger than men especially in Southern countries.

Gender differences appear then to be an important aspect (both in the different impact of mother work and parents education and on the different response to marriage market conditions) and need to be further explored.

Finally the greater coefficient of Northern and Central countries relatively to the South implies that the differences across countries may be interpreted either with the existence of differences in strength of family ties as well as differences in the welfare states.

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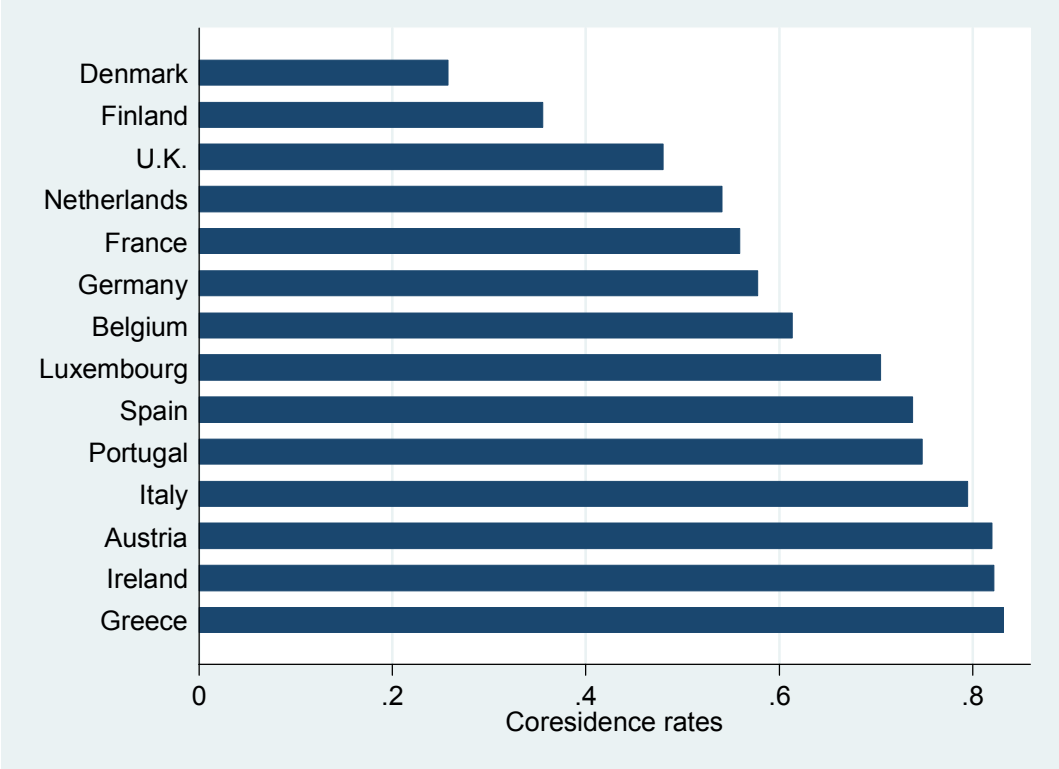
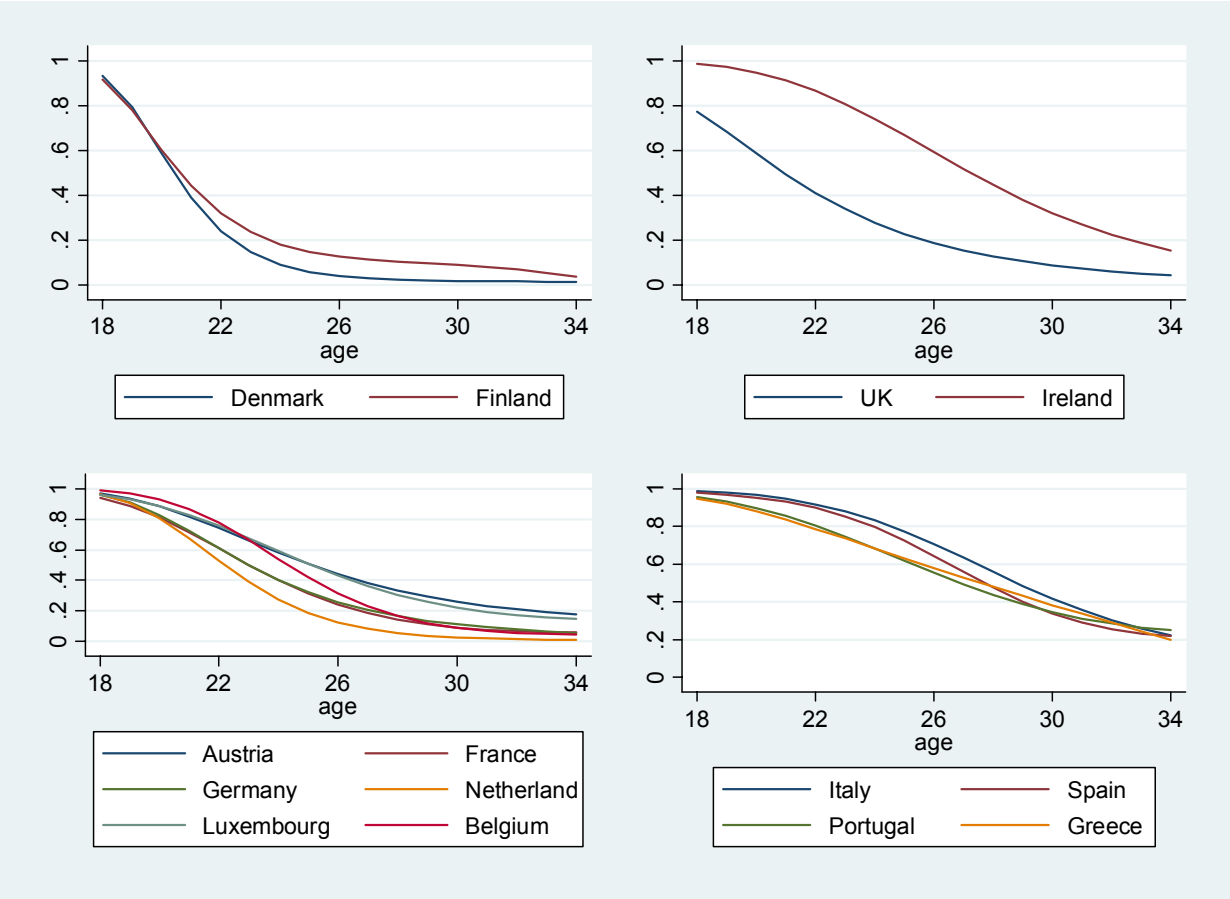
Figure 1
Individual countries co-residence rates in 2001



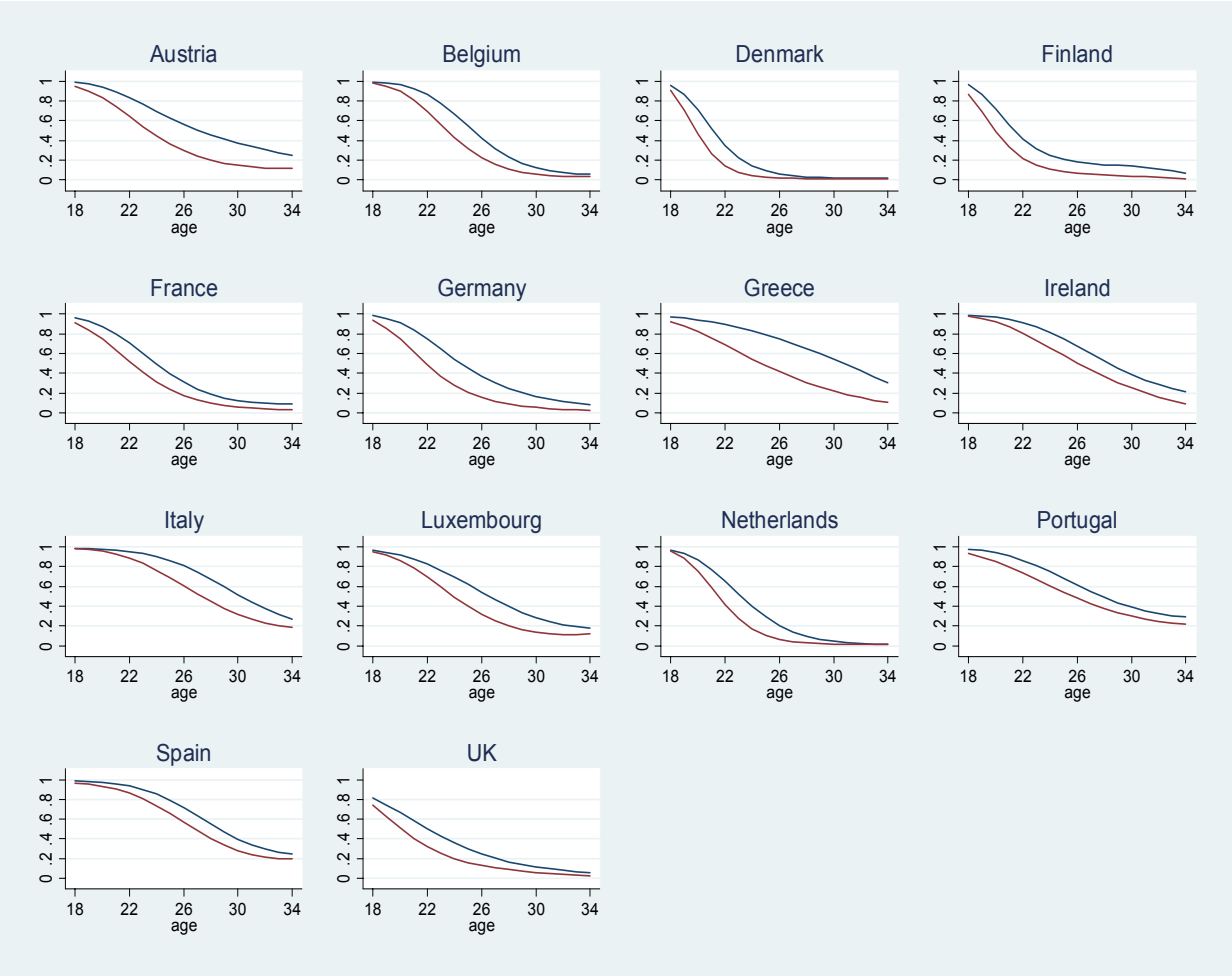
Source: ECHP 2001 8th Wave.

Figure 2
Individual countries co-residence profiles



Note: The figure reports age profiles of co-residence patterns in the 14 countries surveyed. Each profile is obtained by the fitted values of a regression of coresidence rate on a third-order age polynomial.

Figure 3
Individual countries co-residence profiles: gender differences



Note: In each graph the blue line describes men's co-residence pattern by age; the red line follows women's one.

Figure 4
Average co-residence rate by country and maximum loan to value ratio

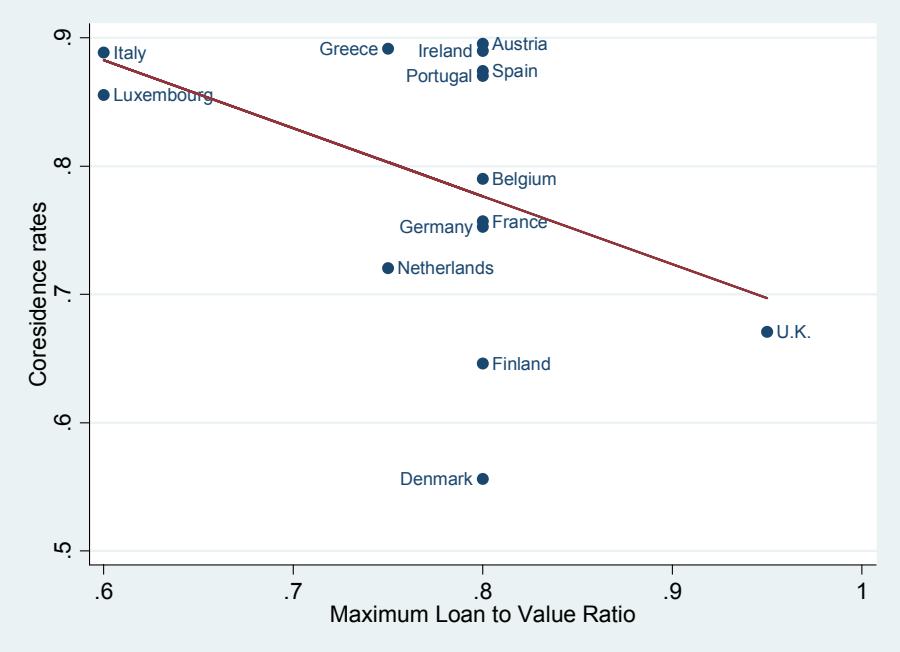
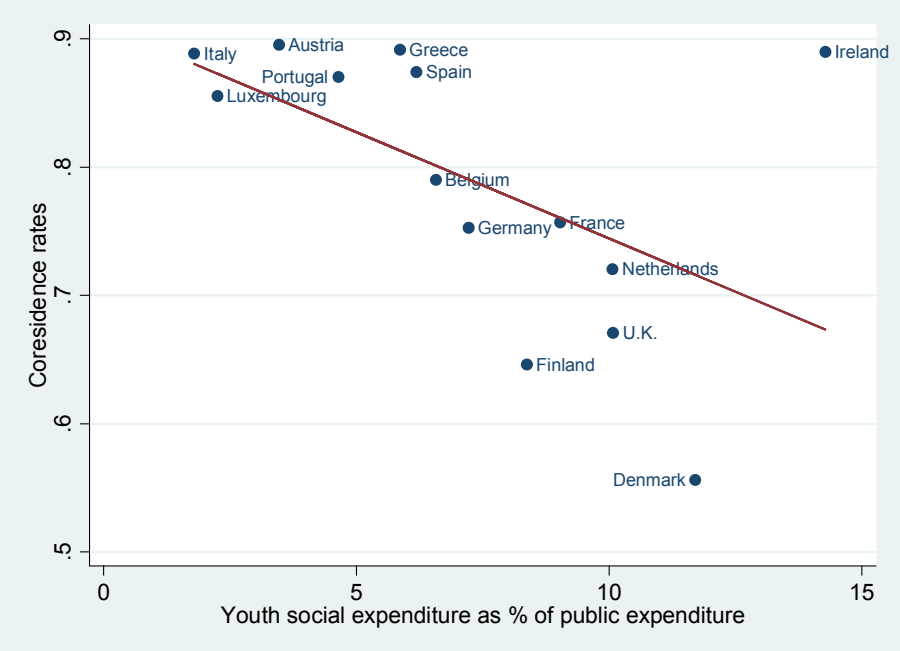
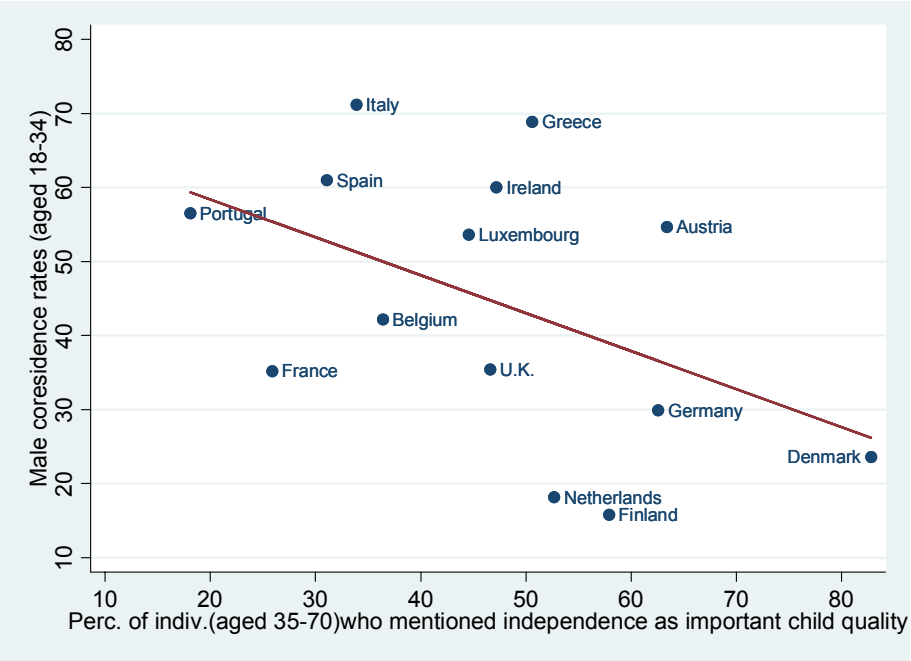


Figure 5
Average co-residence rate by country and youth social expenditure as percentage of total public expenditure



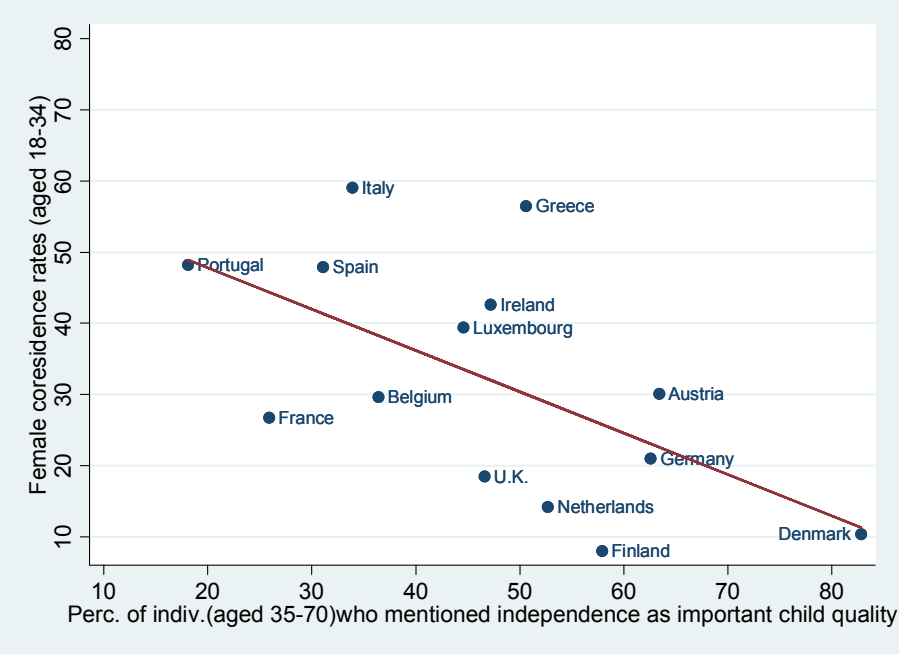
Sources: ECHP all waves and OECD SOCX database (averages 1994-2001)

Figure 6
Men co-residence rates and independence as an important child quality for parents



Source: World Value Survey (waves 1990-2000)

Figure 7
Women co-residence rates and independence as an important child quality for parents



Source: World Value Survey (waves 1990-2000)

Table 1

Individual aged 18-34 living in the parental home by country and wave (in percent and total sample)

Wave	Au	Be	Dk	Fi	Fr	Ge	Gr	Ir	It	Lu	Nl	Po	Sp	Uk
1994	-	36.2	19.3	-	35.6	33.4	49.8	65.3	66.5	-	24.9	62.4	63.8	24.8
Total	*-*	*2,064*	*1,751*	*-*	*4,507*	*4,358*	*3,556*	*3,383*	*5,629*	*-*	*2,853*	*2,986*	*5,703*	*3,127*
1995	46.6	38.0	18.3	-	37.4	32.3	55.7	62.7	68.1	54.6	24.3	65.3	64.8	24.3
Total	*1,887*	*1,915*	*1,670*	*-*	*4,249*	*4,431*	*3,649*	*2,838*	*5,396*	*1,884*	*2,735*	*2,870*	*5,393*	*3,001*
1996	48.2	39.2	19.0	36.9	37.8	32.6	58.4	61.9	67.2	54.0	24.5	62.0	64.8	25.7
Total	*1,838*	*1,774*	*1,513*	*2,274*	*4,130*	*4,253*	*3,437*	*2,474*	*5,449*	*1,599*	*2,681*	*3,014*	*5,210*	*3,038*
1997	48.6	39.1	18.1	35.9	37.4	32.8	58.8	61.2	66.5	44.9	25.3	62.1	65.0	26.6
Total	*1,753*	*1,615*	*1,409*	*2,227*	*3,853*	*4,072*	*3,216*	*2,249*	*5,127*	*1,826*	*2,567*	*3,082*	*4,931*	*2,975*
1998	49.6	39.4	15.8	29.9	35.6	33.3	60.8	62.0	63.5	43.6	23.1	60.7	63.5	27.0
Total	*1,635*	*1,453*	*1,278*	*2,176*	*3,523*	*3,833*	*2,865*	*2,047*	*4,980*	*1,634*	*2,415*	*3,089*	*4,593*	*2,927*
1999	52.8	40.0	14.2	27.1	36.1	33.6	62.3	65.9	63.8	37.7	24.9	59.5	61.7	26.9
Total	*1,566*	*1,316*	*1,169*	*2,071*	*3,301*	*3,668*	*2,759*	*1,678*	*4,767*	*1,678*	*2,305*	*3,079*	*4,325*	*2,808*
2000	53.6	41.4	15.7	22.7	34.7	34.2	63.7	68.8	63.8	37.6	25.2	57.9	59.3	26.5
Total	*1,427*	*1,192*	*1,122*	*1,766*	*3,090*	*3,443*	*2,714*	*1,364*	*4,470*	*1,472*	*2,312*	*3,108*	*4,015*	*2,683*
2001	55.3	41.8	13.9	22.4	36.0	35.1	65.6	70.3	64.7	34.2	26.5	56.0	57.8	26.5
Total	*1,370*	*1,049*	*1,043*	*1,798*	*3,006*	*3,202*	*2,703*	*1,222*	*4,050*	*1,528*	*2,170*	*3,087*	*3,868*	*2,604*

Source: ECHP waves 1-8

Table 2

Adult children (individuals aged 18-34) living in the parental home by country, gender and educational level (in percent)

	Education	Au	Be	Dk	Fi	Fr	Ge	Gr	Ir	It	Lu	Nl	Po	Sp	Uk
Male	< Second level	31.0	20.8	52.3	38.6	27.8	45.1	33.4	28.9	43.5	46.0	69.3	71.7	43.2	39.9
	Second level	66.9	33.0	35.2	56.5	24.9	45.9	50.5	41.3	50.9	41.7	26.6	24.0	35.9	20.8
	Third lev.	2.0	17.1	2.1	4.6	19.7	4.5	13.0	12.6	5.3	9.8	1.6	3.8	20.8	38.4
	Still studying	0.2	30.1	10.4	0.3	27.6	4.5	3.1	17.2	0.3	2.5	2.5	0.5	0.1	0.9
	Total	*100*	*100*	*100*	*100*	*100*	*100*	*100*	*100*	*100*	*100*	*100*	*100*	*100*	*100*
Female	< Second level	42.5	19.2	49.7	49.8	22.9	47.5	20.8	20.5	34.9	49.0	71.3	58.3	32.1	38.0
	Second level	53.9	32.7	30.1	42.9	21.1	40.5	55.5	45.7	58.1	40.9	23.4	33.4	42.1	19.7
	Third lev.	3.1	17.5	5.4	7.2	21.1	3.6	19.4	14.8	6.8	7.4	2.3	6.9	25.7	41.0
	Still studying	0.5	30.6	14.8	0.1	34.5	8.4	4.0	19.0	0.2	2.7	3.0	1.4	0.1	1.3
	Total	*100*	*100*	*100*	*100*	*100*	*100*	*100*	*100*	*100*	*100*	*100*	*100*	*100*	*100*

Source: ECHP waves 1-8

Table 3

Indicators of marriage, labour and housing markets, and proxies for the welfare state and culture: international comparisons

Country	Average Sex ratio	Average Unemployment rate	Maximum Loan To Value ratio	Youth social expenditure (% total public expenditure)	Important child quality: independence (% parents)
Austria	50.65	3.75	80	3.47	63.4
Belgium	50.78	8.40	80	6.57	36.4
Denmark	50.92	8.17	80	11.71	82.8
Finland	51.10	--	80	8.37	57.9
France	50.47	9.45	80	9.03	25.9
Germany	51.64	8.81	80	7.22	62.6
Greece	51.72	7.49	75	5.86	50.6
Ireland	50.59	8.30	80	14.28	47.2
Italy	50.49	15.44	60	1.79	33.9
Luxembourg	50.69	2.20	60	2.25	44.6
Netherlands	50.86	3.92	75	10.07	52.7
Portugal	50.35	3.83	80	4.64	18.1
Spain	50.93	17.18	80	6.19	31.1
U.K.	51.31	5.06	95	10.08	46.6

Note. Average Sex Ratio computed as male population over total population by country regions from REGIO dataset (EUROSTAT), 1994-2001. Average unemployment rate from REGIO dataset refers to the same years and country regions. Maximum Loan-To-Value ratio is drawn from Chiuri and Jappelli (2003) and Maclennan, Muellbauer and Stephens (1998); it refers to the 1990 decade. Youth social expenditure as percentage of total public expenditure is from OECD SOCX database, it includes housing, active labor market policies and policies for other contingencies as income support programs; the values reported in the Table is a 1994-2001 average. The last column is drawn from the World Value Survey (1990 and 2000) and reports the percentage of interviewed aged between 35 and 70 that declared as an important child quality: independence.

Table 4 Probability of co-residence of adult children (18-34)- Probit estimates

Model Variables	(1)	(2)	(3)
Age	-0.714 (0.019)***	-0.838 (0.024)***	-0.897 (0.025)***
Age2	0.012 (0.000)***	0.014 (0.000)***	0.015 (0.000)***
D man	0.304 (0.017)***	0.365 (0.026)***	0.354 (0.027)***
N. siblings	-0.050 (0.008)***	-0.032 (0.009)***	-0.054 (0.009)***
High educated	-0.060 (0.019)***	0.040 (0.022)*	-0.054 (0.022)**
High educated mother	-0.215 (0.029)***	-0.162 (0.032)***	-0.050 (0.032)
High educated father	-0.172 (0.025)***	-0.134 (0.027)***	-0.082 (0.027)***
Working mother	-0.293 (0.017)***	-0.237 (0.020)***	-0.112 (0.021)***
D grandparent	1.149 (0.074)***	1.261 (0.091)***	1.113 (0.094)***
Sex ratio (in %)		-0.028 (0.010)***	-0.036 (0.011)***
Unemployment rate		0.017 (0.001)***	0.012 (0.002)***
Down payment ratio		0.029 (0.001)***	0.029 (0.002)***
Youth social expenditure (in %)			-0.022(0.005)***
Independence as child quality for parents			-0.002 (0.001)***
D Northern non-continental countries			0.066 (0.053)
D Northern Continental countries			-1.139 (0.056)***
D Central West countries			-0.426 (0.027)***
Constant	11.423 (0.237)***	13.474 (0.595)***	15.256 (0.643)***
N. Observations	135,753	90,330	90,330

Note: Robust standard errors in parentheses

*+ significant at 10%; * significant at 5%; ** significant*

Table 5 Probability of co-residence of adult children (aged 18-34) - Probit estimates by gender differences

Sample Variables	Men	Women
Age	-0.819 (0.035)***	-1.018 (0.037)***
Age2	0.013 (0.001)***	0.017 (0.001)***
N. siblings	-0.042 (0.012)***	-0.068 (0.013)***
High educated	-0.076 (0.031)**	-0.024 (0.031)
High educated mother	-0.102 (0.045)**	0.005 (0.046)
High educated father	-0.140 (0.039)***	-0.011 (0.038)
Working mother	-0.077 (0.029)***	-0.144 (0.031)***
D grandparent	0.942 (0.126)***	1.355 (0.130)***
Sex ratio (in %)	0.032 (0.016)**	-0.061 (0.016)***
Unemployment rate	0.017(0.003)***	0.010 (0.002)***
Down payment ratio	0.028 (0.002)***	0.030 (0.002)***
Youth social expenditure (in %)	-0.021 (0.007)***	-0.023 (0.008)***
Independence as child quality for parents	0.002 (0.001)*	-0.004 (0.001)***
D Northern non-continental countries	-0.065 (0.071)	0.125 (0.081)
D Northern Continental countries	-1.327 (0.081)***	-1.113 (0.084)***
D Central West countries	-0.465 (0.035)***	-0.421 (0.041)***
Constant	11.239 (0.886)***	18.046 (0.956)***
Observations	50,704	39,626

Note: Robust standard errors in parentheses

*+ significant at 10%; * significant at 5%; ** significant*

Table 6 Probability change of co-residence of adult children (18-34)

Variables	All Sample	Men	Women
Age	-0.150 (0.004)***	-0.119 (0.005)***	-0.199 (0.007)***
Age2	0.002 (0.000)***	0.002 (0.000)***	0.003 (0.000)***
D Man	0.061 (0.005)***		
N. siblings	-0.009 (0.001)***	-0.006 (0.002)***	-0.013 (0.002)***
High educated	-0.009 (0.004)**	-0.012 (0.005)**	-0.005 (0.006)
High educated mother	-0.009 (0.006)	-0.016 (0.007)**	0.001 (0.009)
High educated father	-0.014 (0.005)***	-0.022 (0.006)***	-0.002 (0.008)
Working mother	-0.019 (0.004)***	-0.011 (0.004)***	-0.029 (0.006)***
D grandparent	0.095 (0.003)***	0.075 (0.004)***	0.124 (0.004)***
Sex ratio (in %)	-0.006 (0.002)***	0.005 (0.002)**	-0.012 (0.003)***
Unemployment rate	0.002 (0.000)***	0.003 (0.000)***	0.002 (0.000)***
Down payment ratio	0.005 (0.000)***	0.004 (0.000)***	0.006 (0.000)***
Youth social expenditure (in %)	-0.004 (0.001)***	-0.003 (0.001)***	-0.004 (0.001)***
Independence as child quality for parents	-0.000 (0.000)***	0.000 (0.000)*	-0.001 (0.000)***
D Northern non continental countries	0.011 (0.008)	-0.010 (0.011)	0.023 (0.014)
D Northern Continental countries	-0.325 (0.021)***	-0.371 (0.030)***	-0.343 (0.032)***
D Central West countries	-0.076 (0.005)***	-0.073 (0.006)***	-0.088 (0.009)***
Observations	90,330	50,704	39,626

Note: Robust standard errors in parentheses

*+ significant at 10%; * significant at 5%; ** significant*

The table reports the probability change due to a partial change in each independent variable dF/dx (standard error). For dummy variables dF/dx is for a discrete change from 0 to 1. Only the specification for Model 3 is considered.

Table 7 Probability of co-residence of adult children (18-34) by group of country

	(1)	(2)	(3)	(4)
Variables	Northern non-contin. countries	Northern contin. countries	Central West countries	Mediter. countries
Age	-0.870 (0.072)***	-2.120 (0.126)***	-1.044 (0.039)***	-0.666 (0.042)***
Age2	0.015 (0.001)***	0.040 (0.003)***	0.018 (0.001)***	0.010 (0.001)***
D Man	0.274 (0.082)***	1.209 (0.350)***	0.420 (0.042)***	0.401 (0.050)***
N. siblings	-0.067 (0.020)***	-0.094 (0.035)***	-0.094 (0.016)***	-0.057 (0.015)***
High educated	-0.054 (0.053)	0.070 (0.125)	-0.118 (0.039)***	0.051 (0.036)
High educ. mother	-0.009 (0.077)	-0.273 (0.073)***	-0.009 (0.050)	0.128 (0.083)
High educ. father	-0.116 (0.068)*	-0.064 (0.076)	-0.099 (0.043)**	0.134 (0.059)**
Working mother	0.137 (0.061)**	-0.215 (0.093)**	-0.142 (0.031)***	-0.064 (0.039)*
D grandparent	0.316 (0.245)	1.252 (0.861)	1.559 (0.221)***	0.973 (0.109)***
Sex ratio (in %)	0.036 (0.034)	0.220 (0.172)	-0.017 (0.016)	-0.058 (0.015)***
Unempl. rate	0.139 (0.018)***	0.195 (0.052)***	0.015 (0.005)***	0.020 (0.003)***
Down payment ratio	0.056 (0.011)***	-0.036 (0.008)***	0.107 (0.004)***	0.097 (0.010)***
Youth social expenditure (in %)	-0.229 (0.035)***	0.055 (0.064)	-0.244 (0.021)***	-0.311 (0.015)***
Indep. as child quality for parents	-0.011 (0.005)**	-0.080 (0.080)	-0.024 (0.001)***	-0.016 (0.002)***
D Ireland	0.750 (0.218)***			
D Finland		-4.945 (1.572)***		
D Germany			2.755 (0.159)***	
D Greece				3.094 (0.187)***
D Spain				3.219 (0.225)***
D Portugal				2.777 (0.244)***
D Belgium			2.597 (0.185)***	
D Luxembourg			2.427 (0.142)***	
D France			2.615 (0.181)***	
D Austria			2.849 (0.125)***	
Constant	12.432 (2.024)***	21.615 (11.554)*	14.183 (0.975)***	10.846 (1.064)***
Observations	10,708	3,517	34,076	42,029

Robust standard errors in parentheses
* significant at 10%; ** significant at 5%; *** significant at 1%