Leaving home and housing prices. The experience of Italian youth emancipation

Francesca Modena[*]   Concetta Rondinelli[†‡]

May 10, 2011

Abstract

This paper provides an explanation for the postponement of the youth emancipation in the Italian context mainly characterized by a sharp increase in both house and rent prices together with a stagnant disposable income over the last decade. We first assemble a unique database related to the housing and rental market value which is then matched with household characteristics. We find that the probability of moving out decreases by about half and one percentage point for males and females, respectively for a one-standard-deviation change in house prices. Together with property prices, local labour markets play a prominent role in determining unemployed youth decisions to postpone the transition. The youngest cohort was mainly affected by the real estate market evolution occurred in the last decade.

Keywords: coresidence, moving out, real estate market, discrete time duration model.

JEL Codes: C41, D1, J12, R2.

Contents

1   Introduction

In the recent years house prices more than doubled in the largest Italian cities (Panetta et al. 2009); similar developments were recorded in other European countries with the exception of Germany. Developments in residential property prices are an important factor underlying monetary policy decisions aimed at maintaining price stability in the euro area over the medium term. The recent global crisis had its main origin in the financial and real estate sector, so that developments in housing markets should be kept under control because of their potential disruptive impact on the financial stability and the real economy (Campbell et al. 2009; Panetta et al. 2009; Muzzicato et al. 2008; Leamer 2007).

Changes in house prices may also affect residential investment, with non negligible effects for the credit developments. Households' consumption attitudes (wealth effects) are thus shaped by the dynamics in the real estate market, as they might have severe distributional implications. Sharp increases in housing costs are found to lead to a postponement of youth emancipation decisions (Haurin et al. 1993; Erimisch and Di Salvo 1997; Haurin et al. 1997 and Ermisch 1999), to discourage labor mobility choices (Bentolila and Dodalo 1991; Cannari et al. 2000) and to reduce the total fertility rate (Kohler et al. 2002).

We argue that the late transition to adulthood in Italy relates to both cultural factors and economic reasons, the latter prevailing in recent years. Economic circumstances changed significantly in Italy over the last two decades. Beside sluggish growth, Italy has been characterized by various reforms of the labour market and the pension system, and a sharp increase in both house prices and rents. Moreover, the Italian welfare system is weak, with an exclusive role of the original family in supporting young people towards this transition (Iacovou 2002; Mencarini and Tanturri 2006). Another key issue distinguishes the Italian context: the special features of the dwelling market. About 70% of the Italian families own their house, while the share of renters amounts to about 20%. Additionally, the high cost of rental housing prevents many youth to leave the parental home and induces a sort of selection effect, leading to a sorting out of young and lower income individuals from the rental market.

We explore the economic attitudes of Italian youths in leaving the parental home by using

the panel component of the survey of Italian households income and wealth of the Bank of Italy (SHIW). By assembling a unique database on housing and rental levels, based on a semiannual survey conducted for a special review published by the *Il Sole 24 Ore* media group (Consulente Immobiliare, CI) in the largest Italian municipalities from 1989 to 2008, we match the SHIW household sample with the real estate market using the municipality where the house (onwed or rented) is located. As a major contribution of the paper, our analysis is based on a detailed database on house and rent prices recovered from the market value instead of the amount declared by the interviewed households. We find that higher housing prices and rents decrease the probability of residing out of parental home, the former for both sexes, the latter for females. Our results also point to the joint effect of labour market conditions and housing costs for emancipation decisions: on one side an increase in house prices postpones home leaving decisions for employed youths and unemployed females; on the other side the effect of the real estate market for high income households is negligible. Cohort effects are at play, shaping the transition to adult age for those born between 1976-1982.

The reminder of the paper is organized as follows. In Section 2 we summarize the main determinants of home leaving decisions and review the literature on housing costs and youth emancipation. Section 3 underlines the main features of Italian adulthood and describes the evolution of the real estate market; Section 4 presents the data and methodology adopted. The results are summarized in Section 5, while Section 6 concludes.

2 Determinants of home leaving decisions

The transition to adulthood is a complex process in which youths who have been dependent on parents throughout childhood start taking definitive steps to achieve measures of financial, residential and emotional independence, and to take on more adult roles as citizen, spouse, parent and worker. The pattern of leaving the parental home has been proved to vary with the welfare system (Aassve et al. 2002) and to be positively related to employment and income for those countries in Southern Europe.

The postponement of the youth emancipation has a long tradition in the Italian setting. In 1983, 49% of young people aged 18-34 lived in the parental home; in 2009 the percentage

of co-resident children was 59%, among them 43% were employed (Istat 2010). Most children stayed at home until 24 years, the percentage being not negligible for older cohorts: 59% for the group aged 25-29 (69% for males and 49% for females), and 29% for those aged between 30 and 34 year (30% for males and 20% for females) (Istat 2010). This phenomenon is common to countries in Southern Europe and depends on both cultural aspects and the role played by the family in these welfare systems. More recent data published by the Italian National Institute of Statistics suggest that something has changed in the Italian context. The percentage of people citing economic conditions as the main reason for staying at home has increased (34% in 2003 and 40% in 2009) due to the difficulty to find a suitable house and a job. As a consequence, the transition to adulthood is becoming less a result of individual choices and more a compromise between a growing desire for independence and the need of a protection from the poverty risk (Istat 2010).

The choice to leave parental home should depend on both the cost of independent leaving and the individual's ability to pay that cost (Haurin et al. 1997). Over the '90s house and rent prices increased substantially, with relevant changes of the institutional Italian labour market. The abolition of wages indexation, the reform of the collective bargaining system and the introduction of atypical labour contracts, initiated a long period of wage moderation and increased job insecurity: mean earnings declined over the period 1986-2004 (Rosolia 2009), with a reduction in entry wages not compensated by a faster subsequent wage growth (Rosolia and Torrini 2007). These changes induced a segmentation of the labour market with an increasing proportion of young workers with low income level, inadequate social protection and discontinuous careers; they also contributed to an increase of the number of older workers facing higher wages, greater job security, and higher opportunities for promotions (Brandolini 2009; Cipollone 2001). The recent economic crisis amplified the difficulties for young cohorts: in 2009 the youth unemployment rate (15-24) was about 25% (Istat 2010), with increasing disadvantages for the younger cohorts in receiving the future pension benefits. The combination of these institutional and market changes had serious negative consequences for young generations in Italy (Berloffa and Villa 2010): young people are more dependent on their parents' resources and tend to postpone emancipation choices (delay in family formation and fertility decisions), with clear consequences for the present and future

well-being of the society.

The postponement of the Italian youth emancipation is thus the product of both cultural and structural changes (Facchini and Villa 2005), the latter prevailing in recent years due to significant losses for younger cohorts in their income level.

2.1 Housing costs and youth emancipation

The role of labour market on home leaving in Italy has been analyzed by many papers, showing that being employed and having a higher income increases the probability to reside out of parental home (Aassve et al. 2001; Aassve et al. 2002; Mazzucco et al. 2006; Mencarini and Tanturri 2006). The role of housing prices on the youth emancipation has received less attention and the results cover a wide range depending on the studied country.

Ermisch and Di Salvo (1997) showed that in UK higher house prices can affect the postponement of home leaving for women, but do have an ambiguous effect for men; for both, house prices discourage the formation of partnerships. In a subsequent work Ermisch (1999) confirmed the negative effects of higher house prices on home leaving and partnership's formation and found that they also encourage returns to the parental home. A similar work is available for the USA (Haurin et al. 1993) indicating that higher rental costs are associated with a higher probability for American youths to remain in the parental home and to live in a group. Using Australian data Haurin et al. (1997) found slightly different results: rental costs have a significant negative impact on the decision to reside alone versus group residence, but they have no relevant effect on the probability of leaving parental home.

The relation between housing costs and Italian youth emancipation has been studied much less. Neither empirical study focuses on house prices as the main determinant of home leaving choices, and neither work takes into account the impact of both house prices and rents on the Italian youth emancipation. Giannelli and Monfardini (2003), for example, analyses the effects of expected earnings and local market conditions on the behaviour of young adults with high school diplomas, and they jointly model the decision to leave parental home and that of work or study. Housing costs are constructed as the ratio of the housing cost index (which includes rents, water, maintenance and repair of domestic equipement) to the consumer price index, using Istat data. They find that a 10% increase in housing

costs reduces the propensity to leave the parental home by the same proportion. Becker et al. (2010) test whether job insecurity of parents and children affect children's moving-out decisions. The microeconomic analysis for Italy, conducted using the 1995 wave of SHIW, includes home rental index in province as a control variable and they find no impact of rental prices on young emancipation.

Our paper aims at bridging the gap in the literature and focuses on both house prices and rents as key determinants of young home-leaving choices. The main feature of this work is to use detailed data on the market value of house prices and rents, instead of the amount declared by the interviewed household. We first assemble a unique database related to market values, by using an external source, and we then match house and rent prices with the household characteristics based on their residence. We estimate a discrete time duration model considering the decision to emancipate in a year conditioned on a set of characteristics observed in the previous periods.

3   The Italian setting

3.1   Features of the Italian emancipation

Several features characterize the transition to adulthood in Italy: (i) the link between marriage and emancipation, (ii) the beginning of working life in the parental home, (iii) the strong incidence of homeowners, (iv) the increasing dependency of young people on their parents. A very traditional sequence of events characterize the Italian setting: the end of education, a stable job, and leaving home for marriage (or cohabitation) (Mazzucco et al., 2006). The SHIW sample confirms this evidence, as on average 6 years occur between the first working experience and the leaving home: there are regional differences, with Southern young people staying at home 4 years and half since the first working experience. The formation of a new household or marriage is the main reason for leaving home, in particular for women and older cohorts.[1]

Italian families have a preference for owning, as opposed to renting, as documented by

---

[1]The question is available for the period 1995-2008.

the high proportion of homeowners. The share of home owners increased over time (62.7% in 1989, 69.4% in 2008 in the SHIW), varying significantly by age, occupation status of the household head and by the household's wealth. Owner occupancy rate at age 35 or less is already high, about 48% in 2008, increasing as age grows. The rent option, instead, has risen over the last two decades only at younger ages, 30 or less and for employees. The relationship between the rent option and poor economic conditions got stronger in the last decades (D'Alessio and Gambacorta 2007).

Another feature of the Italian emancipation is the increasing role of the family background. In the SHIW, 2008, about 30% of the homeowners inherit the house or received it as a gift (in 1989 the percentage was 26%).[2] Paradoxically, in the absence of housing policy, providing social rented housing and/or subsidies, parental resources become one of the main channel through which young Italian people may rely on to reach independence from parents. Since families differ strongly in terms of their human and social capital, as well as economic resources, this might amplify existing inequalities in children's outcomes. Moreover, the dependence on intergenerational transfers is an additional factor hampering the transition to adulthood and discouraging labour mobility choices.

3.2   The evolution of the Italian housing and rental market

Since the early 90s Italian house prices and rents exhibited a substantial growth. Between 1989 and 2008 house prices have more than doubled (Muzzicato et al. 2008), while the Italian consumer price index increased by 75 percentage points. At the same time, rents have risen by 80 percentage points over the period 1998-2006 (Rondinelli and Veronese 2010), leading to severe distributional implications.

The key relevant variable to asses the role of house and rent prices in the youth emancipation decision is obtained from the CI sample and using various step of aggregation. We follow the same procedure as in Muzzicato et al. (2008) and Rondinelli and Veronese (2010) to recover a house and rent price index, respectively. As far as rent is concerned, we first

---

[2]In the IDEA sample (Beginning of the adult age, 2004), about 65% of the youths living outside the parental home received parental transfers to purchase or rent a house, and this percentage increases to 72% for the sample of youth aged 23 to 27 (Mencarini and Tanturri 2006).

aggregate prices at the city level (center, semicenter and suburb) using weights computed from SHIW sample and then, using weights according to the population residing in each town, we obtain national averages. Rental prices are available since 1993 and their value back to 1989 is recovered using the rent price deflator from the national accounts. We obtain real values by using the consumer price deflator for the total of Italian households.

Over the period 1989-2008, real house prices have increased by 54% (see Figure 1); the upward increase in real rents has been more severe after 1995. The sharp increase in housing and rental prices was particularly relevant after the introduction of the Euro currency. The household per-capita disposable income dynamic was much more subdued, the cumulative growth between 1989-2008 was 13 about per cent.

We argue that the upward trend observed in housing and rental prices, together with the uncertainty in the labour market and higher unemployment rate, may have further postponed the youth emancipation for the Italian people.

4   Empirical methodology and data description

4.1   Empirical methodology

We model the process of leaving home as a discrete time hazard model whose young people are potentially at risk of leaving home since the first year they enter the panel.

We assume that the probability that a youth $i - th$ living in province j experiences the transition out of the parental home at time t, conditional on survival to $t - 1$, is given by:

$$Pr(d_{ijt} = 1|d_{ijt-1} = 0) = Pr(z_{ijt}^* > 0|d_{ijt-1}) \tag{1}$$

where d_{ijt} is a dummy variable indicating the event occurrence in t for individual i in province j, and z_{ijt}^* is a continuous latent variable which is higher than zero if $d_{ijt} = 1$ and lower or equal to zero otherwise. Additionally,

$$z_{ijt}^* = f(t) + \beta X_{ijt} + \gamma P_{jt} + \epsilon_{ijt}. \tag{2}$$

and $f(t)$ is a non-parametrical function of age, chosen as a duration dependence, X_{ijt}

are assumed to capture the demographics of both the youth and the household while P_{jt} summarizes the price effects on the youth emancipation given at the province level. ϵ_{ijt} is a residual error term distributed as a logistic with zero mean and variance $\pi^2/3$.

The hazard probability conditioned on observed explanatory variables, X_{ijt} and P_{jt}, can thus be rewritten as a sequential logit model:

$$Pr(d_{ijt} = 1 | d_{ijt-1} = 0, X_{ijt}, P_{jt}) \equiv h_{ijt} = \frac{\exp(z_{ijt})}{1 + \exp(z_{ijt})} \tag{3}$$

where

$$z_{ijt} = f(t) + \beta X_{ijt} + \gamma P_{jt}. \tag{4}$$

Our sample includes all the youths aged between 18 and 35 years over the period 1989-2008 living in the house with at least one parent at the moment the household was sampled. As the youths enter the sample at the age of 18 we end up with a stock sample with delayed entry. Jenkins (1995) proved that, even with a stock sample with left truncation, the likelihood of a single spell discrete time duration model reduces to a standard likelihood function for a binary regression model. At the age of 35 young individuals may 1) have experienced the transition out of the parental home (the likelihood contribution for each completed spell is given by the discrete time density function); 2) be still living with their parents (the likelihood contribution for a censored spell is given by the discrete time survivor function). The likelihood for the whole sample can be written as:

$$log\mathfrak{L} = \sum_{i=1}^{n}\sum_{j=1}^{J}\sum_{t=1}^{T}(z_{ijt}\log h_{ijt} + (1 - z_{ijt})\log(1 - h_{ijt})). \tag{5}$$

where z_{ijt} is the dependent variable and the data have been organized into *person period format*, i.e. one record for each years that a person is at risk of transition out of the parental home.

The set of regressors we use to model home leaving decisions are derived from different sources and are grouped to account for demographic, household, local, economic and cultural conditions. Section 4.2 describes the data sources used in the paper and provides some descriptive statistics.

4.2 Data description

To analyze the economic behaviour of young people in leaving the parental home we use the biannual panel version of the Bank of Italy's Survey on Household Income and Wealth (1989-2008), whose sample is composed of around 8,000 households per wave drawn from the registry office records of 330 municipalities. Data are collected by means of professional interviews and are representative of the universe of Italian dwellings, either owned or rented. We use the SHIW database to infer the demographic characteristics of the individual and the household. The estimates of the value of housing stock obtained from SHIW for the sub-sample of the home owners are a key element in measuring Italian households' wealth (see Cannari and Faiella, 2008). Despite this, it has been proved (Rondinelli and Veronese, 2010) that the estimated rent price measure based on the SHIW sample for a given year is a mixture of new and renewed contracts. As the dynamics of the new rent contract is expected to be more relevant for those individuals considering whether to change their residence, we resort to a market price value for owners and renters from the Consulente Immobiliare (CI).

The CI sample has been widely used to study both the house (see Muzzicato et al. 2008) and rental (Rondinelli and Veronese, 2010) price developments. In each sampled town, CI provides estimates of the average house and rent level (per square meter) of a typical apartment located in three city areas: center, semi-center and suburbs. Houses are further distinguished into new build and restructured, while rents into new and renewed contracts, the latter defined as contracts negotiated with previously sitting tenants upon contract expiration. The CI records house and rent prices at the provincial level, since 1980 and 1993 respectively and it provides the market value for both housing and rental dwellings. House and rent prices from the CI are then matched to each young individual of the SHIW sample on the basis of the province of residence, year and location of the house.

The price a youth faces when experiencing the transition out of home is expressed in real terms and as a mean of the three quotations for center, semi-center and suburb of the province where the youth lives (P_{jt}). Our results are not compromised by this assumption as only 1.1% per year of the youths, over total residents, aged 15 to 34 (in the period 2000-2005) changed their original region (Istat). This percentage amounts to 1.3%(0.7%) for those in

the age class 25-34 (15-24). Rates slightly higher (by 0.3-0.4) emerge for those with higher education.

We try to capture the local economic conditions by constructing an indicator for the labour and the credit market. The former is calculated by using the unemployment rate by age, sex, education and geographical area, as derived from the official statistics of the National Institute of Statistics. By using the data of the Bank of Italy (Base informativa pubblica at August 2010), the latter is obtained as the ratio between the amount of credit received every year by the households residing in a certain Italian region and the gross domestic product for the same year and region.

Cultural aspects are captured by using both the World Values Survey (2005-06 wave) and the European Values Study (waves 1999 and 1990) to account for differences in social values across time and Italian regions (see also Chiuri and Del Boca, 2008, 2010). Our indicator is obtained at macro-area level (North-East, North-West, Center, South, Islands) and aims at capturing the importance that parents give to the independence of their children.[3] As a proxy for the local marriage market we use the regional sex ratio computed as the ratio between female population and total population of the same cohort and living in the same region.[4]

We study the Italian youth emancipation from 1989 to 2008, where the SHIW figures for two non consecutive years are obtained by interpolation. The sample is restricted to include those aged between 18 an 35 years over the studied period, living in the house with at least one parent at the moment of the interview.[5]

Every year about 16% of the SHIW sample is composed of young people aged between 18 and 35; the attrition for the panel dimension of the survey is about 50% over two consecutive years. Table 1 reports descriptive statistics for young people. Overall there are 4,761 (3,788)

---

[3]More precisely households were asked "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?". Apart from citing tolerance and respect for other people, imagination, hard work, determination, perseverance, feeling of responsibility as a possible answer, the questionnaire included the independence as a value that children can be encouraged to learn at home.

[4]If the youth is a woman, the sex ratio is calculated as male population over total population.

[5]Unfortunately the survey is not provided with the informations about those who already left the house.

observations in the male (female) sample (19,662 and 14,684 *person period observations*). About 91% (88%) of men (women) aged 18-35 in the SHIW live with parents; the proportion is higher than the one recorded in the ECHP as in the SHIW sample we condition on children with at least one parent alive. The average age is about 24 and half of the sample is less than 23. 52% (64%) of males (females) aged 18-35 are not employed, with an equal percentage of students and non students for males; the proportion of students is higher for women. More than half of young people completed high school, and 37% (25% for females) reported low education.

The average age of the household head[6] is about 50, and 24% of heads are out of the labour force. Average real wealth of the household of origin is 0.18 million of Euros.

Mean real house prices per square meter are 1.59 and 1.57 thousands of Euros for males and females respectively; annual rents are on average 0.07 thousands of Euros per square meter for both groups.

5   Empirical results

5.1   Baseline results

Table 2 reports the results for the likelihood of leaving parental home. We estimate separate models for males and females and explore the effects of housing prices and rents on home leaving decisions. As Italian students are more likely to reside with parents (Mazzucco et al., 2006) we split the sample to include non students only (Tables 3-5).

House and rent prices are found to strongly affect the transition to adulthood. Our results show the crucial role played by housing costs in determining young adults' residential choices: higher housing prices and rents decrease the probability of residing out of parental home for both males and females, the latter for the female sample only. A 10 percent increase in house prices decreases the male (female) probability of leaving the parental home by 0.10% (0.25%). As the mean observed average house price per square meter for the two groups is 1.58 thousands of Euros, should the mean price increase by 500€ this would imply that

---

[6]The household head is defined as the person primarily responsible for the household economic budget.

the youth likelihood to live with mom and dad is almost one. The estimated rent effect is stronger in absolute terms than that of house prices, and for female than for male; in relative terms, an increase of 10% should decrease the female propensity to leave home by around 0.24%. Given a mean annual rent of about 0.07 thousands of Euros per square meter, the increase in price due to an increase in the size of the apartment from 30 to 50 square meters would decrease the probability of leaving the parental home by 0.36%. To better grasp the size of the effect of the real estate market on coresidence choices, we compute the change in the probability of leaving home induced by a one standard deviation (SD) change in real house prices and real rents. A one-SD change in real house prices (real rents) is equal to 0.7 (0.03), and it would induce a reduction of 0.45 and 1.18 (1.06) percentage points in the probability of moving out for males and females respectively (Table 3).

The strong positive impact of age on the youth emancipation is depicted in Figure 2. We compute the hazard rates only for those individuals that could potentially be observed for the entire period 18-35 (i.e. people born between 1971 and 1973). There is an inverted U-shaped relation between the probability of leaving parental home and age, with a maximum at 31: young people, not experiencing the transition before their 31s, have a low probability to emancipate, as the hazard rate at the age of 35 is equal to the 24 age value (0.06 for males and 0.07 for females). Women are more likely to leave home than men. Geographical differences are at play, especially for females: at the age of 31 the hazard rate of women living in the North is 5 percentage points higher than in the South. The subsequent downward trend is more marked in the North, thus reducing the regional gap. We observe geographical differences for males only at older ages, with young people in the North at a higher risk of leaving home.

The family background variables matter as well (Table 2): the number of household members, other than the individual and parents, has a positive and significant effect for females (in line with Mencarini and Tanturri 2006; Giannelli and Monfardini 2003). The number of income perceivers has no effect. Women with higher real wealth are less likely to be out of home, while financial wealth seems to positively affect home leaving transition for male only. Household head (in most cases father)'s human capital estimated coefficients are not significantly different from zero, for both males and females. As regard household head

working status, we find only little positive effect of being employee for males. The presence of the father only has a strong negative impact on the probability of leaving home for women aged between 25 and 35 (we interacted this variable with cohort dummies). This suggests that a young woman may stay at home to take care of her father when the mother is absent. Evidence for the importance of cultural aspects for females emerges from Table 2. Living in regions with a high percentage of households citing independence as a social value increases the probability of leaving the parental home. Similarly, the ratio between the amount of credit received by the households corrected by the gross domestic product of the region has a positive effect for females, underling the importance of the credit market for the youth emancipation.

The occupational status, and in particular the condition of not being employed (either unemployed or out of the labour force) is a key determinant variable impacting on the youth emancipation decision (Table 2). Consistently with the previous literature, the condition of being not employed impacts on the probability of leaving home; the employment type, i.e. payroll employees or self-employed, is not relevant. As noted by Aassve et al. (2002), the effect of labour market, i.e. being employed or not, is particularly strong in the Italian setting, featured with a weak welfare system supporting young adults. Differentiating between student and other non working people, i.e. those looking for a job, we find that the negative effect of the former is, in absolute values, much higher than that of the latter. This reflects a typical feature of the Italian context with youngest people living with their parents while studying (Giannelli and Monfardini 2003; Mazzucco et al. 2006). As a consequence, youths with high education are more likely to leave the parental home.

5.2   Further extensions

Being education one of the main driving for people to stay at home (as shown in Table 2), we should expect students to behave differently. Whereas housing prices have no impact on male students, a one-SD change in house prices and rents for non students significantly reduces their probability of leaving parental home by about two-third of a percentage point and half a percentage point respectively (see Table 3). House and rent prices matter for both student and non student females, being the marginal effect higher for the latter: a one-SD

change in house prices leads to a reduction of 0.6 and 1.6 percentage point for students and non students respectively; a similar increase in rents reduces the probability by 0.5 and 1.4 percentage point for the two categories. Our results confirm that emancipation is subsequent to the end of education, and suggest that this sequence is more rigid for men: young men do not leave parental home while they are studying, irrespective of house prices.

Given the different behaviour between students and non students, we offer a further robustness check for our results focusing on the sample of non students (see Tables 4 and 5). We test whether the effect of housing costs varies across segment of populations, impacting particularly on lower income and non employed young people. Table 4 reports results for the interactions between house (and rent) prices and the dummies for being or not employed (unemployed or out of the labor force). Housing costs have a significant impact for both groups of females with a higher effect for not employed (and not students) individuals (a one-SD change in house prices decreases the probability by one percentage point when employed, 2.5 percentage point when not employed). House prices matter only for employed males, while rents for young females not employed. These results support the idea that a very low proportion of male would quit parental home when not employed; some evidence of the role of the marriage market emerge for unemployed women.

The effects of housing costs interacted with quartiles of household income are shown in Table 5. Housing costs have an impact on male's (not student) decisions for all low income levels but the highest one: the effect of a one-SD change in house prices amounts to 1.7 percentage points for the first quartile and to 1.0 for the second and third quartiles, respectively. Rents have only effect for low and high income levels for the sample of non student males with a slightly smaller effect than house prices (see Table 5). House prices and rents have no impact for non student women whose household income is high and very high. An increase in housing prices induces a larger decrease for medium income households than for the poorest ones: a one-SD change in house prices reduces the probability by 1.7 and 5 percentage points for the first and the second household income quartiles, respectively. The coefficient of rents for poor females is not statistically different from zero.

Dummies for household income quartiles are not statistically significant, we would have expected a stronger impact of household income given the high incidence of intra-household

transfers on youth emancipation in Italy, due to mortgage market imperfections and the absence of public housing policy. As pointed out by Aassve et al. (2002), the weakness of the effect may be caused by the double role of family income on leaving home: on one side high income households may give financial support to youths and thus facilitate their emancipation, on the other side parents may have a preference for co-habitation and thus they transfer resources to the children living with them (Manacorda and Moretti 2006).

5.3   A cohort and simulation exercise

We present the evolution of hazards by age for cohorts of young people (non students). Three cohorts were constructed: individuals born between 1965 and 1970 (which will be named cohort 1), 1971-1975 (cohort 2), 1976-1982 (cohort 3). As the econometric analysis was limited to include youths aged 18-35 from 1989 to 2008 some cohort restrictions apply: age 22-35 for cohort 1, age 18-35 for cohort 2 and age 18-29 for cohort 3 (considering the median age of the cohort). The severe economic crisis occurred at the beginning of the '90s affected cohorts 1 and 2 at the age of 26 and 20 respectively. In 1993 Italian GDP decreased by about 1%. Unemployment rates for the age groups 15-24 and 25-34 were 0.24 and 0.09 respectively in 1991 and they increased to 0.30 and 0.12 in 1993; at the same time employment rates decreased from 0.31 to 0.28 for the group 15-24, and from 0.69 to 0.65 for people aged 25-34 (see also Section 2). Cohorts 2 and 3 entered adulthood in a period of labour market reforms (the introduction of the so called "parasubordinati" in 1996 and the Biagi law in 2003), facing some of the difficulties of the recent global crisis, both in terms of upward increase in house prices and unemployment rate.

As Figure 3 shows, the hazard rate increases with age: the probability of leaving parental home for male is slightly higher for cohort 1 between 22 and 25 and it is lower for cohort 3 after 25 years of age. Cohort 2, who behaves like cohort 3 until the age of 25, has a profile very close to cohort 1 after that age. Cohort 2 of female experienced the high upward increase in the hazard rate, with a very similar peace of growth to cohort 3 until 27. Women born between 1965 and 1970 are at a higher risk of leaving home than other women at an early age, but the hazard is fairly stable over time, thus leading to a lower probability to emancipate than cohort 2 after the age of 29.

We now focus on the relevant years in which young people are expected to leave mom and dad (22-29), and compare the evolution of hazards with that of real house prices. The first striking feature of Figure 5 is that cohort 2 exhibits higher growth rates than other cohorts, and they face a real house price that is fairly stable. On the contrary, the oldest and the youngest cohorts faced a sharp increase in house prices, preliminarily to the two recent economic crisis. These patterns are true for both males and females: overall growth rates of male (female) hazards are 0.7 (0.2), 1.4 (0.6) and 0.6 (0.2) for cohorts 1, 2 and 3 respectively. As a whole, those born between 1965-1970 and 1976-1982 were mainly penalized by the economic challenges they faced during their adulthood.

To emphasize differences among sub-groups, we simulate some results so that the dimension of our estimated parameters may be realized. A clear pattern emerges when considering the timing of the home leaving decision according to youth's residence, city center or suburbs: the transition out of the parental home is faster for those living in suburbs than for young people resident in the center. The gap widens at older ages.

In order to highlight the role of house prices in the transition out of the parental home for cohort 3, we simulated their survival functions at the prices faced by cohort 2 for a central location of the house (top panel of Figure 5) and suburban one (bottom panel of the same Figure). Cohort 3 was expected to leave home in the years 2001-2008, while cohort 2 in 1995-2002. In these periods, mean real house prices were respectively 2012 (1170) € and 1583 (955) € per square meter in the center (suburb). Was cohort 3 facing the same house prices of cohort 2, this would have increased their likelihood to emancipate. In particular, Figure 5 shows that even a decrease in house levels would have implied an identical probability of staying at home for the youths under 24. There are sizeable differences in the home leaving process at adult ages, meaning that should the house prices have decreased to the mean average of 1995-2002, the likelihood for a youth to leave the parental home would have increased by 5% in the center and 7% in the suburb at the age of 29.

As a whole, the appreciation of the real estate market occurred in the last decade, together with the structural reforms of the labour market, deteriorated the economic conditions faced by youths born between 1976-1982.

6 Conclusions

The aim of this paper is to find an empirical connection between house and rent prices and the decision of the young Italian individuals to leave the parental home. The main contribution of this work is that we base our analysis on detailed information on the market value of house prices and rents. We use two different data sets, one to infer the demographic characteristics of the household and the other to recover house and rent prices based on the dwelling market value. House prices are found to be negatively correlated with the youth emancipation for both males and females: a one-SD change in real house prices would induce a reduction of 0.45 and 1.18 percentage points in the probability of moving out for males and females respectively. Rents strongly affect females' decisions and have little impact on non student males. The magnitude, however, exhibits a sex composition with higher marginal effects for women.

The youth emancipation is found to be subsequent to the end of education, suggesting a more rigid sequence for men: young men do not leave parental home while they are studying, irrespective of house prices. Among non student people, an increase in house prices postpones home leaving decisions for employed males and for unemployed females (rents matter only for the latter): men tend to begin their working life in the parental home, irrespective of house prices; there is evidence of the role of the marriage market for unemployed females. As expected, the impact of the real estate market for high income households is negligible. House and rent prices force medium income females (non-student) to postpone more than poor ones.

A cohort analysis reveals that, due to the structural reforms of the labour market and the sharp increase in house and rent prices occurred at the beginning of the last century, the economic conditions of individuals born between 1976-1982 deteriorated when they were supposed to enter adulthood. On the other hand, the cohort 1971-1975 faced a flat profile of house and rent prices between 22 and 29, the age at higher risk for leaving parental home. A simulation exercise proves that at the age of 29 the youngest cohort would have increased the propensity to leave parental home by about 6% if it would have faced the same house prices of those born in the years 1971-1975.

Female behave quite differently than men: cultural factors turn out to be significant predictors for the propensity to live with parents, reflecting the traditional Italian cultural setting with women primarily responsible for childcare and other nonmarket services, as the home leaving decision is strongly and negatively affected by the presence of the father only for women aged 25-35. Living in regions with a high percentage of households citing independence as a social value increases the probability of residing out of the parental home; credit market is also found have a non negligible impact on female emancipation.

Policies aimed at reducing the cost of housing would reduce the probability to co-reside with parents, the effect being higher if they are targeted to young unemployed people and to those youths whose parental income is medium or low. Housing shortage, more marked in the last decade especially of the cheapest kind, and the recent global crisis, having reduced both the probability for a youth to be employed and household wage, point to the need of larger investments in social-housing projects.

Table 1: **Descriptive Statistics**

	Male			Female		
Variable	Obs.	Mean	Std. Dev.	Obs	Mean	Std. Dev.
Outcome						
Out of parental home	19,662	0.094	0.29	14,648	0.12	0.32
Individual's characteristics						
Age (18-24)	19,662	0.56	0.50	14,648	0.61	0.49
Age (25-29)	19,662	0.29	0.45	14,648	0.27	0.44
Age (30-35)	19,662	0.15	0.36	14,648	0.12	0.33
Payroll Employee	19,662	0.37	0.48	14,648	0.30	0.46
Self employed	19,662	0.11	0.31	14,648	0.05	0.23
Inactive (unemployed, students and out of the labour force)	19,662	0.52	0.50	14,648	0.64	0.48
Student	19,662	0.26	0.44	14,648	0.36	0.48
Inactive not student	19,662	0.26	0.44	14,648	0.29	0.45
None, elementary and middle school education	19,662	0.37	0.48	14,648	0.25	0.44
High school (diploma)	19,662	0.55	0.50	14,648	0.64	0.48
Bachelor's degree and beyond	19,662	0.08	0.27	14,648	0.11	0.31
Household's characteristics						
No. Component except self and parents	19,662	1.18	1.03	14,648	1.18	1.01
No. Perceivers	19,662	2.34	0.99	14,648	2.24	0.98
HH's age	19,662	48.45	12.76	14,648	50.42	11.58
HH: none and elementary education	19,662	0.25	0.43	14,648	0.27	0.45
HH: middle school	19,662	0.34	0.47	14,648	0.28	0.45
HH: high school	19,662	0.32	0.47	14,648	0.36	0.48
HH: bachelor's degree and beyond	19,662	0.09	0.28	14,648	0.09	0.28
HH: payroll employee	19,662	0.55	0.50	14,648	0.54	0.50
HH: self employed	19,662	0.21	0.41	14,648	0.21	0.41
HH: inactive	19,662	0.24	0.43	14,648	0.24	0.43
Only father	19,662	0.03	0.18	14,648	0.03	0.17
Only mother	19,662	0.13	0.34	14,648	0.10	0.31
Father and mother	19,662	0.84	0.37	14,648	0.87	0.34
North	19,662	0.39	0.49	14,648	0.38	0.49
Center	19,662	0.18	0.38	14,648	0.17	0.37
South/Isles	19,662	0.43	0.50	14,648	0.45	0.50
Real wealth (million of €)	19,662	0.18	0.31	14,648	0.18	0.31
Financial wealth (million of €)	19,662	0.02	0.06	14,648	0.02	0.06
Provincial characteristics						
Real house prices (m^2 - thousands of €)	19,662	1.59	0.74	14,648	1.57	0.72
Real rent prices (m^2 - thousands of €)	19,662	0.07	0.03	14,648	0.07	0.03
Sex ratio	19,662	0.49	0.01	14,648	0.51	0.01
Independence	19,662	21.39	5.86	14,648	21.18	5.94
Loan/Value added	19,662	5.17	0.70	14,648	5.14	0.71
Unemployment rate	19,662	25.23	12.59	14,648	25.79	12.70

Source: Auhtor's calculation from the SHIW and national statistics. Sample weights included. Youth people between 18 and 35 included in the sample. HH= Household head. Only father(mother) is a dummy variable taking value one if the youth is living with one parent only. Father and mother is a dummy variable taking value one if both parents are leaving with the young people.

Table 2: **Estimates for the probability of leaving parental home**

VARIABLES	(1) male	(2) male	(3) female	(4) female
House prices	-0.00616**		-0.0161***	
	(0.00311)		(0.00429)	
Rent prices		-0.0828		-0.362***
		(0.0749)		(0.117)
High school diploma (middle school)	0.00218	0.00236	0.00444	0.00392
	(0.00484)	(0.00485)	(0.00639)	(0.00642)
Bachelor's degree and beyond	0.0169*	0.0170*	0.0245**	0.0241**
	(0.00893)	(0.00898)	(0.0113)	(0.0112)
Not employed not student	-0.00920*	-0.00903*	-0.0125**	-0.0127**
	(0.00482)	(0.00485)	(0.00616)	(0.00616)
Student	-0.0259***	-0.0258***	-0.0429***	-0.0429***
	(0.00507)	(0.00511)	(0.00626)	(0.00627)
Real wealth	0.0001	-0.000157	-0.0223**	-0.0226**
	(0.00393)	(0.00409)	(0.0113)	(0.0114)
Financial wealth	0.0494***	0.0487**	0.0152	0.0191
	(0.0189)	(0.0190)	(0.0364)	(0.0360)
No. components ex.parents and youth	-0.000195	-0.000175	0.00597**	0.00602**
	(0.00219)	(0.00221)	(0.00279)	(0.00281)
No. perceivers	0.00271	0.00286	-0.000197	0.000191
	(0.00248)	(0.00249)	(0.00325)	(0.00323)
HH's age	0.0001	0.0001	-0.0001	-0.0001
	(0.000189)	(0.000190)	(0.000246)	(0.000246)
HH middle school	0.00135	0.00116	0.00114	0.000932
	(0.00515)	(0.00517)	(0.00669)	(0.00669)
HH high school	0.00154	0.00127	-0.00955	-0.0101
	(0.00542)	(0.00545)	(0.00703)	(0.00703)
HH bachelor's degree	0.00230	0.00206	-0.00297	-0.00366
	(0.00761)	(0.00764)	(0.00936)	(0.00929)
HH employee	0.0104*	0.0105*	0.00494	0.00545
	(0.00544)	(0.00544)	(0.00674)	(0.00672)
HH self employed	-0.000188	-5.80e-05	0.0103	0.0115
	(0.00620)	(0.00622)	(0.00877)	(0.00888)
Only father	-0.00596	-0.00650		
	(0.00923)	(0.00915)		
Only father * age (18-24)			0.0871	0.0885
			(0.0583)	(0.0589)
Only father * age (25-35)			-0.0391***	-0.0395***
			(0.00598)	(0.00595)
Sex ratio	0.455	0.429	0.426	0.428
	(0.375)	(0.375)	(0.515)	(0.520)
Independence	0.000679*	0.000579	0.00144***	0.00133**
	(0.000359)	(0.000357)	(0.000530)	(0.000527)
Loan/Value added	0.00256	0.00166	0.0109***	0.0104**
	(0.00292)	(0.00299)	(0.00400)	(0.00408)
Person period Obs.	19,662	19,662	14,648	14,648
Pseudo R^2	0.1	0.1	0.1	0.1
Percentage correctly classified:	95%	95%	94%	94%

Notes: Marginal effects for the probability of leaving home. HH= Household head. A weighed discrete time duration model with single spell is assumed. Duration dependence not reported. The sample includes all people aged between 18 and 35. Robust standard errors in parentheses. Real house and rent prices in thousands of €. *** p<0.01, ** p<0.05, * p<0.1.

Table 3: **Housing prices and end of education**

	One-SD change			
	Male		Female	
	House price	Rent	House price	Rent
All	-0.45**	-0.24	-1.18***	-1.06***
Person period obs.	19,662		14,648	
Observations	4,761		3,788	
Students	0.12	0.40**	-0.57***	-0.48**
Person period obs.	5,557		5,463	
Observations	1,384		1,437	
Not students	-0.73**	-0.54*	-1.62***	-1.44**
Person period obs.	14,105		9,185	
Observations	3,377		2,351	

Notes: Effect of a one-SD change in house prices and rents on the probability of leaving home (percentage points). A weighed discrete time duration model with single spell is assumed. The sample includes all people aged between 18 and 35. Regressors listed in Table 2 included. Real house and rent prices in thousands of €. *** p<0.01, ** p<0.05, * p<0.1.

Table 4: **Housing prices and occupational status**

	One-SD change			
VARIABLES	Male		Female	
House prices × employed	-0.72*		-1.12*	
House prices × not employed	-0.76		-2.54***	
Rent prices × employed		-0.49		-0.94
Rents prices × not employed		-0.69		-2.32***
Duration dependence	yes	yes	yes	yes
Education	yes	yes	yes	yes
Occupation	yes	yes	yes	yes
No. components ex.parents and youth	yes	yes	yes	yes
No. perceivers	yes	yes	yes	yes
Wealth	yes	yes	yes	yes
HH's variable (age, education, occupation)	yes	yes	yes	yes
Marriage market	yes	yes	yes	yes
Credit market	yes	yes	yes	yes
Cultural variables (independence)	yes	yes	yes	yes
Person period obs.	14,105		9,185	
Observations	3,377		2,351	

Note: Effect of a one-SD change in house prices and rents on the probability of leaving home (percentage points). HH= Household head. A weighed discrete time duration model with single spell is assumed. The sample includes all non student male and female aged between 18 and 35. Real house and rent prices in thousands of €. *** p<0.01, ** p<0.05, * p<0.1.

Table 5: **Housing prices and household income**

VARIABLES	One-SD change			
	Male		Female	
House prices × low HI	-1.66**		-1.74**	
House prices × medium HI	-1.04*		-4.94***	
House prices × high HI	-1.02**		-0.89	
House prices × very high HI	-0.10		-0.36	
Rent prices × low HI		-1.16*		-1.16
Rent prices × medium HI		-0.75		-5.64***
Rent prices × high HI		-0.75*		-0.98
Rent prices × very high HI		-0.12		0.26
Duration dependence	yes	yes	yes	yes
Education	yes	yes	yes	yes
Occupation	yes	yes	yes	yes
Household income (quartiles)	yes	yes	yes	yes
No. components ex.parents and youth	yes	yes	yes	yes
No. perceivers	yes	yes	yes	yes
Wealth	yes	yes	yes	yes
HH's variable (age, education, occupation)	yes	yes	yes	yes
Marriage market	yes	yes	yes	yes
Credit market	yes	yes	yes	yes
Cultural variables (independence)	yes	yes	yes	yes
Person period obs.	14,105		9,185	
Observations	3,377		2,351	

Note: Effect of a one-SD change in house prices and rents on the probability of leaving home (percentage points). HH= Household head. A weighed discrete time duration model with single spell is assumed. The sample includes all non student male and female aged between 18 and 35. Robust standard errors in parentheses. Real house and rent prices in thousands of €. *** $p<0.01$, ** $p<0.05$, * $p<0.1$.
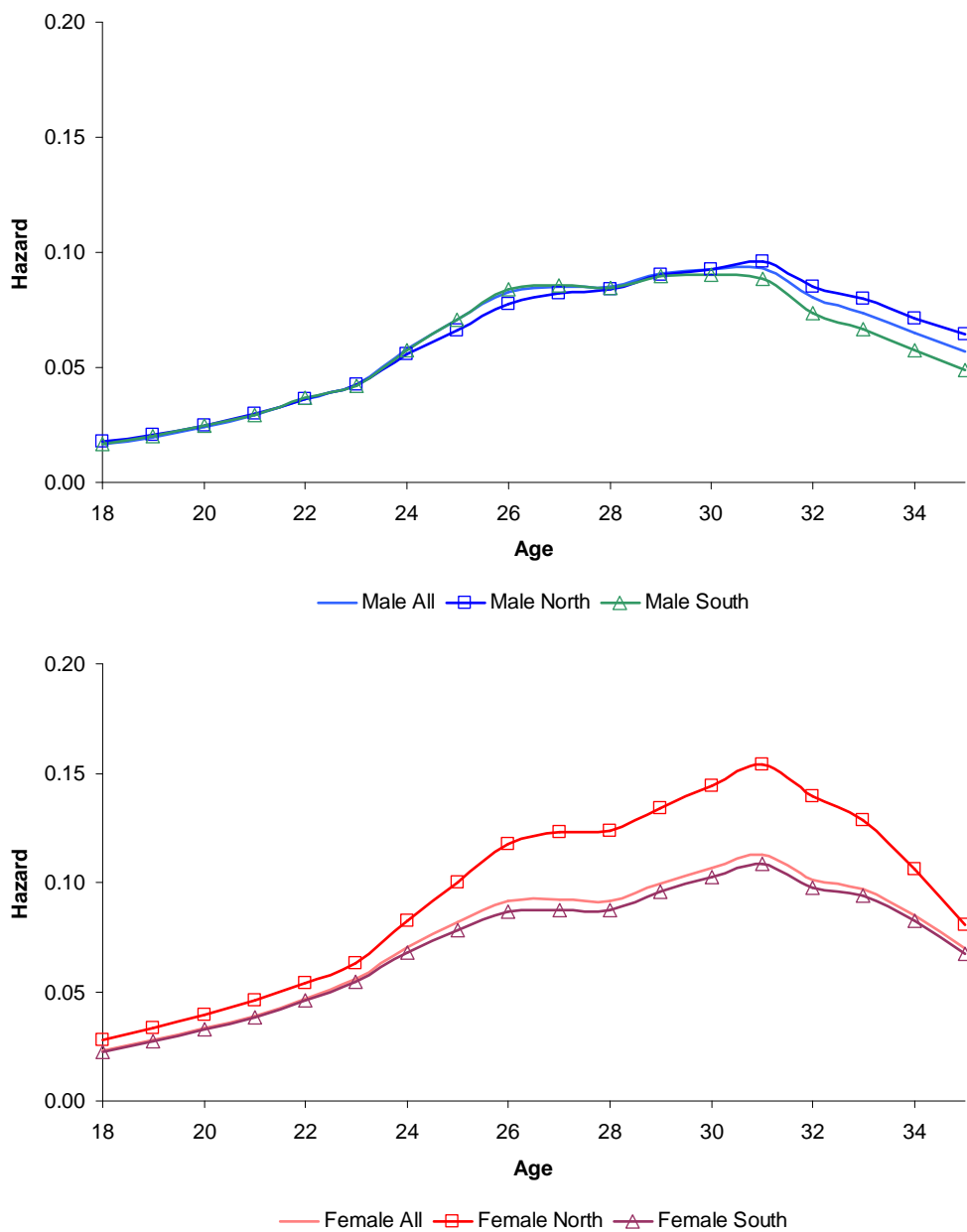
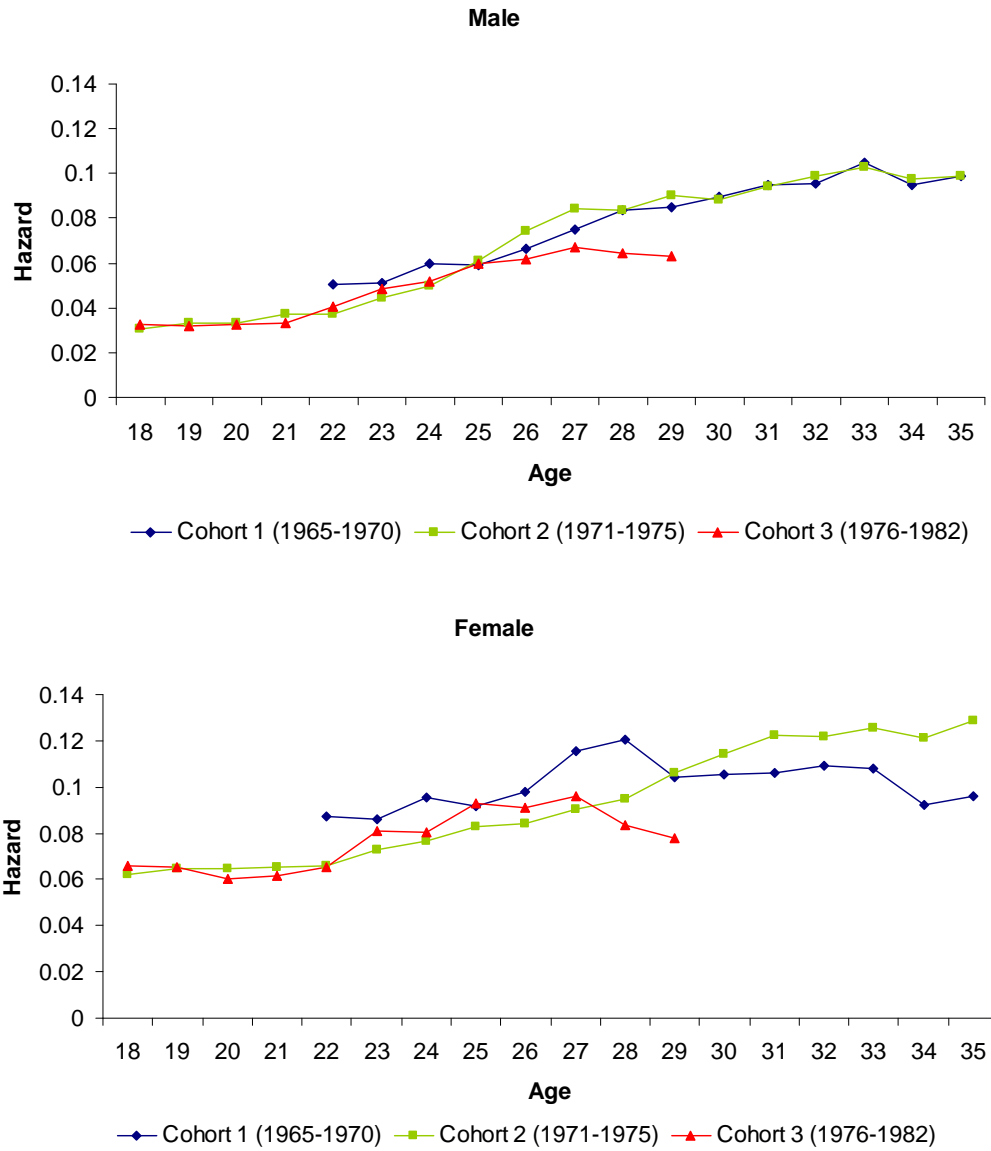**Figure 1: Real house and rent prices and per-capita disposable income**
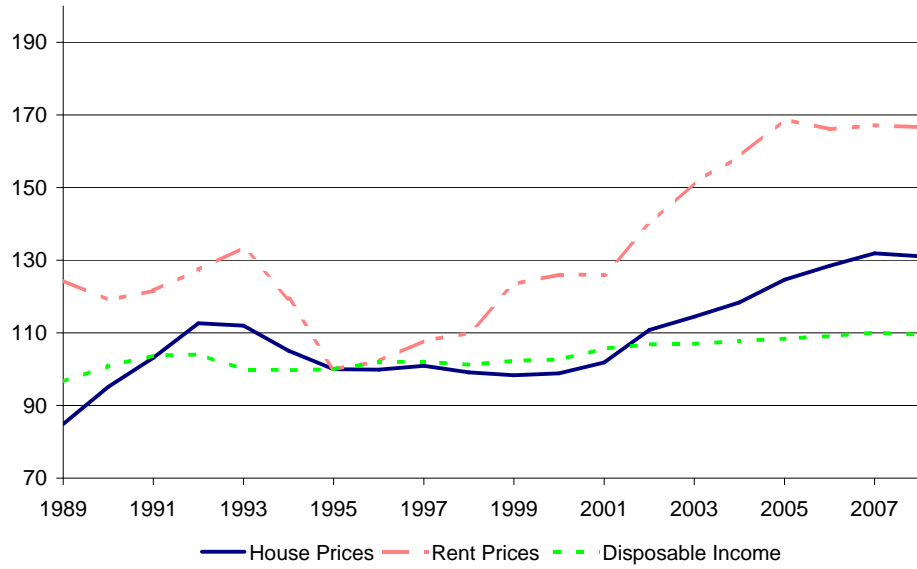
Notes: Our calculation from CI, national account and Bank of Italy. Annual data; indexes: 1995= 100

Figure 2: Age effect and leaving home

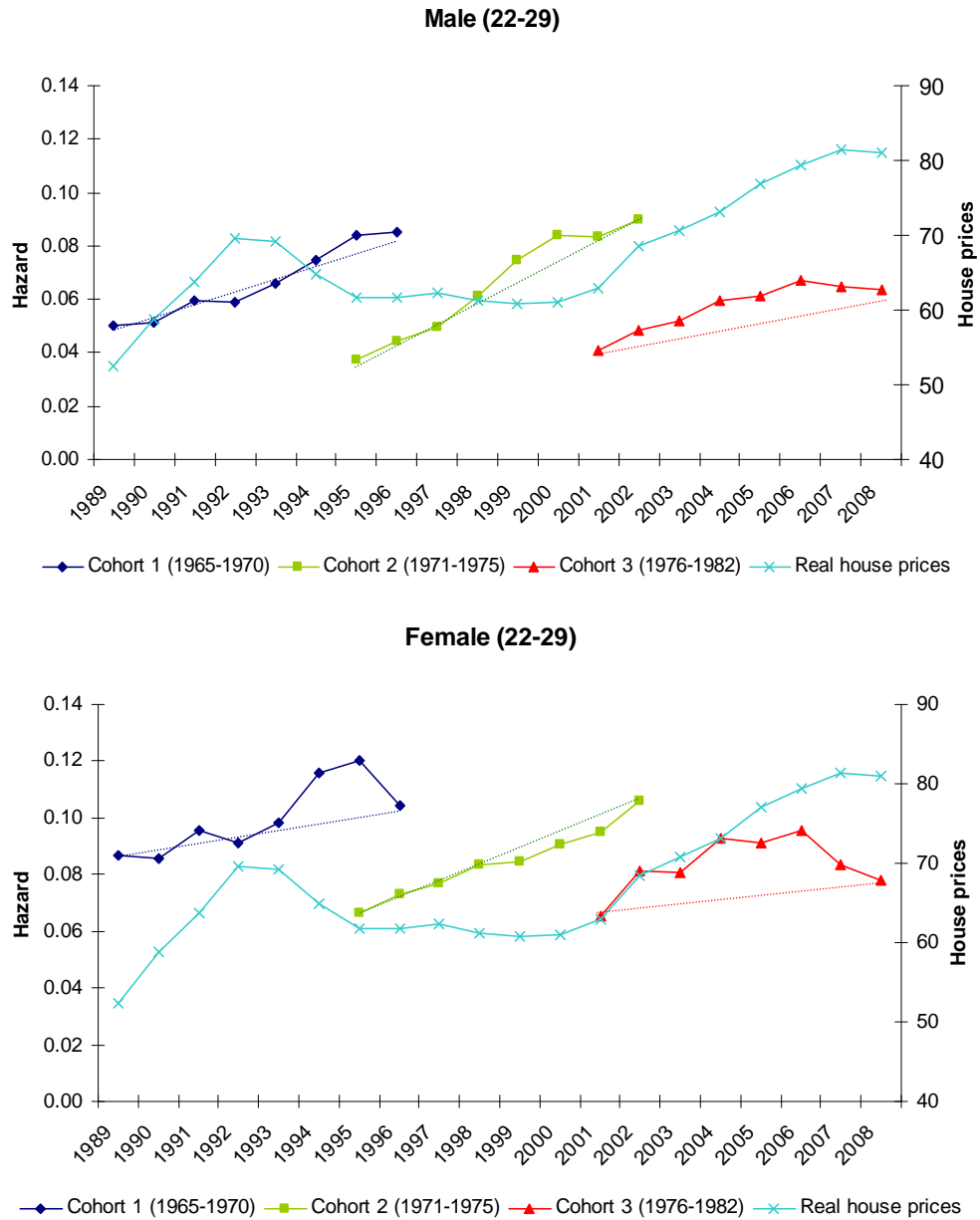*Notes*: Predicted hazard rates from SHIW for male and female, by geographical area. Youths born between 1971-73 included in the sample.

Figure 3: Simulated hazard by cohorts

Male

◆ Cohort 1 (1965-1970) ■ Cohort 2 (1971-1975) ▲ Cohort 3 (1976-1982)

Female

◆ Cohort 1 (1965-1970) ■ Cohort 2 (1971-1975) ▲ Cohort 3 (1976-1982)

Notes: Predicted hazard rates from SHIW for male and female.

Figure 4: Simulated hazard by cohorts for youths.

Male (22-29)

Cohort 1 (1965-1970) — Cohort 2 (1971-1975) — Cohort 3 (1976-1982) — Real house prices

Female (22-29)

Cohort 1 (1965-1970) — Cohort 2 (1971-1975) — Cohort 3 (1976-1982) — Real house prices

Notes: Predicted hazard rates from SHIW. Youths aged from 22 to 29 included in the sample. CI's house prices.

Figure 5: Predicted survival functions for center and suburb

a) Center

b) Suburb
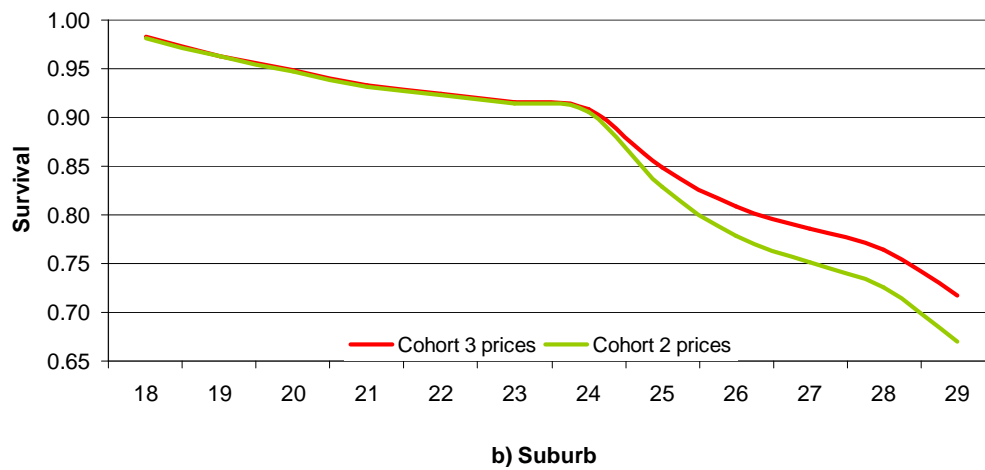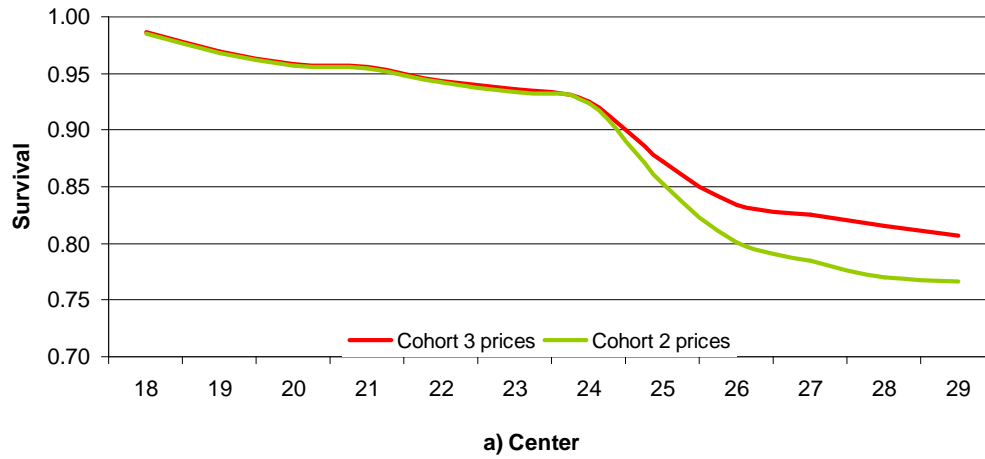
Notes: Predicted survival functions from SHIW. Cohort 3 (1976-1982) included in the sample.

References

Aassve A., Billari F.C., Ongaro F. (2001) The impact of income and employment status on leaving home: Evidence from the Italian ECHP sample, *LABOUR*, 15, 3, 501–529.

Aassve A., Billari F.C., Ongaro F. (2002) Leaving home: a comparative analysis of ECHP data, *Journal of European Social Policy*, 12, 4, 259–275.

Becker S.O., Bentolila S., Fernandes A., Ichino A. (2010) Youth emancipation and perceived job insecurity of parents and children, *Journal of Population Economics*, 23, 1175–1199.

Bentolila S., Dolado J.J. (1991) Mismatch and internal migration in Spain, 1962-1986, in: *Mismatch and Labour Mobility*, Padoa Schioppa F., ed., Cambridge University Press, New York, 182–234.

Berloffa G., Villa P. (2010) Differences in equivalent income across cohorts of households: evidence from Italy, *Review of Income and Wealth*, 56, 693–714.

Brandolini A. (2009) Dimensioni della disuguaglianza in Italia: povertà, salute, abitazione, in: *L'evoluzione recente della distribuzione del reddito in Italia*, Brandolini A. S.C., Schizzerotto A., eds., Il Mulino, Bologna.

Campbell S.D., Davis M.A., Gallin J., Martin R.F. (2009) What moves housing markets: A variance decomposition of the rent-price ratio, *Journal of Urban Economics*, 66, 2, 90–102.

Cannari L., Faiella I. (2008) House prices and housing wealth in Italy, in: *Household Wealth in Italy*, Banca d'Italia (ed.), Rome, 91–110.

Cannari L., Nucci F., Sestito P. (2000) Geographic labour mobility and the cost of housing: evidence from Italy, *Applied Economics*, 32, 1899–1906.

Chiuri M.C., Boca D.D. (2008) Household membership decisions of adult children: Does gender and institutions matter?, Technical report.

Chiuri M.C., Del Boca D. (2010) Home-leaving decisions of daughters and sons, IZA Discussion Papers 4867, Institute for the Study of Labor (IZA).

Cipollone P. (2001) Is the Italian labour market segmented?, Temi di discussione (Economic working papers) 400, Bank of Italy, Economic Research Department.

D'Alessio G., Gambacorta R. (2007) Home affordability in Italy, Questioni di Economia e Finanza (Occasional Papers) 9, Bank of Italy, Economic Research Department.

Ermisch J. (1999) Prices, parents, and young people's household formation, *Journal of Urban Economics*, 45, 1, 47–71.

Ermisch J., Di Salvo P. (1997) The economic determinants of young people's household formation, *Economica*, 64, 256, 627–44.

Facchini C., Villa P. (2005) La lenta transizione alla vita adulta in Italia, in: *Diventare adulti. Vincoli economici e strategie familiari*, Facchini C., ed., Guerini, Milano, 21–143.

Giannelli G.C., Monfardini C. (2003) Joint decisions on household membership and human capital accumulation of youths. The role of expected earnings and local markets, *Journal of Population Economics*, 16, 2, 265–285.

Haurin D.R., Hendershott P.H., Kim D. (1993) The impact of real rents and wages on household formation, *The Review of Economics and Statistics*, 75, 2, 284–93.

Haurin J., Haurin D., Hendershott P., Bourassa S. (1997) Home or alone: The costs of independent living for youth, *Social Science Research*, 26, 135–152.

Iacovou M. (2002) Regional differences in the transition to adulthood, *Annals of Aapss*, 580, 40–68.

ISTAT (2010) Rapporto annuale, Technical report.

Jenkins S.P. (1995) Easy estimation methods for discrete-time duration models, *Oxford Bulletin of Economics and Statistics*, 57, 1, 129–38.

Kohler H., Billari F.C., Ortega J.A. (2002) The emergence of Lowest-Low fertility in Europe during the 1990s, *Population and Development Review*, 28, 4, 641–680.

Leamer E. (2007) Housing and the business cycle, presented at "Jackson Hole Symposium", Federal Reserve Bank, Kansas City.

Manacorda M., Moretti E. (2006) Why do most Italian young men live with their parents? Intergenerational transfers and household structure, *Journal of the European Economic Association*, 4, 4, 800–829.

Mazzucco S., Mencarini L., Rettaroli R. (2006) Similarities and differences between two cohorts of young adults in italy: Results of a cati survey on transition to adulthood, *Demographic Research*, 15, 105–146.

Mencarini L., Tanturri M. (2006) Una casa per diventare grandi. I giovani italiani, l'autonomia abitativa e il ruolo della famiglia d'origine, *Polis*, 20, 3, 405–430.

Muzzicato S., Sabbatini R., Zollino F. (2008) Prices of residential property in Italy: constructing a new indicator, Questioni di Economia e Finanza 17, Banca d'Italia.

Panetta F., Sabbatini R., Zollino F., Bianchi M., Bofondi M., Borselli F., Bulligan G., Buoncompagni A., Cappabianca M., Carpinelli L., Chiabrera A., Columba F., de Blasio G., D'Ignazio A., Fabrizi C., Gola C., Signoretti F.M. (2009) The performance of the Italian housing market and its effects on the financial system, Questioni di Economia e Finanza 59, Banca d'Italia.

Rondinelli C., Veronese G.F. (2011) Housing rent dynamics in Italy, *Economic Modelling*, 28, 540–548.

Rosolia A. (2009) L'evoluzione delle retribuzioni in Italia tra il 1986 e il 2004 secondo i dati dell'archivio whip, Technical report, Lavoro preparatorio per la Commissione interistituzionale di Indagine sul Lavoro.

Rosolia A., Torrini R. (2007) The generation gap: relative earnings of young and old workers in Italy, Temi di discussione (Economic working papers) 639, Bank of Italy, Economic Research Department.