

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

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Abstract

This paper provides an explanation for the postponement of youth emancipation in the Italian context mainly characterized by a sharp increase in both house and rent prices together with stagnant disposable income over the past decade. We first assemble a unique database related to the housing and rental market which is then matched with household characteristics. We find that the probability of leaving home decreases by about half percentage point 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 decisions by unemployed youths to postpone the transition. The youngest cohort was mainly affected by the real estate market evolution that occurred in the last decade.

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

JEL Codes: C41, D1, J12, R2.

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1 Introduction

In recent years house prices have more than doubled in the largest Italian cities (Panetta et al. 2009), and similar developments were recorded in other European countries with the exception of Germany. Developments in residential property prices are an important factor in 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 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 on 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).

The analysis of Italian youth emancipation is particularly interesting because Italians leave home relatively late compared with other countries. The late transition to adulthood relates to both cultural and economic factors, the latter prevailing in recent years. Economic circumstances have changed significantly in Italy over the past 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 in 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 Italian families own their homes, while the share of renters amounts to about 20%. Additionally, the high cost of rental housing prevents many youths from leaving the parental home and induces a sort of selection effect which sorts young and lower income individuals out of the rental market.

Several studies explore the determinants of Italian youth's decision to leave the parental home, but none of them focus on housing prices. While we do not rule out the importance of other factors, in this paper we concentrate on the role played by house prices and rents on coresidence decisions of young Italians. The empirical analysis is conducted using the panel component of the survey of Italian households' income and wealth carried out by 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) on 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 (owned or rented) is located. As a major contribution of the paper, our analysis is based on a detailed database of house and rent prices obtained 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 outside parental home, the former for both sexes, the latter for females. Our results also point up the joint effect of labour market conditions and housing costs on emancipation decisions: on the one hand, an increase in house prices postpones home leaving decisions for employed youths and unemployed females; on the other, the effect of the real estate market on high income households is negligible. Cohort effects are at work, shaping the transition to adult age for those born between 1976-1982.

The paper is organized as follows. Section 2 summarizes the main determinants of home leaving decisions and reviews 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 their childhood start taking definitive steps to achieve measures of financial, residential and emotional independence, and to take on more adult roles as citizens,

spouses, parents and workers. 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 the countries of Southern Europe.

The postponement of youth emancipation has a long tradition in Italy. 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 the age of 24, 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 (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) owing to the difficulty of finding a suitable dwelling 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 for protection against the poverty risk (Istat 2010).

The choice of leaving the parental home depends on both the cost of independent leaving and the individual's ability to pay that cost (Haurin et al. 1997). Among the 1990s house and rent prices increased substantially, with major changes in the institutional Italian labour market. The abolition of wage indexation, 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 off-set by a faster subsequent wage growth (Rosolia and Torrini 2007). These changes gave rise to a segmentation of the labour market whereby an increasing proportion of young workers had low incomes, inadequate social protection, and discontinuous careers; they also contributed to an increase in the number of older workers enjoying higher wages, greater job security, and better opportunities for promotion (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 future pension benefits. The combination of these institutional and market changes has had serious negative consequences for the younger generation in Italy (Berloffia 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 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 owing to significant losses by younger cohorts in their income levels.

2.1 Housing costs and youth emancipation

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

Ermisch and Di Salvo (1997) showed that in the UK higher house prices can affect the postponement of home leaving for women, but 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 formation and found that they also encourage returns to the parental home. A similar study on the USA (Haurin et al. 1993) indicates that higher rental costs are associated with a higher probability that American youths will remain in the parental home or 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 significant effect on the probability of leaving the parental home.

The relation between housing costs and Italian youth emancipation has been studied much less. Some authors include housing costs among the controls, but they focus on different explanations for the high rates of coresidence among young Italians. Giannelli and Monfardini (2003), for example, analyse 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 the parental home and the decision to work or study. Housing costs are constructed as the ratio of the housing cost index (which includes rents, water, maintenance and repair of domestic equipment) 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 the job insecurity of parents and children affects children’s moving-out decisions. The microeconomic analysis for Italy, conducted using the 1995 wave of SHIW, includes the home rental index in the province as a control variable, and it finds no impact of rental prices on young emancipation.

The aim of our paper is to bridge the gap in the literature by focusing on both house prices and rents as key determinants of young home-leaving choices. The main feature of this work is that it uses 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 residential province. We estimate a discrete time duration model considering the decision to emancipate in a year conditioned on a set of observed characteristics.

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 home-owners, (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 experience of work and leaving home: there are regional differences, with Southern young people staying at home for 4 and a half years after the first experience of work. 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 prefer to own, as opposed to renting, their homes as documented by the high proportion of home-owners. The share of home-owners has 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. The 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 past two decades only at younger ages, 30 or less, and for employees. The relationship between the rent option and poor economic conditions has grown stronger in recent decades (D'Alessio and Gambacorta 2007).

Another feature of Italian emancipation is the increasing role of the family background. In the SHIW, 2008, about 30% of home-owners had inherited the home 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 channels on which young Italians may rely to achieve independence from their parents. Since families differ markedly in terms of their human and social capital, as well as economic resources, this may amplify existing inequalities in children's outcomes. Moreover, 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 1990s Italian house prices and rents have exhibited substantial growth. Between 1989 and 2008 house prices more than doubled (Muzzicato et al. 2008), while the Italian consumer price index increased by 75 percentage points. At the same time, rents rose by 80 percentage points over the period 1998-2006 (Rondinelli and Veronese 2010), with severe distributional implications.

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

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

The key variable with which to assess the role of house and rent prices in the youth emancipation decision is obtained from the CI sample using various steps of aggregation. We follow the same procedure as in Muzzicato et al. (2008) and Rondinelli and Veronese (2010) to calculate a house and rent price index at the national level, respectively. As far as rent is concerned, we first aggregate prices at the city level (center, semicenter and suburb) using weights computed from the 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. The evolution of these indexes is depicted in Figure 1.

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

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

4 Empirical methodology and data description

4.1 Empirical methodology

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

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

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

where d_{ijt} is a dummy variable indicating the event's 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,

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

and $f(t)$ is a non-parametrical function of age, chosen as a duration dependence, X_{ijt} is assumed to capture the demographics of both the youth and the household while P_{jt} summarizes the price effects on youth emancipation at the province level. ϵ_{ijt} is a residual error term distributed as a logistic with zero mean and variance $\pi^2/3$.

The duration dependence, $f(t)$, describes how leaving home decisions change with the age of the youth. It is parameterized as a step function given by:

$$f(t) = \sum_{\tau=18}^{35} \phi_{\tau} D_{t\tau}. \quad (3)$$

where

$$D_{t\tau} = \begin{cases} 1 & \text{if } t = \tau \\ 0 & \text{otherwise} \end{cases}$$

and ϕ_{τ} , $\tau = 18, \dots, 35$ are the corresponding coefficients.

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

$$Pr(d_{ijt} = 1 | d_{ijt-1} = 0, X_{ijt}, P_{jt}) \equiv h_{ijt} = \frac{\exp(z_{ijt})}{1 + \exp(z_{ijt})} \quad (4)$$

where

$$z_{ijt} = f(t) + \beta X_{ijt} + \gamma P_{jt}. \quad (5)$$

Our sample includes all youths aged between 18 and 35 years over the period 1989-2008 living at home with at least one parent at the moment when 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

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:

$$\log \mathcal{L} = \sum_{i=1}^n \sum_{j=1}^J \sum_{t=1}^T (z_{ijt} \log h_{ijt} + (1 - z_{ijt}) \log(1 - h_{ijt})). \quad (6)$$

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

In the models considered so far, all differences between individuals are assumed to be captured by observed explanatory variables. However, Nicoletti and Rondinelli (2010) proved that ignoring the unobserved heterogeneity in sequential logit models causes the covariate coefficients to be estimated up to a scale factor; this rescaling factor is found to be close to one in presence of time varying (P_{ij}) observed covariates.

The set of regressors that 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 are expected to be more important for those individuals considering whether or not 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 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 newly built 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 that 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 because 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). Slightly higher rates (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. Using the Bank of Italy data (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 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 and 35 years over the studied period, living at home 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) 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 their parents; the proportion is higher than the one recorded in the ECHP because 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 aged 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 the young people have completed high school, and 37% (25% for females) reported low education.

The average age of the household head⁶ 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 Euros (Table 1).

³More 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 possible answers, the questionnaire included independence as a value that children can be encouraged to learn at home.

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

⁵Unfortunately the survey does not provide information about those who had already left the house.

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

Mean real house prices per square meter are 1.59 and 1.57 thousand Euros for males and females respectively; annual rents are on average 0.07 thousand 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 their 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. In order better to grasp the size of the effect of the real estate market on co-residence 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 (Table 3). A one-SD change in real house prices is equal to 730€ and it would induce a reduction of 0.45 (1.18) percentage points in the male (female) probability of moving out, from 4.1% (5.2%) to 3.7% (4.0%).⁷ The effect of a one-SD change of real rents (30€ per square meter) for females is in line with the one calculated for house prices (there is no significant effect for males), amounting to slightly more than 1 percentage point. Given a mean annual rent of about 0.07 thousand 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 slightly more than one-third of a percentage point (to 4.8%).

The strong positive impact of age on the youth emancipation is recovered from the duration dependence depicted in Figure 2. We compute the hazard rates only for those

⁷All other variables are at their mean.

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 30s have a low probability of emancipating because 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-earners has no effect. Women with higher real wealth are less likely to leave home, while financial wealth seems to positively affect home leaving transition for males only. The estimated coefficients for the human capital of the household head (in most cases the father) are not significantly different from zero, for both males and females. As regard household head working status, we find only a small positive effect of being an 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, highlighting the importance of the credit market for youth emancipation.

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 labour market effect, i.e. being employed or not, is particularly strong in the Italian setting, embodied 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 whereby the youngest people live with their parents while studying (Giannelli and Monfardini 2003; Mazzucco et al. 2006). As a consequence, youths with high educations are more likely to leave the parental home.

5.2 Further extensions

Because education is one of the main reasons 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 the parental home by about two-thirds of a percentage point and half a percentage point, from 5.3% to 4.6% and 4.8% respectively (see Table 3). House and rent prices matter for both student and non-student females, the marginal effect being higher for the latter: a one-SD change in house prices leads to a 0.6 and 1.6 percentage points reduction for students and non-students respectively (from 2.1% and 7.7%); a similar increase in rents reduces the probability by 0.5 and 1.4 percentage points for the two categories (to 1.6% and 6.3%). 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 the parental home while they are studying irrespectively of house prices.

Given the different behaviour between students and non-students, we conduct 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 the results for the interactions between house (and rent) prices and the dummies for being employed or otherwise (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 student) individuals

(a one-SD change in house prices decreases the probability of 7.7% by one percentage point when employed, 2.5 percentage point when not employed). House prices matter only for employed males, while rents do for young females not employed. These results support the idea that a very low proportion of males would quit the parental home when not employed; some evidence of the role of the marriage market emerges 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 (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 (from 5.3% to 3.6% and 4.3%). Rents only have an 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 (to 6.0% and 2.7%). 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 the one hand, high income households may give financial support to youths and thus facilitate their emancipation; on the other, parents may have a preference for co-habitation and thus transfer resources to the children living with them (Manacorda and Moretti 2006).

One possible shortcoming of our analysis is that P_{jt} may capture both time-varying differences in house prices and structural differences across cities that do not vary with time. In order to separate these two effects we include city fixed effects among the controls. Results strengthen the role of the real estate market on youth emancipation, since marginal effects

of house prices and rents increase.⁸

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 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 at the beginning of the 1990s 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 15-24 group, 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, in terms of an upward increase in both house prices and the unemployment rate.

As Figure 3 shows, the hazard rate increases with age: the probability of leaving the 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, which behaves like cohort 3 until the age of 25, has a profile very close to cohort 1 after that age. Cohort 2 of females experienced the highest upward increase in the hazard rate, with a pace of growth very similar to that of 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 that of cohort 2 after the age of 29.

We now focus on the relevant years in which young people are expected to leave home (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 growth rates higher than these of other

⁸Marginal effects of house prices (rents) are -0.02 (-0.32) and -0.04 (-0.62) for male and female respectively, to be compared with those reported in Table 2.

cohorts, and they face a real house price that is fairly stable. By contrast, the oldest and the youngest cohorts faced a sharp increase in house prices prior to the two recent economic crises. These patterns are exhibited by both males and females: the 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. Overall, 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 simulated 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 the 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 a 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 (suburbs). If cohort 3 faced the same house prices as 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 youths aged under 24. There are sizeable differences in the home leaving process at adult ages, meaning that if house prices had decreased to the mean average of 1995-2002, the likelihood of a youth leaving the parental home would have increased by 5 percentage points in the center and 7 percentage points in the suburbs at the age of 29.

Overall, the appreciation of the real estate market in the past decade, together with structural reforms of the labour market, have deteriorated the economic conditions of youths born between 1976-1982.

6 Conclusions

This paper investigates the role of house and rent prices in explaining the high rate of young Italians living with their parents. Our work is the first study to concentrate on this issue in Italy, and the main contribution is that we have based our analysis on detailed information about the market value of house prices and rents. We have used 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 have been 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, from 4.1% to 3.7% and from 5.2% to 4.0%, 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.

Youth emancipation has been found to be subsequent to the end of education, suggesting a more rigid sequence for men: young men do not leave the parental home while they are studying, regardless 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 lives in the parental home, regardless 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 has revealed that, owing to structural reforms of the labour market and the sharp increase in house and rent prices at the beginning of the last decade, 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 of leaving the parental home. A simulation exercise proved that at the age of 29 the youngest cohort would have increased the propensity to leave parental home by about 6 percentage points if it had faced the same

house prices as the cohort born in the years 1971-1975.

Females behave quite differently from men: cultural factors prove to be significant predictors of the propensity to live with parents, reflecting the traditional Italian cultural setting where women are primarily responsible for childcare and other nonmarket services, because 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; the credit market has also been found have a non-negligible impact on female emancipation.

Policies aimed at reducing the cost of housing would reduce the probability of co-residing with parents, the effect being higher if they are targeted on young unemployed people and on those youths whose parental income is medium or low. Because the housing shortage, more marked in the last decade especially in regard to the cheapest dwellings, and the recent global crisis have reduced both the probability of a youth being employed and the household income, larger investments are needed in social-housing projects.

Table 1: Descriptive Statistics

Variable	Male			Female		
	Obs.	Mean	Std. Dev.	Obs.	Mean	Std. Dev.
<i>Outcome</i>						
Out of parental home	19,662	0.094	0.29	14,648	0.12	0.32
<i>Individual's characteristics</i>						
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
<i>Household's characteristics</i>						
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 €)	19,662	0.18	0.31	14,648	0.18	0.31
Financial wealth (million €)	19,662	0.02	0.06	14,648	0.02	0.06
<i>Provincial characteristics</i>						
Real house prices (m ² - thousand €)	19,662	1.59	0.74	14,648	1.57	0.72
Real rent prices (m ² - thousand €)	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** (0.00311)		-0.0161*** (0.00429)	
Rent prices		-0.0828 (0.0749)		-0.362*** (0.117)
High school diploma (middle school)	0.00218 (0.00484)	0.00236 (0.00485)	0.00444 (0.00639)	0.00392 (0.00642)
Bachelor's degree and beyond	0.0169* (0.00893)	0.0170* (0.00898)	0.0245** (0.0113)	0.0241** (0.0112)
Not employed not student	-0.00920* (0.00482)	-0.00903* (0.00485)	-0.0125** (0.00616)	-0.0127** (0.00616)
Student	-0.0259*** (0.00507)	-0.0258*** (0.00511)	-0.0429*** (0.00626)	-0.0429*** (0.00627)
Real wealth	0.0001 (0.00393)	-0.000157 (0.00409)	-0.0223** (0.0113)	-0.0226** (0.0114)
Financial wealth	0.0494*** (0.0189)	0.0487** (0.0190)	0.0152 (0.0364)	0.0191 (0.0360)
No. components ex.parents and youth	-0.000195 (0.00219)	-0.000175 (0.00221)	0.00597** (0.00279)	0.00602** (0.00281)
No. perceivers	0.00271 (0.00248)	0.00286 (0.00249)	-0.000197 (0.00325)	0.000191 (0.00323)
HH's age	0.0001 (0.000189)	0.0001 (0.000190)	-0.0001 (0.000246)	-0.0001 (0.000246)
HH middle school	0.00135 (0.00515)	0.00116 (0.00517)	0.00114 (0.00669)	0.000932 (0.00669)
HH high school	0.00154 (0.00542)	0.00127 (0.00545)	-0.00955 (0.00703)	-0.0101 (0.00703)
HH bachelor's degree	0.00230 (0.00761)	0.00206 (0.00764)	-0.00297 (0.00936)	-0.00366 (0.00929)
HH employee	0.0104* (0.00544)	0.0105* (0.00544)	0.00494 (0.00674)	0.00545 (0.00672)
HH self employed	-0.000188 (0.00620)	-5.80e-05 (0.00622)	0.0103 (0.00877)	0.0115 (0.00888)
Only father	-0.00596 (0.00923)	-0.00650 (0.00915)		
Only father * age (18-24)			0.0871 (0.0583)	0.0885 (0.0589)
Only father * age (25-35)			-0.0391*** (0.00598)	-0.0395*** (0.00595)
Sex ratio	0.455 (0.375)	0.429 (0.375)	0.426 (0.515)	0.428 (0.520)
Independence	0.000679* (0.000359)	0.000579 (0.000357)	0.00144*** (0.000530)	0.00133** (0.000527)
Loan/Value added	0.00256 (0.00292)	0.00166 (0.00299)	0.0109*** (0.00400)	0.0104** (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, but depicted in Figure 2. The sample includes all people aged between 18 and 35. Robust standard errors in parentheses. Real house and rent prices in thousand €. *** 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 thousand €. *** p<0.01, ** p<0.05, * p<0.1.

Table 4: Housing prices and occupational status

VARIABLES	One-SD change			
	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	

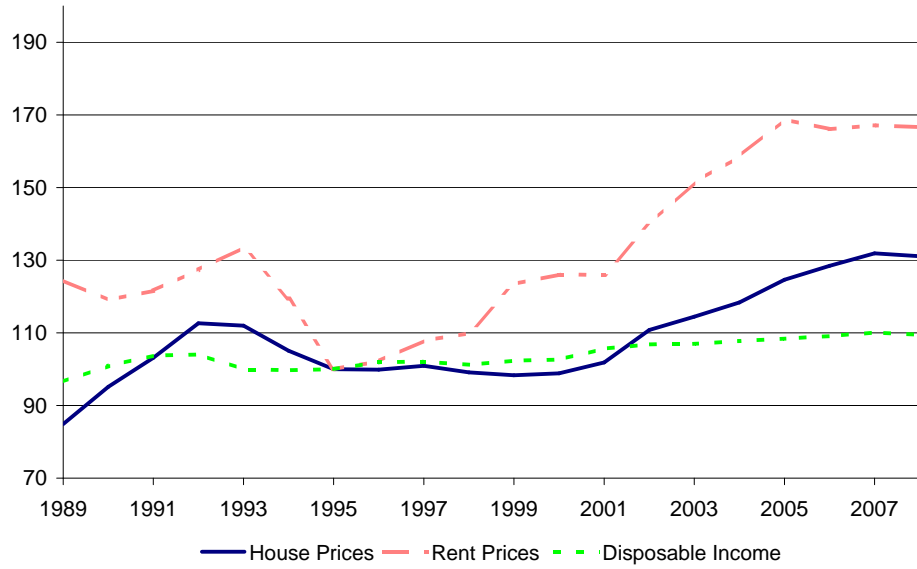
Note: Effect of a one-SD change in house prices and rents on the probability of leaving home (percentage points). HH= Household head. A weighed discrete time duration model with single spell is assumed. The sample includes all non student male and female aged between 18 and 35. Real house and rent prices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

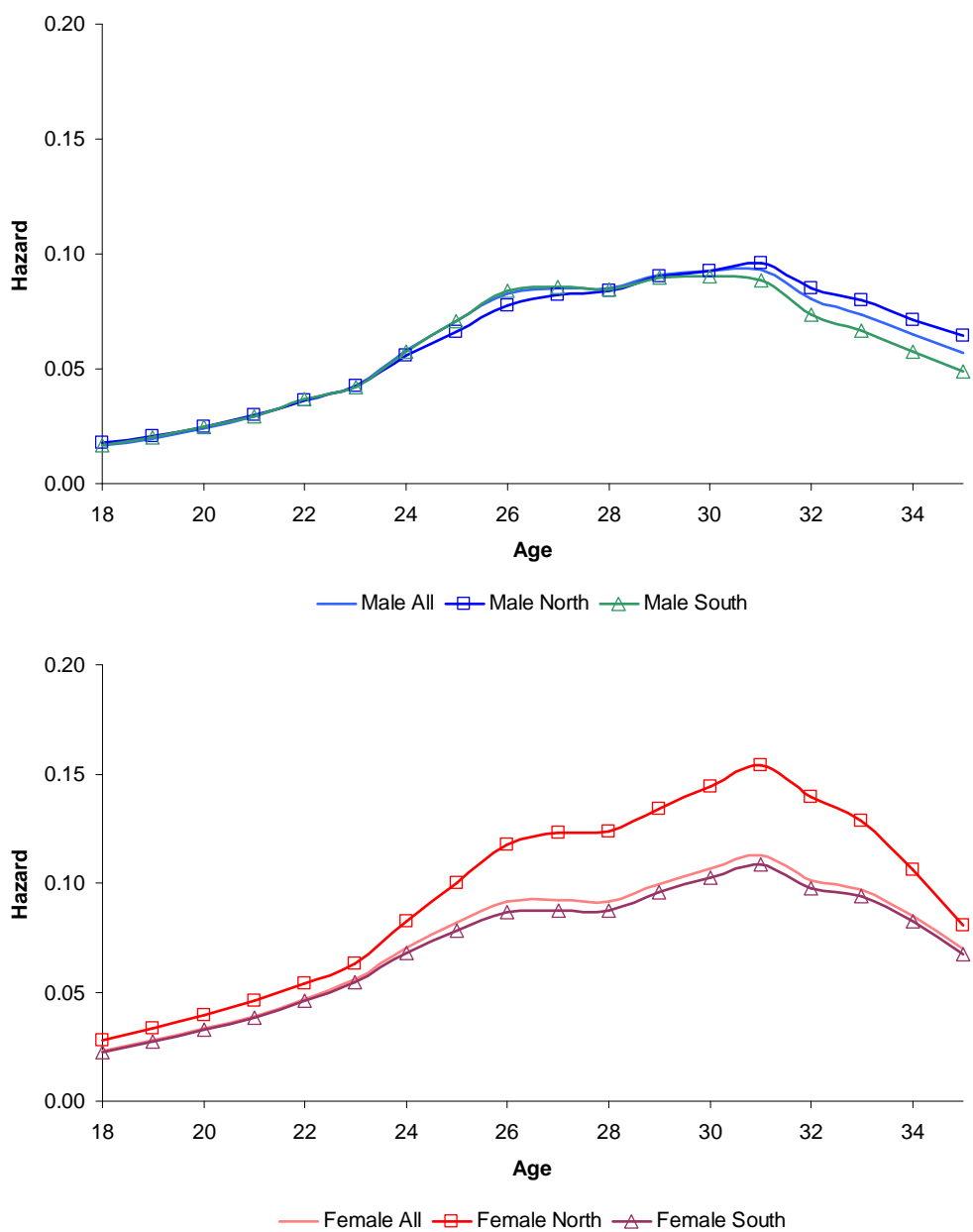
Note: Effect of a one-SD change in house prices and rents on the probability of leaving home (percentage points). HH= Household head. A weighed discrete time duration model with single spell is assumed. The sample includes all non student male and female aged between 18 and 35. Robust standard errors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

Figure 1: Real house and rent prices and per-capita disposable income



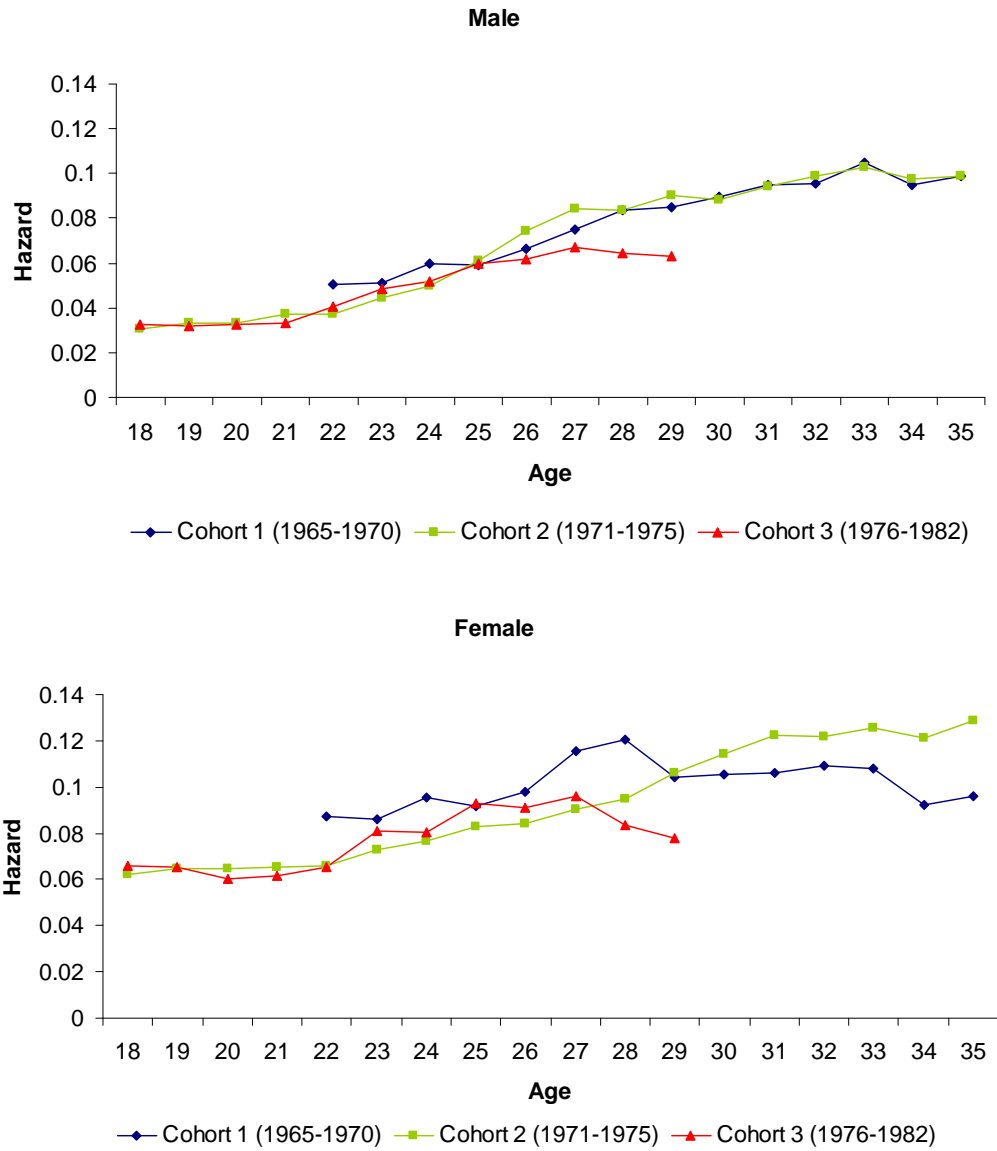
Notes: Our calculation from CI, national account and Bank of Italy. Annual data; indexes: 1995= 100

Figure 2: Age effect and leaving home



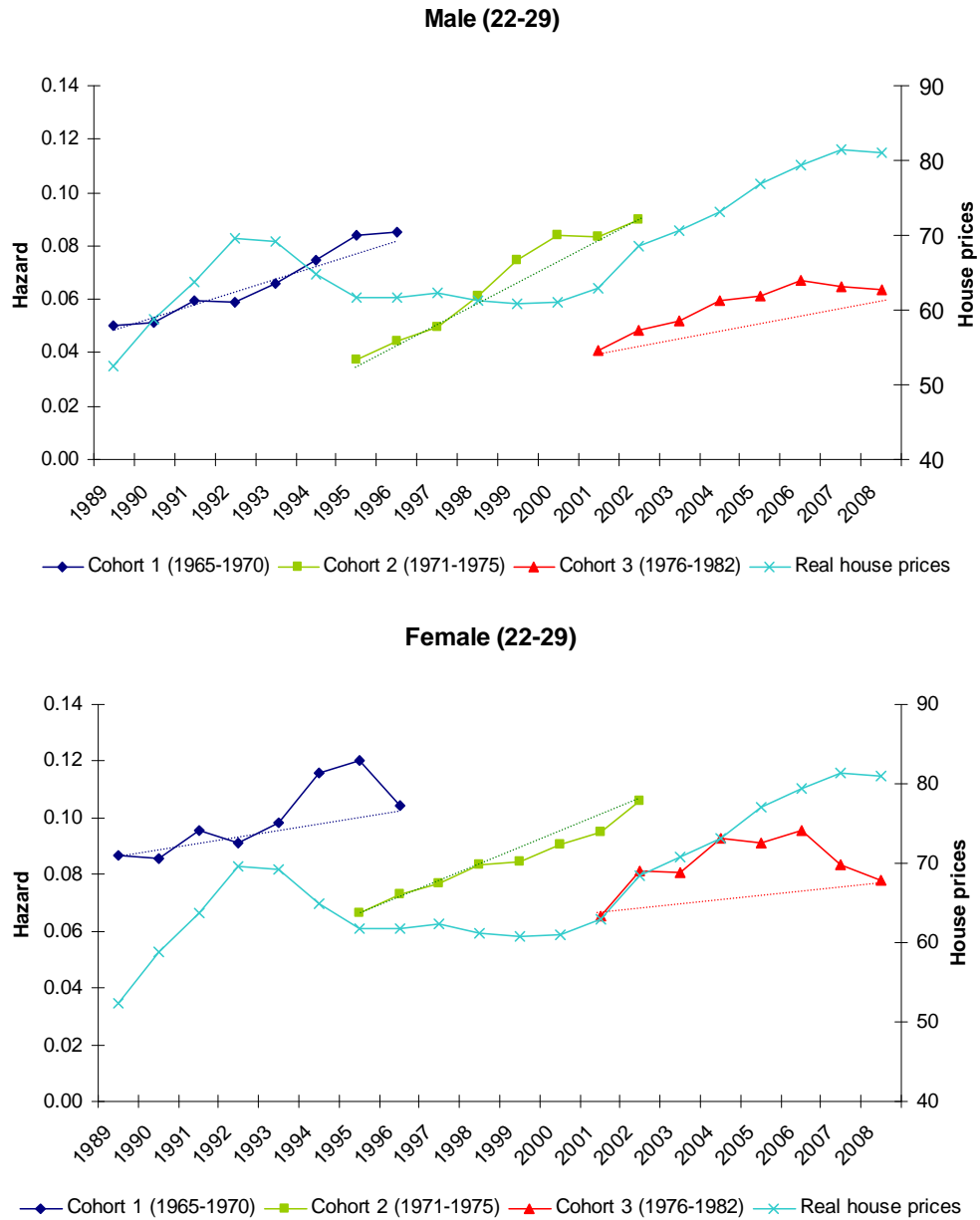
Notes: Duration dependence for male and female, by geographical area. Youths born between 1971-73 included in the sample.

Figure 3: Simulated hazard by cohorts



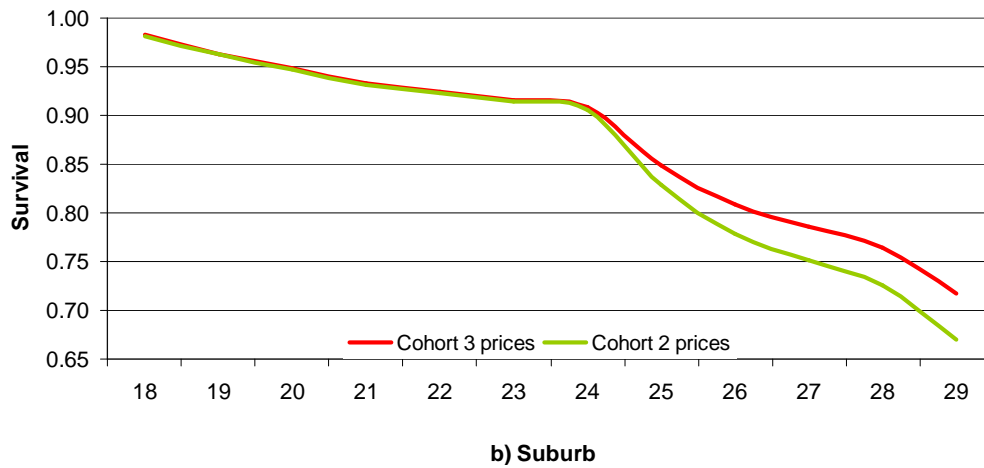
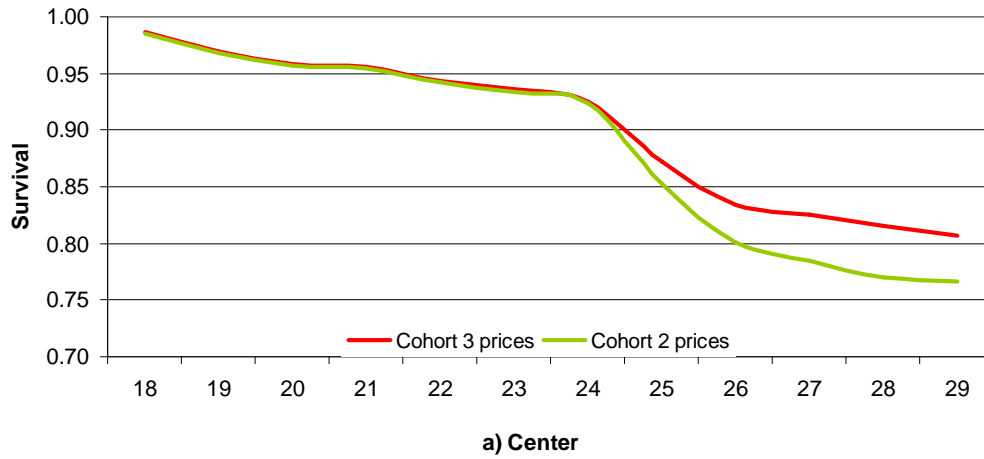
Notes: Predicted hazard rates from SHIW for male and female.

Figure 4: Simulated hazard by cohorts for youths.



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



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

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