Leaving your Mamma: Why So Late in Italy?

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Abstract

Data show that, in Italy, young adults tend to postpone the transition to adulthood and live with their parents until very late: less than half of young males has moved out by the age of 30. Here, I build a dynamic discrete choice model in which agents simultaneously choose labor supply, residential arrangements and marital status conditional on the institutional framework and other agents' choices. In the marriage market, agents compete for wifes in a non-cooperative game with their peers and, therefore, their choices depend on the expected behavior of the other agents. The model is structurally estimated with the Simulated Method of Moments (SMM) using data from the Bank of Italy for the year 2004 in order to address the role of factors such as labor market regulations, parental income, housing costs, and social interactions on the individual choices. The estimated model is used to perform a variety of counterfactual experiments. Results suggest that the combination of limited access to unemployment benefits for younger adults together with the relatively high income of their parents might contribute to the observed patterns because children rely on their parents in case of unemployment. Agents' choice appear also to react to the relative levels of wages and housing costs.

1 Introduction

The transition to adulthood involves several important steps in a person's life: finding a job, leaving home, finding a partner, forming a separate family, etc. The formation of an independent household, possibly with a partner, is certainly a goal for many young adults and usually implies the separation from the family of origin. The choice of leaving the parental home is important because it separates the young adult from the daily contact with the parents and free the latter from the obligation of providing housing and financial support. Finally, a

[0]I would like to thank professor Zvi Eckstein for his constant encouragment and advise. The responsibility for all errors remains mine.

necessary condition for moving out is to have a reliable source of income which usually means finding a job. In general, all such choices are not made in isolation from one another but rather simultaneoulsy given the agent current situation and her expectations over future events.

The whole process of becoming adults is also relevant from an aggregate point of view. In fact, the timing of the residential shift has important demographic and economic implications. For instance, as long as living on one's own is considered a desirable precondition for having children, an observed increase in the mean age of children's nest leaving might be connected to the low fertility rates observed in several South European countries.

Empirical papers have studied the effect of parental income (Avery et al., 1992; Manacorda et al., 2005), wage levels (Haurin et al., 1993), housing market (Hermisch and Di Salvo, 1997) and cultural background (Giuliano, 2006). Few papers have treated the home leaving choice within a game theoretical framework. McElroy (1985) is the first to analyze the joint determination of household membership and work supply with a structural approach with parents and children choosing the family resource allocation according to a Nash criterion function. More recently, Rosenzweig and Wolpin (1993,1994) have considered the choice of coresidence as the outcome of a game between parents and children under the assumption that parents care for their children (and make transfers to them) but, at the same time, suffer from a "privacy cost" that is increasing in time. Most of the literature refer to United States data, while only recently European data have been used. The Italian case has been studied by Manacorda and Moretti (2000, 2005) who address the role of parents' income and labor market regulations on residential choices within a bargaining framework of parents versus children. Aasve et al. (2000) focus instead on the impact of income and unemployment status.

Here, I build a dynamic discrete choice model in which the young adults choose at the same time labor supply, residential arrangement and marital status conditional on the institutional environment and on the other agents' choices. Individuals compete for marriage proposals and since the probability of finding a good match decreases with the number of not married agents, those who wait too long face a disutility. The strategic interaction is, therefore, not between parents and children but rather between the young adults and their peers. The model allows for each discrete choice to be made simultaneously to the others and provides an attempt to study the transition to adulhood as a whole. The fundamental choice of having a (first) child is instead disregarded in order to keep the model manageable and its inclusion is left to future reasearch[1].

The goal of the paper is twofold. First, it tries to shed some light over the determinants of the late transition to adulthood in Italy measuring the relative importance of both institutional and social factors; then, it simulates the effect of several economic policies and assesses their efficacy in tackling the problem.

The paper is organized as follows: first, some stylized facts from the data are illustrated; then, the theoretical model, its solution tecnique and the estimation

[1] In order to limit distortions due to fertility choices, the model is estimated for males only.

method are discussed. Finally, simulations are run and results are compared to the base model. The last paragraph concludes.

2 Main facts

In this section, Italian data from the *Survey of Households' Income and Wealth* (SHIW) of the Bank of Italy and U.S. data from the *Integrated Public Use Microdata Series* (IPUMS) are used to document that, in Italy, each step of the transition to adulthood occurs relatively late. Observations refer to the year 2004.

Figure 1a displays the percentage of males in a certain age class that are living in the family of origin in the two samples. The number corresponding to a certain age class equals the ratio of those who are defined as 'son or daughter of the head of the household' and are *not* main income earners in the household[2]. The difference between the two samples is striking: while at the age of 18, already around 20 per cent of Americans have left the family of origin, in Italy less than 10 per cent of them have done so. Looking at older ages the gap increases even more and is not fully filled until the age class of 35-39.

Not only Italians stay longer with their parents, they also start working relatively late. Employment-to-population ratio are increasing but they are generally higher in the U.S.. Italians work more only in the last age class (35-39) while at younger ages the opposite is true and differences are significant especially under 30 years old.

Finally, we can take a look at the different patterns in the choice of marriage (figure 1c). The percentage of individuals who married at least once is, not surprisingly, increasing with age. Nevertheless, Italian men marry much later. The gap is the largest in the age class 25-29 and is filled only above the 35 years old.

To summarize, data suggest that compared to Americans, young Italians tend to postpone their independence from the family of origin and in order to address the determinants of this behavior, it is important to take into account the institutional and social frameworks in which such choices are made. In fact, I will assume that individuals take some variable as exogenous. Some refer to their own family (parental transfers), others refer to the legal framework (labor market regulation), and others refer to well established social norms (marriage market functioning).

The role of the parental income in the children's independence choices is *a priori* unclear: parental resources might decrease young adults' leaving home because of the comforts they provide are attractive, or else parents might use higher resources to increase their own privacy or to subsidize children's independence.

[2]The condition of being not the main source of income in the family has been imposed in order to control for those cases in which the children have actually left but later rejoined the parents to take care of them. The questionnaires don't have direct information on this issue.

The institutional framework is also important. Consider, for instance, the role of the Unemployment Insurance Benefits (UIB) regulation. This is quite different in the two countries: in the United States, each State administers a separate unemployment insurance program with guidelines established by Federal law. In general, workers are eligible if they meet some monetary and non-monetary requirements. The former are usually a minimum amount of wage received during a reference period (*base period*), while non-monetary requirements are that the employer was laid off with non fault of her own and is actively looking for a job. The benefits can be paid for a *maximum* of 26 weeks (*benefit year*) unless extended benefits are granted. Current threshold for qualification make it possible even to young workers to access the UIB benefits in case of unemployment. In Italy, on the other hand, unemployment benefits are managed by the *Istituto Nazionale di Previdenza Sociale* (INPS) under the *Indennita' di Disoccupazione Ordinaria* (IDO) program. In order to qualify, workers must be laid off with no fault, must have been insured at IDO for at least two years and must have paid at least 52 weekly insurance premia in the last two years prior to the layoff. After becoming unemployed, individuals have to register at the local unemployment office and file an application. Benefits are paid for 6 months (9 if the worker is older than 50) and the amount paid is 40% of the average wage earned in the last three months, up to a maximum of circa 800 euros (circa 950 for high wage levels). Generally speaking, I would say that the Italian qualification rules are stricter than American, in fact, the two years requirement excludes from the IDO program workers who are irregular or just entered the labor market. Most workers of this type are also young.

3 The model

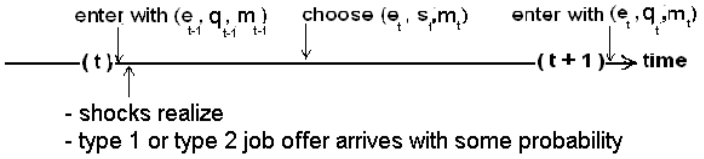
I develop here a dynamic discrete choice model to study the determinants of the observed Italian patterns of home leaving, labor market participation and marriage. In each period, individuals choose their employment, residential and marital status within given institutional and social frameworks.

The istitutional framework refers to the UIB legislation. As a general rule, unemployment benefits provide insurance to workers for losing their job with no fault and free them from other sources of income such as personal savings or parental transfers while looking for another job. Young workers typically don't have much savings and can no longer rely on some parental transfers after they move out[3]. This implies that the qualification criteria might actually influence the choice of forming a separate household (leaving and/or marrying): in fact, if a risk adverse young worker knows that she doesn't qualify for unemployment benefit payments she might postpone the exit from the parents' home until she finds a better job. This effect is expected to be magnified if finding another job requires a lot of time and/or if the value of the parents' transfers is high.

[3]Parents might provide monetary transfers but some goods publicly available in their house will be no longer available to the children after they move out. Examples might be cable TV, phone line, etc.

Decisions are also taken within a specific "social framework". Other papers (Giuliano, 2006) have studied the possibility that differences on the cultural background might have on the choosen patterns but usually different outcomes are driven by differences in tastes. Here, I introduce a mechanism according to which the other agents' choices influence individual behaviors. In particular, young adults interact through the marriage market in which they compete for high quality partners on a first-come-first-served basis. When an agent decides to marry, she picks the best available partner but the first-come-first-served assumption implies that the matching quality decreases with the number of available partners. This implies that everyone will be interested in the age at which the other agents marry because it influences the expected utility from her own marriage. Optimal choices will therefore be best responses in a non-cooperative game of each young adult against the others and equilibrium requires that beliefs are realized. According to this approach social behaviors are therefore generated endogenously rather than being assumed exogenously.

The timing of the model is as follows: at time 0, before everything else, the agent observes the institutional framework, i.e. the UIB legislation, and forms an expectation on the behavior of the other agents' age at marriage. Individuals are observed for $T = 5$ periods each lasting 5 years and corresponding to the following age classes: 15-19, 20-24,25-29, 30-34, and 35-39. At the beginning of period $t = 1$ they are assumed to live with their parents, to be unemployed and not married. The timing in each period $t \geq 1$ is pictured below.



Timing at time t

An agent may enter the period with

$$
\begin{aligned}
e_{t-1} &= \begin{cases} 1, \text{ if employed in } t-1 \\ 0, \text{ oth.} \end{cases} \\
q_{t-1} &= \begin{cases} 1, \text{ if working a type 1 job in } t-1 \\ 0, \text{ oth.} \end{cases} \\
m_{t-1} &= \begin{cases} 1, \text{ if married in } t-1 \\ 0, \text{ oth.} \end{cases} \\
edu_{t-1} &= \begin{cases} 1, \text{ if holding a university degree in } t-1 \\ 0, \text{ oth.} \end{cases} \\
student_{t-1} &= \begin{cases} 1, \text{ if student in } t-1 \\ 0, \text{ oth.} \end{cases}
\end{aligned}
$$

the vector $(e_{t-1}, q_{t-1}, m_{t-1})$ belongs to the state space. At the beginning of each period, shocks on observable variables and the wage realization are observed. Also, the agent receives a job offer with some probability. The offer can be

of two types: type 1 jobs pay the realized wage and qualify for UIB coverage, type 2 jobs pay the same wage but do not qualify for UIB coverage. These types should proxy two broad categories of jobs currently available in Italy: short-term jobs (*tempo determinato*) which last a limited period of time, and no-term jobs (*tempo indeterminato*). Since most jobs of the first kind last for less than one year, it is likely that they would not qualify workers for UIB. On the contrary, agents working no-term in period t (5 years) are assumed to qualify for UIB. Given the initial state and the observed realizations at time t, the agent chooses her employment status (e_t), residential status (s_t) and marital status (m_t) with

$$\begin{aligned} e_t &= \begin{cases} 1, \text{ if works} \\ 0, \text{ oth.} \end{cases}, \\ s_t &= \begin{cases} 1, \text{ if lives with the parents} \\ 0, \text{ oth.} \end{cases}, \\ m_t &= \begin{cases} 1, \text{ if marries} \\ 0, \text{ oth.} \end{cases} \end{aligned}$$

The vector of choices at time t belongs to

$$\Sigma_t := \{(e_t, s_t, m_t) : e_t \in \{0,1\}, s_t \in \{0,1\}, m_t \in \{0,1\}\}, \forall t$$

Agents derive utility from the consumption of goods (c) and from marriage (M) but they incur into a utility privacy cost (S) if residing with their parents. The period utility is given by

$$U(e_t, s_t, m_t) = c_t + m_t M_t - s_t S_t$$

The "privacy cost" S_t is similar to the one used in Rosenzweig and Wolpin (1993, 1994) and is paid if the agent lives in the parents' home. It is proportional to her age and to the number of periods that the young adult lives in the parents' house after marrying[4].

$$S_t = \gamma_0 + \gamma_1 t + \gamma_2 (m_t + m_{t-1}) + \varepsilon_t^S$$

The utility from marriage is assumed to be of the form

$$M_t = M(t, \bar{t})$$

with $\partial M_t / \partial t > 0$ and $\partial M_t / \partial \bar{t} < 0$. M_t is therefore increasing in age but decreasing in the average age at which the other agents decide to marry ($\bar{t}$). The intuition behind the negative sign of the latter derivative can be explained as follows: if the expected mean age at which the other agents marry increases, the quality of the matching increases and agents can afford waiting longer.

Recall that since agents' choices depend on the others' through $\bar{t}$ their choices are best response functions. At time 0, agents form a belief on $\bar{t}$, $\bar{t}^e$, and choose

[4] The number of periods of marriage could be an integer between 0 and $4 = T - 1$, but in order to limit the state space to a treatable dimension, I only consider the marital status in the current and last period.

their optimal patterns accordingly. In equilibrium beliefs realize, therefore, the numerical solution of the Nash game imposes that $\bar{t} = \bar{t}^e$.

The utility from marriage is modeled as

$$M_t = \rho_0 + \rho_1 t + \rho_2(\bar{t}^e - t) + \varepsilon_t^M$$

Both the utility from marriage and the privacy cost are subject to normally distributed shocks

$$\varepsilon_t^M \sim N(0, \sigma^M) \text{ and } \varepsilon_t^S \sim N(0, \sigma^S)$$

Agents' income is used for consumption (c) and for the ordinary maintenance of the dwelling H (rent, utilities, etc.). H is rescaled by R if the agent is married to allow for economies of scale. H is not paid as long as the agent is living in the parental home. Income sources are of three types: wage, unemployment benefits (b), and transfers from parents. I assume that the amount transfered depends on the employment status of the children and is expressed as fractions of parents' income (Y) and wealth (W). No transfers are granted after the child moved out.

The period budget constraint is therefore

$$\begin{aligned} c_t + (1 - s_t)[Rm_t H_t + (1 - m_t)H_t] \quad \leq \quad & e_t[w_t + s_t\phi_1(Y + W)] \\ & +(1 - e_t)[e_{t-1}q_{t-1}b + s_t\phi_2(Y + W)] \end{aligned}$$

where q_{t-1} equals 1 if the job was of type 1 and 0 otherwise.

The wage w_t follows a Mincer's equation. It depends on the employment status in the previous period (e_{t-1}) and on educational level:

$$\ln w_t = a_0 + a_1 e_{t-1} + a_3 edu_{t-1} + \varepsilon_t^w$$

3.1 The solution technique

The optimal stopping problem is

$$\begin{aligned} & \max_{(e_t, s_t, m_t)} E\left[\sum_{t=1}^{T} \beta^{t-1} U(e_t, s_t, m_t) | \Omega_t\right] \\ & s.t. \\ c_t + (1 - s_t)[Rm_t H_t + (1 - m_t)H_t] \quad \leq \quad & e_t[w_t + s_t\phi_1(Y + W)] \\ & +(1 - e_t)[e_{t-1}q_{t-1}b + s_t\phi_2(Y + W)] \\ \ln w_t \quad = \quad & a_0 + a_1 e_{t-1} + a_2 \prime P + \varepsilon_t^w \\ M_t \quad = \quad & \rho_0 + \rho_1 t + \rho_2(\bar{t}^e - t) + \varepsilon_t^M \\ S_t \quad = \quad & \gamma_0 + \gamma_1 t + \gamma_2(m_t + m_{t-1}) + \varepsilon_t^S \\ \varepsilon_t^M \quad \sim \quad & N(0, \sigma^M),\ \varepsilon_t^S \sim N(0, \sigma^S),\ \varepsilon_t^w \sim N(0, \sigma^w) \end{aligned}$$

where Ω_t is the information set available in t which includes the initial state, the realization of the shocks and every observable variable. To solve the optimization

problem, define the value function $V_t(\Omega_t)$ as

$$V_t(\Omega_t) = \max_{(e_t, s_t, m_t)} E\left[\sum_{\tau=t}^{T} \beta^{\tau-t} U(e_t, s_t, m_t) | \Omega_t\right]$$

V_t can be written recursively according to the Bellman's equation

$$V_t(\Omega_t) = U(e_t, s_t, m_t) + \beta E\left[V_{t+1}(\Omega_{t+1}) | \Omega_t \text{ and } (e_t, s_t, m_t) \text{ is chosen at } t\right]$$

In the last period T, the present value of the individual's utility at $T+1$ is assumed to be a linear function of the state variables at T

$$V_{T+1}(\Omega_{T+1}) = v_0 + v_1 e_T + v_2 q_T + v_3 m_T + v_4 edu_T$$

Let θ be the vector of all parameters

$$\theta := (\beta, R, H, Y, W, a_0, ...)$$

For each θ, given the end condition and the distributions of the shocks, the individual's problem can be solved recursively proceeding backward from period T to period 1. Choices are therefore functions of the expected mean age at marriage, $\bar{t}^e$. In particular, for each $\bar{t}$ and for each simulated agent $i = 1, ..., N$, we can compute the best response age at marriage

$$\bar{t}^i = \bar{t}^i(\bar{t})$$

individual choices can then be used to compute the simulated aggregate level

$$\sum_{i=1}^{N} \frac{\bar{t}^i(\bar{t})}{N}$$

The equilibrium $\bar{t}$ is computed by imposing the Nash equilibrium (fixed point) condition

$$\sum_{i=1}^{N} \frac{\bar{t}^i(\bar{t})}{N} = \bar{t}$$

4 Estimation

The estimation of the parameters will be performed using the Simulated Method of Moments (SMM).

For a given vector of parameters θ, let $m_j^D(\theta)$ be the moment j in the data, and let $m_j^S(\theta)$ be the correspondent simulated moment. The distance vector is

$$g(\theta) = [m_1^D(\theta) - m_1^S(\theta), ..., m_j^D(\theta) - m_j^S(\theta), ..., m_J^D(\theta) - m_J^S(\theta)]'$$

where J is the total number of moments.

The estimation porcedure minimizes the function $J(\theta) = g(\theta)'Wg(\theta)$ where W is the identity matrix. With respect to the general procedure, in which the simulated moments are compared to the real ones and updated at every simulation step according to a given loss function, the estimation of this model involves an extra step that adds significant computational burden. In fact, for each set of parameters, the mean age at leaving home ($\bar{t}$) it is generated endogenously as fixed point as explained above. After the equilibrium level of $\bar{t}$ is computed, this is used, together with the other parameters, to generate the simulated moments. These are compared to the real ones, updated if necessary and the process starts over. The numerical complexity and computational burden for the numerical solution of this model arises from the need of computing high dimensional integrals in the expected value of the V function. Theoretically, V should be computed at each possible value of $\bar{t}$ but since $\bar{t} \in [0, 5]$ is a continuous variable the state space is continuous and the full computation is unfeasible. This issue is handled by following the procedure proposed in Keane and Wolpin (1994) and the expected value of V is evaluated numerically using Monte Carlo integration to compute each of the multivariate integrals and the evaluation is done over a subset of $[0, 5]$ and the remaining values are interpolated[5].

The distribution of educational status, housing costs, parents' income and wealth are exogenous. The intertemporal discount factor β is set equal to 0.95. Since one period corresponds to 5 years, this value is equivalent to an annual discount factor of 0.99. Parameters to be estimated are those in the Mincer's equation, in the utility function, in the budget constraint, the weights in the end condition of the value function, the variance/covariance of the shocks, and job offer probabilities.

4.1 Estimation results

I fully estimate the model using SHIW data for males residing in northern Italy interviewed in the year 2004. Table 1 provides summary statistics of the dataset: the comparison with the mean values in the whole sample show that males residing in northern Italy tend to remain at school longer and face higher housing costs; on the other hand, they earn more and have richer parents. Table 2a and 2b display the observed unconditional and conditional choice proportions by age class: in general, the combinations in which married agents live at home occur quite rarely; also, people that no longer live at home are usually employed. Regarding choices distributions at each age class, it can be observed that more than 96 percent of agents under 19 years old live with their parents and have never married; also, 90 percent of them is unemployed; between 20 and 24 years old, the percent of workers increases to 44 but many keep living at home (around 40 percent of them); after 25 years old the proportion of married agents increases steadily together the decline of coresidency; in the last age class the majority of agents (62.72 percent) have married, work and have left home. Nevertheless, it remains an 8.8 percent of agents coresiding with their parents.

[5] In the code I use a grid with a step of 0.2 corresponding to a one year period.

The total number of parameters to be estimated is 24. The moments chosen to compute the loss function are: fraction of people living with parents; ever married and employed in each period; fraction of people choosing the alternative i ($i = 1, 8$) in each period; mean and standard deviation of wages in each period; wage deciles in each period. The total number of moments used is 110.

Estimation results are summarized in Table 3a and 3b. The upper table lists the exogenous parameters; the lower one presents values and standard deviations of the estimated figures. Choices related to social interaction (staying at home, marrying) are influenced by the cost of privacy (S) and the value of marriage (M). The former is always positive. It increases with age and in case of coresidence after marriage ($\gamma_1 > 0$ and $\gamma_2 > 0$). Moreover, from the relative values of γ_1 and γ_2 (6798 and 7098 respectively) we can infer that living at home after marriage is considered as costly as staying home for at least 5 more years. Marriage choices arise from the game thoretical interaction with other agents: although marrying very young is a costly choice ($\rho_0 < 0$), the value of marriage increases with age ($\rho_1 > 0$), and the negative value of ρ_2 confirms that agents tend not to act too differently from their peers. Finally, $R < 1$ points to the existence of economies of scale in the housing costs arising from marriage.

The other parameters relate to income sources, i.e. wages and parental transfers. Non-graduates are assumed to draw wages from a distribution with lower mean and the difference is captured by a_2 which adds to the Mincer equation if the agent has a university degree. The parameter a_1 measures the return on having worked during the previous 5 years. Table 4 displays the expected wages in various cases: a non-graduate with no previous working experience would expect to earn (on average) a net monthly wage of almost 738 euros, her wage would increase to 1111 euros after graduation and to 1728 euro with experience. One remark on the probability of receiving a job offer (of any type) in the first period (π_1): the estimated value is quite low (23.88 percent) but this result is also influenced by the fact that most jobs (e.g. all public sector ones) can be legally offered only to people being at least 18.

Parents' transfers are expressed as fractions of their income and wealth. The amounts are conditional on the employment status of the child; for instance, while working she receives almost 28 percent of parents' total resources (ϕ_1); on the other hand, if she is unemployed, the share of income and wealth transferred raises to over 30 percent (ϕ_2). This result suggests that parental transfers might actually act as unemployment benefits and therefore contribute to the postponed exit from the family of their children. In fact, young adults know that in case of job loss they can rely on higher transfers from their parents with no need of reducing drastically their level of consumption. Such option would be no longer available once they have moved out. These results are strongly consistent with the analysis of Manacorda and Moretti (2005) and the role of parental income and wealth is further explored in a counterfactual experiment below.

4.2 Counterfactual experiments

I use the estimated model to run simulations in order to predict the effects of some economic policies and to explore more deeply issues discussed above. In particular, I looked at changes in the share of people living at home (table 5a), employed (table 5b), and ever married (table 5c). Results are presented as both deviations and percentage deviations from the base model for each discrete choice. Each experiment is discussed in detail below.

Role of parental resources

The role of parental resources has been further explored simulating the effect of a 10% increase in parents' income (Y). Results show that the current Italian pattern of late leaving, low employment and late marriage would be worsen. In fact, the share of people coresiding with parents would increase at all age classes and most significantly after the age of 25; there would also be a strong effect on the marriage pattern with the share of ever married lowering at each age class and especially before the age of 25. Employment choices would also be affected, and even though percentage changes are relatively small, these are always negative and peak at earlier ages (-2.86 percent at 15-19 and -2.03 percent at 20-24).

Labor market conditions

In general, poor labor market conditions can be important factors influencing the transition to adulthood. Rosolia and Torrini (2007) argue that, in Italy, recent reforms of labor market regulations and pension systems opened a gap between generations: young workers are offered a lower entry wage and do not catch up, i.e. their earnings start lower and appear to grow at the same rate as older cohorts. Here, I run two experiments. In the first, an increase in the wage level is imposed in order to assess how much a wage gap influences agents' choices. In particular, I let a_0 increase 2 percent which corresponds to a 15 percent increase of the expected entry wage of a young worker. Consistently with the conclusions of Rosolia and Torrini, an increase of the fraction of people employed is observed. Also, such increase is larger for people under 29. At the same time, the wage increase also lowers significantly the age at first marriage and the fraction of people coresiding with the parents.

A long debate has followed in Italy the reform following the so called Legge Biagi which has introduced more flexible job types in an attempt of increasing labor demand. After the reform has been implemented (2002), many have argued that it has instead increased uncertainty and has lowered protection for young workers. Therefore, in the second experiment, I test the effect of improving the quality of jobs. Specifically, I impose all jobs to be of type 1: i.e. workers only need to have been employed in the previous period in order to qualify for UIB benefits.

The effect on employment rates is not clear: the fraction of worker increases a little for the first age class, then it remains almost constant or even reduces slightly. This result might be due to the fact that, with type 1 jobs only, agents know that they have an (increasing) probability of finding a good job, therefore there is some incentive for waiting a better offer if the wage level is

not satisfatory. On the other hand, coresidence diminishes probably because they can now rely on a different source of unemployment benefit and have an incentive to move out (and discontine paying the privacy cost) as soon as they find a satisfactory job. Finally, the positive effect on marriage is driven by the anticipated exit from home which creates an incentive to marry (the penalty on the cost of privacy will no longer suffered).

Housing costs subsidies.

High housing costs have often been listed among the determinants of residential choice and an important factor for the pattern towards independency (Ermisch and Di Salvo, 1997). I test here the effect of a reduction of the housing costs in two experiments. In the first, I assume an exogenous fall of market prices so that all agents benefit from a 10 percent reduction. In the second experiment, the Government introduces a subsidy of 15 percent for people under 25 years old.

Reductions have positive effects at all age classes in both cases by lowering the share of people living with their parents, slighlty increasing employment and stimulating marriage. Not surprisingly, differences are larger in the first case but even with a subsidy given only to younger, the effects persist in later ages probably carried by the mechanism of social interaction in the marriage market and also because people who left already have little incentive to go back and a strong economic incentive to marry in order to lower housing costs.

5 Conclusions

In this paper, I developed and structurally estimated a dynamic discrete choice model to study sequential choices of young men on co-residency, labor supply and marital status. The estimated model performs quite well in reproducing the observed patterns. Estimated parameters are then used to perform several counterfactual experiments in order to assess the relative importance of factors like parental resources (income and wealth), labor market regulations and housing costs. Results suggest that parents' resources act as an alternative source of unemployment benefit and therefore, if their level is high relative to the wage offered on the labor market, young adults choose not to move out even though they pay a privacy cost and a disulity from marriage postponement. Exogenous reductions of the housing costs would also stimulate the exit from home, if all age classes benefit from the reduction (for instance because market prices fall) effects are stronger. Finally, changes in the labor market regulations have mixed effects: in case of higher wages, the percentage of agents on the labor market increases and there are positive effects on the co-residece and marriage patterns, too. Instead, if what changes is the quality of jobs with no increase in the wage levels, (smaller) positive effects on co-residency and marriage persist while the rate of employment dislays no clear trend.

In conclusion, the paper suggests that economic policies oriented at younger generations would have beneficial effects in stimulating their exit form the parental home and, through that, marriage and labor market participation.

The role of fertility decisions remain an unexplored aspect and is left to future research.

6 References

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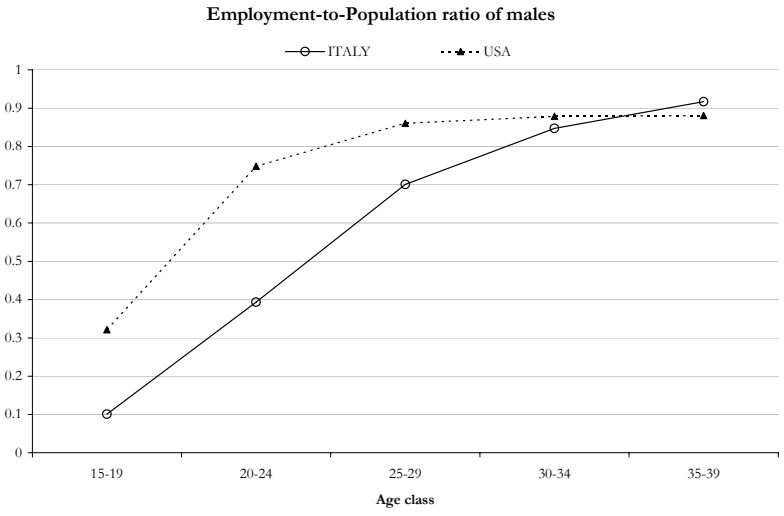
7 Tables and graphs

7.1 Stilyzed facts from the data

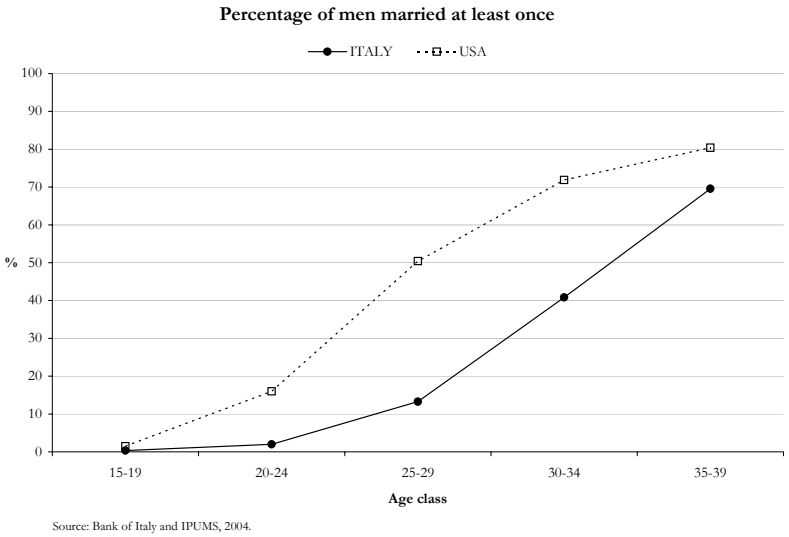
Note: Percentage living with parents and not main income earners.
Source: Bank of Italy and IPUMS, 2004

Figure 1a



Source: Bank of Italy and IPUMS, 2004.

Figure 1b



Source: Bank of Italy and IPUMS, 2004.

Figure 1c

7.2 Data description

Table 1. Summary statistics

	Males, North		**Whole sample**	
No. of observations	1,326		4,071	
Variable	**Mean**	**Std Dev**	**Mean**	**Std Dev**
Age	28.01	7.08	27	7.53
Students (%)	28.00	44.92	24.91	43.25
Net labor income (per year)	18,500	28,789	14,668	17,708
Housing cost (per month)	575	397	507	408
Parents' income	32,442	28,078	23,676	19,280
Parents' wealth	253,841	407,657	213,400	343,297

Note: Amounts in 2004 euros.

Table 2a. Observed unconditional choice proportions

	Age class				
	15-19	**20-24**	**25-29**	**30-34**	**35-39**
Employed	10.76	44.64	79.99	92.34	96.56
Living with parents	96.24	85.62	50.27	23.39	8.81
Ever married	0.00	0.24	16.10	40.63	64.61

Table 2b. Observed conditional choice proportions

			Age class				
			15-19	**20-24**	**25-29**	**30-34**	**35-39**
Employed	**Stay home**	**Married**					
no	no	no	1.96	3.14	2.07	2.07	0.45
no	no	yes	0.00	0.00	0.08	0.00	1.04
no	yes	no	87.28	52.22	17.85	5.58	1.27
no	yes	yes	0.00	0.00	0.00	0.00	0.68
yes	no	no	1.81	11.01	31.94	34.48	26.95
yes	no	yes	0.00	0.24	15.69	40.05	62.75
yes	yes	no	8.96	33.40	32.06	17.23	6.72
yes	yes	yes	0.00	0.00	0.34	0.58	0.14

7.3 Estimation results

Table 3a. Exogenous parameters

Parameter	Value
β	0.95
q_1	0.14
q_2	0.73
q_3	0.89
q_4	0.97
q_5	0.98
Y	32422
W	253841
H	6985.192

Table 3b. Estimated parameters

Parameter	Value	Std Dev	Parameter	Value	Std Dev
γ_0	62998	10.5	ϕ_1	0.2748	2.0E-05
γ_1	6798	2.39	ϕ_2	0.3026	2.86E-05
γ_2	7098	109	a_0	9.3723	4.35E-04
ρ_0	-8908.2	23.8	a_1	0.0448	2.57E-05
ρ_1	606.5	0.31	a_2	0.3957	2.33E-04
ρ_2	-8317.9	4.27	v_1	13415	8.08
π_1	0.2388	8.16E-04	v_2	20247	11.9
π_2	0.6814	3.85E-04	v_3	1.0	0.0E+0
π_3	0.998	2.52E-04	v_4	1.0	0.0E+0
π_4	0.9057	1.22E-03	σ^w	0.6623	5.07E-04
π_5	0.9501	6.11E-04	σ^S	10079	103
R	0.6076	3.11E-03	σ^M	16142	8.22
$ptime$	0.499	2.42E-04			

Table 4. Expected net wage values

Worker status	Yearly	Monthly
Studying, not experienced	8866.18	738.8
Graduate, not experienced	13335.7	1111.3
Graduate, experienced	20737.5	1728.1
Studying, experienced	13911.9	1159.3

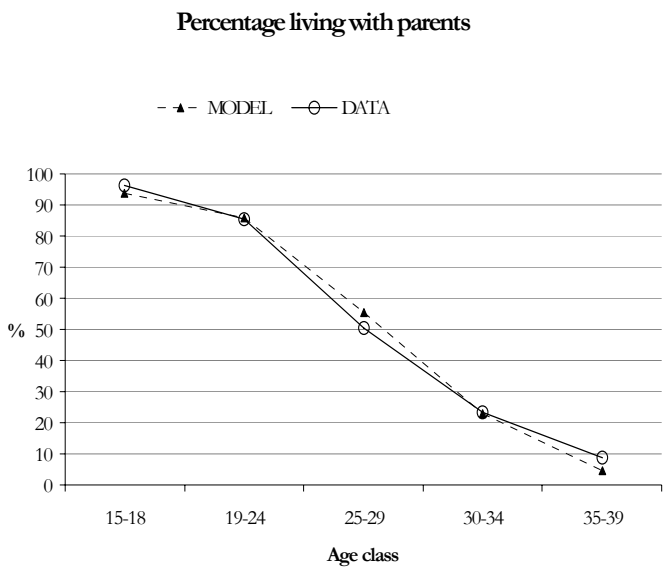


Figure 1

Figure 2


Percentage ever married
MODEL
DATA
100
90
80
70
60
%
50
40
30
20
10
0
15-18
19-24
25-29
30-34
35-39
Age class

Figure 3

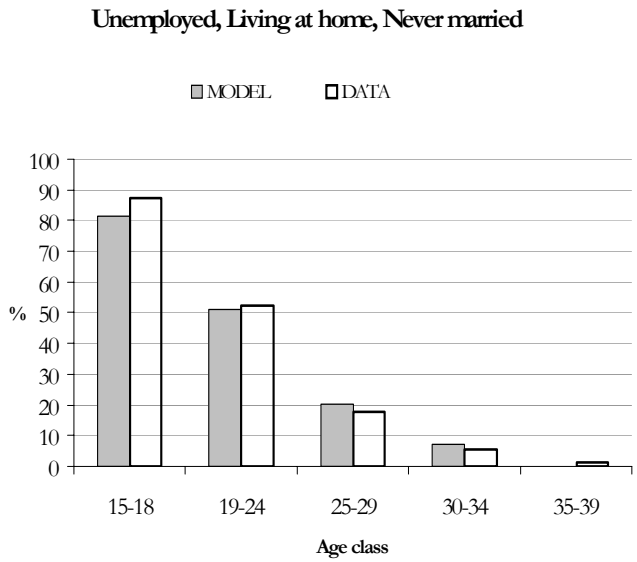


Figure 4

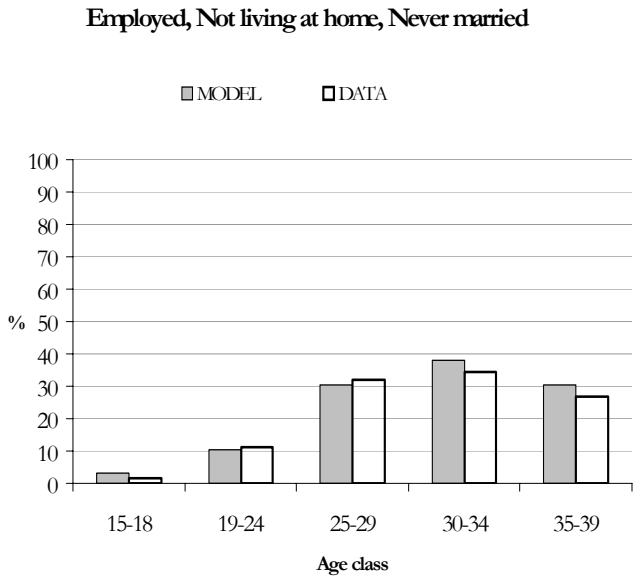


Figure 5

Figure 6

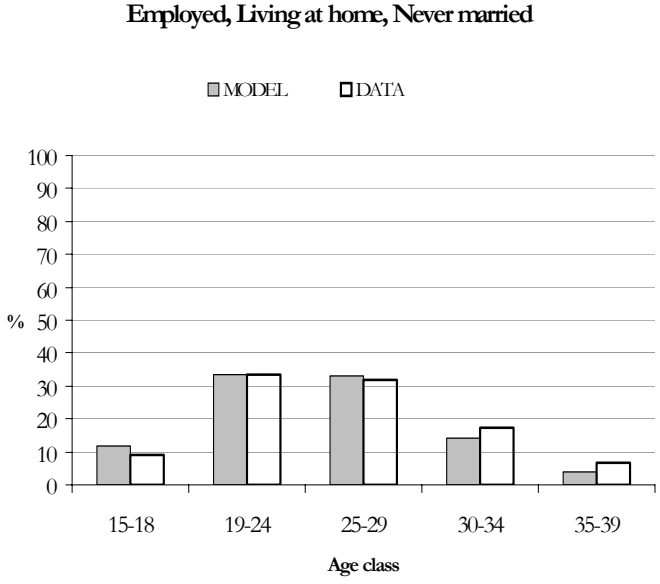


Figure 7

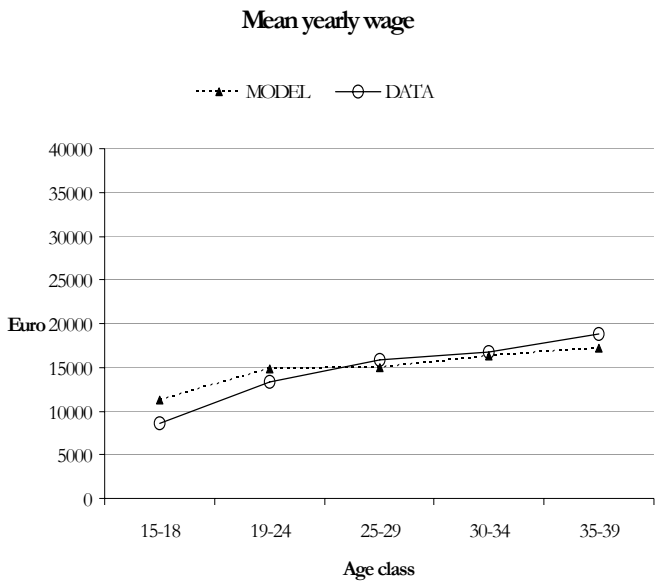


Figure 8

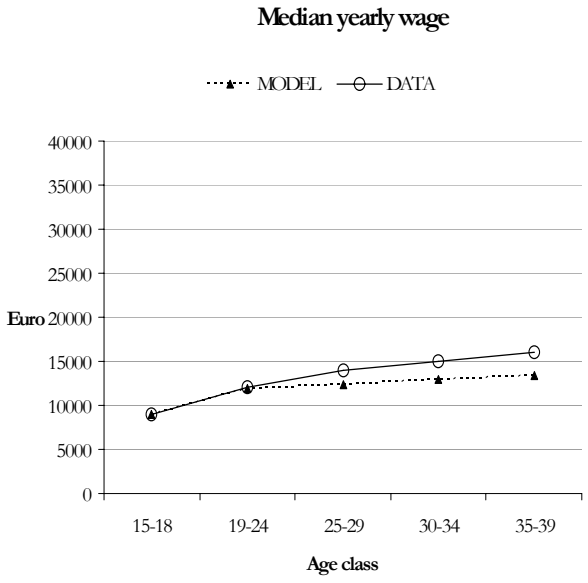


Figure 9

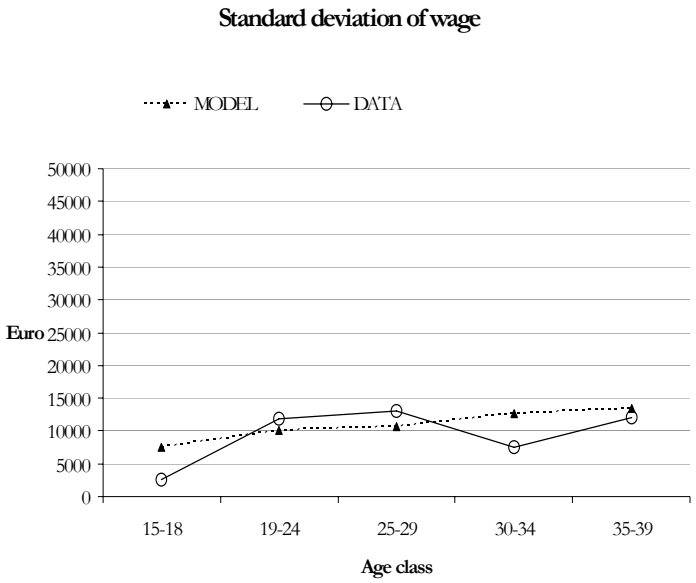

Standard deviation of wage
MODEL
DATA
50000
45000
40000
35000
30000
Euro 25000
20000
15000
10000
5000
0
15-18
19-24
25-29
30-34
35-39
Age class

Figure 10

7.4 Counterfactual experiments results

Table 5a. Fraction living with parents

	Deviations from base model (in level)				
	Age class				
	15-19	20-24	25-29	30-34	35-39
Experiment:					
Parents' income (Y +10%)	1.02	1.93	3.53	2.94	0.81
Wage level (a_0 +10%)	−0.35	−0.88	−1.84	−1.58	−0.27
No type 2 jobs ($q_t = 1$, $\forall t$)	−0.10	0.34	0.45	0.40	0.03
Housing subsidy - case 1 ($H_{1,2}$ -15%)	−1.41	−2.36	−0.69	−0.85	−0.24
Housing subsidy - case 2 (H_t -10%, $\forall t$)	−0.75	−1.35	−2.50	−1.73	−0.38

	Deviations from base model (in percent)				
	Age class				
	15-19	20-24	25-29	30-34	35-39
Experiment:					
Parents' income (Y +10%)	1.09	2.25	6.36	12.74	17.76
Wage level (a_0 +10%)	−0.37	−1.03	−3.32	−6.85	−5.92
No type 2 jobs ($q_t = 1$, $\forall t$)	−0.11	0.40	0.81	1.73	0.66
Housing subsidy - case 1 ($H_{1,2}$ -15%)	−1.51	−2.75	−1.24	−3.68	−5.26
Housing subsidy - case 2 (H_t -10%, $\forall t$)	−0.80	−1.57	−4.51	−7.50	−8.33

Table 5b. Fraction employed

Deviations from base model
(in level)

	Age class				
	15-19	20-24	25-29	30-34	35-39
Experiment:					
Parents' income (Y +10%)	−0.43	−0.94	−1.53	−1.20	−0.05
Wage level (a_0 +10%)	3.41	6.21	6.10	3.16	0.15
No type 2 jobs ($q_t = 1$, $\forall t$)	2.34	−3.49	−1.98	−1.48	−0.07
Housing subsidy - case 1 ($H_{1,2}$ -15%)	0.28	0.74	0.17	0.32	0.02
Housing subsidy - case 2 (H_t -10%, $\forall t$)	0.13	0.42	0.77	0.54	0.02

Deviations from base model
(in percent)

	Age class				
	15-19	20-24	25-29	30-34	35-39
Experiment:					
Parents' income (Y +10%)	−2.86	−2.03	−1.94	−1.32	−0.05
Wage level (a_0 +10%)	22.69	13.41	7.72	3.47	0.15
No type 2 jobs ($q_t = 1$, $\forall t$)	15.57	−7.54	−2.51	−1.63	−0.07
Housing subsidy - case 1 ($H_{1,2}$ -15%)	1.86	1.60	0.22	0.35	0.02
Housing subsidy - case 2 (H_t -10%, $\forall t$)	0.86	0.91	0.97	0.59	0.02

Table 5c. Fraction ever married

Deviations from base model
(in level)

	Age class				
	15-19	20-24	25-29	30-34	35-39
Experiment:					
Parents' income (Y +10%)	−0.07	−0.24	−0.97	−1.19	−0.56
Wage level (a_0 +2%)	0.11	0.69	1.84	2.71	2.35
No type 2 jobs ($q_t = 1$, $\forall t$)	−0.02	−0.04	−0.19	−0.19	−0.07
Housing subsidy - case 1 ($H_{1,2}$ -15%)	0.11	0.55	1.52	2.49	2.27
Housing subsidy - case 2 (H_t -10%, $\forall t$)	0.02	0.07	0.20	−0.22	−0.54

Deviations from base model
(in percent)

	Age class				
	15-19	20-24	25-29	30-34	35-39
Experiment:					
Parents' income (Y +10%)	−13.21	−6.50	−5.94	−2.95	−0.85
Wage level (a_0 +2%)	20.75	18.70	11.27	6.73	3.58
No type 2 jobs ($q_t = 1$, $\forall t$)	−3.77	−1.08	−1.16	−0.47	−0.11
Housing subsidy - case 1 ($H_{1,2}$ -15%)	20.75	14.91	9.31	6.18	3.46
Housing subsidy - case 2 (H_t -10%, $\forall t$)	3.77	1.90	1.22	−0.55	−0.82