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Abstract

Leaving the parental home is often a decision made together by two people. In this paper we present a theoretical model analyzing moving out as a joint decision and then test its implications using a new dataset of university graduates collected in the southern Spanish region of Murcia in 2004-2006, which includes information on partners and their parents. In equilibrium we find some evidence of the importance of assortative mating in moving out. Studying partnership, work, and moving out decisions simultaneously we obtain that the latter depend positively on own human capital and they are affected differently by maternal and paternal characteristics and with different effects on men and women.

JEL-Code: D840, J120, J130.

Keywords: moving out, employment, assortative mating, job security.

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1 Introduction

It is well known that there are large differences across developed countries in the age of parental home leaving. According to Eurostat (2008, p. 157), in 2005 the median for males was 21 years old in Denmark, 23 in Germany, and 24 in France and the UK, whereas in Mediterranean countries such as Spain and Italy they were much higher, at 29 and 30, respectively. The ranking is very similar for females, who on average leave home two years earlier than males.

Less well known is the fact that in most European countries parental home leaving is typically a joint decision of two young adults who leave their respective homes to form a new household. According to the same source, in that year 42% of European women and 53% of European men aged 18 to 24 years old who were not coresiding live in a couple, either married or cohabiting. Moreover, there is a much smaller cross-country variation in this statistic than in coresidence rates and there is no obvious North-South divide. For men, the shares are 39% in Germany, 41% in Italy, 42% in Spain, 46% in the UK, 47% in Denmark, and 50% in France. For women, the shares are even higher, ranging from 51% in the UK to 66% in Italy.

The literature has so far analyzed the determinants of cross-country differences in coresidence rates and it has highlighted variables like cultural differences (Manacorda and Moretti, 2006; Giuliano, 2007), differences in job security enjoyed by children relative to their parents (Fogli, 2004; Becker *et al.*, 2009),[1] housing prices differentials (Martinez-Granado and Ruiz-Castillo, 2002; Giannelli and Monfardini, 2003) and imperfections in mortgage markets (Guiso and Jappelli, 2002; Martins and Villanueva, 2006).

All these studies have however studied home leaving as a decision taken by a single person. Thus its frequent joint nature is missing from the standard analysis. We tackle this lacuna in the literature by presenting, in Section 2, a simple model that illustrates young people's joint partnership, employment, and coresidence decisions focusing on how they are affected by both job insecurity and tastes for privacy.[2] Our analysis reveals

[1] This builds on early work in McElroy (1985) and Rosenzweig and Wolpin (1993), who found that the option of living with their parents helps young people insure against negative income shocks.

[2] Examples of work on household formation, which is mostly empirical, are Haurin, Hendershott, and

that young people's likelihood of forming a couple and moving out depends positively on the degree of positive sorting in both the partners' and their parents' permanent income. We pursue the implications of the model in two separate ways, one focusing on equilibrium outcomes, where we check the prediction of positive sorting, and another one through a simultaneous equation model for the propensities to work, have a partner, and move out of the parental home, where the key issue is simultaneity.

Conventional data sets do not collect information on young adults' partnership status while living with their parents or on their partners' socio-economic characteristics, not to mention information on the partners' parents. To overcome this gap, we collect our own data set for Murcia, a southeastern region in Spain. We survey from the population of graduates at the University of Murcia aged 25 to 29 years old in 2004. Coresiding individuals were reinterviewed 12 and 24 months later to follow their coresidence decisions, and then in 2013 to obtain further biological and attitudinal data.

There is evidence on the increase in assortative mating in education in the US (e.g. Greenwood *et al.*, 2014). In our data, this type of assortative mating is present in both couple members and their respective fathers –and, to a lesser extent, their mothers. Estimates of a reduced-form moving out equation also provide evidence of positive sorting in education in the decision to move out together, though it is not very strong and, in the case of women, it depends on what parental characteristics are controled for. On the other hand, we find that the partner's permanent income matters, in particular his/her being employed, and more so the higher is the partner's job security, especially in the case of women. A novel finding is that the education of the partner's mother and her being alive is correlated with moving out in the case of men but not of women.

In our second empirical exercise we estimate a simultaneous equation model for partnership, employment, and coresidence decisions, which yields additional insights. First of all, the simultaneity among the three decisions is in fact present, except for having a partner and moving out in the case of men. Second, our estimates indicate that variables associated with an individual having a higher permanent income make it more likely to move out; in particular having a college degree has a positive effect

Kim (1993), Ermisch (1999), and Iacovou (2001).

whereas having low-quality human capital has the opposite effect.

Regarding the parental background, there is a positive effect on the propensity to move out of a woman's mother having died, which is absent for men. This suggests that daughters bear more responsibility for the provision of public goods in the parental home than sons, pointing towards a society with traditional values. Also, more educated mothers induce earlier moving out by female university graduates, whereas more educated fathers have the opposite effect. This suggests that mothers have a stronger effect on values whereas fathers affect their daughters' decisions more through the income they earn. Strikingly, the signs of these parental education effects are reversed for male graduates. Lastly, our estimates confirm the common finding in the literature that parental job security makes coresidence more likely

The outline of the paper is as follows. Section 2 presents the theoretical model and its implications. Section 3 describes the data and presents the reduced form estimates for the probability of living independently. In Section 4 we discuss the empirical model used to formally test for interdependence between the three decisions analyzed as well as the estimation results. Section 5 concludes.

2 Model

This section presents a model of young people's partnership, employment, and coresidence decisions, which focuses on how assortative mating, job insecurity, and children's tastes for privacy affect them. The goal of the model is to guide our empirical work and help us make sense of the results in the next section rather than to provide a structural characterization of these decisions. For this reason, we present a very simple model which extends the model of the moving out decision in Fernandes *et al.* (2008) to the case when it is jointly taken by both members of a couple.[3] More complex models of the matching decision can be found in Browning *et al.* (2014, ch. 7).

[3]Díaz and Guilló (2005) also present a model of the individual decision to move out, which is calibrated to the Spanish economy.

The setup

In our model, a family has two parents and at least one child, so that family size, represented by n_c, is strictly higher than two. We focus on the residential choice of one child assuming that her siblings earn no income and keep on living in the parental home. Subindexes c and pc label variables that refer to the child and (jointly) her parents, respectively.

There are two periods, 1 and 2. The time endowment per period is normalized to one. The child is initially unemployed and single, i.e. she has no partner. At the beginning of period 1 she randomly meets a potential partner with probability ρ and receives a job offer with monthly wage w_j and probability λ_j, where $0 < \rho, \lambda_j < 1$ for $j = \{c, m\}$. Subindexes m and pm label variables that refer to the potential partner and his parents, respectively. While we refer to a female child, the setup is symmetric for both partners in a couple. We also assume that there is perfect information.

In period 1 the child lives with her family and she decides whether or not to match with the partner she has met and whether to accept the job offer or not. When doing so she takes into account that her decision will affect her utility in the next period and discounts it by the factor β. In period 2 she chooses her coresidence status, namely remaining at home or living independently, either alone or with a partner.[4] If she is matched in period 1, then she chooses between remaining at the parental home and living with her partner (but not alone).[5] If single, she chooses between remaining at home and living on her own.

Parents are employed at the beginning of period 1. At the end of the period, parents and employed children lose their respective jobs with probability δ_j, where $0 \leq \delta_j \leq 1$ for $j = \{c, m, pc, pm\}$. A proportion of an individual's wage in period 1 is lost if she becomes unemployed, so that unemployment benefits in period 2 are equal to $b_j = \varphi w_j$, where φ is the replacement rate and $0 < \varphi \leqslant 1$. An unemployed child

[4] The assumption that the other two decisions are taken before the moving out decision is consistent with two features in our sample. First, coupled respondents that leave the parental home declare an average duration of their relationship above five years. Also, employed respondents that move out declare an average tenure of more than three years in their current job.

[5] None of the coupled respondents in our sample move out to live alone.

living independently receives a monetary transfer f_j from her employed parents, where $0 < f_j < b_j$, for $j = \{c, m\}$, whereas unemployed parents make no transfers to their children.[6]

When living together, individuals pool income and consume an equal fraction of total income. Utility is defined over consumption, c, leisure, l, and the residence state, s, and, to solve the model analytically, we assume that it is well approximated by a linear function. Indexes h, d, and a refer, respectively, to the residence states living with the parents, living with the partner, and living alone. The child's direct utility in state k in period t is given by:

$$u_j\left(s^k, c^k_{v_t}, l_{v_t}\right) = s^k_j + (1-\alpha)\, c^k_{j,v_t} + \alpha\, l_{j,v_t}$$

for $j = \{c, m\}$, $k = \{h, d, a\}$ and $t = \{1, 2\}$, where α is the preference weight of leisure, v_t indicates whether the child is employed or not $(v = e, ne)$, $l_{j,v_t} = 1$ if $v_t = ne$ and $\underline{l}_j < 1$ otherwise. $s^k_j \geq 0\ \forall k$ and we assume that $s^d_j > s^a_j > s^h_j$, i.e. that, *ceteris paribus*, she prefers to live with her partner but values her privacy, so that she prefers to live alone rather than living with her parents. The child's consumption in each of the coresidence states is therefore given by:

$$c^h_{j,v_t} = \frac{y_{q,v} + y_{j,v_t} - \gamma_h}{n_j},\ (t = 1, 2);\ c^d_{j,v_2} = \frac{y_{m,v_2} + y_{c,v_2} - \gamma_d}{2};\ c^a_{j,v_2} = y_{j,v_2} - \gamma_a \qquad (1)$$

for $j = \{c, m\}$ and $q = pj$, where γ_k represents monthly housing costs in residence state k and y_{j,v_t} is individual j's income in period t, for $j = \{c, m, pc, pm\}$. In period 1, child j's income is equal to w_j if she accepts the job offer and 0 otherwise. In period 2, her income is equal to: w_j if she accepted the job offer and remains employed, b_j if she lost her job at the end of period 1, and f_j if she rejected the job offer, lives independently, and her parents remain employed, for $j = \{c, m\}$. She has no income in period 2 if she rejected the job offer and she either lives at home or, if living independently, when her parents are unemployed. Parental income in period 2 equals their wage or the unemployment benefits if they become unemployed at the end of period 1.

[6] Transfers are exogenously determined by parents. The inclusion of both partnership status and strategic behaviour of parents and children with respect to parental transfers complicates the model to the extent that it cannot be solved analitically.

We first characterize the coresidence decision in period 2 and then move backwards to analyze the partnership and employment decisions in period 1.

The coresidence decision

Children choose the residence state which maximizes their utility in period 2. A child that is single compares, conditional on her employment status, her utility from living with her family and from living on her own. The threshold that makes her indifferent equates both, namely:

$$\begin{aligned} u_c\left(s^h, c^h_{v_2}, l_{v_2}\right) &= u_c\left(s^a, c^a_{v_2}, l_{v_2}\right) \rightarrow \\ s^h_c + (1-\alpha)\frac{y_{pc,v_2} + y_{c,v_2} - \gamma_h}{n_c} &= s^a_c + (1-\alpha)\left(y_{c,v_2} - \gamma_a\right) \end{aligned} \tag{2}$$

for $v_2 = \{e, ne\}$. Solving for y_{c,v_2} in equation (2) we find the income threshold that makes the child indifferent between these two states, which is given by:

$$\overline{y}^{ha,2}_c = \frac{y_{pc,v_2} - \gamma_h + n_c\gamma_a - (1-\alpha)^{-1} n_c\left(s^a_c - s^h_c\right)}{n_c - 1} \tag{3}$$

The child will move out to live alone if and only if her income satisfies the condition: $y_{c,v_2} \geq \overline{y}^{ha,2}_c$. The higher her taste for privacy, as measured by the term $s^a_c - s^h_c$, the lower the income level required for her to move out. Conversely, the higher is the parental income, the less likely it is that the child leaves home.

Equivalently, coupled children compare the utility from living with the family and from living with their partner, so that the indifference threshold is found from the following equation:

$$\begin{aligned} u_j\left(s^h, c^h_{v_2}, l_{v_2}\right) &= u_j\left(s^d, c^d_{v_2}, l_{v_2}\right) \rightarrow \\ s^h_j + (1-\alpha)\frac{y_{q,v_2} + y_{j,v_2} - \gamma_h}{n_j} &= s^d_j + (1-\alpha)\frac{y_{j',v_2} + y_{j,v_2} - \gamma_d}{2} \end{aligned} \tag{4}$$

for $j, j' = \{c,\, m\}$, $j \neq j'$, $q = pj$, and $v_2 = \{e, ne\}$. Solving for y_{j,v_2} in equation (4) we obtain the income threshold that makes partner j indifferent between those two residence states:

$$\overline{y}^{hd,2}_j = \frac{2\left(y_{q,v_2} - \gamma_h\right) - n_j\left(y_{j',v_2} - \gamma_d\right) - 2(1-\alpha)^{-1} n_j\left(s^d_j - s^h_j\right)}{n_j - 2} \tag{5}$$

The partners live together if and only if $y_{j,v_2} \geq \overline{y}_j^{hd,2}$ for $j = \{c, m\}$. Again, the higher is child j's taste for privacy, as measured by $s_j^d - s_j^h$, the lower the income level required for each child to prefer to live together. Also, the higher is child j's parental income, the less likely it is that they do, since it raises $\overline{y}_j^{hd,2}$. It follows that coupled children live together if their average consumption is higher doing so than remaining at home, as indicated by the following inequality:

$$\frac{y_c + y_m - \gamma_d}{2} > \frac{(y_{pc,v_2} + y_c - \gamma_h) + (y_{pm,v_2} + y_m - \gamma_h) - \Lambda}{n_c + n_m} \tag{6}$$

where $\Lambda = (1-\alpha)^{-1}\left[n_c\left(s_c^d - s_c^h\right) + n_m\left(s_m^d - s_m^h\right)\right]$. The higher are the partners' tastes for leaving the parental home, the more likely it is that they live together.

Moving backwards, we now analyze the partnership and employment decisions in period 1.

The partnership decision

The partnership status only affects utility, through coresidence, in period 2. If the child meets a potential partner, she decides whether to match or not by comparing her expected utility in period 2 with and without a partner. Her expected utility from remaining single is:

$$E\left[u_c\left(\text{single}\right)\right] = \beta\left(E\left[u_c\left(s^h, c_{v_2}^h, l_{v_2}\right)\right]\, p\left(e_{ac}=0\right) + E\left[u_c\left(s^a, c_{v_2}^a, l_{v_2}\right)\right]\, p\left(e_{ac}=1\right)\right) \tag{7}$$

for $v_2 = \{e, ne\}$, where $p\left(.\right)$ is a probability function and e_{ac} is an indicator variable that is equal to one if the child expects to live alone in period 2 and zero otherwise. The child expects to live alone in the next period if her expected income is no lower than $\overline{y}_c^{ha,1}$, i.e. the threshold that in expectation makes her indifferent between living at home or living on her own in period 2. The relevant threshold is identified by equating the expected utility of the two residence states and solving for the child's expected income:

$$E\left[u_c\left(s^h, c_{v_2}^h, l_{v_2}\right)\right] = E\left[u_c\left(s^a, c_{v_2}^a, l_{v_2}\right)\right] \;\rightarrow$$

$$s_c^h + (1-\alpha)\,\frac{\widehat{y}_{pc,v_2} + \widehat{y}_{c,v_2} - \gamma_h}{n_c} = s_c^a + (1-\alpha)\left(\widehat{y}_{c,v_2} - \gamma_a\right)$$

$$\overline{y}_c^{ha,1} = \frac{\widehat{y}_{pc,v_2} - \gamma_h + n_c\gamma_a - n_c\left(s_c^a - s_c^h\right)/(1-\alpha)}{n_c - 1} \tag{8}$$

where $\widehat{y}_{j,v_2}$denotes individual j's expected income in period 2. The expected income of parents and employed children is $\mu_j w_j = [1 - \delta_j(1-\varphi)]\, w_j$ for $j = \{c, pc\}$, while the expected income of children that reject the job offer is equal to $(1-\delta_{pc})\ f_c$. Expression (8) shows that the higher the expected parental income in period 2, the less likely it is that the child expects to move out, since the utility she expects from remaining at home is higher. Conversely, the higher are the child's taste for privacy, $s_c^a - s_c^h$, the lower is $\overline{y}_c^{ha,1}$ and, thus, the more likely it is that she expects to live alone.

Equivalently, child j's expected utility of being coupled is:

$$E\left[u_j\left(\text{couple}\right)\right] = \beta\ \left(E\left[u_j\left(s^h, c_{v_2}^h, l_{v_2}\right)\right]\ p\left(e_d = 0\right) + E\left[u_j\left(s^d, c_{v_2}^d, l_{v_2}\right)\right]\ p\left(e_d = 1\right)\right) \tag{9}$$

for $j, j' = \{c,\ m\}$ and $v_2 = \{e, ne\}$, where e_d is an indicator variable that takes on the value one if both partners expect to live together in period 2, that is, if their expected income values are at least equal to the threshold $\overline{y}_j^{hd,1}$ that makes each of them indifferent in period 1 between the two residence states, for $j = \{c, m\}$. As before, the thresholds are identified by equating the expected utility of the two coresidence states and solving for each partner's expected income:

$$\begin{gathered}
E\left[u_j\left(s^h, c_{v_2}^h, l_{v_2}\right)\right] = E\left[u_j\left(s^d, c_{v_2}^d, l_{v_2}\right)\right] \ \rightarrow \\
s_j^h + (1-\alpha)\,\frac{\widehat{y}_{q,v_2} + \widehat{y}_{j,v_2} - \gamma_h}{n_j} = s_j^d + (1-\alpha)\,\frac{\widehat{y}_{j',v_2} + \widehat{y}_{j,v_2} - \gamma_d}{2} \\
\overline{y}_j^{hd,1} = \frac{2\left(\widehat{y}_{q,v_2} - \gamma_h\right) - n_j\left(\widehat{y}_{j',v_2} - \gamma_d\right) - 2n_j\left(s_j^d - s_j^h\right)/(1-\alpha)}{n_j - 2}
\end{gathered} \tag{10}$$

for $j = \{c, m\}$, $j' \neq j$, $q = pj$, and $v_2 = \{e, ne\}$.

The two children become a couple if neither of them expects lower utility from doing so than remaining single, that is, if expression (9) is higher than expression (7) for both. A sufficient condition for this to be the case is twofold. First, neither of them must expect lower utility from living together than from living alone. Second, the minimum expected income level that is required for each child to want to leave the parental home must not be higher if they become a couple than if they remain single, that is, $\overline{y}_j^{ha,1} \geq \overline{y}_j^{hd,1}$ for $j = \{c, m\}$. The latter condition ensures that $p\left(e_d = 1\right) \geq p\left(e_{ac} = 1\right)$.

It turns out that the first condition holds if and only if there is positive sorting in the potential partners' expected income, i.e. if their expected income is similar, as indicated by the following expression:

$$-\Gamma_m \leq \widehat{y}_{c,v_2} - \widehat{y}_{m,v_2} \leq \Gamma_c \tag{11}$$

where $\Gamma_j = 2\gamma_a - \gamma_d + 2(1-\alpha)^{-1}\left(s_j^d - s_j^a\right)$, for $j = \{c, m\}$. Equivalently, the second condition holds if and only if there is positive sorting in parental households' expected per capita income once partners have moved out, as given by the following expression:

$$-\left(\Gamma_m - \Upsilon_m d_n\right) \leq \frac{\widehat{y}_{pc,v_2} - \gamma_h}{n_c - 1} - \frac{\widehat{y}_{pm,v_2} - \gamma_h}{n_m - 1} \leq \Gamma_c - \Upsilon_c d_n \tag{12}$$

where $d_n = n_c - n_m$, $\Upsilon_j = \tau^{-1}\left[\gamma_a - (1-\alpha)^{-1}\left(s_j^a - s_j^h\right)\right]$, for $j = \{c, m\}$ and $\tau = (n_m - 1)(n_c - 1)$.

These two expressions show that the higher is the degree of positive sorting in children's and their parents' expected (per capita) income, the more likely it is that the children become a couple in period 1. Also, the higher are childrens' tastes for living with the partner rather than living alone, i.e. $s_j^d - s_j^a$, for $j = \{c, m\}$, the more likely it is that they become a couple, since the wider is the range of admissible discrepancies in expected (per capita) income, of both the partners and their parents, for the two aforementioned conditions to hold.

Moving forwards to period 2, the degree of positive sorting in children's and their parents' per capita income also affects children's coresidence decision if they became a couple in period 1. As indicated in expression (4), the partners live together if their utility from living with the family is lower than that from living with their partner. It turns out that the higher the degree of positive sorting in children's and their parents' income in period 2 the more likely it is that they live together. That is the case since the right hand side of expression (4) is the same for the two children but in the tastes for living together and, thus, the higher the degree of positive sorting in children's and their parents' income in period 2 the more likely it is that the partners choose the same coresidence state as the optimal one in period 2.

To illustrate this argument assume that child c and her family earn lower (per capita)

income than her partner and his family, respectively, and that she prefers to live with the partner in period 2:

$$s_c^h + (1-\alpha)\frac{y_{pc,v_2} + y_{c,v_2} - \gamma_h}{n_c} < s_c^d + (1-\alpha)\frac{y_{m,v_2} + y_{c,v_2} - \gamma_d}{2} \tag{13}$$

The coresidence decision of her partner can be analyzed by rewriting the latter expression as follows:

$$s_m^h + (1-\alpha)\frac{y_{pm,v_2} + y_{m,v_2} - \gamma_h}{n_m} + \Lambda < s_m^d + (1-\alpha)\frac{y_{m,v_2} + y_{c,v_2} - \gamma_d}{2} \tag{14}$$

where $\Lambda = (1-\alpha)(\varepsilon_p + \varepsilon_c/n_c) + (\varepsilon_h - \varepsilon_d)$, $\varepsilon_p = (y_{pc,v_2} - \gamma_h)/n_c - (y_{pm,v_2} - \gamma_h)/n_m$, $\varepsilon_c = y_{c,v_2} - y_{m,v_2}$ and $\varepsilon_k = s_c^k - s_m^k$, for $k = \{h, d\}$. The higher the degree of positive sorting in children's and their parents' (per capita) income the lower the value of the negative sign terms ε_p and ε_c, respectively, and, thus, the lower the value of Λ and the more likely it is that her partner also prefers to leave the parental home to live together in period 2 since the following inequeality holds:

$$s_m^h + (1-\alpha)\frac{y_{pm,v_2} + y_{m,v_2} - \gamma_h}{n_m} < s_m^d + (1-\alpha)\frac{y_{m,v_2} + y_{c,v_2} - \gamma_d}{2} \tag{15}$$

Also, the higher the degree of positive sorting in partners' tastes for coresidence states the more likely it is that they live together in period 2.

The employment decision

Children decide whether to accept a job offer or not by comparing, conditional on their partnership status, the expected utility from being employed and the utility from remaining unemployed. The expected utility of being employed in period 1 for a coupled child is:

$$E[u_j(v_1 = e)] = u_{jv_1=e}(h) + \beta\left(E[u_{jv_2}(h)/e]\, p(e_d = 0/e) + E[u_{jv_2}(d)/e]\, p(e_d = 1/e)\right) \tag{16}$$

for $j = \{c, m\}$ and $v_2 = \{e, ne\}$, where $u_{jv_t}(k) = u_j\left(s^k, c_{v_t}^k, l_{v_t}\right)$ and the conditioning variable v_1 has been suppressed to simplify the notation. The difference between the

two expected utilities can be written as:

$$E\left[u_j\left(v_1=e\right)\right]-E\left[u_j\left(v_1=ne\right)\right]=\left(1-\alpha\right)\frac{w_c}{n_c}+\alpha\ \left(\underline{l}_c-1\right)+$$
$$+\beta\ \left[\left(E\left[u_{jv_2}\left(h\right)/e\right]-E\left[u_{jne}\left(h\right)/ne\right]\right)p\left(e_d=0/e\right)\right.$$
$$+\left(E\left[u_{jv_2}\left(d\right)/e\right]-E\left[u_{jne}\left(d\right)/ne\right]\right)p\left(e_d=1/e\right)$$
$$\left.+\left(E\left[u_{jne}\left(d\right)/ne\right]-E\left[u_{jne}\left(h\right)/ne\right]\right)\left(p\left(e_d=1/e\right)-p\left(e_d=1/ne\right)\right)\right] \tag{17}$$

It is composed of four terms, where the first one accounts for differential utility in period 1 and the second and third terms measure how the expected utility from a particular residence state changes if the child accepts the job offer. The fourth term accounts for how the likelihood of the couple living together increases if child c accepts the job offer. It follows that the higher is the child's taste for moving out, $s_j^d - s_j^h$, the lower is his reservation wage.[7] Also, the higher is the parental income, the higher is the child's reservation wage and, thus, the less likely it is that he accepts the job offer.

An equivalent expression can be easily obtained for a single child, which shows that the higher is her taste for living independently, the lower is her reservation wage.

In sum, the model predicts an interdependence of the coresidence, partnership, and work decisions. Apart from standard results about the effect of permanent income on the propensity to move out –it is raised by the child's own income and reduced by his parents' income–, we find that it should also show positive sorting in the partners' incomes and in the incomes of their respective parents.

3 Assortative mating in household formation

In this section we describe our data set and present the regularities that are present in the data regarding sorting in the partners' and their parents' characteristics with respect to moving out decisions.

[7] Note that $p\left(e_d=1/e\right)\geq p\left(e_d=1/ne\right)$, since child j's expected income is higher if she is employed than if she rejects the job offer and it is therefore more likely that her expected income exceeds the threshold $\overline{y}_j^{hd,1}$ if she accepts the job offer.

3.1 Data

As indicated in the Introduction, for young adults living with their parents, most conventional data sets do not collect information on their partnership status or their partner's socio-demographic characteristics and employment status, not to mention information on the partner's parents. To fill this gap, in 2004Q4 we collected a unique dataset in the southeastern Spanish region of Murcia, which has 1.3 million inhabitants (3% of the population of Spain).

In 2005Q1 labor participation rates of people aged 25 to 34 years old in Murcia were equal to 92% for men and 69% for women, and their respective unemployment rates were 6% and 18%. Thus, as is typical in Southern Mediterranean countries, participation rates were much higher and unemployment rates much lower for men. While Spain typically has very high unemployment rates, in Murcia they have normally been even higher. However, in the 2000s Spain experienced a strong housing construction boom, which was even stronger in Murcia. GDP growth in this region was equal to 4.5% in 2005 and employment growth reached 7.1%, attaining an stunning 9.7% for 25-34 year olds.[8] Coresidence rates for young adults aged 25 to 29 years old in 2005Q1 was quite high, 63.8%. By choosing university graduates we are focusing on the group with the highest coresidence rates for that age bracket: a full 74.8%.

The reference population of our survey consists of 12,627 individuals. Our sample is representative, by gender and degree field, of the population of graduates of the University of Murcia aged 25 to 29 years old at the time of the first interview (2004Q4). Coresiding individuals were re-interviewed 12 and 24 months later. Lastly, in 2013 all participants in the original survey were contacted again and asked to provide information on some biological characteristics (such as their eye color or height) and values data (such as their attitudes regarding the role of women in the family). The latter survey was not initially envisioned but it became necessary to obtain identification in the simultaneous equation system presented below.

In the 2004 survey, 1,579 individuals were chosen randomly by degree, age, and sex

[8] These figures correspond to the change from 2005Q1 to 2006Q1, since there was a methodological break in the series in the earlier date, which does not allow rigorous comparison with 2004.

group, weighting them by population size. Interviews took place by phone and were computer-aided. The ordering of phone calls was chosen randomly within groups (one person to be called and five replacements). Usually the contact information referred to the parents, who then provided a phone number for their children if they had already left the parental home.

Non-response by either parents or children was very rare and limited to 21 graduates, implying a 98.7% response rate.[9] On the other hand, about 12% of those coresiding at a given interview refused to participate in the following interview or could not be contacted. A fraction of individuals lived outside Murcia at the time of the first survey but, given the interview procedure followed, this did not reduce the chances of contacting them later on. Most of the non-response arose from our inability to locate parents who had moved after their child left college. This could be a source of bias if children from these parents were also differentially prone to leave home, but this is not very relevant, since the number of these cases was very small (geographical mobility is very low in Spain). We had to drop 339 observations (21.5%) due to item non-response, which reduces the sample to 1,237 individuals.

Lastly, in order to distinguish the causes from the consequences of moving out, in our empirical analysis the information on employment and partnership status and on the control variables refers to the preceding year. For this reason, we drop individuals who had already left home by 2004, which leaves us with a *descriptive sample* of 873 observations and 549 individuals. For our simultaneous equation estimation, presented in the next section, we need to use the biological data collected in the 2013 survey, which implies using a smaller, *estimation sample* with 633 observations. The reduction is mainly due to our inability to locate parents of children living independently, who had in most cases changed their telephone numbers from the time of their latest interview.

We show in Appendix Tables A1 and A2 the incidence of deviations between the initial random sample and both the descriptive and the estimation sample. As expected, given our sample selection criteria, the coresidence rate and the average age are higher in

[9] Parents were happy to cooperate because the request come from the University of Murcia. Indeed, classmates of interviewed subjects called in to offer their participation in the survey (unsuccessfully).

the descriptive than in the initial sample. No other difference is found for men, but there are significant differences for women, who in the descriptive sample are less likely to have a partner, who is himself less likely to have a high school diploma, to be employed and to be self-employed, but more likely to hold an open-ended job. There are also a few differences in their family characteristics. Thus, we cannot claim that the descriptive sample is representative. On the other hand, we find no significant differences between the descriptive and the estimation samples for either gender.

For unmarried individuals, a partner is defined as a person with whom they declare to have a sentimental and stable relationship.[10] We define individuals living independently as those who have left the parental home and pay for their housing costs mostly on their own or jointly with their partner.[11] This criterion is meant to distinguish between living independently and living apart but depending on parental income.

Overall, 64% of observations are for women and 74% for coresiding individuals. The average age is 27.5 years old, 45% of individuals have a 5-year college degree while the rest have a 3-year junior college degree, 84% are employed, and 51% have a stable partner. These figures indicate that the individuals in our sample live in a traditional society, in which despite having a university degree and mostly being employed, three-quarters of them still live with their parents when they are 25 to 29 years old. On average, partnerships last 2.1 years (s.e. 2.0), and jobs last 2.6 years (s.e. 3.4).

3.2 Descriptive statistics

Table 1 contains standard statistics for our descriptive sample. The first two columns show differences by gender, whereas the rest present the data by gender and coresidence status. Definitions and sources for all variables are given in Appendix 1.

Compared to men, women are slightly younger and marginally less likely to have a college degree. If employed, they are less likely to work in the public sector and have a higher probability of having a temporary or an open-ended contract. Regarding their

[10] We have information on the duration of the relationship so that we know whether the partner is the same person between any two consecutive interviews. This was the case in almost all cases.

[11] Those living with non-relatives in a rented house and paying part of the rent on their own are also considered as independent. This arrangement accounts for less than 2% of all independent individuals.

partner, they choose a university graduate less often but more frequently an employed partner, preferring more those on open-ended contracts than on temporary ones.[12]

If our model describes youth decisions adequately, we should not observe large differences in permanent income between either the two members of a couple or their respective parental households. Moreover, the larger the distance in these two dimensions, the lower should be the likelihood of the couple moving out to live together. Since we do not observe income for parents and children, we use alternative information to proxy for permanent income. First, there is indeed a high degree of assortative mating, since 61% of women and 74% of men match with a partner with a university degree.[13] Additionally, Table 2 shows the difference between the observed patterns and the ones that would be obtained if matching was random for the population of Murcia aged 25 to 29 years old (i.e. it followed population educational attainment shares). Highly educated partners are vastly over-represented, and more so for men than for women.

In our sample, 10% of mothers and 18% of fathers have a university degree. A measure of cross-partner parental education disparity is given by a dummy variable that is equal to one if an individual's father has a university degree and the partner's father does not. Parental assortative matching is again evident in the last line of Table 1, with only 19% of women and 22% of men showing this type of disparity, for cases where we observe the education levels of both partners' parents. More generally, Kendall's τ, which measures rank correlation, in education is equal to 0.39 –ranging from 0.42 for graduate women to 0.32 for graduate men. While these values are below what we find for the two parents of the individuals in our sample (0.56), they are very similar to what Greenwood *et al.* (2014) find for US couples in 2002 (although they use a finer breakdown for education). Assortative matching is less strong for the respective mothers of the couple members, namely 0.28, going from 0.35 for women to 0.18 for men. All coefficients are significant at the 1% level, except the latter, which is significant at 3%.

[12] Note that we reserve the term "college degree" for a 5-year degree, as opposed to a junior-college 3-year degree. On the other hand, we include both in the term "university degree" when referring to partners and parents, for whom we do not observe the length of their studies.

[13] Evidence of assortative mating in education for the US is given by Lewis and Oppenheimer (2000), Browning *et al.* (2014), and Greenwood *et al.* (2014).

Regarding differences between coresiding and independent youth, women living independently are more likely to have a college degree and, if employed, to have a job in the public sector. They are also more likely to have a partner, in which case the partner is more likely to be employed. Men who have moved out are more likely to have a partner, in which case the partner is more likely to have a university degree and to work.

3.3 Moving-out equilibrium patterns

We now estimate a probit model for living independently, separately for men and women. These estimates capture reduced form, or equilibrium, features of the data that need not capture causal effects, since having a partner or being employed may be jointly determined with the decision to move out, as explored in the next section. They nevertheless provide suggestive evidence on the relevance for moving out decisions of sorting in the partners' and their parents' permanent income. This question cannot be investigated in our subsequent simultaneous equation framework, where the dependence between moving out, working, and having a partner is analyzed.

In the probit we first include individual variables: age, the type of university degree (3-year or 5-year), and a dummy variable that is equal to 1 if the individual had a low grade in the university entrance exam –below the first decile of the distribution in the sample. We also enter the whole range of jobs: private employee with an open-ended contract, private employee with a temporary contract, public employee, and self employed, with the non-employed as the reference category. A second group of controls captures whether there is a partner, and the partner's highest level of education attained (via dummies for tertiary and secondary education), and his/her type of labor contract.

Next come parental household characteristics. A third block refers to the individual's own parents: whether each parent is alive or not and their respective education levels, the father's type of labor contract (only one-quarter of mothers work) and a dummy variable for whether there are any other children in the household. We cannot directly measure housing prices or rentals, since they are available only for cities with more than 25,000 inhabitants. Instead, we use an imputed valuation of the family dwelling, computed from official property valuations for tax purposes. In particular, we obtain

the valuation on 1 January 2004 of a typical dwelling of 90 square meters located in the postal code of the parental home at the time when the individual was in college. We also add dummy variables for whether the individual's family lived in one of the two cities with more than 200,000 inhabitants, namely Cartagena and Murcia.[14] Lastly, a fourth block of variables on the family of the individual's partner is included, namely whether the partner's parents are alive and their educational attainment.

Regressors are measured in the preceding year, which leaves us with two waves of data for the moving-out outcome, namely 2005 and 2006. Year effects are controlled for by a dummy variable for 2006. To control for the potential common group error terms that could bias the estimates, we cluster the standard error at the level of the individual. As shown in Hansen (2007), the clustered covariance matrix is valid for inference when the number of clusters is large and the size of the clusters is fixed, as is the case here.

Our estimates appear in Table 3. We defer the discussion of individuals' own and parental characteristics to Section 4, where they can be given a causal interpretation. Starting with women, we find that those living independently are not necessarily more likely to have a partner, but they are more likely to have an employed partner (col. 1). Moreover, there is a higher likelihood of moving out the higher the partner's job security: the coefficient is highest for public sector jobs, then for open-ended jobs, and lowest for temporary jobs (though the differences between them are not statistically significant).

The evidence on the importance of positive sorting is weak, since the coefficient on the partner's educational attainment is not significant. This finding is however not robust. If we exclude the variables that capture the socio-economic status of the household, namely the two variables for the type of job of the father and the value of housing, the results for the partner's variables are qualitatively unaltered but his having a university degree becomes significant (col. 2). This suggests that finding assortative mating in education regarding the decision to move out may depend on not adequately controling for parental socio-economic characteristics. On the other hand, no variables capturing the partner's parents turn out to be significant.

[14] There is little interregional mobility of graduate students in Spain. Thus, all the parental households in our sample lived in the region of Murcia at the time when their children were in college.

For men it is harder to find relevant covariates. The coefficient on the partner's university degree is marginally significant –in this case regardless of the controls included for parental characteristics– and the partner's job security is present only when she holds an open-ended contract in the private sector (cols. 3 and 4). Two interesting partnership cross-effects appear: men are more likely to move out if their partner's mother is dead and, if alive, the more educated she is. This matches the finding of a positive coefficient on these variables for women in the first column, which are confirmed in the system estimates in Section 4. Moreover, the negative correlation between females living independently and their father's educational attainment shows up as a negative (but non-significant) coefficient for male decisions on the partner's paternal education.

To sum up, we provide evidence that, in the decision to leave the parental home to live together, the partner's job security matters, especially for women. At the same time, there is evidence of positive sorting in education, but it is not very strong. There is also a novel finding of a cross-effect in the female partner's maternal characteristics.

4 Work, couples, and moving out

In this section we formally test for interdependence among the working, partnership, and moving out decisions by means of a simultaneous equation model. We first introduce the empirical model, then discuss its identification, and finally present and discuss our empirical estimates.

4.1 Empirical model

Following Martinez-Granado and Ruiz-Castillo (2002), we assume that there is an underlying, unobservable propensity to select a state in a given decision. We model the interdependence among decisions through the following simultaneous equation model:

$$\begin{aligned} y_{1i}^* &= X_{1i}\beta_1 + \gamma_{12}y_{2i}^* + \gamma_{13}y_{3i}^* + \varepsilon_{1i} \\ y_{2i}^* &= X_{2i}\beta_2 + \gamma_{21}y_{1i}^* + \gamma_{23}y_{3i}^* + \varepsilon_{2i} \\ y_{3i}^* &= X_{3i}\beta_3 + \gamma_{31}y_{1i}^* + \gamma_{32}y_{2i}^* + \varepsilon_{3i} \end{aligned}$$

where y_{1i}^*, y_{2i}^*, and y_{3i}^* respectively denote the individual propensities to leave the parental home, to work, and to have a partner. The X_i vectors include exogenous determinants of each decision. The parameters of interest are given by the β and γ vectors, and the error terms are assumed to be jointly normally distributed. In our data we observe realizations rather than propensities; that is, we observe y_{ji}, which is equal to one if the underlying propensity y_{ji}^* is positive and zero otherwise, for $j = \{1, 2, 3\}$.

Instead of estimating the system by numerical methods in a simulated maximum likelihood specification, we employ an estimator within the family of two-step estimators for limited dependent variable models for panel data proposed in Arellano and Bover (1997). These two-step estimators minimize the efficiency loss, they are easier to implement, and they provide consistent estimates of the parameters of interest. In particular, we apply the cross-section version of the two-step procedure in Martinez-Granado and Ruiz-Castillo (2002), since we have an unbalanced panel with only two waves of data.

The two-step estimator proceeds as follows. In the first stage we consider reduced form equations for the endogenous variables, namely:

$$y_{ji}^* = X_i \pi_j + u_{ji}$$

for $j = \{1, 2, 3\}$, where X_i comprises all variables in X_1, X_2, and X_3, and the error terms are assumed to be jointly normally distributed with unit variance. The reduced form equations are estimated by means of independent probit models and the predictions for the unobserved propensities, namely $\widehat{y}_{1i}^*$, $\widehat{y}_{2i}^*$, and $\widehat{y}_{3i}^*$, are computed and used to replace the endogenous and the dependent variables in the original system, giving:

$$\widehat{y}_{1i}^* = X_{1i}\beta_1 + \gamma_{12}\widehat{y}_{2i}^* + \gamma_{13}\widehat{y}_{3i}^* + \varepsilon_{1i} \tag{18}$$

$$\widehat{y}_{2i}^* = X_{2i}\beta_2 + \gamma_{21}\widehat{y}_{1i}^* + \gamma_{32}\widehat{y}_{3i}^* + \varepsilon_{2i} \tag{19}$$

$$\widehat{y}_{3i}^* = X_{3i}\beta_3 + \gamma_{31}\widehat{y}_{1i}^* + \gamma_{32}\widehat{y}_{2i}^* + \varepsilon_{3i} \tag{20}$$

In a second stage the parameters of interest are recovered by estimating the system in (18)-(20) by OLS. Since the endogenous variables have been replaced by their predicted values, the asymptotic variance matrix of the estimates is not the same as for the OLS

estimator. As pointed out in Martinez-Granado and Ruiz-Castillo (2002), the second-stage OLS estimates can be interpreted as GMM estimates in which the weighting matrix has not been chosen optimally. Thus, in a third stage the weighting matrix is replaced by a consistent estimate of the covariance matrix of the orthogonality conditions.[15]

4.2 Identification

In the estimation of the system, the coresidence status is measured contemporaneously, whereas the partnership and employment statuses, as well as all regressors, are measured in the preceding year. The system is estimated for men and women separately and the equations are identified by means of a set of exclusion restrictions, suggested by a preliminary estimation of the system. We assume that certain variables affect only one of the three propensities, subsequently we perform a test of the overidentifying restrictions.

In the case of women, the identifying variables are as follows. For the propensity to move out, we use housing prices in the postal code where their family lived at the time the individuals were in college, interacted with individual age to increase the precision of our estimates. For the propensity to work, we include the share of women with children (mothers) who are illiterate in the zip code area where the parents lived when the individual was in college. Lastly, for the partnership equation we use eye color (blue or green, which are uncommon in Spain). Of course, this trait could affect labor market outcomes too (Hamermesh and Biddle, 1994), so that we need to check this issue empirically. For men the exclusion restrictions for identification are the same, except for the propensity to work, where we instead use the percentage share of men with children (fathers) with a low socio-economic status (agricultural workers or entrepreneurs) in the zip code area where the parents lived. These identification restrictions may be questioned, and so we also present below the results when using alternative restrictions.

Before turning to the estimates it is worth pointing out that we tested for pairwise independence of the equations using bivariate probits. The results in Table 4 show that, while we do not find a significant correlation between the errors of the moving out and

[15] See Appendix A in Martinez-Granado and Ruiz-Castillo (2002) for a discussion of the consistency and normality of the estimates and of how to estimate the optimal weighting matrix.

employment equations, there is positive and significant correlation, for both men and women, between the errors of the moving out and partnership equations and, to a lesser extent, between the errors of the partnership and employment equations. Moreover, the sign of the estimated correlation coefficients is positive and consistent with unmeasured taste for privacy driving individual choices, as indicated by our theoretical model. These results suggest that a simultaneous equation model has a sound empirical basis.

4.3 Estimation results

In this section we present our estimates for the propensity to move out, when it is estimated jointly with the propensities to work and have a partner. We begin with estimates of their interdependence, which justifies the joint estimation approach. We then display and discuss the estimated determinants of moving-out propensities. Auxiliary equations for the other two states are given in Appendix 2. The concluding section discusses some robustness checks.

4.3.1 Interdependence

Table 5 reveals that all decisions affect each other, for both genders. For women, as expected from the model, working increases their propensity to move out and, symmetrically, living independently raises their propensity to work. The same symmetry is present between having a partner and moving out, reinforcing each other, which is consistent with our model.

Lastly, working reduces the propensity to match and having a partner makes it less likely to work. This finding is in contrast with our model's results and suggests that other mechanisms may be at play. In particular, that women who work are self-supporting and less likely to seek a partner for economic reasons, whereas women who do match are supported by their partner and are therefore less likely to seek work.[16] Another potential

[16] McElroy (1985) finds that market work and household formation are jointly determined using a sample of US families with sons who were out of school, never married, white, and 19-24 years old in 1971. Almost 80% of men were employed at the time of the interview. Martinez-Granado and Ruiz-Castillo (2002) obtain a similar result using a sample of families with children aged 18 to 30 years old living in Spain. They report that 63.5% of men and 37.2% of women in their sample were working at the time of the interview.

explanation for the negative effect of partnership on female labor supply is provided by De la Rica and Iza (2005), who find, for childless women in Spain, that holding a temporary job delays motherhood in comparison with holding a permanent job. Thus, it could be that having a partner allows women to invest in getting a permanent job in the public sector, which is the type of contract that makes it easiest for them to combine work and family life. As shown in Table 1, the majority of women who are working hold a temporary job. Moreover, in our estimation sample, 82% of women neither in work nor searching for a job declare to be studying in order to get a permanent position in the public sector. However, the small size of our sample of non-participating women prevents us from checking this story in detail.

There is also positive interdependence between the propensities to work and move out for males, but the relationship between having work and having a partner is now positive as well, which accords well with the predictions from our model. Lastly, our estimates indicate that, in contrast to women, men decide to move out regardless of whether they have a partner or not. Thus, male decisions appear to be more independent than those by females, again indicating a relatively traditional society.

4.3.2 Female propensity to move out

Estimates for the moving-out propensity are shown in Table 6. There are three columns per gender, corresponding to different sets of exclusion restrictions. The first column for each gender contains the results for our baseline specification, whereas the other two represent robustness checks to be discussed at the end of this section.

We first comment on the estimates for women in col. (1). Housing prices in the area where the individual's family lived when she was in college are found to have a negative effect. This result agrees with the fact that Spanish women tend to live very close to their parents once they leave (Mendez, 2008), so that high housing prices can deter their moving out. Our exclusion restriction set is not rejected by the Sargan test proposed in Arellano and Bover (1997), whose values are reported at the bottom of the table.

Turning now to the controls,[17] Table 6 shows that variables associated with higher

[17] Beyond the controls in Table 2, these equations also include dummy variables for four fields of study

permanent income make it more likely to move out: having a college degree has a positive effect whereas having low-quality human capital –captured by a low university entrance exam grade– has the opposite effect. Age shows a negative sign, which captures the fact that in our sample most women move out when they are 25 or 26 years old, as opposed to when they are 27 to 30 years old.

Regarding the parental background, there is a positive effect on a woman's propensity to move out of her mother having died. This suggests that daughters take more responsibility for the provision of public goods in the household when the mother is missing –which points towards a society with traditional values– and that their utility from living in the parental home accordingly falls, making it more desirable for them to leave. This interpretation is reinforced by the lack of an effect when the father is missing. More educated mothers induce earlier moving out, whereas more educated fathers have the opposite effect. The impact on moving out induced by measures of the father's job security, namely having a permanent job or being a public employee, is also negative, which is fully consistent with the predictions of our model, namely that parental permanent income lowers the child's likelihood of leaving.[18]

The asymmetry between the two parental education effects is worth stressing. We think it results from the father typically being the main earner in the household, whereas the mother is much less likely to work but also more important in shaping her child's attitudes. Since the mother's employment status is controled for, a tentative explanation of this result is that more educated mothers have less conservative values. It is worth recalling that, as indicated in Section 3, an equilibrium positive correlation was estimated between men's likelihood of living independently and the educational level of their partner's mother.

(Health, Education, Social Sciences, and Humanities), a dummy variable for sparsely populated areas, and a dummy variable for delinquency problems in the neighbourhood above the median, see Appendix 1 for definitions.

[18] Most researchers have found that higher parental income fosters coresidence, see McElroy (1985), Ermisch (1999), Manacorda and Moretti (2006), and Becker *et al.* (2010). However, Rosenzweig and Wolpin (1993) find a negative effect if the parents are divorced.

4.3.3 Male propensity to move out

As in the reduced-form estimates, a different picture emerges for men vis-à-vis women. The moving-out propensity is now positively affected by the parental home valuation. In the case of women we found a negative effect and interpreted it as capturing the impact of housing prices for the area where young women were more likely to seek accommodation. Wealthier parents are however better able to support their children when they move out, and this force would go in the opposite direction, so that we might be estimating the net value of the two effects. Lacking information on the distance from the parental home separately for young men and women, we are unfortunately unable to test this hypothesis.

The effects of own characteristics are as for females: a positive effect of a college degree and a negative effect of a low-quality human capital. On the other hand, there are disparities in the effects of parental characteristics on the two genders. In particular, more educated mothers deter moving out, whereas more educated fathers foster it.[19] And while parental job security deters the leaving of men as well, the absence of a father promotes it; for women it was the mother's absence. Lastly, having siblings (and presumably less space at home) leads men to leave, while it did not bother women (but we do not observe the siblings' gender).

4.3.4 Robustness checks

In this section we check the robustness of our estimates to alternative exclusion restrictions, starting with the work and partnership decisions and ending with the moving out decision. For women we use two sets of alternative assumptions. First, in the propensity to work we add as identifying variable the employment rate in 2006 of University of Murcia graduates over 2001-2004 in the same field as the individual.

Alternatively, we include as an additional identifying variable in both decisions an index of individual values. In the 2013 survey we included five questions on values, explicitly referred to the period when the individual was in college. The first three have

[19] The indicator for a deceased mother is always utterly non-signficant in all equations, and so it is excluded from the equation.

been used in the literature and are taken from the World Values Survey (worldvaluessurvey.org); the other two are chosen for being especially appropriate for the topic at hand. In particular, we asked individuals about their degree of agreement with the following statements: (1) A woman only fulfills herself upon being a mother, (2) Being a housewife is just as fulfilling as working outside the home, (3) It is a child's duty to make his/her parents happy, (4) It is not normal for a woman to live alone, and (5) Even if both members of a couple work, housework is the woman's responsibility. Answers are on a scale going from 0 (not at all) to 10 (totally agree), so that the more traditional are the values held by the individual, the higher should be the number reported. Our traditional values index is the first principal component of the answers to all five questions. For both men and women, this component explains around one-third of the variance (34.8% and 31.6%, respectively).

The inclusion of the values index as affecting the employment and partner propensities is grounded in the literature. For example, Alesina *et al.* (2014) shows that countries where family ties are stronger exhibit lower female employment rates and higher fertility.[20] In this case our identification assumption is that values do not directly affect the individual propensity to move out, though they may affect it indirectly through their impact on labor supply and partnership decisions, which accords with the cross-country results in Giuliano (2007).

In our data, self-reported values do not appear to be especially conservative, presumably because young university graduates are less traditional than both less educated youth and the preceding generation. With a range between 0 and 10, the average score is 2.7 for women and 2.9 for men. Men hold more conservative views than women in all questions except the last one. Differences are significant at the 1% level for the second, fourth, and fifth questions.

In the case of the equations for men, the alternative identification assumptions are as follows. In the first alternative specification for the propensity to have a partner we replace eye color by the age at which the individual reports having started drinking

[20] Fernández (2007) shows for American married women with foreign ancestry that attitudes towards women in their country of ancestry affect their labor supply.

alcoholic beverages. In the second alternative specification we add, as for women, the values index.[21]

In Table 6 we present the new simultaneous equation estimates for the propensity to move out. Cols. (2) and (5) contain the results for the first alternative exclusion restriction for each gender and cols. (3) and (6) those when the identifying variable is the values index. For women most results hold well. The effect of the parental home valuation is limited to 29-year old women in col. (2) and it becomes positive and significant for 30-year old individuals in col. (3), which echoes the finding for men throughout. The effect of a missing father becomes negative and significant in col. (3).

The results for men are actually reinforced, with higher significance of the effects of having a college degree, a mother with a university degree, and a father with an open-ended contract. On the other hand, the effect of a working mother, which was marginally significant before, completely disappears.

We end by reporting the estimates obtained from imposing alternative exclusion restrictions for the propensity to move out. We use variables that capture housing supply in the area where young people's parents lived. For women we use an indicator for whether the share of housing constructed after 1981 in their zip code is above the median of all remaining zip codes. For men the indicator measures whether the share of housing in good state in that zip code is above the median. The estimates, presented in Table 7, show that these alternative identifiers yield the same effects found respectively in cols. (1) and (4) of Table 6, now with the opposite sign since these variables capture housing supply while the original variables captured prices. The effects of the controls also agree with the preceding results, except that the education level of the father is weakened and his having an open-ended job stops being significant in the case of men.

Lastly, it is worth reporting how the cross impacts of the three endogenous variables reported in Table 5 are altered when we vary the exclusion restrictions. The following effects are robust in all specifications: for women, the effect of moving out on work, of work on having a partner, and on having a partner on both moving out and work; for

[21] All these new variables are significant in the case of women, whereas for men the values index is not significant in the propensity to work and significant at the 10% level in the partnership one.

men, the effect of work on moving out and having a partner.

5 Conclusions

The economic literature has typically analyzed moving-out decisions as made by a single young adult. However, leaving home in Europe is predominantly a decision made jointly by two young adults who leave their respective parental homes to form a new household. Very little is known about the relevance of the partnership status and of the partner's socio-demographic characteristics and employment status on youth moving-out decisions, since conventional data sets do not collect this information. In this paper we aim at filling this gap.

On the theory side, we present a simple model of the joint moving-out decision that illustrates how young people make partnership, employment, and coresidence decisions, and how job insecurity and tastes for privacy affect them. Our analysis indicates that the likelihood of young people becoming a couple and moving out depends positively on the degree of positive sorting in both partners' and their parents' permanent income.

Concerning the empirical evidence, we collect our own dataset for Murcia, a south-eastern region in Spain. Our sample comes from a survey of graduates of the University of Murcia aged 25 to 29 years old at the time of the first interview in 2004. It corresponds to a quite traditional society and this shows in several features of the data. The coresidence rate is still around three-fourths for people who are mostly working, which is much higher than in Northern and Central European countries.

We perform two types of analysis. We start with equilibrium patterns. Simple statistics, and in line with the findings in the literature (e.g. Browning *et al.*, 2014), show that there is assortative mating in education, with three-quarters of graduate men and 60% of women partnering with university graduates. The same type of assortative mating is found for the parents of these individuals.

A regression analysis of equilibrium outcomes reveals the presence of positive sorting in education, though it is not very strong. Moving out decisions are also found to be correlated, *ceteris paribus*, with the economic status of the partner. In particular, a

joint decision to move out is more likely the higher the partner's job security, though this is stronger in the case of females. On the other hand, the education of the partner's mother or her being alive are both correlated with the moving out status of males alone.

Our second type of analysis consists of estimating a system of equations for the propensities to move out, work, and have a partner. We find significant interdependence between these three states –except for having a partner and moving out in the case of men– which indicates that the analysis of moving out decisions taking employment or partnership status as given will typically lead to biased estimates.

As expected, higher permanent income, proxied by being more educated and having a higher-quality human capital, spurs moving out. On the other hand, while women are more likely to move out if their mother has died, this circumstance does not affect male graduates. This finding points towards women having to take the burden of housework in that case.

Parental education has opposite effects depending on the individual's and the specific parent's gender. Higher maternal education induces a higher probability of moving out, whereas paternal education reduces it. We interpret this finding as reflecting the fact that the father is typically the main earner in the household, which makes his earnings relevant for moving out, while the mother is more important in shaping child attitudes. For men, the opposite is true. Lastly, we confirm the finding in the literature (e.g. Becker *et al.*, 2010) that higher paternal job security discourages moving out, specially for women.

Beyond their interest for identifying home-leaving decisions by Southern Mediterranean youth, our results suggest the need for a deeper theoretical and empirical analysis of moving out as a joint decision within a couple and for a more systematic effort at collecting data on the partners of young people who are still living in the parental home.

Appendix 1. Sources, definitions, and sample comparisons

A1. Variables obtained from the survey conducted by the authors

1. Individual

- Age (in years), Blue or green eyes, Gender, Employed.
- Low university entrance grade: Grade in the university entrance exam below the first decile of the distribution of grades in the sample.
- College degree: Highest education level attained is a 5-year university degree, as opposed to a 3-year junior college degree at the University of Murcia.
- University degree fields: 1. Technical. 2. Experimental Sciences. 2. Health Sciences. 3. Economics. 5. Law. 6. Education. 7. Social Sciences. 8. Humanities.
- Public employee: Permanent position in the public sector.
- Traditional values: Value for the degree of agreement with the statement "Being a housewife is just as fulfilling as working for pay" (women) and "Before getting married, you should live with your partner in order to make sure that the relationship really works" (men). Answers go from 0 "not at all" to 10 "totally agree".

2. Partner

- Partner: The individual declares to hold a stable relationship.
- University degree: Highest education level attained is a university degree (college or junior college).
- High school diploma: Highest education level attained is high school.
- Temporary employee: Temporary labor contract in the private sector.
- Permanent employee: Open-ended labor contract in the private sector.
- Public employee: Tenured position in the public sector.
- Entrepreneur: Self-employed worker.

3. Parents and partner's parents

- Mother employed, Mother deceased, Father deceased.
- Education and job type variables for the father and mother defined as for partners.
- Siblings: there is at at least one sibling of the individual living in the parental home.

- City: Home located in Cartagena or Murcia (regional capital).

A2. Variables obtained from external sources

These variables refer to the postal code of the parental home at the time when the individual was in college.

- Home valuation: Property valuation for tax purposes on 1 January 2004 of a typical dwelling of 90 square meters. Source: Government of the Region of Murcia (www.carm.es).
- Illiterate mothers. Share of women with children (mothers) who are illiterate. Source: 2001 Population Census.
- Low socio-economic status fathers. Share of men with children (fathers) in low socio-economic status, namely agricultural workers or agricultural entrepreneurs. Source: 2001 Population Census.
- Delinquency above the median. Dummy variable that takes the value 1 if the share of respondents who declare that there are problems with crime in the neighborhood is above the median. Source: 2001 Population Census.
- Sparsely populated area. Dummy variable that takes the value 1 if the parental home is located in an area accounting for less than 10% of the population in the region of Murcia in 2004. Source: Municipal Register of the National Statistical Institute (www.ine.es) for 1 January 2004.
- Housing construction. Dummy variable that takes the value 1 if the share of housing constructed after 1981 is above the median.
- Housing in good condition. Dummy variable that takes the value 1 if the share of housing in good state is above the median.

Table A1. Comparison of variables across different samples. Women

	(1)	(2)	(3)	t	
	Total sample	Descriptive sample	Estimation sample	(1) v. (2)	(2) v. (3)
Living independently	57.0	25.3	27.2	12.7	-0.7
Age	26.5	27.4	27.4	-9.2	-0.5
College degree	42.1	42.9	45.0	-0.3	-0.7
Low university entrance grade	10.7	10.2	8.9	0.3	0.7
Employed	82.9	82.4	82.7	0.3	-0.1
Temporary job	50.3	51.4	52.3	-0.3	-0.3
Open-ended job	34.6	34.0	32.9	0.3	0.3
Public employee	8.9	6.3	6.8	1.7	-0.3
Self employed	5.6	7.8	7.7	-1.6	0.1
Partner	63.8	50.6	52.4	5.2	-0.5
Partner university degree	34.7	30.9	30.5	1.5	0.1
Partner high school diploma	21.6	15.3	17.0	3.1	-0.7
Partner employed	60.8	47.0	48.9	5.3	-0.6
Partner temporary job	20.0	23.7	22.9	0.6	0.0
Partner open-ended job	56.6	60.3	61.5	2.5	-0.6
Partner public employee	7.3	7.6	6.8	0.8	0.2
Partner entrepreneur	16.1	8.4	8.9	4.2	-0.3
Mother deceased	0.8	0.9	0.8	-0.3	0.2
Mother university degree	10.0	9.3	10.4	0.4	-0.6
Mother high school diploma	20.0	19.2	19.1	0.4	0.0
Mother employed	27.6	26.2	28.2	0.6	-0.7
Father deceased	7.5	9.9	11.5	-1.7	-0.8
Father university degree	17.8	16.5	19.3	0.7	-1.1
Father high school diploma	21.8	22.6	20.6	-0.4	0.7
Father employed	62.4	54.9	55.0	2.9	0.0
Father open ended job	42.7	44.8	41.2	0.9	0.7
Father public employee	18.2	20.3	21.8	0.1	-0.4
Housing valuation	91.6	77.1	76.4	5.7	0.0
Siblings	41.2	69.7	70.5	-11.3	-0.3
Partner's mother deceased	2.1	2.2	2.0	-0.1	0.1
Partner's mother university d.	4.8	3.9	3.1	0.8	0.7
Partner's mother high school	6.9	6.1	6.9	0.6	-0.5
Partner's father deceased	4.8	3.9	4.3	0.8	-0.3
Partner's father university d.	10.3	8.4	8.1	1.2	0.2
Partner's father high school	6.3	5.7	6.1	0.4	-0.2
Parental education disparity	18.9	16.0	18.3	1.4	-0.9
No. observations	1,057	557	393		

Table A2. Comparison of variables across different samples. Men

	(1)	(2)	(3)	t	
	Total sample	Descriptive sample	Estimation sample	(1) v. (2)	(2) v. (3)
Living independently	53.4	26.6	26.3	7.8	0.1
Age	27.0	27.7	27.8	-6.1	-0.6
College degree	53.8	49.4	50.0	1.2	-0.1
Low university entrance grade	8.7	10.8	13.3	-1.0	-0.9
Employed	87.9	85.8	86.7	0.9	-0.3
Temporary job	39.5	36.2	38.9	1.1	-0.7
Open-ended job	41.0	43.5	40.9	-0.4	0.5
Public employee	9.4	10.0	8.7	-0.1	0.4
Self employed	10.1	10.3	11.5	0.0	-0.5
Partner	54.9	52.5	55.0	0.7	-0.6
Partner university degree	39.5	38.9	39.6	0.2	-0.2
Partner high school diploma	13.5	12.0	12.9	0.6	-0.3
Partner employed	41.6	38.3	37.5	0.9	0.2
Partner temporary job	41.7	48.8	50.0	-0.5	0.0
Partner open-ended job	46.3	39.7	40.0	1.5	0.1
Partner public employee	6.9	7.4	7.8	0.0	0.0
Partner entrepreneur	4.6	4.1	2.2	0.4	0.8
Mother deceased	1.3	0.9	0.0	0.5	1.5
Mother university degree	12.5	9.8	11.7	1.2	-0.7
Mother high school diploma	18.3	17.7	19.2	0.2	-0.4
Mother employed	25.2	25.0	25.4	0.1	-0.1
Father deceased	6.7	7.6	6.7	-0.5	0.4
Father university degree	18.7	15.5	17.9	1.2	-0.8
Father high school diploma	24.3	24.1	23.8	0.1	0.1
Father employed	58.8	52.8	48.3	1.7	1.1
Father open ended job	42.0	37.1	37.9	1.7	0.4
Father public employee	23.3	24.6	27.6	0.3	-0.1
Housing valuation	89.2	83.7	82.3	1.9	0.6
Siblings	43.4	64.2	67.1	-6.0	-0.7
Partner's mother deceased	1.3	1.3	1.7	0.1	-0.4
Partner's mother university	4.4	3.8	5.0	0.4	-0.7
Partner's mother high school	8.9	9.2	7.1	-0.2	0.9
Partner's father deceased	2.3	2.2	2.9	0.1	-0.5
Partner's father university d.	8.1	7.6	6.7	0.3	0.4
Partner's father h. school d.	7.3	7.3	7.9	0.0	-0.3
Parental education disparity	21.4	18.7	18.8	0.9	0.0
No. observations	522	316	240		

Appendix 2. Estimates for the propensities to work and have a partner

Table A3 shows estimates for the two propensities that are jointly determined with the propensity to move out. Brief comments on these results follow.

In the equation for the propensity to work, the share of illiterate mothers in the parental residential area has a negative effect. Illiterate women have close to zero labor market participation rates, so that young women living in an environment where they are more prevalent will be less likely to work. The propensity to have a partner is reduced if the woman has blue or green eyes. We think that this variable does not captures a demand effect –i.e. that these women are less attractive– but a supply effect, namely that these women can afford to be choosier.

Most of the effects we find are standard, so we mainly comment on possibly unexpected ones. Holding a college degree lowers the propensity to work and having a low university exam entrance grade raises it. We think that this result stems from the negative correlation between increases in employment and educational attainment in this period. Over 2004Q4 to 2006Q4 in Murcia, employment of female secondary education graduates increased by 10.6% per year vis-à-vis 1.2% for university graduates (we cannot separate 3-year and 5-year degrees). On the other hand, graduates with a low-quality human capital are more likely to take medium and low skill jobs. Indeed, in our sample, while 48% of women with a university entrance grade above the first decile hold jobs in the top two occupations, only 24% of those below that decile do. They may also be less selective in mating, which would explain the positive effect of this low grade on their likelihood of having a partner.

Women whose mother has a higher educational attainment are less likely to work and to have a partner. In Murcia, young women usually leave the parental home to live with a partner who has a higher income and with whom they have had a long relationship. Less traditional mothers can be described as those who encourage their children to be more independent, i.e. not to feel pressure to match and to leave home earlier regardless of whether they have a partner, but also to avoid taking low wage job offers.

Table A3. Simultaneous equation estimates of the work and partnership propensities

	Women		Men	
	Work	Partner	Work	Partner
% Illiterate mothers in ZIP code	-0.015 ***			
	(0.005)			
% Low socioeconomic status in ZIP code			-0.042 **	
			(0.020)	
Blue or green eyes		-0.260 **		0.335 ***
		(0.117)		(0.091)
Age	0.101 ***	-0.040	0.165	-0.060 **
	(0.031)	(0.083)	(0.110)	(0.028)
College degree	-0.689 ***	-0.358	-0.705	-0.062
	(0.087)	(0.283)	(0.612)	(0.098)
Low university entrance grade	0.480 ***	0.495 ***	0.069	0.444 ***
	(0.100)	(0.251)	(0.613)	(0.130)
Mother deceased	-2.010 ***	-1.333		
	(0.413)	(1.101)		
Mother university degree	-1.048 ***	-0.885	2.030 ***	-0.956 ***
	(0.234)	(0.614)	(0.723)	(0.250)
Mother high school diploma	-0.551 ***	-0.684 ***	-0.153	-0.110
	(0.088)	(0.221)	(0.446)	(0.206)
Mother employed	0.028	0.119	0.621	-0.158
	(0.085)	(0.015)	(0.804)	(0.128)
Father deceased	-0.192 **	-0.492 ***	-2.827 ***	0.840 ***
	(0.082)	(0.135)	(1.052)	(0.225)
Father university degree	0.860 ***	0.719 ***	-1.581 *	0.939 ***
	(0.097)	(0.268)	(0.926)	(0.283)
Father high school diploma	0.951 ***	0.874 ***	-1.485 *	0.496 *
	(0.086)	(0.254)	(0.771)	(0.262)
Father open ended job	0.054	0.209 *	1.165 **	-0.446 ***
	(0.069)	(0.113)	(0.499)	(0.126)
Father public employee	0.255	0.189	0.266	0.160
	(0.182)	(0.399)	(0.695)	(0.137)
Siblings	-0.029	-0.019	-0.737 **	0.286 ***
	(0.069)	(0.117)	(0.299)	(0.061)
Number of observations	393		240	
Sargan test (d.f.=10)	7.817		7.986	

Note: Standard errors in parentheses, clustered by individual. See the text for the exclusion restrictions in different columns. Controls (dummy variables): wave 2 (2006), cities of Cartagena and Murcia, field of study (Health, Education, Social Sciences, Humanities), sparsely populated area, and above-median delinquency in the neighbourhood. See definitions in Appendix 1. Critical value for Sargan test (5% level): 18.31. Symbols: *** for $p<0.01$, ** for $p<0.05$, and * for $p<0.1$.

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Table 1. Descriptive statistics of the sample

	Full sample			Women			Men		
	Women	Men	t	Indep.	Cores.	t	Indep.	Cores.	t
Living independently	25.3	26.6	-0.4	100.0	0.0	–	100.0	0.0	–
Age	27.4	27.7	-3.5	27.2	27.4	-1.1	28.0	27.6	2.1
College degree	42.9	49.4	-1.8	51.1	40.1	2.3	56.0	47.0	1.4
Low univ. entrance grade	10.2	10.8	-0.2	9.9	10.3	-0.1	7.1	12.1	-1.2
Employed	82.4	85.8	-1.2	83.7	82.0	0.5	89.3	84.5	1.1
Temporary job	51.4	36.2	4.0	46.6	53.1	-1.2	38.7	35.2	0.5
Open-ended job	34.0	43.5	2.6	32.2	34.6	-0.5	42.7	43.9	-0.2
Public employee	6.3	10.0	-1.8	10.1	5.0	2.0	9.3	10.2	-0.2
Self employed	7.8	10.3	-1.1	11.0	6.7	1.5	9.3	10.7	-0.3
Partner	50.6	52.5	-0.5	72.3	43.2	6.2	70.2	46.1	3.9
Partner university degree	61.0	74.1	-2.8	67.6	57.2	1.7	83.1	69.1	4.4
Partner h. school diploma	30.1	22.9	1.7	27.4	31.7	-0.7	15.3	27.1	-0.4
Partner employed	92.9	72.9	6.0	98.0	90.0	2.5	83.1	67.3	2.2
Partner temporary job	23.7	48.8	-5.1	22.0	24.7	-0.5	38.8	55.5	-1.8
Partner open-ended job	60.3	39.7	3.8	61.0	60.0	0.2	49.0	33.3	1.7
Partner public employee	7.6	7.4	0.1	8.0	7.4	0.2	8.2	6.9	0.2
Partner entrepreneur	8.3	4.1	1.5	9.0	8.0	0.3	4.1	4.2	-0.0
Mother deceased	0.9	0.9	0.1	2.1	0.5	1.8	1.2	0.9	1.8
Mother university degree	9.4	9.9	-0.2	15.2	7.5	2.7	8.4	10.4	-0.5
Mother h. school diploma	19.4	17.9	0.5	23.2	18.1	1.3	27.7	14.3	2.7
Mother employed	26.4	25.2	0.4	30.4	25.1	1.2	25.3	25.2	0.0
Father deceased	9.9	7.6	1.1	9.9	9.9	0.0	9.5	6.9	0.8
Father university degree	18.3	16.8	0.6	26.8	15.5	2.9	17.1	16.7	0.1
Father h. school diploma	25.1	26.0	-0.3	18.9	27.2	-1.9	34.2	23.1	1.9
Father employed	61.0	57.2	1.0	56.7	62.4	-1.1	64.5	54.6	1.5
Father open ended job	44.7	37.1	1.6	45.8	44.4	0.2	24.5	42.4	-2.2
Father public employee	20.2	24.6	-1.1	13.9	22.2	-1.5	32.7	21.2	1.6
Housing valuation	91.6	89.2	1.3	91.2	91.7	0.2	93.8	87.5	1.8
Siblings	69.7	64.2	1.6	70.2	69.5	0.2	70.2	62.1	1.3
Partner's mother deceas.	4.3	2.4	1.0	5.9	3.3	1.0	3.4	1.9	0.6
Partner's mother university	7.8	6.8	0.3	12.0	6.0	1.7	10.5	3.9	1.4
Partner's mother h. school	12.6	17.9	-1.5	16.3	10.1	1.9	24.6	11.8	2.1
Partner's father deceased	7.8	4.2	1.5	9.8	6.7	0.9	3.4	4.7	-0.4
Partner's father university	17.7	15.1	0.7	19.7	16.7	0.6	22.8	10.8	2.0
Partner's father h. school	12.3	14.5	-0.6	15.2	10.7	1.1	15.8	13.7	0.4
Parental education dispar.	19.0	22.4	-0.8	19.0	19.0	0.0	22.0	22.6	0.1

Note. Women: 354 individuals, 557 observations (74.7% coresiding). Men: 195 individuals, 316 observations (73.6% coresiding). The data are percentage shares and means for discrete and continuous variables, respectively. Housing valuations are in thousand euros.

Table 2. Patterns of assortative mating of young couples (%)

	Women			Men		
Partner's education	Observed	Random	Difference	Observed	Random	Difference
University	61.0	14.0	46.9	74.1	17.6	56.5
Secondary	30.1	51.1	-21.0	22.9	55.6	-32.7
Primary or less	8.9	34.8	-25.9	3.0	26.8	-23.8
	100.0	100.0		100.0	100.0	

Note: The sample contains 786 observations for survey respondents with a partner. "Random" refers to the population in the Region of Murcia aged 25 to 29 years old.

Table 3. Probability of moving out

	Women				Men			
	(1)		(2)		(3)		(4)	
	Coeff.	s. e.	Coeff.	s.e.	Coeff.	s. e.	Coeff.	s.e.
Age	-0.104	(0.051) **	-0.073	(0.048)	0.129	(0.069) *	0.127	(0.067) *
College degree	0.349	(0.138) **	0.286	(0.135) **	0.252	(0.192)	0.261	(0.192)
Low university entry grade	0.087	(0.222)	0.107	(0.220)	-0.624	(0.325) *	-0.607	(0.326) *
Temporary job	-0.056	(0.192)	-0.011	(0.190)	0.112	(0.300)	0.110	(0.300)
Open-ended job	-0.133	(0.205)	-0.076	(0.202)	0.008	(0.296)	-0.029	(0.297)
Public employee	0.618	(0.325) *	0.517	(0.335)	-0.019	(0.390)	-0.025	(0.392)
Self employed	0.431	(0.250) *	0.451	(0.250) *	-0.358	(0.424)	-0.337	(0.421)
Partner	-0.661	(0.556)	-0.800	(0.527)	-1.033	(0.643)	-1.077	(0.615) *
Partner university degree	0.517	(0.349)	0.637	(0.325) **	1.007	(0.598) *	1.073	(0.575) *
Partner high school diploma	0.279	(0.366)	0.412	(0.339)	0.640	(0.611)	0.672	(0.593)
Partner temporary job	0.894	(0.461) *	0.901	(0.444) **	0.308	(0.289)	0.285	(0.285)
Partner open-ended job	0.994	(0.430) **	0.981	(0.416) **	1.359	(0.275) ***	1.344	(0.279) ***
Partner public employee	1.286	(0.483) ***	1.119	(0.473) **	0.124	(0.392)	0.152	(0.404)
Partner entrepreneur	0.908	(0.497) *	0.962	(0.479) **	0.851	(0.749)	0.837	(0.474)
Mother deceased	1.496	(0.488) ***	1.275	(0.489) ***	0.883	(0.730)	0.813	(0.747)
Mother university degree	0.613	(0.297) **	0.587	(0.272) **	-0.456	(0.413)	-0.389	(0.392)
Mother high school diploma	0.564	(0.198) ***	0.492	(0.193) **	0.565	(0.283) **	0.557	(0.283) **
Father deceased	0.088	(0.207)	0.131	(0.206)	0.533	(0.348)	0.597	(0.342) *
Father university degree	0.173	(0.239)	-0.123	(0.218)	-0.070	(0.417)	0.033	(0.361)
Father high school diploma	-0.445	(0.208) **	-0.503	(0.202) **	0.231	(0.266)	0.254	(0.260)
Father open-ended job	-0.205	(0.172)			-0.333	(0.238)		
Father public employee	-0.824	(0.263) ***			0.338	(0.290)		
Housing valuation	-0.759	(0.302) **			0.014	(0.402)		
Siblings	-0.102	(0.144)	-0.076	(0.140)	0.208	(0.180)	0.226	(0.182)
Partner's mother deceased	0.326	(0.456)	0.392	(0.441)	1.808	(0.999) *	1.719	(0.948) *
Partner's mother university	0.506	(0.343)	0.554	(0.310) *	1.033	(0.380) ***	1.090	(0.370) ***
Partner's mother high sch.	0.167	(0.303)	0.324	(0.296)	0.654	(0.377) *	0.657	(0.373) *
Partner's father deceased	0.164	(0.327)	0.056	(0.310)	-1.153	(0.965)	-1.046	(0.914)
Partner's father university	-0.114	(0.289)	-0.207	(0.278)	-0.069	(0.322)	-0.033	(0.310)
Partner's father high school	0.177	(0.292)	0.136	(0.282)	-0.148	(0.365)	-0.173	(0.355)
Pseudo R^2		0.175		0.147		0.201		0.190
No. observations		557		557		316		316

Note: Marginal effects from probit estimates. Standard errors in parentheses, clustered by individual. Controls (dummy variables): wave 2 (2006), cities of Cartagena and Murcia. See definitions in Appendix 1. Symbols: *** for $p<0.01$, ** for $p<0.05$, and * for $p<0.1$.

Table 4. Bivariate probit correlation coefficients

	Women		Men	
	ρ	LR test	ρ	LR test
Move out – Work	-0.017	0.024	0.263	2.051
Move out – Partner	0.449	20.691	0.407	11.368
Partner – Work	0.276	6.928	0.578	14.339

Notes: The likelihood ratio test of Ho: ρ=0 follows a $\chi^2(1)$, critical value (0.95)=3.842.

Table 5. Simultaneous equation estimates of status interdependence

	Women			Men		
	Move out	Work	Partner	Move out	Work	Partner
Move out		0.669 ***	0.584 ***		0.704 **	0.046
		(0.085)	(0.151)		(0.301)	(0.087)
Work	0.551 **		-0.834 ***	0.349 ***		0.215 ***
	(0.280)		(0.167)	(0.066)		(0.041)
Partner	0.411 ***	-0.423 ***		-0.388	1.653 ***	
	(0.158)	(0.067)		(0.356)	(0.621)	
No. observations		393			240	
Sargan test (d.f.=10)		7.817			7.986	

Note: Standard errors in parentheses, clustered by individual. Controls (dummy variables): wave 2 (2006), cities of Cartagena and Murcia, field of study (Health, Education, Social Sciences, Humanities), sparsely populated area, and above-median delinquency in the neighbourhood. See definitions in Appendix 1. Critical value for the Sargan test (5% level): 18.31. Symbols: *** for p<0.01, ** for p<0.05, and * for p<0.1.

Table 6. Simultaneous equation estimates for the propensity to move out

	Women			Men		
	(1)	(2)	(3)	(4)	(5)	(6)
log(Home val.)×Age 25	-0.211	-0.106	-0.572 ***	0.001	0.156	0.055
	(0.889)	(1.337)	(0,211)	(0.362)	(0.953)	(0.354)
log(Home val.)×Age 26	-1.031 **	-0.889	-1.413 ***	1.122	1.480 **	1.675 **
	(0.454)	(0.544)	(0.138)	(0.774)	(0.671)	(0.803)
log(Home val.)×Age 27	-1.302 ***	-1.335	-1.145 ***	-0.676	-0.346	-0.587
	(0.335)	(0.813)	(0.162)	(0.447)	(0.670)	(0.496)
log(Home val.)×Age 28	-0.927 *	-0.627	-1.567 ***	0.169	0.295	0.131
	(0.481)	(0.425)	(0.199)	(482)	(0.571)	(0.689)
log(Home val.)×Age 29	-0.652 ***	-0.714 **	-0.402 ***	1.032 *	0.914	0.824 *
	(0.180)	(0.287)	(0.098)	(0.530)	(0.569)	(0.444)
log(Home val.)×Age 30	0.370	0.322	0.711 ***	2.105 ***	1.749 ***	2.157 ***
	(0.293)	(0.281)	(0.115)	(0.427)	(0.481)	(0.358)
Age	-0.125 ***	-0.123 **	-0.132 ***	0.019	0.023	0.031
	(0.035)	(0.060)	(0.047)	(0.049)	(0.039)	(0.068)
College degree	0.721 ***	0.761 ***	0.630 ***	0.268 *	0.308 ***	0.398 ***
	(0.078)	(0.081)	(0.047)	(0.153)	(0.069)	(0.151)
Low university entrance grade	-0.479 ***	-0.511 ***	-0.356 ***	-0.719 ***	-0.911 ***	-0.778 ***
	(0.139)	(0.133)	(0.042)	(0.204)	(0.129)	(0.138)
Mother deceased	2.153 ***	2.335 ***	1.790 ***			
	(0.399)	(0.540)	(0.199)			
Mother university degree	1.196 ***	1.287 ***	0.983 ***	-1.132 *	-0.569 **	-1.044 ***
	(0.216)	(0.230)	(0.079)	(0.622)	(0.277)	(0.368)
Mother high school dipl.	0.742 ***	0.780 ***	0.658 ***	0.068	0.120	0.093
	(0.081)	(0.111)	(0.041)	(0.274)	(0.313)	(0.288)
Mother employed	0.005	-0.035	0.055	-0.334 *	-0.208	-0.324
	(0.098)	(0.132)	(0.041)	(0.176)	(0.153)	(0.201)
Father deceased	0.044	0.122	-0.144 **	1.489 ***	1.028 ***	1.438 ***
	(0.099)	(0.148)	(0.063)	(0.379)	(0.186)	(0.389)
Father university degree	-0.585 **	-0.738 ***	-0.209 **	0.484	0.016	0.443
	(0.257)	(0.217)	(0.089)	(0.583)	(0.229)	(0.444)
Father high school dipl.	-0.834 ***	-0.950 ***	-0.489 ***	0.922 **	0.621 **	0.886 ***
	(0.225)	(0.192)	(0.060)	(0.413)	(0.267)	(0.287)
Father open-ended job	-0.283 ***	-0.265 ***	-0.339 ***	-0.572 *	-0.362 ***	-0.508 ***
	(0.070)	(0.077)	(0.044)	(0.253)	(0.137)	(0.153)
Father public employee	-0.571 ***	-0.541 **	-0.687 ***	0.149	0.011	0.107
	(0.138)	(0.261)	(0.059)	(0.180)	(0.117)	(0.129)
Siblings	-0.045	-0.017	-0.068	0.440 ***	0.261 ***	0.303 ***
	(0.059)	(0.094)	(0.043)	(0.134)	(0.059)	(0.105)
No. obs.	393	393	393	240	240	227
Sargan test	7.817	7.949	10.315	7.986	7.568	10.297

Note: Standard errors in parentheses, clustered by individual. See the text for the exclusion restrictions in different columns. Controls (dummy variables): wave 2 (2006), cities of Cartagena and Murcia, field of study (Health, Education, Social Sciences, Humanities), sparsely populated area, and above-median delinquency in the neighborhood. See definitions in Appendix 1. Sargan test critical values (5%, d.f.): 18.31 (10) (cols. 1, 4, 5), 19.68 (11) (col. 2), and 21.00 (12) (col. 3). Symbols: *** for $p<0.01$, ** for $p<0.05$, and * for $p<0.1$.

Table 7. Simultaneous equation estimates for the propensity to move out: alternative identification

	Women		Men	
Housing construction	0.295	***		
	(0.048)			
Housing in good condition			-7.083	***
			(0.079)	
Age	-0.088	***	0.013	
	(0.023)		(0.046)	
College degree	0.432	***	0.486	**
	(0.095)		(0.236)	
Low university entrance grade	-0.271	**	-0.809	***
	(0.123)		(0.151)	
Mother deceased	1.045	***		
	(0.360)			
Mother university degree	0.700	***	-0.534	*
	(0.231)		(0.312)	
Mother high school diploma	0.622	***	0.313	
	(0.076)		(0.708)	
Mother employed	-0.006		0.304	
	(0.070)		(0.286)	
Father deceased	-0.017		0.863	***
	(0.077)		(0.454)	
Father university degree	-0.006		0.169	
	(0.241)		(0.446)	
Father high school diploma	-0.337	*	0.526	
	(0.206)		(1.025)	
Father open-ended job	-0.428	***	-0.322	
	(0.088)		(0.325)	
Father public employee	-0.710	***	-0.001	
	(0.112)		(0.134)	
Siblings	-0.058		0.322	*
	(0.066)		(0.193)	
No. observations	393		240	
Sargan test	7.481		7.058	

Note: Standard errors in parentheses, clustered by individual. See the text for the exclusion restrictions in different columns. Controls (dummy variables): wave 2 (2006), cities of Cartagena and Murcia, field of study (Health, Education, Social Sciences, Humanities), sparsely populated area, and above-median delinquency in the neighbourhood. See definitions in Appendix 1.Critical value for the Sargan test (5%): 18.31. Symbols: *** for $p<0.01$, ** for $p<0.05$, and * for $p<0.1$.