The Evolution of Living Arrangements Among Young Italian Men

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Abstract: This paper uses SHIW micro data between 1986 and 1998 to document and analyze the economic determinants of the trends in living arrangements of young Italian men. We find that a one million rise in parents' income tends to increase the probability that children live at home by between 1 to 5 percentage points. We argue that a rise in parents' income has made it (increasingly) possible for parents to 'bribe' their children, i.e. to offer them higher consumption in exchange for their presence at home.

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Young Italians show a remarkably high propensity to live with their parents. The proportion of men aged 30 cohabiting with their parents in 1990 was approximately 35%. The comparable figure for the US was just above 10%. In addition, our data show a marked increase over time: between 1986 and 1998, the average propensity to live at home for those aged 30 has increased by more than 10 percentage points.

This paper uses SHIW micro data between 1986 and 1998 to document and analyze the economic determinants of the trends in living arrangements of young Italian men. We argue that a rise in parents' income has made it (increasingly) possible for parents to 'bribe' their children, i.e. to offer them higher consumption in exchange for their presence at home. We formalize this intuition within the framework of a simple bargaining model between parents and children based on the assumption that cohabitation is a 'good' for parents but a 'bad' for children. We empirically test the implications of the model by relating variation across cohorts in parents' income to changes in the children's propensity to live at home. We find that parents' income is indeed a key determinant of the children's propensity to live at home. We further argue that the observed rise in parents' income is to ascribed to a rise - that we take as exogenous - in the generosity of a welfare system primarily geared towards the households' heads in the form of pensions.

Implicitly, our research relates to a second peculiarity of the Italian economy, namely the high and rising burden of its publicly funded pension system. Despite this trend has partly been reverted in the 1990s, the Italian pension system is often regarded as one of the most generous (and unsustainable) in the Western world (Boldrin et al., 1999, Brugiavini 1997). Interestingly, virtually no social security payments in Italy are directed towards those below 35 and no unemployment benefits are available for first-job seekers, despite (or possibly because of) the fact that youth unemployment is high and on the rise. [1]

[1] The proportion of those receiving social security in this age group is 4%.

To our knowledge, there are relatively few contributions in the empirical literature on living arrangement decisions of young adults.[2] A stream of research which is somehow related to this study analyzes the effect of (changes in) welfare and taxation on family formation and marriage decisions, especially among young women.[3] Our research also relates, albeit only indirectly, to a more traditional issue in the economic literature, namely the allocation of resources within households, a topic which dates back at least to Becker's (1981) seminal analysis.[4]

Clearly, an alternative - albeit not necessarily mutually exclusive - explanation for the decreasing propensity of young Italians to live on their own is to be found in the state of the labor market. As hinted above, starting from the early 1970s, the youth unemployment rate has been steadily increasing, especially at the South (see for example Layard et al., 1991). One might therefore suspect that parents act as insurance providers to those children who happen to be in a bad state of the world. In order to separately identify the effect of changes in parents' income from changes in labor market opportunities (and other variables, including housing costs) we exploit regional differences in the trends in living arrangements. The intuition is that, everything else being equal, if unemployment were primarily to be blamed for the reduced propensity to leave the parental household, one would expect a higher rise in this in the South, where both the level and the rise in the rate of joblessness were higher.

The plan of the paper is as follows. In Section 1 we introduce the SHIW data which are used in the rest of the paper and we present some basic evidence on the trends in living arrangements and other variables of interest. In Section 2 we present a stylized model of living arrangements, based on some notion of (non-cooperative) bargaining between children and parents. The basic insight of the model is that, conditional on housing costs and children's

[2] A notable exception is Card and Lemieux (2000) who compare living arrangement (as well schooling and employment) decisions of American and Canadian youths. There is, however, an abundant literature on migration in Italy and in particular on the decline in internal migration rates from the South to the North. Among others, see Attanasio and Padoa Schioppa (1991) and Faini et al. (1997)

[3] See the 1999 issue of the American Economic Review, Papers and Proceedings, Hoynes (1996) and Eissa and Hoynes (1999). Dora Costa (1997) analyzes the effect of pension payments on living arrangement decisions of the elderly.

earnings (i.e. employment), a rise in parents' income will tend to increase the children's propensity to live at home. This result can be reverted if parents are sufficiently altruistic. Section 3 discusses how one can identify the theoretical model presented in Section 2 based on SHIW micro data and it shows how one can gauge some further insight by decomposing the trends in living arrangements into additive age, time and cohort effects. In Section 4 we present a more formal regression analysis which builds on the model in Section 2 and the data in Section 1. We present OLS estimates by age-cohort cells for our model and later on IV estimates where changes in parents' total income are instrumented by changes in pension income. As suggested above, we use regional variation as an extra source of identification for the state of the labor market. Section 5 concludes.

1. Data and Basic Evidence

In order to provide some preliminary evidence on the evolution of living arrangements of young Italians, we use data from the individual records of the Bank of Italy Survey of Households' Income and Wealth (SHIW). The survey collects detailed information on household composition, including socio-demographic characteristics of its members as well as a rich array of financial and labor market information. In order to carry out our exercise we restrict to the period 1986 to 1998 and we use data for all the available years over this time period (1986, 1987, 1989, 1991, 1993, 1995 and 1998).[5] We restrict to living arrangement decisions of men aged 18-35.[6] Overall, we have a sample of 23,530 observations over seven waves. We define as cohabiting children those who are classified in the survey as children of the head. Any other individual in the survey who is aged 18 to 35 will for our purposes considered as living away from home.[7]

[4] See for example Chiappori (1991), Deaton (1997), Deaton et al. (1989), Bertrand et al. (1999).
[5] Data are available starting from 1977 but the quality of the data is generally regarded as worse for the early years, the sample size is smaller and some key information is not available.
[6] We ignore living arrangement decisions of women since these are arguably endogenous to those of men.
[7] Our method ignores children living in three-generation households headed by one of the children's grandparents. Also, we treat those children living with their parents or grandparents (or both) but who classified as heads as living on their own.

In Table 1 we report some descriptive statistics for the individuals in our sample. In the Data Appendix we discuss any transformation and manipulation which we have operated to the original data for the purposes of our analysis.

In the top part of the Table we report some summary statistics for children. Two out of three men aged 18 to 35 live with their parents. If anything, there has been a rise in this propensity. Over this time period no clear trend is detectable in the proportion of those not working, which first declines and then rises. There seems, however, to be a positive time-series correlation between the probability of living at home and the probability of not-working (defined as at least one employment spell in the year), with both series reaching a local minimum in 1989. Notice that more than a half of these young adults tend to work. In turn, this suggests that there must be more than rationing in the labor market to explain living arrangements. We will try to deal with issue below in our regression analysis. In the following row of the Table we report the evolution of children's earnings from employment. Earnings refer to the whole year and are defined net of taxes and social security contributions, and inclusive of thirteenth wages and bonuses. As any income series in the table, the data are expressed in million lira at 1995 prices. Children's earnings (whether cohabiting or not) follow a very similar pattern to the overall probability of working, reaching a local maximum in 1989. Between 1989 and 1998, real earnings decrease by approximately one fourth. If we restrict to those in work, however, the decline is in the order of one sixth. In principle, one could suspect that part of the changes in the probability of living at home can be attributed to changes in housing costs. Indeed, over this time period, housing costs increase sensibly. In thirteen years rental prices (which include both actual and imputed rents for those aged 18 to 35) increase by approximately 30% and so does their ratio to average earnings.

In the rest of the Table, we report information on a set of socio-demographic characteristics of the individuals in the sample. The age composition of the sample increases by around one year, reflecting a decline in fertility, following the gradual aging of the baby boom

cohorts of the 1960. The average level of educational attainment increases, with the proportion of those with only compulsory education declining from 59% to 49%. No clear trend is detectable in the number of those enrolled in school. Notice instead the marked change in the average number of siblings, which declines from approximately 2.2 to 1.8, reflecting again the decline in fertility. If the same resources have to be shared by a smaller number of siblings, this trend might help explain why young Italians tend increasingly to live at home. Another mechanical explanation for the observed trend could be the increased life expectancy of new cohorts of parents. Indeed, we find some increase in the probability that at least one parent is alive, which increases from 95% to 97% but this seems unlikely to be able to explain the trends in living arrangements.

The bottom part of the Table reports some descriptive statistics for the parents of the children in the sample. This information is not directly available in the SHIW, since, while one can easily recover information on parents' income for cohabiting children (those who are classified as children of the head of the household), no direct information is asked in the survey about parents' characteristics to those who live on their own. In order to solve this problem, we have matched children's and parents' birth cohorts by using information on the age of parents, which is asked to all heads and their spouses (i.e. non-cohabiting children) starting from 1989. In Section 3 we show how this procedure yields consistent estimates of parents' characteristics and how in practice we perform this matching. The imputation procedure used for the years in which this information is not available is presented in the Data Appendix.

Total income of the head of the parental household (whether from labor earnings or other sources) is about three times his children's earnings and this rises over time, with on overall increase of about 20% in thirteen years. Notice that approximately half of the parents of the young men in the sample receive some form of social security payments (denoted in the following by SS), which include both contributed and non-contributed pensions. Also, notice that this proportion rises over time, with an increase of about 8 percentage points in thirteen years. Parents' social security income rises markedly over this time period, with a total rise of about

50%. This mostly reflects a genuine rise in pension income rather than the effect of greater entitlement. Conditional on receiving some form of welfare, the head's social security income rises by 35%. The following rows of the Table report the same information relative to the whole parental household (excluding any cohabiting child). These trends are similar to the ones for the head only, despite the fact that there is some rise in the proportion of parental households headed by mothers. The average age of parents increases slightly, reflecting both an increase in life expectancy and a decline in fertility.

Overall, it is clear that while some rise is detectable in the proportion of those living at home, one cannot make any firm inference based on this purely aggregate evidence. It seems as if changes in housing costs, non-employment and parents' income all positively correlate with changes in children's living arrangements.

In order to gauge some extra evidence, Tables 1a and 1b report the same descriptive statistics separately for the North and the South of Italy.[8] A few things are worth mentioning. Both the probability of living at home and its rise seem to be more pronounced in the South. Interestingly, however, this difference is in the order of about 5 percentage points, a small number if compared to differences in employment rates, which are in the order of 20 to 25 percentage points. Both the level and the rise in children's earnings are higher at the North. On the parents' side, note that both the level of parents' income and its growth are remarkably higher at the North. While the head's average income grows by around 30% at the North, at the South this actually reduces by around 2%. This despite the fact that in the both areas social security income increases, although again both the level and the growth are more pronounced at the North.

Based on this basic evidence, it appears as if variations in children's living arrangements can be ascribed to different forces in the North and the South. In Section 3 of the paper we will show how one can usefully exploit the geographical variation in parents' income, housing costs and children's earnings to identify their individual contribution to the changes in the probability

of living at home. Before doing so, however, in the next Section we will present a stylized model of living arrangements that is meant to shed some light on the main determinants of children's decisions to live with their parents.

2. A Model of Living Arrangements

2a. No Altruism

In this Section we present a rather stylized model of the children's housing arrangements. We think of living arrangement decisions as being the outcome of a 'game' between parents and children. Both parties' utilities depend on their own consumption and on living arrangements (whether they live together or not). Parents derive a utility from cohabiting with their children while the opposite is true for children. Parents might transfer money to their children in order to provide an incentive for them to stay at home. We call this transfer the 'bribe'. Depending on their utility function and the value of their income, children might be willing to trade some of their independence for some extra consumption. At this stage we ignore any altruistic motive. Later in the section we allow for parents' altruism towards their offspring and we show how the results of the model of this section can be reverted if parents are sufficiently altruistic.

Cohabitation (cooperation) in this game brings a surplus (the foregone children's housing cost plus any scale economies arising from cohabitation). We assume that all the bargaining power is in the parents' hands so that they appropriate the whole surplus if they get the children to cooperate. We solve the problem by backward induction. We assume that children decide on their living arrangements conditional on the transfers they receive by their parents. Parents then derive the optimal transfer by maximizing their own utility conditional on the children's optimal reaction.

2a.1. Children 's Problem

[8] North here includes also the regions in the Middle of Italy. South includes Sicily and Sardinia.

Assume that children maximize their own utility subject to some budget constraint. Utility is some function of their own consumption plus a term accounting for the disutility of living at home. Their resources are a function of their income, the compensation they receive if living at home minus any housing cost they will have to incur if living on their own. Their problem can be written as:

$$\text{Max } U(CK,(1-H)) \quad \text{s.t. } CK+R(1-H)=YK+b_1H$$

where CK is children's consumption, H is a dummy variable denoting children's living arrangements (H=1 if the child is living at home), YK children's income and R their housing costs. b_1 is the compensation for being at home, which either comes in the form of a provision of goods or a cash transfer from parents to children. Note that we have postulated that parents only make transfers to their children if they live at home, a hypothesis that we will remove later when we deal with the altruistic case. Housing costs will be borne by children if they live away from home and by parents if children cohabit. To derive a closed form for the equilibrium we assume a Stone-Geary utility function:

$$u(CK,(1-H))= \log(CK+k_1H)- H\log(a_1)$$

where a_1 is the children's marginal disutility of living at home ($a_1>=1$) and the term k_1H can be thought of as accounting for the circumstance that the necessary level of consumption depends on whether children live with their parents or not. A useful way of thinking about this term is that there are some scale economies deriving from cohabitation.

The solution to the children's problem is:

(1) H=1 if $k_1>=(a_1-1)YK -a_1R -b_1$

Proof: see appendix.

Proposition 1

Conditional on b_1, the probability that children live at home depends inversely on their income (YK) and directly on housing costs (R).

Proof: see equation 2.

Clearly equation (1) suggests that a rise in b_1 increases the children's propensity to live with their parents. Condition (1) can be rewritten as $(YK+b_1+k_1)/(YK-R)>=a_1$ suggesting that children will stay at home if the marginal utility of living with their parents is at least equal to the marginal disutility (a_1).

2a.2. Parents' Problem

On the parents' side, we assume perfect information, i.e. parents observe their children's preferences plus YK and R. Parents maximize their own utility subject to their own budget constraint and the children's incentive constraint (1). Their utility depends directly on their own consumption plus the children's living arrangement decisions. The budget constraint states that parents' consumption cannot exceed their income minus any bribe they will have to pay to cohabiting children.

$$\text{Max } V(CP, H) \quad \text{s.t.} \quad CP=YP-b_1H$$

$$\text{s.t.} \quad H=1 \quad \text{if} \quad k_1>=(a_1-1)YK -a_1R -b_1$$

where CP is parents' consumption and YP is their income. Assuming again Stone-Geary preferences, it follows:

$$V(CP, H, U(CK,H))= \log(YP-b_1H+k_2H)+H \log(c_1)$$

where k_2 denotes scale economies which accrue to parents from living with their children and c_1 ($c_1>=1$) is the parents' marginal utility of living with their children. Note that we are assuming complete scale economies on (parental) housing costs, which is to say that parents' housing costs do not change as children move out (or, which is the same, parents do not move to another place as children leave).

In order to derive the equilibrium of the game, we assume that parents set b_1 unilaterally so to make children indifferent between living or not living at home. Any surplus deriving from

reaching an agreement ($R+k_1+k_2$) will then accrue to parents who have all the bargaining power. In equilibrium:

(2) $H=1$ if $k_1+k_2>=-(c_1-1)/c_1\ YP+(a_1-1)YK-a_1R$

and the optimal transfer is $b_1^*=(a_1-1)YK-a_1R-k_1$.

Proof: see appendix.

Proposition 2

In equilibrium, the probability that children live at home depends inversely on their income (YK) and directly on housing costs (R) and parents' income (YP).

Proof: see equation (2).

2b. A Model with Altruism

We have argued that as parents' income increases, the children's propensity to live at home increases. This happens because parents are (egoistically) willing to give up some of their consumption in order to compensate the children who cooperate. An extension of the model above is one where parents are animated by altruistic motives towards their children. In this case parents will transfer some resources to their children irrespective of whether they live or not at home.

2b.1. Children's Problem

Assume again that children maximize their own utility based on some a budget constraint. Now the available resources are a function of both the bribe and the altruistic transfer they receive from parents:

$$\text{Max } U(CK,(1-H)) \quad \text{s.t. } CK+R(1-H)=YK+b_0+b_1H$$

where b_0 is the amount of the altruistic transfer. If we postulate the same Stone Geary utility function, then:

(3) H=1 if $k_1>=(a_1-1)(YK+b_0)-a_1R-b_1$

which is the same as condition (1) where YK has been replaced by $YK+b_0$. From the children's point of view, the altruistic transfer operates as income, so that the probability of living at home depends negatively on the altruistic transfer (b_0). Another way of rewriting (3) is:

(3') H=1 if $b_1>=(a_1-1)(YK+b_0)-a_1R-k_1$

which suggests that the desired compensation children want to receive for living with their parents increases as b_0 increases. The more generous parents are, the higher is the amount children require in order to live at home. At given YK and R (and at given preferences), all it matters for children is the differential between the bribe and the altruistic transfer.

2b.2. Parents' problem

Assume that parents care about their children's welfare. So they maximize the following utility function where the children's utility enters directly as an argument:

Max V(CP, H, U(CK,(1-H)) s.t. $CP=YP-b_0-b_1H$

s.t. H=1 if $b_1>=(a_1-1)(YK+b_0)-a_1R-k_1$

s.t. $b_0>=0$

where we have assumed unilateral altruism from parents to children ($b_0>=0$). In order to model altruism explicitly we assume again a Stone-Geary utility function and we assume that parents maximize a linear combination of their own utility and the children's utility:

V(CP, H, U(CK,H))=

$=\log(YP- b_0-b_1H+k_2H)+H \log(c_1)+\rho[\log(YK+b_0+b_1H-R(1-H)+k_1H)-H\log(a_1)]$

where ρ is the degree of parents' altruism.[9] The condition $b_0>=0$ restricts altruism to be one-sided (from parents to children).

[9] Note that in principle this model accounts for two-sided altruism. It is easy to see that if b_0 were set by children in the form of a transfer to their parents, the problem would be written identically with 1/ρ being the degree of child's altruism.

In order to derive the equilibrium, we assume that parents set b_0 so as to maximize their own utility, conditional on the children living away from home. They will then set b_1 exactly as before. It can be shown that in equilibrium:

(4) $b_0^*=\max[(\rho YP-YK+R)/(1+\rho), 0]$

so that the optimal altruistic transfer is a linear combination of the difference between parents' income and children's income (net of housing costs). Suppose $b_0^*>=0$, which happens if parents are highly altruistic ($\rho>=(YK-R)/YP$). Then:

(5) $H=1$ if $k_1+k_2>=[-(c_1-1)/c_1+(a_1-1)\rho]/(1+\rho)\ (YP+YK)-(\rho\ a_1+1/c_1)/(1+\rho)R$

and the optimal bribe is $b_1^*=(a_1-1)\rho/(1+\rho)(YP+YK)-(1+\rho\ a_1)/(1+\rho)R-k_1$.

Proof: see appendix.

Proposition 3

In equilibrium, assuming that ρ is large enough ($\rho>=(YK-R)/YP$), a rise in parents' income (YP) reduces the children's propensity to live at home. All the other results of Proposition 2 apply.

Proof: see equation (5).

It follows that if parents are sufficiently altruistic, the results of Section 2a can be reverted. Children of richer parents will tend to live less at home even if the latter would draw some utility from their offspring's presence. The reason for this result is that (selfish) children of altruistic parents only care for the differential paid to them if they live at home (equation 3'). Altruistic parents, however, cannot commit to pay a high enough compensation to those children who decide to live at home. Children know they will get what they need from their parents whether they are living with them or not.

For $\rho<=(YK-R)/YP$ equation (5) rewrites as (3) and we get back to the case of no altruism. Note incidentally that, differently from the result in Section 2a, the optimal bribe will

now be a function of parents' income. The reason for this result is that altruism establishes a direct link between parents' resources and the amount of the bribe.

Implicitly, testing for the effect of parents' income on children's living arrangements can then be thought of as a test of parents' altruism. This allows to contrast the view that the members of the Italian family are altruistically linked and they provide mutual support to each others out of generosity – so it goes the surrounding rhetoric – with the view that their actions are mainly driven by self-interest.

3. Identification

In this Section we discuss how one can implement empirically the model of Section 2 based on the data in Section 1. From Section 2, it follows that the model can be written as:

$$\Pr(H_{it}=1)=G(\beta_0 + \beta_1 YP_{it} + \beta_2 YK_{it} + \beta_3 R_{it} + Z_{it}'\beta_4)$$

where i denotes a generic child and t is time. G is the c.d.f. of the random variable $k \equiv k_1+k_2$, which for simplicity we have assumed symmetrically distributed with mean $-\beta_0$ and variance equal to one. Following the notation in Section 1, H_{it} is child i's living arrangement at time t (H=1 if living at home), YK_{it} his income, R_{it} denotes housing costs and YK_{it} is i's parents' income. Z_{it} is a vector of other covariates, which are likely to affect the propensity to live at home. In order to keep things simple, in the following we assume that k is uniformly distributed, which leads to the familiar linear probability model:

$$\Pr(H_{it}=1)=\beta_0 + \beta_1 YP_{it} + \beta_2 YK_{it} + \beta_3 R_{it} + Z_{it}'\beta_4+u_{it} \quad (6)$$

where u_{it} is a random term which picks up both measurement and labor market errors. Potentially u_{it} can also include some unobserved heterogeneity that is correlated with the regressors in the model (fixed effects).

In order to implement empirically our model we estimate (6) based on cells defined by the cohort of birth of each individual in the sample at each time (plus possibly region of residence). In this case model (6) rewrites as:

(7) $\Pr(H_{it}=1|C_i=C)= \beta_0 + \beta_1 YP_{Ct} + \beta_2 YK_{Ct} + \beta_3 R_{Ct} + Z_{Ct}'\beta_4 + u_{Ct}$

where C denotes children's birth cohorts and $X_{Ct} \equiv E(X_{it}|C_i=C)$ is the expected value of a generic variable X at time t conditional on the children being born in cohort C.

Estimating our model on cells defined by birth cohort has a double advantage. First, as discussed in Section 1, while one can directly recover information on parental income for cohabiting children, this information is not directly available for those children who live on their own. However, if one has some information on the mapping between parents' and children's birth cohorts, one can still obtain a consistent estimate of YP_{Ct}. In this case:

(8) $YP_{Ct} = E(YP_{it}|C_i=C) = \int E(YP_{it}|C_i=C, CP_i=C') \, dF(CP_i=C'|C_i=C) =$

$$= \int E(YP_{it}|CP_i=C) \, dF(CP_i=C'|C_i=C)$$

where CP is i's parents' birth cohort, F is its c.d.f. conditional on i's birth cohort C and $F(CP_i=C'|C_i=C)$ is the mapping between parents' and children's birth cohorts. This mapping can be estimated based on the information that is available in the SHIW on the birth cohort of each child's parent. (See the Appendix for the exact procedure). The last equality derives from the assumption that, at any given time, the distribution of income of the parents born in any given cohort is independent of their children's date of birth. Essentially equation (8) makes the obvious point that one can recover an estimate of the average income of the parents whose children are born at time C by integrating over the income of all heads in the sample with weights given by the distribution of heads' birth cohorts conditional on the child being born in cohort C.

The second advantage of a cohort-based analysis is that it potentially allows to control for individual heterogeneity in the estimation. It is known that in the presence of fixed effects the OLS estimates of an equation like (6) can be biased. In order to avoid this source of potential bias, in the empirical implementation we also present some specifications which allow for cohort-specific fixed effects (Deaton, 1985).

Clearly, the same exercise can be replicated on smaller cells, defined by the interaction of cohort of birth and time with other attributes. In the empirical implementation below, we also

define cells by region of residence of each child for each cohort-time interaction. In this case, equation (7) rewrites as:

(9) $Pr(H_{it}=1|C_i=C, S_i=S)= \beta_0 + \beta_1 YP_{CSt} + \beta_2 YK_{CSt} + \beta_3 R_{CSt} + Z_{CSt}'\beta_4 + u_{CSt}$

where S_i is child i's region of residence. In is straightforward to obtain an estimate of YP_{CSt} based on the following expression:

(10) $YP_{CSt} \equiv E(YP_{it}|C_i=C, S_i=S) = \int E(YP_{it}|C_i=C, CP_i=C', S_i=S)\, dF(CP_i=C', S_i=S\,|C_i=C, S_i=S) =$

$= \int E(YP_{it}|CP_i=C, SP_i=S)\, dF(CP_i=C'|C_i=C, S_i=S)$

where SP_i is the region of residence of the head of i's parental household. The last equality follows from the assumption that parents and children live in the same region S.

Ideally, in order to identify the effect of changes in the variables of interest over living arrangements one would like to abstract from any macroeconomic effect as well as from mechanical changes in the propensity to live at home which stem from the simple aging of the individuals (and possibly from permanent heterogeneity). In this sense, as observed above, the simple evidence of Section 1 is far from conclusive since these different sources of variation all contribute to characterize the trends in the variables of interest.

Table 2 shows the evolution of living arrangements for 5-year birth cohorts over time. Comparisons of the data in Table 2 are made difficult by the fact that the waves of the survey are not equally spaced. It is probably more illustrative to plot the age profiles by cohort, which is done in Figure 1. The first obvious point that this Figure makes is that the probability of living at home declines with age. More interestingly, the profiles across cohorts are roughly parallel. As time goes on, the permanent probability of living at home increases as the cohort profiles shift upward. Note in particular the rapid growth for the cohorts born between 1960 and 1970. Interestingly, this growth seems to come to a halt during the 1970s, since the profile for those born in 1975 is almost overlapping with the profile for those borne 5 years ahead.

A useful way to characterize the data is to decompose the variables of interest into an additive cohort profile, an age profile and a time effect. In formulas, we run the following regression:

$$YP_{Ct} = \gamma_C + \gamma_t + \gamma_a + e_{ct}$$

where a denotes age (a=t-C) and e is a residual that is meant to pick up measurement and optimization errors.

Figure 1 shows that this additive decomposition might not be a too bad approximation to the data. Because it is well known that these three effects can only be identified separately up to a linear trend (see, inter alia, Deaton 1997), we let both the age and time profiles to be totally unrestricted and we constrain the cohort effects to sum to zero and be orthogonal to a linear trend. The age profiles will then pick up any change due to the actual aging of the individuals in the sample. The year dummies will pick up any macroeconomic effect (including the linear trends in the variables of interest). Finally, the cohort effects will pick up any permanent change in the variable of interest associated to the individuals born in different years. These permanent effects are expressed in terms of relative deviations around a linear trend. So any positive (negative) value in these profiles will correspond to a permanent acceleration (deceleration) in the variable under study.

In the bottom panel of Figure 2 we present the cohort effects for the probability of living at home. These are 3-year moving averages. One can clearly see the acceleration for the cohorts born in the 1960s and the subsequent deceleration for those born in the 1970s, a fact which we already noted by simple inspection of Figure 1. Conditional on age and time effects, those born around 1968 are on average 10 percentage points more likely to live with their parents than those born 10 years before or after. In the following panels we have depicted again the permanent changes in the probability of living at home by birth-cohort, alongside the permanent changes in parents' income, children's earnings and housing costs. Note that there seems to be some correlation between parents' income and the propensity to stay at home, since the latter tends to

increase for the parents whose children are born in the 1960 and decline afterwards. The other two variables do not show any clear correlation with permanent changes in living arrangements.[10]

Some further insight can be gauged by looking at regional differences. In Figure 3 we replicate the same exercise as in Figure 2, where now we plot the cohort profiles separately for the North and the South. Adding an extra-dimension to our data turns out to be crucial for identification since, as discussed in Section 1, changes in children's employment and parents' income are different between the two areas, the first rising more at the South while the second rising more at the North.

A first feature of the data is that permenent changes in living arrangements between the North and the South are similar, with an acceleration in the 1970s and a subsequent deceleration. If anything, changes are more pronounced at the South. Changes in parents' income seem particularly pronounced at the North. Interestingly, they track down the changes in living arrangements remarkably well, since it is the parents whose children were born around 1970 who experienced relatively higher levels of permanent income. If anything, this suggests that a rise in parents' income tends to rise the probability that children stay at home. Notice however that no useful variation in parents' income can be detected at the South. By contrast, changes in the employment rate show no clear trend at the North while they track down the changes in living arrangements pretty well. Finally, note that no clear correlation can be detected between changes in living arrangements and changes in housing costs. It seems as if there is a whole generation of young men at the South (those born around 1970) who had poor employment prospects and had to stay at home, while the same generation of at the North benefited from their parents being relatively well-off and opted to say at home for some extra consumption .[11] Despite the North and the South showing similar trends in living arrangements, it appears that the forces behind these two trends are different.

[10] We have not plotted the trends in labor earnings, since these are remarkably similar to the trends in the non-employment rate.

[11] An aside but -we believe -interesting result is that it appears as if youth non-employment reflects a strong cohort-effect. New cohorts of children are doing relatively better.

In the next section we will try and evaluate the relative contribution of these different explanations within the framework of a more formal regression analysis.

4. Estimation

In this section we try to assess the relative contribution of the different explanations suggested by our theoretical model for the propensity of young Italians to live with their parents. We fit model (7) to the data using a minimum distance method, where the dependent variable is given by the empirical proportion of children living at home in each age-cohort-cell. Estimation is performed using weighted least squares, where the weights are the inverse sampling variances of the dependent variable. Altogether we have 126 cells (7 years X 18 age groups) The empirical model is then:

$$H_{Ct} = \beta_0 + \beta_1 YP_{Ct} + \beta_2 YK_{Ct} + \beta_3 R_{Ct} + Z_{Ct}'\beta_4 + d_a + d_t + u_{Ct}$$

As argued above, a simple test of altruism can be run by looking at the value of the coefficient β_1, since, if parents are (sufficiently) altruistic, a rise in parents' income will reduce the probability that children live at home ($\beta_1 <= 0$), while the opposite will happen if parents are driven by egoistic motives ($\beta_1 > 0$). Both models predict that β_2 is negative and β_3 is positive.

The results of the regression are reported in Table 3. Each specification includes additive unrestricted age and year dummies, as suggested in Section 3. Identification stems from the interaction between age and time, including permanent cohort effects. Essentially, the variation is Figure 2 is used to identify the effect of the variables of interest. We define parents' income as the income of the head of the parental household.[12]

In order to control for systematic geographical differences which might bias our WLS estimates, each specification includes the proportion of individuals in each region by cell (5 regional aggregates: Northwest, Northeast, Middle, South and Islands). In addition, we allow for the circumstance that some individuals in the sample might decide to stay at home in order to

[12] We also replicated this exercise with total parental income and this makes virtually no difference to our results.

attend college. To do so, we include the proportion of students in each cell as an additional regressor. Since, everything else being equal, altruistic children might be willing to live with their parents if they need care or assistance, we include a control for the proportion of mother-headed parental households (or, which is essentially the same in our data, single-headed households).

A difficulty with the estimation of the effect of parental income on the propensity to live at home is that parents are around age of retirement. If retirement decisions are endogenous - i.e. they are a function of the proportion of children living at home - and they are associated to systematic income losses (gains), this might lead to downward (upward) biased estimates for the coefficient β_1, i.e. the marginal effect of one extra million lira in parents' income on children's living arrangements. In order to control for this endogenous selection, all specifications in the Table control for the proportion of parents in each cell who receive social security payments (propensity score).

In column 1 we report an estimate of the model where only the head's income is included as a regressor (plus the controls discussed above). All the income variables in this Table are expressed in million lira. The point estimate is 0.019 (s.e. 0.005), implying a rise of 2 percentage points in the probability that children live at home as the head's income increases by 1 million. In column 2 we also include children's earnings and housing costs. Notice that the earnings variable confounds actual changes in earnings with changes in employment. In order to disentangle these two effects, we also include the proportion of non-employed individuals in each cell as an additional regressor. Under the assumption - that we maintain throughout this analysis - that wages for young workers in the Italian labor market are exogenously determined by some institutions, and labor supply is perfectly elastic at these wages, employment and earnings are exogenous to the probability of living at home. The point estimate for the effect of parents' income on children's living arrangements remains stable around 0.018 (s.e. 0.004). Notice that, as suggested by the theory in Section 2, a rise in housing costs tend to discourage children's mobility while a rise in their earnings tends to have the opposite effect, although the point estimate is low

and only marginally significant. We find no effect of the (aggregate) state of the labor market. In order to control for observed differences in tastes and opportunity costs, column 3 includes as an extra regressor the proportion of individuals in each educational group across cohorts. This makes essentially no difference to our estimates. As briefly discussed in Section 1, changes in household structure might affect the probability of living at home. In particular, a decline in the number of siblings (see Table 1) might increase the available pro-capita resources and make it more feasible for children to stay at home. Analogously, since the probability of living with parents is conditional on the latter being alive, a similar effect might be exerted by the secular increase in parents' life expectancy. Column 4 controls for the average number of siblings by cell as well as the probability that at least one parent is alive. Overall, our point estimates remain virtually unchanged.

One problem with our estimates of the effect of parents' income on children's living arrangements is that these might be biased by a number of factors. First of all, parents' income might well be endogenous to children's living arrangements, since parents might be willing to put some extra effort (i.e. supply more labor) if they have to support their cohabiting children. Although we partly controlled for this source of potential bias by including the proportion of retired parents, we do not have direct controls for labor supply conditional on retirement status. If this is the case, one would expect the OLS (or WLS estimates) for the effect of parents' income to be upward biased, since one would erroneously attribute the endogenous labor supply decisions of parents to (assumed exogenous) changes in their income. However, other sources of bias might be at work. First of all, measurement error is clearly an issue in our estimates. This problem is exacerbated by the fact - discussed at some length in the Appendix - that parents' income by cells is estimated based on some self-reported mapping between parents' and children's' birth cohorts, and that we need to make out-of-the sample predictions of this mapping for those years in which this information is not directly available in the survey. Under the hypothesis that measurement error in parents' income is classic (i.e. additive and uncorrelated with the true variable) this

should lead to estimates for β_1 that are biased towards zero. Finally, suppose that children are altruistic. In this case, a fall in parents' income should lead to a rise in the proportion of children living at home. Altruistic children will move in, or take their parents with them, if the latter are in need. Although we have made an attempt to control for this source of potential bias by including the proportion of mother-headed parental households, any unexplained altruism is likely to lead to downward biased estimates for the effect of parents' income on children's living arrangements. Overall, the sources of biases in our OLS estimates are numerous and their net effect ambiguous.

In order to identify the effect of changes in parents' income over children's living arrangements net of these potential biases, we need a source of variation in income that is uncorrelated with children's living arrangements (if not through its effect on total income). One possible source of variation is due to changes in pension income. In discussing the descriptive evidence in Table 1, we pointed out that there seems to be some correlation between parents' income and SS payments. In order for this to be a valid instrument, it is required that the increased generosity of pension income does not depend on whether children live at home or not. Table 4 provides the results of the first stage regression, where parents' total income is regressed on parents' pension income and other covariates, including the proportion of retired parents. This has to be thought of as the effect of changes in the generosity of pensions, conditional on retirement decisions. We present two specifications, corresponding to columns 3 and 4 in Table 3. The results vary somehow according to the variables which are included in the model. If we ignore parents' life expectancy and the number of siblings, a rise of one million lira in parents' SS payments rises total income by more than 2 times as much, an unreasonably high estimate. However, once one controls adequately for family structure, the coefficient falls to 0.611 (s.e. 0.376), implying that a rise in rise of one million lira in parents' SS payments rises total income by slightly more than a half. The estimates however are somehow imprecise and only marginally significant, suggesting that the instrument is somehow weak.

The results of the second stage regression are reported in column 5 and 6 of Table 3. It turns out that the IV estimates are somehow above the OLS estimates, suggesting that the direction of bias of the OLS estimates is downward. The estimates however are pretty imprecise. The specification in column 6 leads to a point estimate of 0.131 (s.e. 0.080), which we regard as implausibly high.

Altogether, the evidence in Table 3 suggests that a rise in parents' income tends to rise the probability that children live at home. We find evidence that the OLS estimates are somehow downward biased but the IV estimates tend to be implausibly large and, most important, rather imprecise.

One problem with the estimates in Table 3 is that these might be biased by the presence of children's unobserved heterogeneity. One way to control for this is to include cohort fixed effects in the regression (Deaton, 1985). Identification now would stem from the interaction of time and age effects, once one has conditioned for permanent cohort differences. Unfortunately, our point estimates (which are not reported in the Table) tend to be close to zero and greatly imprecise. In addition, there is not sufficient variation to identify the first stage regression for the IV. One way to try and get round this problem is to add an extra source of variation to our data. In the rest of this Section we will present the regression results for model (9), where cells are now defined by the interaction of cohort, time and region of residence. The descriptive evidence in Figure 3 seems to suggests that this is a more promising avenue to try to get estimates for the effect of the variables of interest over living arrangements.

In order to gauge some extra evidence on the effect of parents' income on children's living arrangements, in Table 5 we replicate the same exercise as in Table 3, where now the cells are defined by the interaction of birth cohort and time with 5 regions of residence. Altogether, we have 630 observations (5 regions X 126 age-cohort cells). We fit a fairly unrestricted model to the data: we let the year and age dummies (and the cohort dummies if present) to be fully interacted with regional dummies. It must be emphasized that we are pretty close to the limits of

identification. One advantage of this specification is that it allows controls for the state of local labor markets, as opposed to the aggregate controls in Table 3.

The equation we fit is:

$$H_{CSt} = \beta_0 + \beta_1 YP_{CSt} + \beta_2 YK_{CSt} + \beta_3 R_{CSt} + Z_{CSt}'\beta_4 + d_{aS} + d_{tS} + d_{cS} + u_{CSt}$$

where now we allow for cohort fixed effects (in some specifications).

In Table 5 we reproduce the same structure as in Table 3. Interestingly, the OLS estimates for the effect of parents' income are remarkably similar in the two Tables. Ignoring unobserved heterogeneity, a 1 million rise in parents' income is associated with a rise in the probability that children live at home between 0.018 (s.e 0.003) and 0.013 (s.e. 0.004), depending on the set of controls. The estimates are close to each other and remarkably precise. Interestingly, we now find a clear evidence for the effect of local labor market conditions. A 10 percentage point rise in the probability of finding a job lowers the probability of living at home by approximately 3 percentage points. Notice also that, conditional on employment, earnings do not have any discernible effect on living arrangements decisions. An way to rationalize this result is that all it matters is whether one gets a job, and no useful variation can be attributed to wages. This is consistent with our view of the youth labor market where wages are rigid and employment is demand-determined. Notice also that a one million lira rise in housing costs increases the probability of living at home by around 1 percentage point. The estimates are pretty precise. Column 5 reports the results for the model with cohort fixed effects. The point estimate is now pushed towards zero and is it not significant at standard significance levels. While this could be taken as evidence that our results are only driven by unobserved heterogeneity, it must be borne in mind that any measurement error (and the associated attenuation bias) tends to be exacerbated when fixed effects are included in the model.

In Table 6 we present the results for first stage regression. The effect of parents' pension income on total income is now clearly detectable. Although the omission of controls for household structure tends again to lead to unreasonably high estimates, when one adequately

controls for the number of siblings and the proportion of alive parents, it turns out that a rise of one million lira in pension income rises total income by 0.947 millions (s.e. 0.144), which is essentially undistinguishable from 1. It is remarkable that this coefficient remains of the same order of magnitude and fairly precise when one controls for unobserved heterogeneity, in column 3. Including cohort-fixed effects lowers this coefficient to 0.701 (s.e. 0.186) and again one cannot reject equality with 1.

In columns 6 to 8 of Table 5 we report the IV estimates, corresponding to columns 3 to 5. Ignoring household structure, this leads to an estimate for the effect of parents' income on children's living arrangements of 0.030 (s.e 0.050). The point estimate is 0.053 (s.e. 0.014) as we control for the number of siblings and parents' life expectancy. The coefficient is still in the same order of magnitude (0.034) when we control for unobserved heterogeneity although this is significant only at 10% (s.e. 0.024). Overall, it appears that the OLS estimates tend to bias the effect of changes in parents' income on children's living arrangements towards zero. If anything, the estimates in column 1 to 5 are conservative. It appears that a rise of one million lira in parents' income increases the probability that children live at home by between 1 and 5 percentage points, according to the specifications. This results keeps on being true when we allow for individual heterogeneity and we adequately control for the potential endogeneity of parents' income.

5. Conclusions

In this paper we have explored the trends in living arrangements of young Italians and assessed the main economic determinants of these trends. We have shown that a one million rise in parents' income tends to increase the probability that children live at home by about 1 to 5 percentage points according to the estimates. This results holds true even if we control for changes in employment prospects as well as housing costs. Our estimates lend strong support to the view that some form of bargaining goes on between parents and children over the latter's

living arrangements. It appears that both parties are driven by self-interest and that parents benefit from a welfare system which and entitles them to some bargaining power towards their offspring.

References

Attanasio O. and F. Padoa Schioppa, 'Regional Inequalities, Migration and Mismatch in Italy, 1960-1986', in Padoa Schioppa, F. (ed.), Mismatch and Labour Mobility, Cambridge University Press, Cambridge, 1991.

Becker G. , A Treatise on the Family, Harvard University Press, 1991.

Bertrand M., D. Miller, and S. Mullainathan, Public Policy and Extended families: Evidence from South Africa, mimeo, Princeton University, 1999

Brugiavini A., 'Social Security and Retirement in Italy', NBER Working Papers, 6155, 997.

Card D. and T. Lemieux, Adapting to Circumstances: The Evolution of Work, School, and Living Arrangements Among North American Youth', in D. Blanchflower and R. Freeman (eds.) Youth Employment and Joblessness in Advanced Countries, University of Chicago Press, 2000.

Chiappori, P.A., 'Collective Labor Supply and Welfare, Journal of Political Economy, 100, 437-67, 1992.

Costa D. , 'Displacing the Family: Union Army Pensions and Elderly Living Arrangements', Journal of Political Economy, 105, 1269-1291, 1997.

Deaton A., J. Ruiz-Castillo and D. Thomas, 'The influence of Household Composition on Household Expenditure Patterns: Theory and Spanish Evidence', Journal of Political Economy, 1989, 97, 179-200

Deaton A., 'Panel Data from Time Series of Cross-Sections', Journal of Econometrics, 30, , 109-26,1985.

Deaton A., The Analysis of Household Surveys, John Hopkins, 1997.

Boldrin M., J.J. Dolado, J. Jimeno and F. Peracchi, 'The Future of Pensions in Europe', Economic Policy ,29, 289-320, 1999.

Eissa N., and H. Hoynes, Tax and Transfer Ploicy and Family Formation: Marriage ad Cohabitation, mimeo, UC Berkeley, 2000.

Faini R., G. Galli, P. Gennari and F. Rossi, ‘An empirical puzzle: Falling migration ad growing unemployment differentials among Italian regions’, European Economic Review, 41, 571-579, 1997.

Hoynes H., 'Work, Welfare, and Family Structure: What Have We Learned?', NBER Working Papers, 5644,1996 .

Layard R., S. Nickell and R. Jackman, Unemployment, Oxford University Press, 1991

Rossi N., Meno ai padri, piu' ai figli : stato sociale e modernizzazione dell'Italia, Bologna, Il Mulino, 1997.

Theory Appendix

Proof of (1):

H=1 if

$\log(YK+b_1+k_1)-\log(a_1) >= \log(YK-R)$

$YK+b_1+k_1>=a_1(YK-R)$

$b_1>=a_1(YK-R)-YK-k_1$

Proof of (2):

Parents will chose H=1 if:

$\log(YP-b_1+k_2)+\log(c_1)>=\log(YP)$

$c_1YP-c_1b_1+c_1k_2 >=YP$

Suppose:

$b_1=(a_1-1)YK-a_1R-k_1$

then:

$c_1YP- c_1 (a_1-1)YK+ c_1a_1R+ c_1k_1+ c_1k_2 >=YP$

$c_1k_1+ c_1k_2 >=-(c_1-1)YP+ c_1 (a_1-1)YK- c_1a_1R$

$k_1+k_2 >=-(c_1-1)/ c_1 YP+(a_1-1)YK-a_1R$

Proof of (3):

H=1 if

$\log(YK+b_0+b_1+k_1)-\log(a_1) >= \log(YK+b_0-R)$

$YK+b_0+b_1+k_1>=a_1(YK+b_0-R)$

$b_1>=a_1(YK+b_0-R)-YK-b_0-k_1$

$b_1>=(a_1-1)(YK+b_0)-a_1R-k_1$

Proof of (4)

In order to derive b_0, observe that parents will set it so to maximize their own utility when H=0, so, from the f.o.c.:

$1/(YP-b_0)-\rho/(YK+b_0-R)=0$

$(YK+b_0-R)-\rho\,(YP-b_0)=0$

$b_0=(\rho YP+R-YK)/(1+\rho)$

and

$b_0+YK-R=\rho(YP+YK-R)/(1+\rho)$

$YK+b_0=\rho/(1+\rho)(YP+YK)+1/(1+\rho)R$

$YP-b_0=(YP+YK-R)/(1+\rho)$

Proof of (5):

$\varpi(1)>=\varpi(0)$

$\log(YP-b_0-b_1+k_2)+\log(c_1)+\rho[\log(YK+b_0+b_1+k_1)-\log(a_1)]>=\log(YP-b_0)+\rho\log(YK+b_0-R)$

and in equilibrium:

$b_1=(a_1-1)(YK+b_0)-a_1R-k_1=(a_1-1)\,\rho/(1+\rho)(YP+YK)+\,(a_1-1)/(1+\rho)R\,-a_1R-k_1$

$=(a_1-1)\rho/(1+\rho)(YP+YK)-(1+\rho\,a_1)/(1+\rho)R\,-k_1$

so that children are indifferent between living at home or not living at home. So, parents' problem can be rewritten as:

$\log(YP-b_1-b_0+k_2)+\log(c_1)>=\log(YP-b_0)$

$c_1(YP-b_0-b_1+k_2)>=(YP-b_0)$

$c_1k_2>=-(c_1-1)(YP-b_0)+c_1b_1$

$c_1k_2>=-(c_1-1)(YP+YK-R)/(1+\rho)+c_1(a_1-1)\rho/(1+\rho)(YP+YK)-\,c_1(1+\rho\,a_1)/(1+\rho)R\,-c_1k_1$

$c_1(k_1+k_2)>=[-(c_1-1)+c_1(a_1-1)\rho]/(1+\rho)\,(YP+YK)-(c_1\rho\,a_1+1)/(1+\rho)R$

$k_1+k_2>=[-(c_1-1)/c_1+(a_1-1)\rho]/(1+\rho)\,(YP+YK)-(\rho\,a_1+1/c_1)/(1+\rho)R$

Data Appendix

Since we do not have data on whether one individual is a student or on housing costs in 1986, we have imputed these values for each age-time cell by assuming that these are equivalent to .99 times the value in 1987. We have experienced with different methods of imputation and these make little difference to our results. Also, the information on the number of siblings is only available in 1995 and 1998. We calculate the values for the years prior to 1995 by assuming that this variable can be expressed as an additive function of a third order polynomials in age, time and cohort. A similar procedure is used for parents' mortality. The information on whether parents are alive is only available in 1989 and 1991. We calculate the values for the years prior to 1989 and posterior to 1991 by assuming again that this variable can be expressed as an additive function of third order polynomials in age, time and cohort

As discussed in the text, another difficulty with the SHIW data is that no direct information is available on the parents' attributes for those children who live on their own. Starting from 1989, however, all the heads and their spouses in the survey have been asked the age of non-cohabiting parents.[13] As shown in Section 3, one can then combine this information with the age structures of those households where children and parents cohabit to create a mapping between the birth cohort of parents at any time and any observable attribute of children which is unconditional on children's living arrangements.

Since the data on the mapping between parents and children are not available every year, we fit a normal distribution onto the empirical distributions and we obtain out of sample predictions by assuming that the mean and standard deviation of each normal distribution change linearly over time. This is a simple way to control for any non-random selection of the sample arising from parents' mortality. In practice we assume that the empirical probabilities are random draws from a normal distribution with mean μ_t and standard deviation σ_t and we obtain out of sample predictions by assuming that $\mu_t=\mu_0+\mu_1 t$ and $\sigma_t=\sigma_0+\sigma_1 t$. To give an idea of the imputation procedure and the approximation to normality in Figure A1 we report an example of imputation for the cohort born in 1968.

As an additional check for our procedure, we used the information which is asked to all heads in 1989 and 1991 about the number and age of non-cohabiting children. This is the mirror information as the one provided above. In Figures A2 and A3 we report respectively the marginal distribution of children's birth cohort and the marginal distribution of head's birth cohort based on the two methods. Both distributions are conditional on the head being alive. It is easy to see that the two distributions track each other remarkably well.

[13] This information is in principle available also for 1989 but we found some problems in the data.

Table 1
Descriptive Statistics

	1986	1987	1989	1991	1993	1995	1998
Children							
% at home	0.65	0.67	0.63	0.65	0.66	0.68	0.69
% not working	0.44	0.38	0.34	0.36	0.38	0.42	0.40
Earnings	9.162	11.643	12.362	11.186	10.023	9.283	9.719
Earnings if >=0	19.693	22.465	23.498	22.195	20.896	19.889	19.931
Housing costs	4.558	4.610	5.393	5.366	5.348	5.465	5.838
Age	25.58	25.87	25.77	26.08	26.20	26.37	26.68
Education							
No education	0.02	0.01	0.01	0.01	0.01	0.00	0.01
Primary	0.12	0.09	0.05	0.05	0.06	0.04	0.03
Junior High	0.45	0.49	0.41	0.41	0.45	0.46	0.45
High School	0.36	0.34	0.46	0.47	0.44	0.43	0.43
College	0.06	0.07	0.07	0.06	0.05	0.07	0.08
% enrolled in school	0.25	0.23	0.15	0.25	0.21	0.21	0.20
Number of siblings	2.18	2.16	2.09	2.03	1.96	1.89	1.79
% at least one parent alive	0.95	0.95	0.96	0.96	0.97	0.97	0.97
Parents							
Head's income	28.902	33.571	34.196	32.473	31.909	32.282	34.693
% Heads receiving SS	0.50	0.49	0.55	0.56	0.60	0.60	0.58
Head's SS income	6.848	7.254	8.767	9.186	9.652	10.119	10.500
Head's SS income if >=0	13.287	15.447	16.055	17.053	16.467	17.481	18.005
Parents' income	33.922	40.004	41.423	39.646	39.716	40.019	42.661
% Parents receiving SS	0.57	0.56	0.61	0.62	0.67	0.68	0.65
Parents' SS income	9.001	9.779	11.359	11.899	13.001	13.577	13.811
Parents' SS income if >=0	14.961	16.934	18.224	19.154	19.160	19.952	20.674
% Female heads	0.20	0.17	0.18	0.20	0.27	0.24	0.24
Head's age	58.23	58.56	58.63	58.93	59.01	59.05	59.00
Head's education							
No education	0.10	0.11	0.08	0.09	0.10	0.08	0.09
Primary	0.58	0.49	0.51	0.52	0.48	0.47	0.38
Junior High	0.16	0.19	0.21	0.20	0.23	0.25	0.29
High School	0.11	0.16	0.15	0.15	0.14	0.14	0.18
College	0.06	0.05	0.05	0.04	0.04	0.06	0.06
No. observations	3,451	3,424	3,646	3,550	3,320	3,369	2,770

Notes. Source: SHIW Individual records. All data are weighted by sampling weights.

Table 1a
Descriptive Statistics
North

	1986	1987	1989	1991	1993	1995	1998
Children							
% at home	0.64	0.65	0.63	0.62	0.62	0.66	0.66
% not working	0.39	0.30	0.26	0.28	0.30	0.33	0.31
Earnings	10.786	14.040	14.363	13.079	12.109	11.185	11.870
Earnings if >=0	21.304	23.517	23.692	22.857	21.949	21.367	21.844
Housing costs	5.485	5.616	6.821	7.133	7.544	8.793	9.283
Age	25.68	26.06	25.76	26.39	26.51	26.61	27.04
Education							
No education	0.01	0.00	0.01	0.00	0.01	0.00	0.01
Primary	0.08	0.06	0.03	0.03	0.04	0.02	0.01
Junior High	0.47	0.50	0.42	0.41	0.44	0.46	0.46
High School	0.39	0.36	0.47	0.49	0.46	0.44	0.43
College	0.06	0.07	0.08	0.06	0.06	0.08	0.09
% enrolled in school	0.21	0.16	0.14	0.15	0.17	0.19	0.19
Number of siblings	1.65	1.65	1.57	1.54	1.47	1.42	1.35
% at least one parent alive	0.93	0.93	0.95	0.95	0.96	0.96	0.97
Parents							
Head's income							
% Heads receiving SS	29.917	35.723	36.482	34.903	35.059	35.929	38.973
Head's SS income	0.51	0.51	0.56	0.58	0.63	0.63	0.62
Head's SS income if >=0	7.308	8.117	9.572	10.187	10.828	11.540	11.642
Parents' income	13.343	16.291	17.026	18.115	18.192	18.129	18.225
% Parents receiving SS	0.58	0.58	0.63	0.65	0.71	0.72	0.68
Parents' SS income	35.371	43.123	44.501	42.624	43.694	44.401	47.712
Parents' SS income if >=0	9.706	11.073	12.405	13.333	14.632	15.560	15.378
% Female heads	15.164	18.236	19.233	20.550	21.011	21.573	22.064
Head's age	0.22	0.17	0.19	0.21	0.27	0.24	0.25
Head's education	58.32	58.73	58.60	59.24	59.32	59.29	59.39
No education	0.05	0.05	0.05	0.05	0.05	0.05	0.07
Primary	0.07	0.08	0.05	0.05	0.08	0.06	0.05
Junior High	0.54	0.50	0.48	0.51	0.48	0.45	0.38
High School	0.20	0.21	0.23	0.22	0.23	0.27	0.31
College	0.14	0.16	0.18	0.18	0.16	0.16	0.19
No. observations	2,122	2,087	2,156	2,009	1,965	1,995	1,590

Notes. Source: SHIW Individual records. All data are weighted by sampling weights. North includes also the regions in the Middle of Italy.

Table 1b
Descriptive Statistics
South

	1986	1987	1989	1991	1993	1995	1998
Children							
% at home	0.66	0.70	0.63	0.69	0.71	0.72	0.75
% not working	0.51	0.52	0.49	0.51	0.53	0.58	0.56
Earnings	6.638	6.992	8.434	7.835	6.284	6.029	6.087
Earnings if >=0	16.534	19.130	22.873	20.447	17.926	16.308	15.471
Housing costs	4.558	4.610	5.393	5.366	5.348	5.465	5.838
Age	25.43	25.51	25.80	25.52	25.63	25.95	26.09
Education							
No education	0.04	0.02	0.02	0.01	0.02	0.01	0.01
Primary	0.19	0.17	0.10	0.08	0.09	0.08	0.06
Junior High	0.41	0.46	0.39	0.41	0.45	0.45	0.43
High School	0.30	0.28	0.44	0.44	0.39	0.40	0.44
College	0.07	0.07	0.05	0.05	0.05	0.06	0.06
% enrolled in school	.25	0.23	0.15	0.25	0.21	0.21	0.20
Number of siblings	2.83	2.80	2.71	2.59	2.51	2.42	2.25
% at least one parent alive	0.95	0.96	0.96	0.96	0.96	0.96	0.97
Parents							
Head's income							
% Heads receiving SS	27.033	28.428	29.507	28.108	25.652	25.189	26.720
Head's SS income	0.47	0.45	0.52	0.52	0.54	0.51	0.51
Head's SS income if >=0	5.830	5.945	7.081	7.586	7.365	7.236	8.250
Parents' income	11.796	14.006	14.623	14.606	13.376	14.830	15.978
% Parents receiving SS	0.53	0.52	0.57	0.56	0.61	0.60	0.59
Parents' SS income	31.444	32.775	35.093	33.961	32.077	31.537	32.998
Parents' SS income if >=0	7.622	7.711	9.096	9.536	9.860	9.691	10.842
% Female heads	13.787	14.143	15.844	16.394	15.002	15.878	17.957
Head's age	0.15	0.19	0.17	0.18	0.25	0.23	0.23
Head's education	58.08	58.23	58.68	58.39	58.45	58.64	58.32
No education	0.05	0.05	0.06	0.07	0.05	0.06	0.07
Primary	0.21	0.21	0.18	0.17	0.18	0.16	0.15
Junior High	0.45	0.45	0.46	0.46	0.45	0.43	0.38
High School	0.16	0.17	0.17	0.16	0.19	0.21	0.24
College	0.12	0.12	0.13	0.13	0.14	0.14	0.16
No. observations	1,329	1,337	1,490	1,541	1,355	1,374	1,180

Notes. Source: SHIW Individual records. All data are weighted by sampling weights. South includes Sicily and Sardinia.

Table 2
The Probability of Staying at Home by Birth-Cohort and Time
5-year Birth-Cohorts

Cohort	1986	1987	1989	1991	1993	1995	1998
55	0.14	0.17	0.17	.	.	.	.
60	0.41	0.34	0.22	0.19	0.11	.	.
65	0.85	0.85	0.58	0.49	0.34	0.25	0.15
70	0.97	0.98	0.92	0.86	0.76	0.67	0.44
75	.	.	0.95	0.95	0.96	0.91	0.83
80	.	.	.	.	0.98	0.98	0.98
85	.	.	.	.	.	.	1.00

Notes. Source: SHIW Individual records. All data are weighted by sampling weights.

Table 3
The Determinants of the Probability of Staying at Home
Dependent Variable: Proportion of Children Living with their Parents
by Age-Cohort Cells

	1	2	3	4	5	6
			OLS		IV	
Head's income	0.019	0.018	0.017	0.021	0.036	0.131
	(0.005)	(0.004)	(0.005)	(0.007)	(0.007)	(0.080)
Earnings		-0.009	-0.008	-0.009	-0.006	-0.014
		(0.005)	(0.005)	(0.005)	(0.005)	(0.011)
Housing costs		0.037	0.031	0.030	0.038	0.001
		(0.009)	(0.010)	(0.010)	(0.010)	(0.029)
% not working		-0.076	-0.130	-0.112	-0.022	0.208
		(0.161)	(0.157)	(0.159)	(0.175)	(0.393)
Age dummies	yes	yes	yes	yes	yes	yes
Year dummies	yes	yes	yes	yes	yes	yes
% in regions (5)	yes	yes	yes	yes	yes	yes
% Heads receiving SS	yes	yes	yes	yes	yes	yes
% Female heads	yes	yes	yes	yes	yes	yes
% enrolled in school	yes	yes	yes	yes	yes	yes
% in education groups (5)	no	no	yes	yes	yes	yes
Number of siblings	no	no	no	yes	no	yes
% at least one parent alive	no	no	no	yes	no	yes
No. observations	126	126	126	126	126	126
Adj. R2	.985	.986	.988	.988	.984	.948

Notes: The table reports the results of the estimation of model (7).

Table 4
The Determinants of Parents' Income
Dependent Variable: Average Head's Income by Children's Age-Cohort Cells

	1	2
Head's SS income	2.363	0.611
	(0.312)	(0.376)
Housing costs	0.118	0.271
	(0.174)	(0.154)
Earnings	-0.021	0.052
	(0.093)	(0.079)
% not working	-4.812	-3.130
	(2.954)	(2.443)
Age dummies	yes	yes
Year dummies	yes	yes
Cohort dummies	no	no
% in regions (5)	yes	yes
% Heads receiving SS	yes	yes
% Female heads	yes	yes
% enrolled in school	yes	yes
% in education groups (5)	yes	yes
Number of siblings	no	yes
% at least one parent alive	no	yes
No. observations	126	126
Adj. R2	.975	.985

Table 5
The Determinants of the Probability of Staying at Home
Dependent Variable: Proportion of Children Living with their Parents
by Age-Cohort-Region Cells

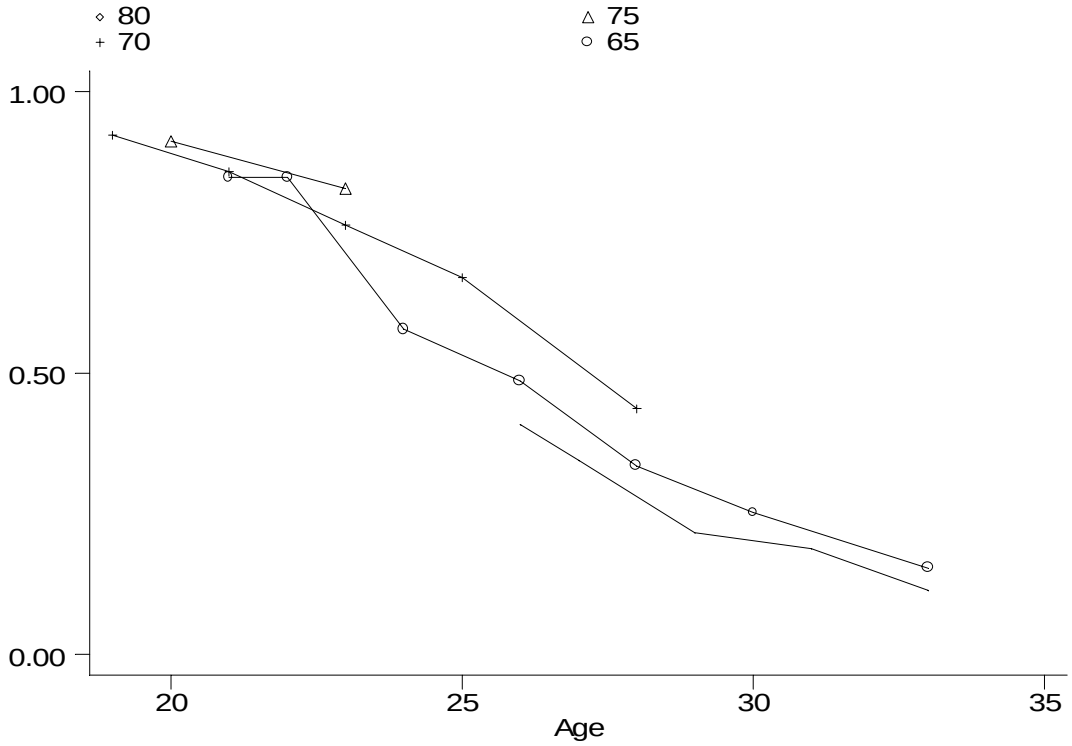
	1	2	3	4	5	6	7	8
			OLS				IV	
Head's income	0.018	0.015	0.015	0.013	0.001	0.030	0.053	0.034
	(0.003)	(0.003)	(0.003)	(0.004)	(0.005)	(0.005)	(0.014)	(0.024)
Earnings		-0.003	-0.003	-0.003	-0.001	-0.002	-0.002	-0.001
		(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Housing costs		0.011	0.010	0.010	0.009	0.011	0.009	0.010
		(0.003)	(0.003)	(0.003)	(0.004)	(0.003)	(0.004)	(0.004)
% not working		0.292	0.294	0.284	0.290	0.285	0.259	0.266
		(0.052)	(0.050)	(0.051)	(0.055)	(0.053)	(0.057)	(0.060)
Age dummies* Regional dummies	yes	yes	yes	yes	yes	yes	yes	yes
Year dummies *Regional dummies	yes	yes	yes	yes	yes	yes	yes	yes
Cohort dummies* Regional dummies	no	no	no	no	yes	no	no	yes
% Heads receiving SS	yes	yes	yes	yes	yes	yes	yes	yes
% Female heads	yes	yes	yes	yes	yes	yes	yes	yes
% enrolled in school	yes	yes	yes	yes	yes	yes	yes	yes
% in education groups (5)	no	no	yes	yes	yes	yes	yes	yes
Number of siblings	no	no	no	yes	yes	no	yes	yes
% at least one parent alive	no	no	no	yes	yes	no	yes	yes
No. observations	630	630	630	630	630	630	630	630
Adj. R2	.953	.986	.988	.988	.986	.984	.942	.964

Notes: The table reports the results of the estimation of model (9).

Table 6
The Determinants of Parents' Income
Dependent Variable: Average Head's Income by Children's Age-Cohort-Region Cells

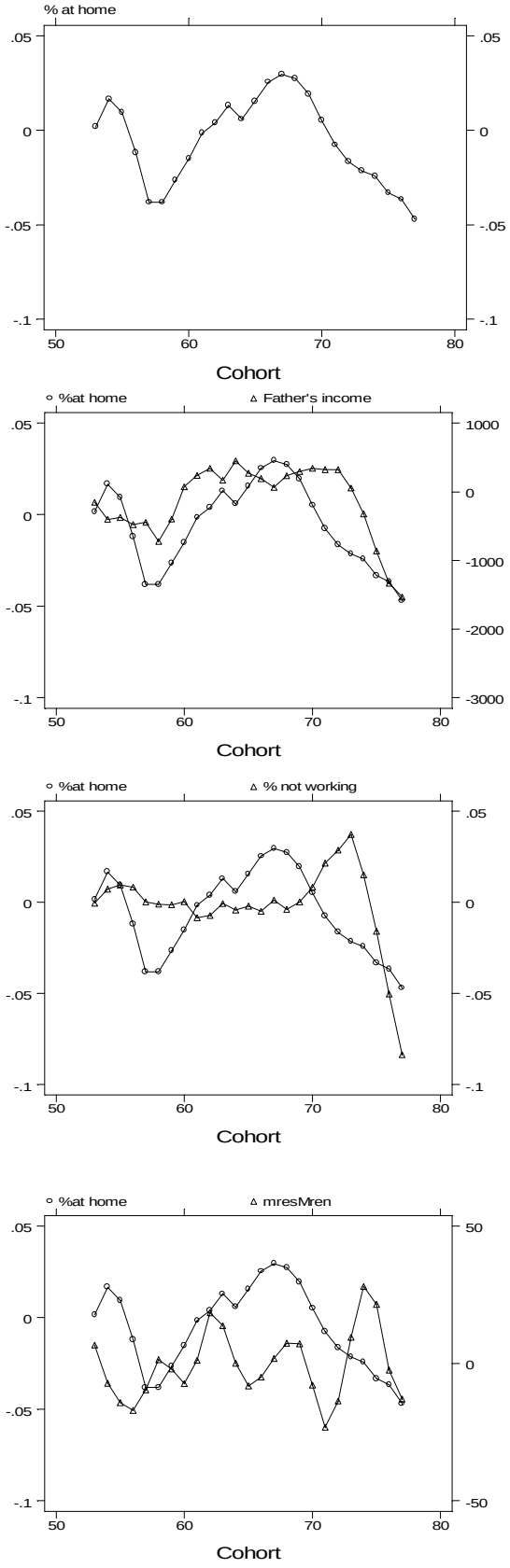
	1	2	3
Head's SS income	2.046	0.947	0.701
	(0.129)	(0.144)	(0.186)
Earnings	-0.026	-0.017	-0.005
	(0.024)	(0.021)	(0.022)
Housing costs	-0.005	0.023	-0.008
	(0.043)	(0.037)	(0.040)
% not working	0.750	0.706	0.610
	(0.697)	(0.602)	(0.601)
Age dummies* Regional dummies	yes	yes	yes
Year dummies *Regional dummies	yes	yes	yes
Cohort dummies* Regional dummies	no	no	yes
% Heads receiving SS	yes	yes	yes
% Female heads	yes	yes	yes
% enrolled in school	yes	yes	yes
% in education groups (5)	yes	yes	yes
Number of siblings	no	yes	yes
% at least one parent alive	no	yes	yes
No. observations	630	630	630
Adj. R2	.975	.986	.989

Figure 1
The Probability of Staying at Home by Birth-Cohort and Time
5-year Birth-Cohorts



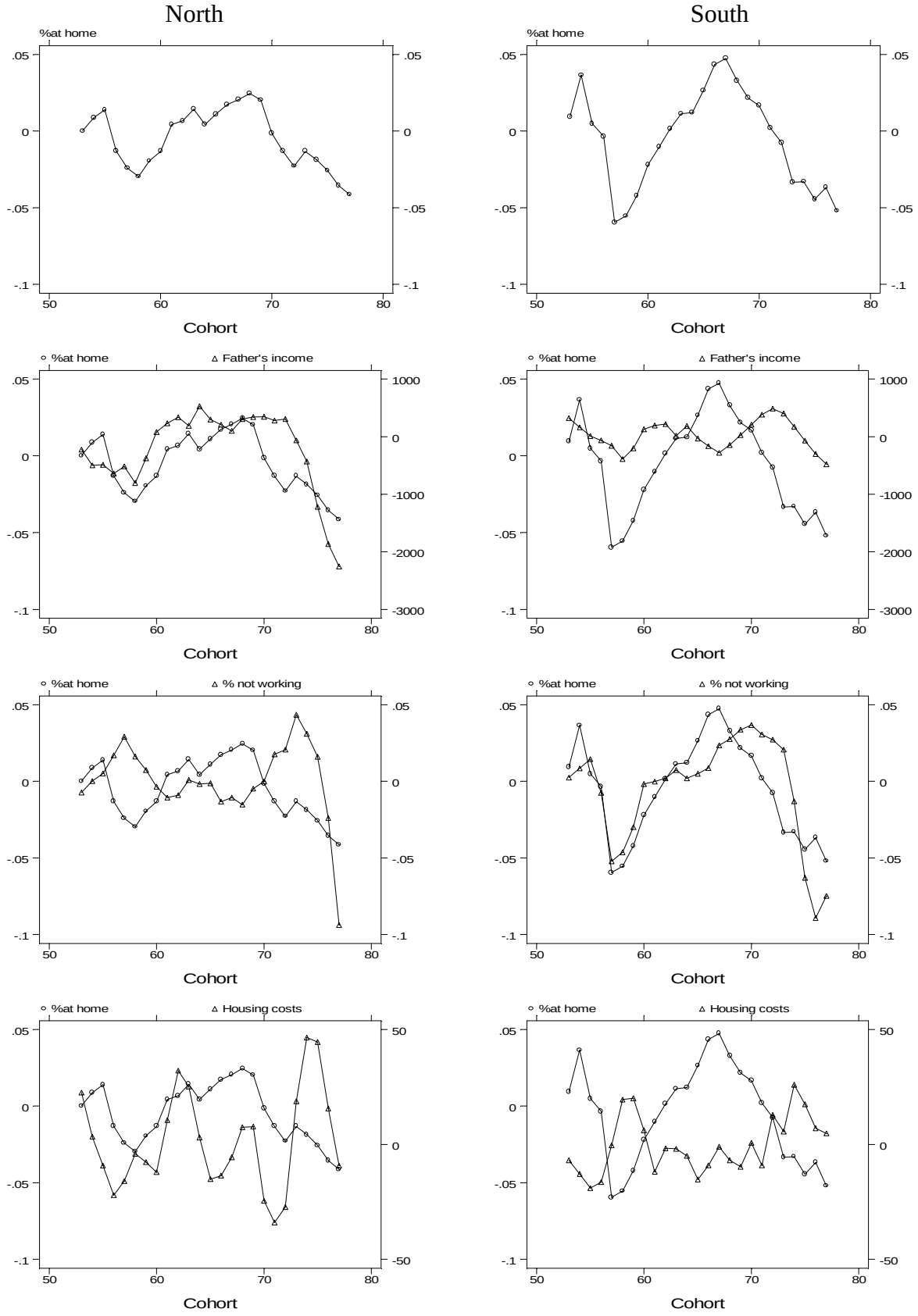
Notes. The figure plots the data in Table 2.

Figure 2
Permanent Changes in Living Arrangements, Work, Housing Costs and Head's Income



Notes. The picture graphs the cohort effects for the probability of living at home and the other variables. These are expressed in relative terms and as a deviation around a linear trend. See main text for details. Data are weighted. Three year moving averages are plotted.

Figure 3
Permanent Changes in Living Arrangements, Work, Housing Costs and Head's Income by Region



Notes: See notes to Figure 2. North includes also the regions in the Middle of Italy. South includes Sicily and Sardinia.

Figure A1
The Estimated Conditional Distribution of Parents' Birth-Cohort
Children's Birth cohort = 1968

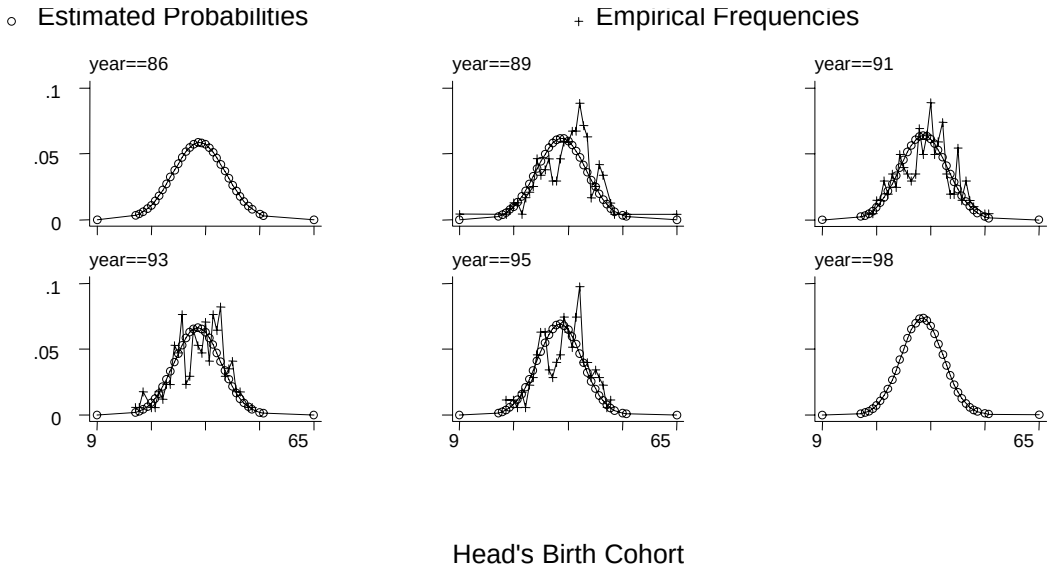


Figure A2
The Marginal Distribution of Children's Birth-Cohort

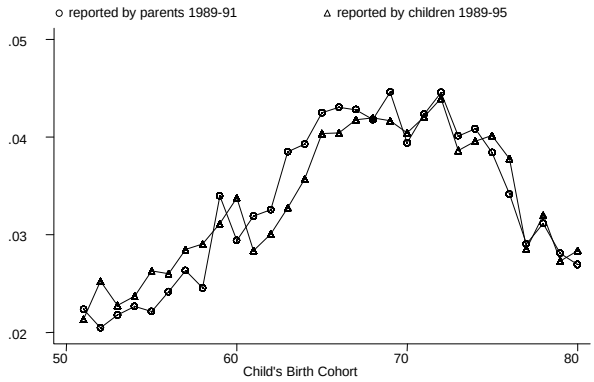


Figure A3
The Marginal Distribution of Parents' Birth-Cohort