

Italians are Late: Does it Matter?

by

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Preliminary Draft: April 1, 2008

Paper prepared for the Meeting of the National Bureau of Economic Research
“Demography and the Economy”
April 11-12, 2008
Yountville Napa Valley, CA

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1. Introduction

In the discussion of the link between demography and the economy, the main focus of existing research is on population aging and its consequences. The determinants of population aging--below-replacement fertility above all others--are investigated as areas of potential policy concern. For these reasons, societies that age faster, i.e. those that experienced particularly low levels of fertility for some decades, are ideal laboratories for studying the demography-economy link. Italy (together with Spain) has been the first country in which fertility reached levels that had not been reached earlier, i.e. total fertility rates below 1.3 children per woman. This level, which has been termed “lowest-low fertility” (Kohler, Billari and Ortega 2002), has appeared during the 1990s, and has spread thereafter towards Central and Eastern Europe as well as towards rich countries in East Asia. Italy has become the most aged country in the OECD, even if the rapid rise in immigration, together with a small increase in fertility, have prevented the total and working-age population from falling during the early 2000s (Billari 2008).

One of the key features of Italy’s low fertility is its connection with a late transition to adulthood. In order to get a comparable tertiary degree, young Italians tend to study longer than their counterpart in other nations. They enter the labor market later. They live with their parents longer than their peers elsewhere. They form a partnership via marriage or cohabitation later, and now they also tend to have their first child later. For instance, for Italians born between 1966 and 1970, the median ages at various events were as follows, for men and women respectively: for completing education: 19.2 and 19.3; for first job: 21.4 and 24.0; for leaving home: 27.2 and 25.1; for first birth: 33.4 and 29.3 (Mazzuco, Mencarini and Rettaroli 2006). This pattern has been defined as the “latest-late transition to adulthood”. Below we discuss more in detail how Italy compares to other countries in Europe.

Such late transition to adulthood of Italian youth did not go unnoticed. In October 2007, the Italian Minister of the Economy Tommaso Padoa-Schioppa defined youths who continue to reside in the parental home as “bamboccioni” (“big babies”); according to the *International Herald Tribune* this is “an Italian word that evokes images of clumsy, overgrown male babies”. The Minister also advocated financial incentives to induce youths still living with their parents to abandon their nest.¹

What are the economic consequences of such late transition to adulthood, besides the immediate implications for fertility? In particular, could this late transition contribute to explain the disappointing performance of the Italian economy over the last decade? These are the general questions motivating this paper.

Our main contribution is to study how the timing of specific events, such as leaving the parental home, is associated with individual income later in life. Our evidence comes from a longitudinal survey of Italian men in their 30s, on which we have detailed information on the timing of specific events as well as later economic outcomes. The main finding is that an early transition to adulthood, measured by the date of leaving the parental home, is associated with higher income

¹ See for instance “Italian economics minister causes uproar with ‘big babies’ tax proposal”, *International Herald Tribune*, 5 October 2007 or “Observer: Flowers and taxes”, *Financial Times*, 10 October 2007.

later in life. Of course, both income and transition to adulthood are jointly determined, and our estimation strategy attempts to infer causality by relying on instrumental variables.

Other recent papers have studied the consequences of the prolonged co-residence between parents and their children. Alessie, Brugiavini and Weber (2005) focus on the link between co-residence and savings, comparing Italy and the Netherlands. Aassve et al, (2007) study the effect of leaving home on poverty, without however finding explicit links with coresidence rates (they find that departure from the parental home has a significant short-term impact on poverty in 13 European countries, with the highest impact in Scandinavia). Finally, Alesina and Giuliano (2007) argue that the strength of family ties (including those between parents and children) has important consequences for the economy, and that the family is a more important economic unit in societies in which family ties are stronger, as in Italy.

The remainder of this paper is as follows. Section 2 reviews the broad and multidisciplinary literature on the transition to adulthood, which has addressed variation over time and space from various points of view. Section 3 describes the peculiarity of the Italian pattern, showing stylized evidence and reviewing studies that have tried to explain this peculiarity mostly with reference to culture or institutional factors. Section 4 addresses the link between the delay in the transition to adulthood and the economy through a review of the literature on the demography-economy nexus and cross-country analyses. Section 5 is the main contribution of this paper: it presents a micro-econometric evaluation of the effect of delayed home-leaving on individual income in a sample of Italian youths. Conclusions and policy implications are drawn in Section 6.

2. The transition to adulthood in the social science literature

What makes a person an adult? There is no straightforward answer to this question, which has long been studied especially by historians and sociologists. Certainly, age plays a role: in every society there are specific ages at which individuals are given specific rights or responsibilities, or under which it is not legal to perform certain behaviors. Examples include lower age limits for working, for drinking, for marrying, and age threshold that entitle individuals to vote or to carry a driving license. During the 1970s, a series of authors in the fields of sociology and social history pointed out explicitly that becoming an adult is a process characterized by a series of events that mark passages from roles that are typical of youth to other roles. In contemporary societies, these events include completing education, entering the labor market, leaving the parental home, marrying (or, having recent trends in mind, cohabiting), becoming a parent (Elder 1975; Modell, Furstenberg and Hershberg 1976; Neugarten and Datan 1973). A whole literature on the “transition to adulthood” has flourished since then, exploring the factors that shape the timing of these events and the order in which they appear in life (Hogan and Astone 1986; Settersten, Furstenberg and Rumbaut 2005; Shanahan 2000). The relevance of these events for the perception of adulthood in the 2000s has also been investigated through the General Social Survey (Furstenberg et al. 2004). As we have already noticed in the introduction, research on the consequences of the transition to adulthood has been much more limited.

After the initial focus on the United States, research on the transition to adulthood started becoming international, documenting and trying to explain cross-national differences. While specific comparisons had already been carried out in the literature on parts of the process (such

the ages at which individuals complete education, enter the labor market, marry or have a child), a main focus of international comparative research on the transition to adulthood has been the institutional and cultural determinants of differences between nations. The empirical underpinning of the recent literature is that, in general, the transition to adulthood has been postponed in modern societies. While this is generally linked to increasing education as far as the age at leaving school or entering the labor market are concerned, there are various hypotheses on why young adults tend to postpone home leaving and union formation (although this is not true in every society) and having a child.

Following Liefbroer (2005), here we briefly review the families of explanations for the different patterns over time and space, as they have been developed in the social sciences broadly defined. Four families of explanations have been proposed.

First, within the demographic and sociological literature, a main theory is based on the development of a “Second Demographic Transition” (SDT), spreading from Northern Europe to the rest of the developed world. The SDT was initially proposed by Lesthaeghe and van de Kaa (Lesthaeghe 1995; Lesthaeghe and van de Kaa 1986; van de Kaa 1987). According to the proponents of the SDT, differences over time and space in the transition to adulthood are primarily due to different levels of social pressure on young adult’s choices (linked to secularization and a weakening dependence on the family of origin), and to the varying preferences of young adults (mostly concerning family versus other competing domains such as work and education). Related to the SDT idea, Buchmann (1989) argues that the various degrees of “individualization” and “institutionalization” that exist among societies are the key to understand trends and cross-national differences. Society influences the transition to adulthood with the institutional regulation of the timing of entry into specific (adult) roles, and by pushing on individualism (with the expectation that individuals have and carry on specific biographical strategies) vis-à-vis the respect of social norms.

Second, within the sociological literature some general theories on social change imply an explanation of differences in the transition to adulthood. The work by Giddens on modern societies emphasizes two ideas that are relevant to our discussion. First, individual life-planning has become a general feature of life in modern societies; young adults are increasingly more expected to be able to plan autonomously their life trajectory including living arrangements. Second, partner relationships are increasingly entered as “pure relationships”, i.e. for the sake of satisfaction derived by living with another person rather than, for instance, for the social recognition of partner relationships. Therefore, according to Giddens young adults are increasingly more (although differently in different societies) involved in planning their life with a careful choice of living arrangements, and this may entail postponing entry into partner relationship given the requirement of “pure relationships” (Giddens 1991, 1992). Linked to Giddens’ theory is the one by Beck on the “risk society” and its implications (Beck 1995; Beck and Beck-Gernsheim 2002). Beck emphasizes the importance of uncertainty in the new world of individualization; in this framework the postponement of events in the transition to adulthood is therefore a rational answer to differential uncertainty (on postponement as a rational response to uncertainty see also Gustafsson 2001).

A third set of explanations focuses on institutional arrangements, and in particular on the role of the welfare state. Esping-Andersen (1990) focuses on the notion of “welfare regime” as an

institutional arrangement with internal logic concerning the relationships between state, market, families and individuals, in what he defines the “varieties of welfare capitalism”. Initially, Esping-Andersen distinguishes three types of welfare regimes among industrialized countries: 1) liberal welfare regimes (with limited social benefits); 2) conservative welfare regimes (which provides benefits provided individuals belong to specific categories, such as families or a type of worker); 3) social-democratic welfare regimes (with generous support, usually not tied to the position of individuals). Further research has outlined that within “conservative” welfare regimes, the Southern European ones (Italy and Spain in particular) are different to the extent to which the welfare coverage is often residual and left to the family, somehow similarly to liberal welfare regimes (Ferrera 1996). The social-democratic regime and to a certain extent the conservative one decrease the level of uncertainty in the transition to adulthood, and may therefore lead to an earlier transition. Moreover, in an individual-oriented welfare such as the social-democratic one the cost of new behaviors (arising from new preferences) might be lower and be conducive to the spread of new behavioral patterns (Breen and Buchmann 2002).

A fourth set of explanations is based on the economics literature. The systematization by Becker (1981) of “New Home Economics” focuses on the role of the expansion of women’s education and the related reduction in the gains from marriage to explain the postponement of marriage. If marriage and union formation are key events in the transition to adulthood, this can be taken as an explanation of differences over time and space. Shifting preferences were not in the initial setup but they might well be embedded into this framework. A different economic approach is the one originated by Easterlin (1980), focusing on cohort size. According to Easterlin, the transition to adulthood of members of larger cohorts is postponed because of the general difficulties experienced by members of these larger cohorts when entering the labor market. Vice-versa, members of a smaller cohort face better opportunities and therefore might anticipate their transition to adulthood.

Keeping in mind these families of theories, we now outline the specificity of the Italian pattern of transition to adulthood, describing stylized facts and focusing on the explanations that have been proposed in the literature.

3. The Italian “latest-late” pattern of transition to adulthood

A general feature of transitions to adulthood in contemporary developed societies is that, overall, its timing has become later (Liefbroer 2005; Settersten et al. 2005). Young adults tend to study longer, enter the labor market later, leave the parental home, cohabit or marry, and become a parent later. The theories reviewed in Section 2 might account for this general trend toward the “postponement” of the transition to adulthood. Italy, followed closely by Spain, ranks first as far as a late transition to adulthood is concerned; indeed, Italy and Spain have been labeled as following a “latest-late” pattern of transition to adulthood (Billari et al. 2002; Billari, Philipov and Baizán 2001). This pattern is linked to an increasing age at leaving education and entering the labor market, with levels however comparable to those of other countries. What is peculiar is the particularly high age at leaving home, union formation, and first birth. Moreover, leaving home is more frequently associated with marriage (and union formation in general) with respect to other societies. Table 3.1 documents the “latest-late” pattern of transition to adulthood through data from standard demographic surveys: Italy has the highest median age at leaving home. It is not a

surprise that also the median age at parenthood is the highest for men and the second highest for women; indeed, Italy tops the rankings of late fertility (Billari et al. 2007). Moreover, there is a clear trend towards further postponement, which is confirmed by the most recent research results (Mazzuco et al. 2006).

TABLE 3.1 ABOUT HERE

Consistently with the picture on the timing of events, there is clear evidence that young Italians tend to financially depend more on their parents with respect to their European counterparts. Table 3.2 shows that in 2001, 74% of young Italians aged 15-24 declared to be financially dependent on their parents, while this was true for only 19% for young Danes and 21% of UK youth. This trend continues when more recent data are taken into account.

TABLE 3.2 ABOUT HERE

How has this peculiarity of the Italian pattern of transition to adulthood come about? We briefly survey some of the research results concerning the attempt to explain this peculiarity. We roughly distinguish between two lines of explanation, related to the general ones mentioned in Section 2: a first line emphasizes culture and/or cultural change, a second line emphasizes the role of economic and especially institutional factors that are peculiar of Italy. We mainly focus on the age of home leaving, given its key role as a marker of the age at which youth reach a sufficient degree of individual autonomy and responsibility in the transition to adulthood, and given that the peculiarity of the “latest-late” pattern identified in the literature lies on the delayed departure from the parental home.

The role of culture. A series of contributions by scholars from different disciplines focuses on the role of culture as the key explanation to the peculiarity of the Italian pattern. The late transition to adulthood of young Italians is explained essentially by their preference to co-reside with parents, or by their parents’ to co-reside with children, or both.

In the demographic literature, several authors have emphasized that the Italian (and Southern European) pattern is historically rooted. Co-residential links between parents and children have been strong also in the past, and they pervade all ages. Reher (1998), for instance, distinguishes two basic patterns of family ties and transition to adulthood. The Northern European pattern of “*weak family ties*” and early transition to adulthood is linked to the medieval habit of leaving the parental home early for agricultural work or to become a servant; its present realization is characterized in new family choices such as those we have described in Section 2. On the contrary, in Southern Europe, the “*strong family ties*” pattern was characterized by extensive periods of co-residence between parents and adult children, in some areas extending to the whole life for at least some of the children; the roots of this Southern European pattern could be found in the meeting between the Roman and the Arab traditions of kinship. Families (and not communities) have historically taken care of vulnerable individuals in the South. In this sense the “familistic” components of Southern European welfare outlined in Section 2 could be considered as the mere consequence of this culture. Starting from the point of view of historical continuity, nothing is new under the sun concerning the strength of ties between parents and children; nevertheless, increasing economic well-being is allowing to relax constraints, and the delayed transition to adulthood is seen as a results of free choice. Familistic parents do not encourage their

adult children to leave home. This delay is however problematic from a demographic point of view as the low levels of fertility that arise as a consequence would undermine the survival of the “familistic” model (Dalla Zuanna 2001).

Still linked to the specificity of the Italian pattern are the findings of Manacorda and Moretti (2006), who put a key emphasis on the preferences of parents. They see living arrangements as the outcome of a non-cooperative game between parents and children. If co-residence is “a good” for parents and a “bad” for children, parents will be willing to trade off some of their consumption in order to “bribe” their children. In other words, children who remain at home are compensated with higher consumption (pp. 801-802). Therefore, when parents have a preference for co-residence, parental income has a positive effect on co-residence (of course, if children have the same type of preference there is no need to bargain). They then test this prediction exploiting exogenous changes in parental income induced by a reform in the Italian pension system. As expected, an exogenous rise in parental income increases the likelihood of their children co-residing and reduces the childrens’ labor supply.

This argument explains the Italian peculiarity of a late transition to the extent that Italian parents differ in preferences from other parents. Indeed, US evidence suggests that parents have opposite preferences for co-residence with children, suggesting that for U.S. fathers privacy is a normal good (Rosenzweig and Wolpin 1993). Manacorda and Moretti also provide descriptive evidence on the positive association between parental happiness and co-residence in Italy. Using data from the World Value Survey (WVS), co-residence with children has a high and positive effect on parental happiness in Italy (with the highest coefficient), followed by Spain and Portugal; in other countries, co-residence with children is negatively associated with parental happiness (the highest negative coefficient being that of the U.S., followed by France, Great Britain and West Germany). Consistently with this, Mazzuco (2006) compares the causal impact of children leaving home on the well-being of parents in France and Italy using data from the European Community Household Panel, where well-being is measured through subjective life satisfaction and health status. He finds that when Italian children leave the parental home, the well-being of parents (their mothers in particular) worsens, while the opposite is true when French children leave the parental home. Finally, according to Manacorda and Moretti, results for the happiness of children go in the opposite direction: they find a positive association between youth happiness and leaving in the parental home in France and the U.S., and a negative association in Italy (with the largest coefficient), West Germany, Portugal, the UK and Spain.

In Table 3.2 we show some results from our own elaboration on the World Value Survey on parents and their relationship with children. Column 1 replicates the findings by Manacorda and Moretti on earlier waves (although the magnitude of the estimates is different). The association between co-residence with children and parental happiness is highest in Italy than in any other country considered. In Column 2, Italy ranks high on values concerning the responsibilities of parents towards children, although differences between countries on this item do not seem very relevant.

Table 3.4 documents that, unlike in Manacorda and Moretti, Italian children also score the highest on the association between co-residence (with parents) and happiness (Column 1), although here

the estimated coefficients are generally not statistically significant.² Moreover (Column 2), Italians score the highest on values related to respect towards parents. These data are therefore in accordance with a cultural peculiarity of the Italian setting.

TABLES 3.3 AND 3.4 ABOUT HERE

Starting from Reher's historical account, Giuliano (2007) explains late home leaving in Italy by focusing on cultural change rather than continuity. She points out that in the early 1970s the date of home leaving was fairly early in all advanced countries, except that the cultural norm for Southern Europeans was to leave parental home at the time of marriage, whereas Northern Europeans had weaker family ties and were not bound by such norm. She then argues that the sexual revolution of the 1960s had a differential impact on Southern vs Northern Europe. Although the sexual revolution occurred in all countries, in Southern Europe it implied that parents allowed far more freedom within the parental home. As a result, Southern Europeans stay in the parental home for longer and postpone marriage. In Northern Europe there was no link between the date of marriage and the date of home leaving, and the sexual revolution did not influence co-residence with parents. This idea is documented using a survey on Italian young adults who co-reside with their parents. More specifically, youth living with parents who allow more sexual freedom are more likely to be willing to continue co-residing; this idea is consistent with our children's happiness report in Table 4. Giuliano also documents the role of culture by looking at second-generation immigrants in the United States, who display similar trends and differences as their peers in the countries of their parents; the postponement of home-leaving of young Europeans is correlated with the postponement of home-leaving of second-generation individuals of European origins in the U.S.

Alesina and Giuliano (2007) further develop the “weak” vs. “strong” family ties link with the economy and show that, in societies with strong family ties, the family is a more important economic unit. In these societies, home production is higher, but the labor force participation of young adults and geographical mobility are lower compared to societies with weak family ties.

The role of economic and institutional factors. Other explanations of the peculiarity of the Italian pattern focus on economic factors. Here the emphasis is on the interaction of economic circumstances with the institutional setting, and especially welfare as described in Section 2.

(Becker et al. 2004) point to the peculiarity of the labor market. They explain the late home-leaving pattern of Southern Europeans through the central role of *job insecurity*. In their model, children continue co-residing with parents even when working, if they see their future income as insecure. The reason is that moving out of the parental home is considered an irreversible choice. Cross-country relationships on co-residence and measures of job insecurity are consistent with their hypothesis. Their micro-econometric evidence is on parents: focusing on a pension reform that exogenously affects the income of parents, they show that a higher job insecurity of parents causes a delay in the housing emancipation of young adults. Provincial unemployment rates, on the other hand, do not have an effect on young adult's home-leaving rates—according to Becker

² We are not sure why our results differ from those reported by Manacorda and Moretti. One reason could be that we focus only on youth aged 18-34, which we believe is the relevant focus when studying children.

et al. this is related to the fact that unemployment rates do not adequately reflect youth's job insecurity.

In an analysis of the European Community Household Panel, Aassve and colleagues (Aassve et al. 2002) show that own income and employment are more linked to the decision to leave the parental home in Italy and other Southern European countries than elsewhere. According to Blossfeld and colleagues (Blossfeld et al. 2005; Blossfeld, Mills and Bernardi 2006), the increasing job insecurity for young people that is implied by the globalization process is not adequately buffered by familistic welfare regimes like the one prevailing in Italy. For this reason, delayed home-leaving is seen as a rational response to job insecurity especially in societies without adequate welfare for young people.

Giannelli and Monfardini (2000, 2003) model the transition to adulthood by considering household membership, human capital accumulation and work as joint decisions. They focus on Italy. Co-residence with parents is supposed to increase the reservation wage of young adults. They show that, in presence of poor labor market opportunities (measured via the unemployment rate), youths may opt for investing in the improvement of human capital. Moreover, they emphasize the importance of housing, and show that house prices are positively related to the propensity to reside with parents.

Alessie, Brugiavini and Weber (2005) present a theoretical and empirical model of joint living arrangements and savings decisions, in which they argue that coresidence with parents is a rational response of Italian youth to particularly high transaction costs on the housing market. Continuing to co-reside with young parents allows young people to save more than they could do otherwise, and to be more ready to carry on successfully subsequent housing choices.

4. Transition to adulthood and the economy: does late matter?

What are the economic consequences of a delayed transition to adulthood? This section addresses this question. We look at three possible channels of influence: on fertility, on ability and on labor market outcomes.

4.1 Fertility

Individuals typically plan their lives, and especially the transition to adulthood, according to a specific sequence of events, where there is a common "normative" pattern. First, they complete education. Then they become financially independent. Then they enter into a stable cohabiting partnership. Then they have children. This sequencing implies that a delay in achieving any one of these steps also postpones the subsequent ones. In particular, since childbearing comes at the very end, a delay in any of the preceding events entails a likely increase in the age of parenthood.

Skirbekk, Kohler and Prskawetz (2004) have documented this pattern with reference to Swedish women. They exploit the fact that in Sweden age at entry into school is restricted: children must enter school in the year in which they turn 7. This implies that children born in January tend to complete schooling when they are 11 months older than children born in December. This exogenous variation in the age when completing education can be exploited to study the effect of age on the timing of marriage and fertility. Skirbekk and colleagues estimate that the delay in completing education is transmitted into a delay of marriage and fertility, although not one for

one. In particular, the age at first birth for women born in January is higher by almost 5 months compared to women born in December. This effect of delayed education also persists for the timing of second births, although it becomes smaller. In this Swedish sample, however, completed fertility (i.e. the overall number of children) is not affected by the delay in the age of completed education.

In the case of Italy, an important question is whether the late transition into adulthood can contribute to explain the low fertility rate. As discussed in the previous section, Italians now have one of the highest median ages of first birth, relative to other countries or time periods. We suspect that this is an important reason for the low Italian fertility rate. Once age at first birth reaches the mid 30s for men and the late 20s for women, as is the case for Italy, there is not much time left to have a large family. If so, then the delayed transition to adulthood has key implications on the age structure of the population and of the labor force, on the dependency ratio, and through these channels on aggregate productivity, the government budget and a host of other variables--see for instance Lindh and Malmberg (2007) on how the age structure of the population impacts on macroeconomic variables and can be used in forecasting economic growth.

By using propensity score matching in order to get causal effects of age at home-leaving on fertility, and by comparing individuals who leave the parental home before vs after the median age, Billari, Mazzucco and Ongaro (2006) estimate that by the 33th birthday, Italian “early” home-leavers have .522 more children (for men) and .700 more children (for women) compared to “late” home-leavers. The effect is higher for those who leave home when starting a partnership (+.795 for men, +.817 for women) as compared to those who leave home prior to the start of a union (+.353 for men, +.374 for women).

4.2 Productivity

As shown in Figure 4.1, the age profile of Italian workers is very different from that observed in other OECD countries. Italian male employment is quite low until about 30 years of age, and keeps rising until about 40 years of age. In most other OECD countries, instead, the peak employment rate is reached at a much younger age. A similar but less pronounced difference between Italy and other countries can be observed with regard to female employment, except that here the most striking difference is the overall low employment rate at all age groups and particularly amongst older women. This delay in employment is bound to have large effects on labor productivity. Here we discuss why.

FIGURE 4.1 ABOUT HERE

4.2.1 *Ability and learning*

Fertility is not the only human trait to have a pronounced age profile. A large body of evidence documents that cognitive abilities also decline significantly past a certain age. For instance, Avolio and Waldman (1994) have studied age-differences in abilities in the *General Aptitude Test Battery*, exploiting data collected by the US department of Labor from 1970 to 1984. Although the pattern varies somewhat depending on the specific ability, all abilities decline rapidly once age has reached the mid ‘30s. By about 50 years of age, average abilities are about one-half standard deviation below the level reached by the 25-34 year-old group.

This age-related pattern of ability implies a corresponding pattern in labor productivity. But productivity is also influenced by experience, which rises with age and years spent working. As a result, although the relationship between age and labor productivity is typically hump-shaped, the peak in productivity is reached at a later age than the peak in ability. Skirbekk (2004) surveys the relevant and very large literature. The specific age where productivity peaks differs across studies, depending on how individual productivity is measured and what is the worker's occupation, but most studies find that productivity is highest for individuals in their 30s and 40s years of age. Earnings continue to rise even after productivity has peaked, so the peak in earnings is typically reached around 50 years of age.

Although experience rises with age, the ability to learn also declines rapidly as individuals become older. It is well documented that the elderly learn at a slower pace, particularly if what they learn is very different from what they are already familiar with (Rybash, Hoyer and Roodin 1986), Smith 1996), or if learning takes place in complex and rapidly changing environments (Myerson et al. 1990). This is particularly well known for languages: if a language is not learnt by a young age, it will never be spoken perfectly.

Exploiting the same method discussed in the above-mentioned study of fertility of Swedish women, Billari and Pellizzari (2008) show that age has a significant negative effect on university performance in subjects requiring mathematical or analytical abilities. In Italy children must enter school in the year in which they turn 6. Like in Sweden, therefore, first year university students born in January are 11 month older than those born in December and this age difference is exogenous. Billari and Pellizzari compare the performance of students in economics and management at Bocconi University born in different months. They have a very rich sample, where they can control for a variety of individual features, such as grades in high school, the score in a standardized test at the entrance of university and family background. University performance is measured by average graduation marks, the probability of ending with full marks, and the average grades in the first and second year of study. Students born in December display significantly better performance than those born in January, i.e. they get 0.9% higher graduation marks. When focusing on grades in specific courses, they find that older age deteriorates grade performance in analytical and mathematical subjects (December versus January imply 2.1% higher marks in quantitative subjects and 1.8% higher marks in economic subject), but not in those requiring verbal skills or that are less demanding from a quantitative point of view (such as history, languages or law).

These findings are remarkable, because earlier studies focusing on high school performance, sport performance, or even the probability of completing tertiary education, had found the opposite: younger individuals (i.e. those born in the second half of the year) tend to do worse (eg. Skirbekk et al. 2004 and the references cited there). A common interpretation of these earlier results is that they reflect the effect of relative (as opposed to absolute) age: individuals born in the second half of the year have less self-confidence, and this hurts their performance. A unique feature of the Bocconi data set is that it contains information on high school performance and of a general entry test performed by the university. By controlling for the final grade in high school and the performance in the test, differences in self-confidence induced by relative age effects are controlled for. This allows the impact of absolute age to be more correctly estimated.

What does all of this imply for the effect of delayed employment on labor productivity? Figure 4.1 shows that, below the age of 50, the age profile of Italian workers is delayed by 5 or even 10 years relative to that of other OECD countries. This means that Italian workers are employed for a smaller fraction of their most productive years. Perhaps more importantly, and particularly for male workers, it also implies that they have less time to benefit from experience, and that their on the job learning is concentrated later in life, when their learning ability is impaired. This is bound to have a negative effect on individual productivity, although hard to quantify.

4.2.2 Matching in the labor market

Shimer (2001) points to yet another reason why a delayed first entry into the labor market might have adverse economic effects. Exploiting US states data, he notes that an increase in the share of youth in the working population brings about a sharp reduction in the state unemployment rate, as well as an increase in the participation rate. He also shows that turnover in manufacturing also increases sharply when the youth share goes up. A plausible interpretation of this finding is that young workers are more willing to accept job offers, and that this creates a positive trading externality (Diamond 1982). As a result, a labor market with a higher youth share attracts more vacancies, boosting job creation and reducing unemployment. Since young workers are more mobile, overtime the matching of workers to jobs also improves, leading to a delayed rise in aggregate productivity.

Of course, delayed entry of young workers into the labor market works in the opposite direction. Entering the labor market at a higher age entails a likely loss of mobility and flexibility. In the presence of trading externalities, the whole economy suffers as a result.

4.2.3 Effort

Productivity also depends on effort, besides individual ability. A delayed transition into adulthood is also likely to be associated with dampened effort to improve one's economic situation, and overall smaller effort on the job. For many individuals, the age between the early '20s and the early '30s is the period in life for investing in one's future. Postponing this phase to older ages is difficult, not just because learning becomes harder, but also because other goals besides work become prominent. It is not just a matter of age, but also of individual attitudes. Being financially dependent, living with one's parents, staying out of the labor market for long periods of time, is likely to impact on the goals and ambitions of young men and women. Although hard to quantify and assess precisely, these sociological and psychological effects of a late transition into adulthood can be very relevant.

Table 4.1 below illustrates how the attitudes towards work vary with age, exploiting data from the World Value Surveys. The sample consists of employed individuals from 12 OECD countries between 17 and 59 years of age. We control for country and wave fixed effects, and other observable features, such as gender, marital and parental status, whether working part time and (where statistically significant) education level attained. This means that we only exploit within country variations. The default age group is middle aged individuals (between 30 and 50 years of age). The table illustrates that individuals below 30 years of age spend more time with their colleagues (column 1), are more likely to think that hard work is an important quality in children (column 2) and are more likely to dislike future changes that would place less importance to work in their lives (column 3).

TABLE 4.1 ABOUT HERE

These attitude differences are bound to have an impact on individual productivity and on career or advancement opportunities. Individuals who enter the labor market when relatively old might end up achieving less compared to others who start their adult and professional life at a younger age.

4.3 Aggregate Evidence

The age composition of the workforce varies considerably across countries and time. If the effects of age discussed above are relevant, they ought to show up in aggregate data as well. The extensive literature on economic growth has not paid much attention to these issues, perhaps also because it is difficult to draw inferences from aggregate data.

A recent exception is Feyrer (2007), who studies a panel of OECD countries. Exploiting within country variations (i.e. always including country fixed effects), he shows that changes in demographic structures are strongly correlated with changes in aggregate total factor productivity. In particular, individuals in their 40s appear to be more productive than other age groups. His estimates imply that a 5% increase in the size of the cohort in their 40s over a ten years period is associated with faster productivity growth by 1-2% for each year in the decade. These results are consistent with those mentioned above and based on analysis of individual data, where the most productive age groups appear to be the 30s and 40s.

In a related paper, Lindh and Malmberg (1999) extend the framework of Mankiw, Romer and Weil (1992) to study the effect of the demographic structure of the population on per capita GDP growth in the OECD countries. Contrary to Feyrer, they find that the 50-64 age group has a positive influence on growth, while the younger groups have ambiguous effects and the older (post 65) group has a negative effect. This is further developed in a paper in which they use the age structure of population to derive long-term economic forecasts (Lindh and Malmberg 2007).

This type of aggregate analysis provides little information about the effects of a delayed transition into adulthood, however. For this purpose, we would need information on dates of home-leaving, or similar events. Unfortunately such data are not readily available for a large number of countries or years. Nevertheless, we collected data on the percentage of men aged 18-34 who lived with their parents in 2001 for 27 EU countries. Figure 4.2 illustrates a residual regression plot between this variable and average GDP growth over 2001-2005, after controlling for initial GDP per capita and a dummy variable for the more advanced EU 15 countries. As shown in the Figure, the countries with a smaller fraction of young men living with their parents grow faster, and the relationship is significant at the 5% level. Of course, this association cannot be interpreted as causal evidence, because of possible reverse causation or omitted variables. But it suggests that the hypothesis that a delayed transition into adulthood might hurt a country's economic performance deserves to be taken seriously.³

FIGURE 4.2 ABOUT HERE

³ Data on initial per capita income for Malta and Cyprus were not available, and we thus imputed to these two countries the average initial GDP per capita of the EU countries different from the EU15.

5. Analysis of individual data

This section studies empirically the effect of the timing of transition into adulthood on individual income levels. Our general hypothesis is that individuals who have a later transition into adulthood earn less income in their adult life, i.e. that it matters indeed if Italians are late. Although difficult to estimate, we are interested in a causal effect: we would like to know whether a later transition has a negative impact on lifetime economic opportunities. As discussed in the previous section, this might happen in more than one way: because a late transition reduces previous work duration and previous job experience; because past a certain age learning on the job becomes more difficult, or effort is reduced; or because a late transition changes individual goals and ambitions. Our data do not allow us to investigate the precise mechanism through which this might happen, but they will allow us to assess whether and to what extent this impact is present.

5.1 The Data

5.1.1 The sample

We exploit a longitudinal survey on Italian youth, where we select a representative sub-sample of about 600 Italian men, on which we have detailed information on key dates marking the transition to adulthood, as well as income, education, family background and so on. Data come from the survey I.D.E.A. ("Inizio Dell'Età Adulta" - Beginning of Adulthood), which was carried out on a nationally representative sample about 3,000 young people born between 1966 and 1970 (aged about 33-38) and 1976-80 (aged about 23-27). Interviews were conducted via telephone between December 2003 and March 2004. The sample was stratified by sex, marital status, and residential macro-areas (North, Centre and South of Italy) (Mazzuco et al. 2006).

In our analysis we focus only on men of the second age group (born between 1966 and 1970, therefore aged 33-38 at the time of the interview), with a sample size of about 600. At that age, most men (even in Italy) have left home and therefore the timing of home leaving is known for the vast majority of individuals. In this sample corresponding to the second age group, individuals have left the parental home on average 8 years before the date of the interview. About 12% of the sample has never left the parental home at the time of the interview. We do not focus on women, given the complexity of their labor force attachment in childbearing ages in a place like Italy. Indeed, in Italy female labor force participation is among the lowest in Europe (13% below the EU average) and has not increased during the last decades, especially because of rationing in the childcare market (Del Boca and Vuri 2007).

5.1.2 The main variables of interest

As a dependent variable, we focus on *income* at the time of the interview. This variable is reported by the respondent, and in the survey it is measured by 5 intervals. For respondents who have any type of employment (91.5% of our sample, 92% of those who have ever left the parental home), a question on monthly income (wage or income from self-employment) is included, with five answer categories: none (could be answered by people who work in a family firm without earning direct income), up to 500 Euros, from 500 up to 1000 Euros, from 1000 up to 1500 Euros, 1500 Euros and more. A frequency distribution of the income variable is reported in Table 5.1. Non – employed are treated as randomly missing.

TABLE 5.1 ABOUT HERE

The main measure of the timing of transition into adulthood is the age at which the respondent left the parental home for the first time for a period longer than six months, for reasons other than the military service (see also Appendix A1). This variable is called *age of home leaving* and it is measured in years (it varies almost continuously as the month of home leaving is also known). In our sample, age of home leaving has small but positive correlation with years of education ($\rho=.12$, $p=0.002$ for the hypothesis $\rho\neq 0$) and with other markers of the transition to adulthood such as age at first job ($\rho=.11$, $p=0.0054$) and age at first sexual intercourse ($\rho=.18$, $p=0.0000$). Table 5.2 contains the descriptive statistics for variables that are either explanatory, controls or instruments (see below for a definition).

There are several reasons why the *age of home leaving* may have a causal impact on income. A first mechanism is related to labor market behavior: youths who do not coreside with parents are more likely to be “pushed” towards a continuous labor market attachment (as intra-household transfers may be more costly, and the decision to leave the parental home is not easily reversed). This in turn will have an effect on the career profile of individuals. With this in mind, the literature has discussed the role of the family of origin as a device to insure youth against unemployment (see, e.g., Becker et al. 2004; Card and Lemieux 2000; Rosenzweig and Wolpin 1993). A second mechanism is related to the effect of specific values and attitudes towards productivity. Young adults who live independently from their parents are more likely to develop personality traits that encourage them to take an active role towards consolidating their financial independence, and that in the long run may be conducive to higher productivity (see the earlier discussion in Section 4). Yet a third mechanism has to do with age related abilities to learn on the job. We will not be able to distinguish between these different causal effects with our data set.

The other general hypothesis that we are testing is that age matters. For this reason, as a secondary age-related variable, we also use the quarter of birth. As discussed in the previous section, by law Italians have to go to school in the year in which they turn six. This means that, when school ends in a “standard” fashion, on average individuals born in the first quarter are at least six months older than those born in the last quarter of the year, and thus have had a later transition into adulthood.⁴ We thus define two dummy variables, called *first quarter* and *fourth quarter* respectively, that equal one if the individual is born in that quarter. We also experimented with using the month of birth (rather than the quarter), and obtained consistent results.

TABLE 5.2 ABOUT HERE

5.1.3 Other regressors

⁴ This legal requirement could be sidestepped by going to private schools as they accept also children who will turn six in the following calendar year (only in the last four years more flexibility has been accepted for public schools). Only 3.6% of the students in grade one in private elementary schools were early starters in 2001-02; moreover in Italy private schools offer on average lower quality with respect to public schools – see Brunello, G. and D. Checchi. 2004. “School Vouchers Italian Style.” *Giornale degli Economisti e Annali di Economia* 63(3/4):357-399.

Throughout our analyses, we control for several observed individual characteristics. For simplicity, we define the name of each variable in italics when the variable is actually reported in the tables below. Table 5.2 provides descriptive statistics also on other regressors, while appendix A1 provides full details on all variables.

Individual characteristics. Age of the individuals is controlled by a set of dummy variables, one for each year of age between 33 and 38. The variable *education* measures educational attainment (defined in years corresponding to the attained school degree). Unfortunately, we do not have information on school or university grades (nor on the subject). We however know how many years each respondent actually spent in school or university. Thus, to measure differences in school performance we include a dummy variable that equals one if the time spent to attain the school or university degree exceeded the normally required time by more than two years (alternative definitions such as a more continuously time varying indicator gave similar results). To capture differences in religious upbringing, we also include a variable that measures the reported frequency of church attendance at the age of 16 (the variable varies from 1 to 5).

Family characteristics. We use several variables related to the family background of the respondent: education attained by the mother and father; the age of the mother at birth; dummy variables for whether, when the individual had 16 years of age, the father was working and the mother was a housewife; the number of siblings; a dummy variable for whether parents ever divorced or split.

Contextual characteristics. We also include several variables related to the *location* where the individual lived at the age of 16, namely: whether he lived in a city that was also a provincial capital (at the time of the surveys there were 103 provinces in Italy); the rate of youth unemployment in the province in 2001 (i.e. four years earlier than the date in which income is observed, and at about the time when individuals are likely to have considered the decision to leave the parental home); per capita income in the province in 2005 (i.e. the date in which the survey was conducted and income is observed); and three dummy variables, corresponding to the macro regions of residence (north, center and south).

Finally, in some specification we also control for some variables that reflect individual attitudes or lifetime choices. Although these variables might be endogenous, like *education*, their inclusion may help to clarify the mechanism through which the variables of interest influence income. Specifically, the dummy variable *married* equals one if the individual has ever been married; the variable *number of children* is self explanatory; we measure the age when the individual first worked for pay by the variable *age of first job*. And the variable *lack of self confidence* is a measure of individual attitudes towards one's self and the future, taken from a question that asks whether the respondent agrees with the following statement: "When I think about my future, I see it full of risks and uncertainties". Possible answers range from one to four, with higher values denoting stronger agreement (i.e. more lack of self confidence).

Variables that are used as instruments are introduced below.

5.2 Estimation issues

There are three relevant estimation problems. The first and main issue is unobserved heterogeneity, or more generally correlation between the variables of interest and the unobserved error term. This problem is most obvious with regard to the variable *age of home leaving*. Relevant unobserved individual features could determine both individual income and the date at which the individual leaves the parental home. The bias in OLS estimates could go either way: on the one hand, more talented and determined individuals could have both higher income and more opportunities to leave home early, which would lead to a downward bias between *age of home leaving* and *income*. On the other hand, young men living in disadvantaged areas may be forced to leave home earlier to find a job, or to go to university, which could lead to the opposite bias. We deal with this problem by relying on instrumental variables, described below.

The problem of unobserved heterogeneity might also be relevant with regard to *education*. Here too the bias in OLS estimates could be positive (if unobserved talent influences both educational attainment and income), or negative (for instance due to measurement error). As discussed for instance by Card (2001), IV estimates of the effect of education on earnings are typically above the OLS estimates, which might reflect systematic pitfalls in the IV identification strategies (eg. heterogeneous effects of education correlated with the instrument), or a negative bias in the OLS estimates. In this paper, we generally do not attempt to cope with this problem, because we lack reliable instruments for education (see however Table 5.5 below), and because we are not interested in the effect of *education* per se.

The inclusion of a possibly endogenous variable like *education* or being *married* might bias the coefficient of interest on the variable *age of home leaving*. Appendix A2 shows that this bias might be positive or negative depending on the assumptions about the relevant unobserved correlations. We discuss this issue in context below, and we show that the results are robust to alternative specifications that include or omit these possibly endogenous variables.

The second problem is that the variable *age of home leaving* is only observed if it is lower than current age. About 12% of the individuals in our sample never left the parental home for more than six months, despite their having at least 33 years of age, and for them *age of home leaving* is missing. Thus, we have censoring of an endogenous regressor. We cope with this problem in two ways. First, we ignore it, and assume that these observations are randomly missing, or alternatively we just draw inferences about the sample of individuals who have already left the parental home (rather than all those of 33-38 years of age). Second, we redefine the variable of interest and measure the timing of the transition to adulthood in alternative ways, so as to exploit all observations in the sample, including the individuals that are still living with their parents. Details are discussed below.

Finally, the third problem is that income is measured by an ordinal variable taking five possible values (see above). Thus, we have estimated by least squares (assigning values from 1 to 5 for each interval), by interval regressions and by ordered probit. As the results are very similar, we only show the least squares and interval regression estimates, and mainly focus on the least square estimates.

5.3 Results

5.3.1 Preliminary results

To verify that indeed the quarter of birth influences the timing of significant events, we ran an OLS regression of the age when education was completed against the dummy variables for the first and fourth quarter of birth and the level of *education* attained, with and without the other regressors defined above (ie. the variables for family background and residential location, the variable measuring church attendance and the dummy variables for the current age group). The results are not shown but available upon request. Irrespective of the specification, when education is completed, individuals born in the first quarter are younger by about 8 months than those born in the fourth quarter, in line with expectations, and the difference is statistically significant. The quarter of birth, on the other hand, has no effect on the level of education attained. These results are important, because they confirm that the variables for the quarter of birth indeed influence the timing of transition into adulthood, with individuals born in the first quarter more likely to transit at an older age.

5.3.2 OLS Estimates

Next, we turn to the analysis of *income*. We start by assuming that all regressors are exogenous, to illustrate the main correlations in the data. Table 5.3 reports the estimated coefficients of the variables of main interest. Columns 1-3 are estimated by OLS, while cols 4-6 by interval regressions. Standard errors are clustered by province of residence. Columns 1 and 4 report a more parsimonious specification; besides the variables reported in the column, we control for all the other regressors mentioned above, namely a set of dummy variables for each age group, the variable for church attendance when 16 years of age, the dummy variable for taking at least two extra years to complete the attained level of education, the full set of variables measuring family background, and the full set of variables relating to residential location.

As can be seen, a later *age of home leaving* has a negative and significant estimated coefficient, while the coefficient of *education* is positive and statistically significant. Both variables are measured in years, so their estimated coefficients are comparable. If these were causal effects, according to the OLS estimates, leaving home one year earlier would increase income by about as much as five additional months of education.

As discussed in the appendix, the inclusion of a possibly endogenous variable like *education* might introduce a negative bias in the estimated coefficient of *age of home leaving*. This would happen if the two variables are positively correlated (as would be the case if for instance the individual does not leave home to move to a university), and if *education* is also positively correlated with the unobserved error term of the income regression. On the other hand, in this case omitting the variable *education* would introduce an upward bias if *education* has a positive effect on income. To assess the relevance of this problem we have also re-estimated the same equation in columns 1 and 4 without controlling for *education*. The results are very similar to those reported in Table 1: the coefficient of *age of home leaving* estimated by OLS with the specification corresponding to column 1 rises to -0.025 (as opposed to -0.028 in column 1) and remains significant at the 1% level, while that estimated by interval regressions in column 4 rises to -0.16 (as opposed to -0.18 in column 4) with a p-value of 7%.

Being born in the first quarter of the year also has a negative and highly significant estimated coefficient. This is consistent with the hypothesis that a later age of transition into adulthood reduces income in our sample, since as discussed above, on average individuals born in the first quarter complete their education when they are eight months older than those born in the fourth

quarter. The estimated coefficient is implausibly high, however, both in relation to that of *education*, and in absolute value. There is no strong a priori reason why the quarterly pattern of births should be systematically correlated with relevant omitted variables, on the contrary, the variables *first* and *fourth quarter* can plausibly be expected to be exogenous. Thus, this strong negative correlation between income and the first quarter of birth is puzzling.

Of the other regressors, not shown in Table 5.3, some of the family background variables are significantly different from zero (income is higher if the mother is more educated and if she is a housewife), older individuals tend to have higher income, and some of the residential location variables are also statistically significant. Overall, the pattern of estimated coefficients is very plausible, although there remains much unexplained variation in the data (the adjusted R² is 0.20).

TABLE 5.3 ABOUT HERE

To assess the robustness of these results and to gain a better understanding, the remaining columns in the table add other variables that capture individual attitudes or other significant lifetime choices possibly correlated both with *income* and with *age of home leaving*. Thus, in columns 2 and 5 we control for whether the individual is married, how many children he has, and his attitudes towards the future as measured by the variable *lack of self confidence*. These variables might be correlated with the error term of the income equation, thus their inclusion might introduce a bias in the estimated coefficient of *age of home leaving*. As discussed in the appendix, the sign of this bias is likely to be positive for all of these additional variables. The estimated coefficients of interest (on *age of home leaving* and *first quarter*) remain stable and highly significant. Of these new variables, only lack of self confidence has a significant (and as expected negative) effect on income. We infer from these columns that the correlation between our measure of the timing of transition towards adulthood and income is not due to the events captured by marriage or becoming a parent, and it is robust to controlling for attitudes towards the future.

Finally, in columns 3 and 6 we also control for the *age of first job*. Again, this variable might be endogenous, but once more the results in the appendix suggest that any additional bias on the estimated coefficient of the variable *age of home leaving* is likely to be upwards. The results of interest are robust to this inclusion and the new variable is not correlated with income. This confirms that the timing of transition to adulthood is well captured by the variable *age of home leaving*. The finding that *age of first job* is not significantly correlated with income ($\rho=0.01$, $p=0.71$) suggests that this variable might refer to menial or temporary jobs that do not correspond to a milestone event in the transition to adulthood.

5.3.3 Instrumental variables estimates

In this subsection, we try to go beyond simple correlations, and we try to estimate a causal effect of the timing of transition into adulthood, as measured by the variable *age of home leaving*. This requires having a theory about why individuals leave the parental home, of the type we reviewed in Section 3. Our (implicit) theory is that this decision is influenced by two kinds of considerations (besides those having to do with financial independence). One factor is the cost of living alone. If housing is easily available, this cost is lower, and individuals are more likely to leave early. The second factor is the desire to be independent from parental supervision. Our instruments seek to capture these two determinants of the decision to abandon the parental home.

Specifically, we rely on two instruments. The first instrument is an indicator of the excess supply of housing in the area where the individual lived when he was taking the decision to leave the parental home (Giannelli and Monfardini 2003). This is measured by the fraction of empty residential dwellings in the province of residence at the age of 16, measured in the year 2001. This variable, called *empty dwellings*, captures the first set of determinants described above. Note that throughout in the second stage regression we control for the rate of youth unemployment in 2001 and current (i.e. 2005) average income in this same province, as well as for whether the individual currently lives in the provincial capital. Thus, the identifying assumption is that, after taking into account economic conditions as measured by youth unemployment and current income in the province, the supply of housing only matters for the decision to leave the parental home and has no direct effect on current individual income except through the variable *age of first leaving*. As an alternative variable measuring similar housing market features, we also collected data on the fraction of residential dwellings rented (as opposed to owned) in 2001, also in the province of residence at 16 years of age. This variable was more weakly correlated with *age of home leaving* compared to *empty dwellings*, however, and for this reason we did not use it as an instrument.

The second instrument seeks to capture the individual demand for independence from his parents. We assume that the main reason to seek early independence is early sexual emancipation (see also the central role of sexual emancipation in Giuliano's (2007) arguments). Thus, as a second instrument we use the reported age in which the individual had his first sexual intercourse (*age of first sex*, measured in years). Recall that here we control for an indicator of school performance (such as the extra time required to complete the attained level of education), for family background and religious habits. Thus, the identifying assumption here is that, after controlling for these observed individual features, the propensity to early sexual emancipation is uncorrelated with unobserved determinants of individual income at 33-38 years of age. This assumption may fail if, say, more good looking teen agers are sexually more emancipated, and if good looks also help in the labor market. This failure would introduce a positive correlation between the instrument and the error term of the income regression, which would bias the IV estimate upwards. A downward bias in the IV estimate might also occur, however, if early sexual emancipation is correlated with individual features that might be negatively correlated with individual productivity when adult, such as engaging in risky behaviour and reduced interest in academic performance. Some evidence that this might be the case is suggested in the related literature (see, e.g., Schvaneveldt et al. 2001).

None of our identifying assumptions is foolproof. Nevertheless, the two instruments are uncorrelated and they capture very different determinants of the individual decision to abandon the parental home ($\rho=.03$, $p=0.1717$). This allows us to test the exclusion restrictions (under the null hypothesis that at least one of them is valid). Moreover, assessing the robustness of the results to the inclusion of the additional regressors mentioned above (such as being *married* and the *number of children*) is a further check on the validity of the exclusion restriction concerning the instrument *age of first sex*.

Finally, we also experimented with a third instrument, namely proximity to a big university. Specifically, we constructed an ordinal variable *university*, defined as follows: the variable equals 0 if no university exists in the province of residence at the age of 16; it equals 1 if in that province there is a university with up to 20000 students; and it equals 2 if there is a university with more

than 20000 students. This variable is quite negatively correlated with *empty dwellings* ($\rho=-.36$, $p=0.0000$) however, so relying on all three instruments deteriorates the fit of the first stage regressions (with no material effect on the IV estimates). The variable *empty dwellings* is also more strongly correlated with *age of home leaving*, in the first stage. For this reason, in the end we rely on the two instruments *empty dwellings* and *age of first sex*, although in Table 5.5 below, where the variable *education* is also considered endogenous, we rely on all three instruments.

We start by presenting the reduced form regressions, in Table 5.4. The columns are as in Table 5.3. Thus, the first three refer to OLS, while the last three report interval regressions. Moreover, the columns vary in the specification as discussed above. Finally, standard errors are clustered by province. This same pattern is reproduced in all tables below. Here we estimate over the full sample, including the individuals who never left the parental home, so that we don't have to worry about censoring. But the results are very similar in the restricted sample of individuals for which *age of home leaving* is not missing. As can be seen, both instruments have a significant effect on income in all specifications: a later age of sexual emancipation has a negative effect on income, while a larger fraction of *empty dwellings* has a positive effect. These signs are what one would expect if indeed later sexual emancipation delays home leaving and more empty dwellings accelerates it. The estimated coefficient of *age of first sex* is quantitatively very large: if this was a causal effect, it would imply that one year earlier of sexual emancipation would have the same effect on income as about one extra quarter of education.

TABLE 5.4 ABOUT HERE

Next, Table 5.5 reports the first stage regressions. Thus, here the dependent variable is *age of home leaving*. As can be seen, both instruments enter with the expected sign and are highly significant (the F test on the joint excluded instruments ranges from 8 to almost 10 depending on the specification – see the row towards the bottom of the Table). On average, one year earlier of sexual emancipation leads one to leave the parental home about 1.6 months earlier.

Note that *age of home leaving* does not appear to be correlated with *education*. This might explain why, as discussed above and in the appendix, including or excluding the variable *education* does not seem to matter for the results of interest. Late sexual emancipation is negatively correlated with the *number of children*, and positively correlated with *age of first job*. Both correlations are in line with expectations, and of course cannot be interpreted as causal effects. The inclusion of these variables does not change much the estimated coefficients of our instruments, however.

The quarter of birth is uncorrelated with *age of home leaving*. This is surprising, because as discussed above, individuals born in the fourth quarter are generally about 8 months younger when they complete their education. Yet, they don't seem to leave home earlier.

Finally, with regard to the other regressors not reported, many of them have statistically insignificant estimated coefficients. Youth unemployment has a negative and significant effect on age of home leaving, perhaps suggesting that individuals migrate to other areas to seek a job. Moreover, individuals who take longer to complete their education (relative to the normally required time) tend to leave the parental home later, as one would expect.

TABLE 5.5 ABOUT HERE

We now turn to the IV estimates, reported in Table 5.6. The first three columns report 2SLS estimates with robust standard errors clustered by province. The last three columns report interval regressions, where the variable *age of home leaving* has been replaced by its predicted value from the corresponding first stage regression, and standard errors are bootstrapped.

The estimated coefficients of *age of home leaving* are always negative and highly significant, and very stable across specifications and estimation methods. The remaining pattern of estimated coefficients is otherwise similar to that of the OLS regressions in Table 5.3, except that here the variable *married* has a positive and significant estimated coefficient in some regressions. Relative to the OLS estimates, the estimated effect of *age of home leaving* on income rises significantly in absolute value, and now it even exceeds the effect of education.

One interpretation of this large change is that the OLS estimates were biased downwards. As discussed above, a priori the bias in the OLS estimates could go either way. Moreover, measurement error in *age of home leaving* is also likely, both because individuals could misreport the true date, but more importantly because this variable is really a proxy to a much more difficult to measure transition into adulthood, and it is possible that the projection on the instruments purges some of this measurement error.

An alternative interpretation is that the identifying assumptions are violated. Nevertheless, as shown towards the bottom of the table, the Hansen J test for the validity of the over-identifying restrictions can never reject the null hypothesis, at very comfortable p-values (Baum, Schaffer and Stillman 2003). The appendix (Table A1) also shows the estimation of two just identified models, corresponding to the specifications in columns 1 and 3 of Table 5.6. Thus, in one case we assume that only *age of first sex* can be validly excluded from the second stage, and in the opposite case we only exclude the variable *empty dwellings*. As can be seen in Table A1 in the appendix, the included instrument is never statistically significant in the second stage. The estimated coefficient on *age of home leaving* differs somewhat in the two cases, although it generally remains statistically significant, but it turns out to be smaller in absolute value when the excluded instrument is the arguably more suspicious *age of first sex*. Overall, this suggests that the data do not point to obvious violations of our identifying assumptions.

TABLE 5.6 ABOUT HERE

Yet another possible reason for the relatively large effect of the timing of transition into adulthood on income is that, although the coefficient of *age of home leaving* is consistently estimated by the IV regressions, its estimated effect on income is larger than that of *education* because the latter is underestimated. As discussed above, others have argued that OLS estimates of the income effect of education might entail a downwards bias (Card 2001). Unfortunately we do not have a reliable instrument for the variable *education*. Nevertheless, to get a sense for whether this explanation might be relevant, we have allowed both *age of home leaving* and *education* to be endogenous variables. The excluded instruments for both variables are the two instruments already used, *age of first sex* and *empty dwellings*, plus the variable *university* defined above, that measures the proximity to a big university.

Table 5.7 reports the results. The specification corresponds to the more parsimonious one corresponding to column 1 of the previous Tables. The first stage estimates are reported in columns 1 and 2 for *age of home leaving* and *education* respectively, and the second stage estimates are in column 3. As can be seen, with regard to *age of home leaving* both the first and second stage estimates are quite similar to those reported above. Namely, *empty dwellings* and *age of first sex* explain the *age of home leaving*, which in turn has a large negative effect on income. When it comes to education, all three instruments are highly jointly significant in the first stage, with an F test close to 10; but because of their high correlation, *empty dwellings* and *university* are not individually significant. The estimated effect of *education* on income now rises a lot compared to the previous estimates, and it is not much smaller than that of *age of home leaving*, although it is less precisely estimated (its p-value is 0.102, namely almost significant at the 10% level). Again, we cannot reject the exclusion restriction on the validity of the instruments.

Overall, Table 5.7 leaves us with mixed feelings. On the one hand, it lends some support to the idea that the returns to education are under-estimated when *education* is treated as exogenous. On the other hand, our instruments cannot cleanly separate the effects of the two endogenous variables, since the variable *university* is not strongly correlated with *education*, and the remaining instruments are common to both endogenous variables.

TABLE 5.7 ABOUT HERE

5.3.4 Alternative measures of transition to adulthood

As discussed above, about 12% of the individuals in our sample had not yet left the parental home. As a result, the variable *age of home leaving* is missing for these individuals. To include these observations in our sample, here we redefine the measure of the timing of transition into adulthood in a more coarse way.

Our first indicator, *age group of home leaving*, is a discrete variable that varies from 1 to 5, depending on the age group when the parental home was first abandoned. The first group is less than 20 years of age; the last group is past the age of 32; the three intermediate groups correspond to the intervening four year periods. The distribution of individuals is quite uniform across this partition; in the last age group, about 60% of individuals had not yet left the parental home, while the remaining 40% did.

The second indicator, *years since home leaving*, is just the number of years since leaving the parental home for the first time (with 0 denoting those that had not yet done so). This variable varies almost continuously, but it does not take into account the interaction between age and number of years out of the parental home.

Tables 5.8 and 5.9 report the estimates using these variables to measure the timing of transition into adulthood, first estimating by OLS under the assumption that they are exogenous (Table 5.8), and then estimating by instrumental variables (Table 5.9). The specification is as before, and table 5.9 reports both first and second stage estimates. The results are very similar to those reported in the previous subsections. Irrespective of how it is measured, a later transition into adulthood is associated with lower income in the mid '30s years of age. Generally both instruments are strongly significant in the first stage regressions. The second stage coefficients estimated by IV

are much larger in absolute value than the corresponding OLS estimates. And the over-identification test fails to reject the exclusion restrictions. Finally, a dummy variable for whether the individual is still living in the parental home (to discriminate more finely between individuals in the last age group) turns out to have a statistically insignificant estimated coefficient (results not shown).

All together, these estimates suggest that the previous results are robust to the issue of censoring for the individuals for which the *age of home leaving* is missing.

TABLES 5.8 AND 5.9 ABOUT HERE

6. Concluding remarks

Italians are late. Not just a little, but a lot. They start all adult activities at a much later age than is common in other countries at comparable levels of development, from working, to living alone, to marrying, to having children. The existing literature has sought to explain this pattern, and has pointed out that this has relevant implications for fertility and the demographic structure of society.

In this paper we have explored a different question. Does a late transition into adulthood reduce the lifetime economic opportunities of individuals? A priori, there are several reasons why this might or might not be the case. On the one hand, a late transition into the activities that are typical of adult age may be associated with more maturity and more clarity in the pursuit of one's goals. Prolonged co-residence with parents might also relax liquidity constraints and encourage the accumulation of more human capital. On the other hand, if the transition is delayed for too long, learning abilities and motivation may be impaired, and the individual may get used to depend on others for his economic well being and security. More specifically, prolonged co-residence with parents might raise the reservation wage and delay entry into stable jobs. If the earnings profile rises with experience on the job, this in turn reduces income later in life, and the effect may be very long lasting if it interacts with learning and motivation. Disparate evidence in the literature on the age profile of abilities and learning capacity, and direct evidence on individual motivations, suggests that this second hypothesis is not implausible in the case of Italy, given the extent of the delay.

We have attempted to address this issue by studying a longitudinal survey of Italian men in their mid '30s. As a measure of transition into adulthood, we have focused on the event of leaving the parental home for the first time. The end of co-residence with parents is associated with changes in individual perspectives and in attitudes towards the labor market and lifetime choices in general. This turning point is likely to coincide with greater determination in the pursuit of financial independence and other economic goals. Our main finding is that the age at home leaving matters for subsequent economic outcomes. Individuals who leave the parental home earlier in life earn a higher income when they are in the mid 30's years of age. Estimation by instrumental variables suggests that this captures a causal effect, from the age when leaving the parental home to subsequent economic events. Moreover, the age when co-residence is terminated is much more important than the age corresponding to other significant events, such as that of undertaking a first job. Of course the identification assumptions can be challenged. But the

correlations are very robust, and the identification assumptions needed to interpret these correlations as corresponding to a causal effect are not inconsistent with the data.

It is important to stress that in our sample individual income is measured several years after the first termination of co-residence: on average more than eight years after the event. Thus, the timing of transition into adulthood appears to have very long lasting effects. What are the mechanisms through which these effects operate, if indeed there is a causal effect? Unfortunately the data we study can only shed partial light on this question, and probably several forces are at work. One plausible channel is the date of entry into a career path. We know that earnings keep rising with experience for several decades. Thus, anything which delays the beginning of a career path would have long lasting effects on individual income. We find that the age when leaving the parental home is much more important than the age of the first job, however. This might be due to the first job being unimportant and uncorrelated with the subsequent main career. But it also suggests that other channels may be relevant, besides the duration of work experience. In particular, prolonged co-residence may impact negatively on individual motivations and ambitions. But in the absence of specific data, this remains a conjecture.

If indeed prolonged co-residence and delayed transition into adulthood is so harmful from an economic point of view, this would have very important policy implications. Several policy instruments might be used to affect the timing of this transition.

An obvious place to start is education policy. The duration of secondary education and even of university education varies across countries. If the returns to education reflect an important signalling component, a shortening of the duration of education might be welfare improving. This recommendation is not as outrageous as it may at first sound. For instance, systematic comparisons of Swiss cantons where secondary education differs in duration have found that students in the cantons with a shorter curricula do not perform worse in standardized tests compared to the cantons with one extra year of schooling (Skirbekk 2005). Even without shortening the school or university curricula, policies may be designed to discourage students from taking too long to complete a university degree (a common problem in Italy).

Housing is a second potentially relevant policy tool. Our data suggest that housing supply is an important determinant of the decision to leave the parental home. Anything that reduces the cost of housing for young men and women might have positive side effects on the economy, if our inferences are correct.

The labor market is also an area of key concern. If indeed the mechanism behind our results reflects the age at which a stable career is initiated, then a low youth employment rate is very costly for society. This points to the relevance of policies that would facilitate labor market entry for young individuals.

It is far too early to draw specific policy conclusions from these findings. Before doing so, one would need to gain a more complete understanding of the mechanisms behind the correlations we have detected, and to assess the robustness of our inferences with other identification strategies and other data sets. But the results so far suggest that this line of research is very promising, and could have highly relevant implications.

Appendix

A.1 Variable definitions in the individual analysis

Here we provide the definition of the variable used in the individual analysis. Descriptive statistics are shown in Tables 5.1 and 5.2.

Age. This variable is derived by using the date of the questionnaire (day, month, year) and the date of birth of the respondent (day, month, year).

Age of home leaving. This variable is derived by retrospectively asking the year and month of when the respondent first left the parental home for more than six months excluding military or civil service (which was compulsory for respondents) and subtracting from it the date of birth. This question is also asked to individuals who are currently living with parents and who have left home in the past. In case the month is missing, the middle of the year is imputed. In case respondents do not recall the year, age is asked directly.

Age of first job. This variable is derived using the year and month of beginning of the current job (if it is the first one) or by retrospectively asking the year and month of beginning of the first job (excluding small jobs during education or jobs that are directed to earn pocket money) and then subtracting from it the date of birth. In case the respondent does not recall the month, this is imputed in the middle of the year. In case the respondent does not recall the year, age at first job is asked directly to the respondent.

Age of first sexual intercourse. For respondents who declare they have already had sexual relationships, age at first sexual intercourse is asked directly. Note that the question is the last one of the questionnaire because it has been considered as a sensitive question.

Birth quarter. This variable is derived by using the month of birth.

Education (respondent, father, mother). This variable is derived by recoding the answer on the highest educational level obtained by the respondent (the father, the mother) to obtain the “standard” number of years that are necessary to earn that educational level. If father’s or mother’s education is missing, 0 is imputed. Levels are coded as follows: elementary school=5, middle school=8, lower secondary school=10, upper secondary school=13, lower higher education title=15, upper higher education title=18, master or higher=20.

Empty dwellings. This is a variable indicating the share of dwelling that are not occupied by resident persons (%) in the province in which the respondent was grown up (up to age 16). Data refer to the 2001 Census. Source: ISTAT (Italian National Statistical Institute).

Father employed. This is a dummy variable indicating whether, when the respondent was aged 16, his/her father was employed.

Income. This variable is the answer to the question “How much do you earn with your work on average, monthly (net income-take into account the average earnings during the last six months).

This question is posed only to employed respondents. The answer is coded by using 5 answer categories: none (could be answered by people who work in a family firm without earning direct income), up to 500 Euros, from 500 up to 1000 Euros, from 1000 up to 1500 Euros, 1500 Euros and more.

Lack of self confidence score. This variable indicates the agreement of the respondent with the statement “When I think to my future I see it full of risks and unknowns”: completely disagree=1, disagree=2, agree=3, completely agree=4.

Living in the main city of province. This is a dummy variable indicating whether the municipality of birth of the respondents is the province’s main city.

Married. This is a dummy variable indicating whether the respondent has ever been married.

Mother housewife. This is a dummy variable indicating whether, when the respondent was aged 16, his/her mother was an housewife.

Northwest, Northeast, Center, South. These are four dummy variables indicating the geographical area of current residence (Northwest is excluded in regressions).

Number of children. This variable indicates the number of children ever had by the respondent.

Number of siblings. This variable indicates the number of sibling of the respondent (excluding him/herself).

Religiosity score at age 16. This score indicate the frequency to mass (in Italy Catholicism is the vastly dominant religion) during the week when the respondent was 16. It is coded as follows: at least once a week=1, at least once a month=2, sometimes during the year=3, only in particular occasions=4, never=5.

Parents divorced or separated. This is a dummy variable indicating whether respondent’s parents have divorced or separated.

Provincial average income. This is a variable indicating the average income in 2005 in the province in which the respondent was grown up (up to age 16). Source: Istituto Guglielmo Tagliacarne.

“Too long” education. This is a dummy variable indicating whether the reported age at the end of education exceeds by more than the sum of the standard age at entry into the school system of the respondent (in months) and *education*.

Youth unemployment rate. This is a variable indicating the unemployment rate (%) for people aged 15-24 in the province in which the respondent was grown up (up to age 16) in 2001. Source: ISTAT (Italian National Statistical Institute).

A.2 Sign of bias from including other endogenous regressors

Here we discuss the possible bias in the coefficient of interest (that of the variable *age of home leaving*) as a result of having other endogenous variables in the regression.

Consider the following equation:

$$Y = a + bAgehl + cW + u$$

where Y is income, $Agehl$ is the variable of interest (*age of home leaving*), and W is another possibly endogenous regressor, like *education* or *married*. Implicitly we have ignored the other regressors assuming that they are uncorrelated with the error term (i.e. all variables in this equation can be interpreted as the residual component after removing the effect of the other included regressors).

Suppose that $Agehl$ is uncorrelated with the unobserved error term u . Estimating the coefficient b by OLS and denoting by B the resulting estimate we have (see for instance the appendix to Acemoglu et al 2001):

$$plim B = b - \phi cov(Agehl, W) cov(W, u)$$

where $\phi > 0$. Suppose the W denotes *education*. It is possible that $cov(Agehl, W) > 0$ (higher educational attainment implies a delay in getting a job and hence might entail a later *age of home leaving*). In this case, if *education* is also positively correlated with the error term of the income regression, both covariances are positive and the coefficient of interest entails a downward bias.

Conversely, suppose that W corresponds to being *married*. Then it is likely that $cov(Agehl, W) < 0$ - to get married most individuals would leave the parental home. If as plausible *married* is also positively correlated with the unobserved determinants of income, u , then product of the two covariances is negative and the inclusion of the endogenous variable *married* introduces an upward bias in the coefficient of *age of home leaving*.

Finally, it is straightforward to see that omitting the variable W from the regression introduces a bias that has the same sign as $c cov(Agehl, W)$. That is an upwards bias in the case of $W=education$ (since presumably $c > 0$ and $cov(Agehl, W) > 0$), and a downwards bias in the case of $W=married$ since presumably $c > 0$ and $cov(Agehl, W) < 0$.

A.3 Just identified models

TABLE A1 ABOUT HERE

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Tables and figures

Table 3.1 The timing of events in the transition to adulthood: an international comparison.

A. Males

Cohorts	<i>End of education</i>		<i>First job</i>		<i>Leaving home</i>		<i>First union</i>		<i>First birth</i>	
	1950s	1960s	1950s	1960s	1950s	1960s	1950s	1960s	1950s	1960s
Australia	16.6	16.9			20.6	20.0	23.5	24.9		
Austria	18.4	18.6	18.7	18.3	22.9	21.4	24.0	23.6	27.2	28.3
Belgium (Flanders)	18.2	19.0	18.7	19.8	22.7	23.7	24.3	23.2	26.5	28.4
France	18.2	18.2	18.2	18.5	21.7	22.1	23.7	23.8	27.3	29.5
Italy	17.7	18.5	17.5	18.9	24.9	27.2	25.8	28.8	29.2	33.3
Netherlands			17.0	18.5	21.3	21.8	23.0	23.0	28.0	
Norway		19.2		18.1		22.0		23.7		28.3
Poland	18.2	18.2	19.7	19.6	24.6	26.6	24.6	25.1		
Spain	14.3	15.7	15.6	17.4	25.1		25.6		27.7	

B. Females

Cohorts	<i>End of education</i>		<i>First job</i>		<i>Leaving home</i>		<i>First union</i>		<i>First birth</i>	
	1950s	1960s	1950s	1960s	1950s	1960s	1950s	1960s	1950s	1960s
Australia	16.2	17.0			19.6	19.2	21.3	21.9		
Austria			18.3	18.2	20.0	19.1	21.0	20.7	22.8	24.0
Belgium (Flanders)	18.0	19.2	18.4	20.2	21.2	21.7	21.4	22.3	24.2	26.4
Canada	20.7	21.0	20.0	20.4	19.9	20.9	21.5	22.7	25.6	27.8
France	18.2	18.2	19.3	20.2	20.3	20.0	21.4	21.7	24.2	26.4
Italy	16.5	18.5	20.2	21.2	22.2	23.8	22.5	24.2	24.8	27.2
Netherlands			16.5	17.5	19.6	19.5	20.0	21.0	25.0	28.0
Norway		18.9		18.6		20.2		21.1		25.7
Poland	19.2	18.9	18.6	18.8	22.4	22.8	22.3	22.4	23.6	23.2
Spain	14.0	15.1	17.6	19.5	23.2		23.2		25.3	

Sources: for European countries: Corijn and Klijzing (2001); for Australia Flatau et al. (2007) for Canada Ravanera et al (1998).

Table 3.2 Share (%) of young adults who declare to be financially dependent on their parents or who get most of their money from relatives/partner.

	<i>1997</i> <i>(parents)</i> <i>Youth aged 15-24</i>	<i>2001</i> <i>(parents)</i> <i>Youth aged 15-24</i>	<i>2007</i> <i>(relatives and partner)</i> <i>Youth aged 15-30</i>
Austria	41	43	24
Belgium	48	58	32
Denmark	19	19	5
Finland	41	40	17
France	48	61	30
Germany	38	46	26
Greece	51	71	49
Ireland	38	32	19
Italy	68	74	50
Luxembourg	58	66	40
Portugal	51	54	44
Spain	62	67	34
Sweden	34	39	6
The Netherlands	33	43	17
UK	17	21	14
<i>EU 15 (average)</i>	<i>45</i>	<i>54</i>	<i>29</i>

Source: Billari (2004) on Eurobarometer data for 1997 and 2001, The Gallup Organization (2007) for 2007.

Table 3.3 Happiness of parents and co-residence with children and values concerning the attitudes of parents towards children.

	<i>Parents' happiness and co-residence</i>	<i>Parents' responsibilities are to do the best for their children</i>
Denmark	3.017 (1.719)	0.408 (0.038)
France	0.446 (1.706)	0.681 (0.037)
Germany (West)	1.728 (1.056)	0.418 (0.037)
Italy	5.964 (1.714)	0.645 (0.037)
Portugal	-3.285 (2.940)	0.763 (0.037)
Spain	0.159 (0.888)	0.674 (0.036)
The Netherlands	-1.298 (1.949)	0.563 (0.038)
U.K. (Great Britain)	-0.509 (1.872)	0.662 (0.038)
U.S.	-0.181 (1.628)	0.644 (0.036)

Standard errors in parentheses

Notes: own elaborations on data from the World Value Survey (WVS). Column 1 refers to the 1989-93 wave of the WVS and contains, in a regression on a variable of happiness on a 0-1 scale (from not at all happy to very happy), the coefficients (per 100) of a dummy variable that is equal to 1 when parents co-reside with children. Regressions are performed separately for each country; controls include gender, age, age squared, health status, marital status (5 statuses), employment status (5 statuses), family income for men aged 40-74 and women aged 37-71 who are parents (a similar analysis is in Manacorda and Moretti 2006). Column 2 refers to all available waves and contains, in a pooled cross-country regression of a dummy variable that is equal to 1 when respondents answer that "Parents' responsibilities are to do the best for their children", the country coefficients. Controls include gender, age, age squared, health status, marital status (5 statuses), employment status (5 statuses), family income.

Table 3.4 Happiness of children and co-residence with parents and values concerning the attitude of children towards parents.

	<i>Children's happiness and co-residence</i>	<i>Children should always respect parents</i>
Denmark	2.454 (3.242)	0.357 (0.039)
France	2.074 (2.515)	0.717 (0.039)
Germany (West)	1.275 (1.618)	0.472 (0.039)
Italy	3.926 (3.155)	0.767 (0.038)
Portugal	-1.352 (3.262)	0.688 (0.040)
Spain	0.820 (1.670)	0.713 (0.037)
The Netherlands	1.504 (2.732)	0.387 (0.039)
U.K. (Great Britain)	-2.353 (3.048)	0.600 (0.039)
U.S.	0.025 (2.231)	0.688 (0.038)

Standard errors in parentheses

Notes: own elaborations on data from the World Value Survey (WVS). Column 1 refers to the 1989-93 wave of the WVS and contains, in a regression on a variable of happiness on a 0-1 scale (from not at all happy to very happy), the coefficients (per 100) of a dummy variable that is equal to 1 when children co-reside with parents. Regressions are performed separately for each country; controls include gender, age, age squared, health status, marital status (5 statuses), employment status (5 statuses), family income for individuals aged 18-34. Column 2 refers to all available waves and contains, in a pooled cross-country regression of a dummy variable that is equal to 1 when respondents answer that "Children should always respect parents", the country coefficients. Controls include gender, age, age squared, health status, marital status (5 statuses), employment status (5 statuses), family income.

Table 4.1 Values and age

	(1)	(2)	(3)
	<i>Spend time with colleagues</i>	<i>Child quality: hard work</i>	<i>Work will be less important in life</i>
<i>Age below 30 years</i>	-0.23 (0.03)***	0.08 (0.04)**	0.09 (0.03)***
<i>Age above 50 years</i>	0.12 (0.03)***	0.06 (0.04)	0.14 (0.03)***
<i>Male</i>	-0.12 (0.02)***	0.27 (0.03)***	0.02 (0.02)
<i>Part time worker</i>	0.11 (0.03)***	0.06 (0.04)	-0.08 (0.03)**
<i>Married</i>	0.11 (0.03)***	0.00 (0.03)	-0.01 (0.03)
<i>Has no children</i>	-0.09 (0.03)***	0.06 (0.04)*	-0.10 (0.03)***
<i>Education</i>		-0.04 (0.01)***	-0.05 (0.01)***
Estimation	Ordered probit	Probit	Ordered probit
Observations	8364	10652	9999
Pseudo R2	0.03	0.18	0.04

Standard errors in parentheses

** significant at 10%; ** significant at 5%; *** significant at 1%*

Source: World Value Surveys, all waves for which data are available

Sample: Employed individuals, from 17 to 59 years of age, in Austria, Belgium, Canada, Denmark, France, Italy, Netherlands, Spain, Sweden, UK, US, West Germany

Country and wave fixed effects included in all columns

Col (1): Ordered from 1 to 4, higher values mean less time with colleagues

Col (3): Ordered from 1 to 3, higher values mean it is a bad thing

Table 5.1 Montly income of Italian young adults (ages 33-38, 2003-04) in the I.D.E.A. survey.

	%	N
None	0.3	2
Up to 500 Euros	1.6	11
From 500 up to 1000 Euros	15.4	107
From 1000 up to 1500 Euros	51.2	355
1500 Euros and more	31.6	219
<i>Total</i>	<i>100</i>	<i>694</i>

Table 5.2 Descriptive statistics of regressors and instruments in the I.D.E.A. survey (ages 33-38, 2003-04).

	Mean	s.d.	Valid N
<i>Age of home leaving</i>	25.94	4.55	644
<i>Age of mother at own birth</i>	28.12	6.05	732
<i>Education (respondent, number of years)</i>	12.68	3.35	767
<i>“Too long” education (dummy)</i>	.22		705
<i>Father’s education (number of years)</i>	7.82	4.47	767
<i>Mother’s education (number of years)</i>	7.20	3.80	767
<i>Mother housewife (dummy)</i>	.65		746
<i>Father employed (dummy)</i>	.92		740
<i>Parents divorced or separated (dummy)</i>	.04		767
<i>Number of siblings (excluding respondent)</i>	1.60	1.38	767
<i>Religiosity score (1-5) at age 16</i>	2.43	1.49	759
<i>Lack of self confidence score (1-4)</i>	2.40	.83	862
<i>Married (dummy)</i>	.69		767
<i>Number of children</i>	.90	.93	767
<i>Age of first job</i>	22.42	6.17	721
<i>Age of first sex</i>	18.20	3.05	693
<i>Northwest (dummy)</i>	.28		767
<i>Northeast (dummy)</i>	.20		767
<i>Center (dummy)</i>	.19		767
<i>South (dummy)</i>	.32		767
<i>Living in main city of the province (dummy)</i>	.56		767
<i>Provincial average income (aggregate, Euros in 2005)</i>	24109.58	6285.33	753
<i>Youth unemployment rate (aggregate %)</i>	27.52	19.61	733
<i>Empty dwellings (aggregate %)</i>	19.64	8.77	753

Table 5.3 Least squares estimates – Income and age of home leaving

	(1)	(2)	(3)	(4)	(5)	(6)
	<i>Income</i>					
<i>Age of home leaving</i>	-0.028 (0.007)***	-0.026 (0.007)***	-0.025 (0.007)***	-0.018 (0.008)**	-0.018 (0.010)*	-0.017 (0.010)*
<i>First Quarter</i>	-0.185 (0.059)***	-0.189 (0.062)***	-0.182 (0.061)***	-0.226 (0.090)**	-0.229 (0.092)**	-0.224 (0.092)**
<i>Fourth quarter</i>	0.024 (0.064)	0.013 (0.064)	-0.011 (0.067)	0.030 (0.055)	0.027 (0.058)	0.015 (0.060)
<i>Education</i>	0.065 (0.010)***	0.061 (0.010)***	0.068 (0.010)***	0.059 (0.017)***	0.055 (0.016)***	0.060 (0.016)***
<i>Lack of self confidence</i>		-0.097 (0.037)**	-0.100 (0.037)***		-0.080 (0.034)**	-0.081 (0.034)**
<i>Married</i>		0.037 (0.083)	0.032 (0.084)		0.069 (0.077)	0.066 (0.077)
<i>Number of children</i>		0.055 (0.038)	0.053 (0.037)		0.015 (0.055)	0.014 (0.055)
<i>Age of first job</i>			-0.009 (0.006)			-0.005 (0.004)
Estimation	OLS	OLS	OLS	Int. Reg	Int. Reg.	Int. Reg
Observations	497	496	496	497	496	496
Adj. R2	0.20	0.21	0.21			

Robust standard errors in parentheses, clustered by province

** significant at 10%; ** significant at 5%; *** significant at 1%*

Other included regressors (all columns): dummy variables for years of age and for macro region of residence; dummy variable for extra time to complete education; frequency of church attendance; number of siblings; mother and father education; dummy variables for mother housewife, working father, divorced parents, living in provincial capital; youth unemployment in 2001 in the province of residence when 16 years old; average current income in the province of residence. See the appendix for detailed definition.

Table 5.4 Reduced form regressions

	(1)	(2)	(3)	(4)	(5)	(6)
	<i>Income</i>					
<i>Age of first sex</i>	-0.022 (0.010)**	-0.019 (0.009)**	-0.017 (0.009)*	-0.019 (0.009)**	-0.017 (0.009)*	-0.016 (0.009)*
<i>Empty dwellings</i>	0.008 (0.003)**	0.009 (0.003)***	0.009 (0.003)***	0.007 (0.003)**	0.007 (0.003)***	0.008 (0.003)***
<i>First Quarter</i>	-0.184 (0.059)***	-0.186 (0.063)***	-0.178 (0.062)***	-0.215 (0.081)***	-0.221 (0.087)**	-0.217 (0.087)**
<i>Fourth quarter</i>	0.033 (0.068)	0.012 (0.063)	-0.016 (0.069)	0.032 (0.055)	0.021 (0.052)	0.006 (0.056)
<i>Education</i>	0.057 (0.011)***	0.050 (0.010)***	0.059 (0.012)***	0.051 (0.015)***	0.046 (0.014)***	0.050 (0.014)***
<i>Lack of self confidence</i>		-0.125 (0.040)***	-0.126 (0.040)***		-0.108 (0.038)***	-0.108 (0.038)***
<i>Married</i>		0.126 (0.067)*	0.120 (0.068)*		0.122 (0.063)*	0.119 (0.064)*
<i>Number of children</i>		0.097 (0.040)**	0.095 (0.040)**		0.044 (0.050)	0.043 (0.049)
<i>Age of first job</i>			-0.011 (0.007)			-0.006 (0.005)
Estimation	OLS	OLS	OLS	Int. Reg.	Int. Reg.	Int. Reg.
Observations	524	523	523	524	523	523
Adj. R2	0.15	0.19	0.20			

Robust standard errors in parentheses, clustered by province

** significant at 10%; ** significant at 5%; *** significant at 1%*

Other regressors included in all columns: same as in Table 5.3

Table 5.5 First stage regressions

	(1)	(2)	(3)
		<i>Age of home leaving</i>	
<i>Age of first sex</i>	0.206 (0.061)***	0.185 (0.059)***	0.181 (0.063)***
<i>Empty dwellings</i>	-0.058 (0.025)**	-0.071 (0.023)***	-0.071 (0.022)***
<i>First quarter</i>	0.073 (0.481)	0.041 (0.486)	-0.088 (0.510)
<i>Fourth quarter</i>	0.448 (0.450)	0.627 (0.423)	0.812 (0.463)*
<i>Education</i>	0.036 (0.072)	0.047 (0.070)	-0.019 (0.070)
<i>Lack of self confidence</i>		-0.072 (0.240)	-0.009 (0.239)
<i>Married</i>		0.827 (0.638)	0.922 (0.645)
<i>Number of children</i>		-1.181 (0.248)***	-1.203 (0.253)***
<i>Age of first job</i>			0.090 (0.036)**
F test	8.15	9.43	9.92
Estimation	OLS	OLS	OLS
Observations	488	486	471
Adj. R2	0.08	0.12	0.13

Robust standard errors in parentheses, clustered by province

** significant at 10%; ** significant at 5%; *** significant at 1%*

F test refers to the joint significance of the two instruments, age of first sex and empty dwellings

Other regressors included in all columns: same as in Table 5.3

Table 5.6 2SLS estimates - Income and age of home leaving

	(1)	(2)	(3)	(4)	(5)	(6)
	<i>Income</i>					
<i>Age of home leaving</i>	-0.106 (0.039)***	-0.105 (0.039)***	-0.106 (0.039)***	-0.104 (0.047)**	-0.097 (0.040)**	-0.097 (0.038)**
<i>First Quarter</i>	-0.222 (0.086)***	-0.225 (0.091)**	-0.224 (0.091)**	-0.207 (0.093)**	-0.217 (0.094)**	-0.225 (0.095)**
<i>Fourth quarter</i>	0.039 (0.074)	0.046 (0.075)	0.044 (0.083)	0.078 (0.060)	0.081 (0.064)	0.085 (0.076)
<i>Education</i>	0.070 (0.011)***	0.064 (0.011)***	0.065 (0.010)***	0.055 (0.018)***	0.051 (0.017)***	0.049 (0.015)***
<i>Lack of self confidence</i>		-0.105 (0.044)**	-0.105 (0.044)**		-0.115 (0.045)**	-0.109 (0.038)***
<i>Married</i>		0.076 (0.109)	0.076 (0.110)		0.202 (0.089)**	0.208 (0.092)**
<i>Number of children</i>		-0.045 (0.062)	-0.046 (0.062)		-0.072 (0.086)	-0.075 (0.076)
<i>Age of first job</i>			-0.001 (0.008)			0.003 (0.006)
Hansen J	0.523	0.631	0.631			
Estimation	2SLS	2SLS	2SLS	Int. Reg.	Int. Reg.	Int. Reg.
Observations	457	456	456	524	523	523

Robust standard errors in parentheses, clustered by province

** significant at 10%; ** significant at 5%; *** significant at 1%*

Hansen J refers to the p-value of the test of the over-identifying restrictions

Columns 4-6: age of home leaving is the predicted value generated from the first stage regressions in Table 5.3; bootstrapped standard errors

Other regressors included in all columns: same as in Table 5.3

Table 5.7 2SLS estimates, when both *age of home leaving* and *education* are endogenous

	(1)	(2)	(3)
	<i>Age of home leaving</i>	<i>Education</i>	<i>Income</i>
<i>Empty dwellings</i>	-0.045 (0.025)*	0.020 (0.018)	
<i>Age of first sex</i>	0.203 (0.064)***	0.226 (0.042)***	
<i>University</i>	0.434 (0.361)	0.107 (0.169)	
<i>Age of home leaving</i>			-0.128 (0.062)**
<i>Education</i>			0.109 (0.066)
Hansen J			0.997
F test.	6.09	9.80	
Estimation	OLS	OLS	2SLS
Observations	457	457	457
Adj. R2	0.08	0.34	

Robust standard errors in parentheses, clustered by province

** significant at 10%; ** significant at 5%; *** significant at 1%*

F test refers to a test for the joint significance of the three instruments, age of first sex, empty dwellings and university

Hansen J refers to the p-value of the test of the over-identifying restrictions

Other regressors included in all columns: same as in Table 5.3

Table 5.8 OLS estimates – Income and other measures of the timing of transition into adulthood

	(1)	(2)	(3)	(4)	(5)	(6)
	<i>Income</i>					
<i>Age group of home leaving</i>	-0.145 (0.024)***	-0.114 (0.024)***	-0.110 (0.025)***			
<i>Years since home leaving</i>				0.036 (0.006)***	0.028 (0.006)***	0.027 (0.006)***
<i>First quarter</i>	-0.157 (0.060)**	-0.157 (0.062)**	-0.152 (0.062)**	-0.160 (0.061)**	-0.159 (0.063)**	-0.155 (0.062)**
<i>Fourth quarter</i>	0.026 (0.062)	0.015 (0.061)	-0.006 (0.064)	0.038 (0.061)	0.025 (0.060)	0.004 (0.064)
<i>Education</i>	0.061 (0.009)***	0.056 (0.009)***	0.063 (0.010)***	0.061 (0.009)***	0.056 (0.009)***	0.062 (0.010)***
<i>Lack of self confidence</i>		-0.113 (0.037)***	-0.114 (0.037)***		-0.112 (0.036)***	-0.113 (0.036)***
<i>Married</i>		0.114 (0.069)	0.112 (0.070)		0.110 (0.068)	0.108 (0.069)
<i>Number of children</i>		0.061 (0.038)	0.061 (0.038)		0.059 (0.038)	0.058 (0.038)
<i>Age of first job</i>			-0.008 (0.006)			-0.008 (0.006)
Estimation	OLS	OLS	OLS	OLS	OLS	OLS
Observations	565	564	564	565	564	564
Adj. R2	0.20	0.23	0.23	0.20	0.23	0.23

Robust standard errors in parentheses

** significant at 10%; ** significant at 5%; *** significant at 1%*

Other regressors included in all columns: same as in Table 5.3

Table 5.9 First stage and 2SLS estimates, alternative measures of transition to adulthood

	(1)	(2)	(3)	(4)	(5)	(6)
<i>FIRST STAGE</i>						
	<i>Age group of first leaving</i>			<i>Years since home leaving</i>		
<i>Age of first sex</i>	0.052 (0.019)***	0.044 (0.017)**	0.041 (0.017)**	-0.225 (0.075)***	-0.189 (0.066)***	-0.173 (0.065)***
<i>Empty dwellings</i>	-0.014 (0.006)**	-0.017 (0.006)***	-0.017 (0.006)***	0.044 (0.027)	0.056 (0.026)**	0.059 (0.027)**
F test	6.82	7.13	5.82	6.28	6.63	5.97
Adj. R2	0.08	0.18	0.20	0.15	0.26	0.27
<i>SECOND STAGE</i>						
	<i>Income</i>					
<i>Age group of home leaving</i>	-0.490 (0.147)***	-0.480 (0.150)***	-0.486 (0.156)***			
<i>Years since home leaving</i>				0.120 (0.036)***	0.122 (0.039)***	0.125 (0.041)***
<i>First quarter</i>	-0.196 (0.090)**	-0.209 (0.093)**	-0.212 (0.094)**	-0.209 (0.091)**	-0.225 (0.095)**	-0.230 (0.097)**
<i>Fourth quarter</i>	0.039 (0.077)	0.045 (0.076)	0.054 (0.087)	0.082 (0.075)	0.092 (0.077)	0.108 (0.090)
<i>Education</i>	0.063 (0.010)***	0.057 (0.010)***	0.054 (0.011)***	0.062 (0.011)***	0.057 (0.011)***	0.052 (0.010)***
<i>Lack of self confidence</i>		-0.091 (0.043)**	-0.091 (0.044)**		-0.087 (0.044)**	-0.085 (0.044)*
<i>Married</i>		-0.072 (0.101)	-0.072 (0.101)		-0.094 (0.106)	-0.097 (0.106)
<i>Number of children</i>		-0.059 (0.067)	-0.059 (0.068)		-0.076 (0.070)	-0.078 (0.072)
<i>Age of first job</i>			0.003 (0.008)			0.006 (0.009)
Hansen J	0.758	0.724	0.517	0.55	0.503	0.31
Observations	517	516	516	517	516	516

Robust standard errors in parentheses

** significant at 10%; ** significant at 5%; *** significant at 1%*

F test refers to the joint significance of the two instruments

Hansen J refers to the p-value of the test of the over-identifying restrictions

Other regressors included in all columns: same as in Table 5.3

Table A.1 Just identified models – Income and age of home leaving

	(1)	(2)	(3)	(4)
			<i>Income</i>	
<i>Age of home leaving</i>	-0.082 (0.045)*	-0.138 (0.078)*	-0.083 (0.051)	-0.125 (0.065)*
<i>First quarter</i>	-0.224 (0.078)***	-0.223 (0.098)**	-0.224 (0.083)***	-0.226 (0.098)**
<i>Fourth quarter</i>	0.032 (0.070)	0.049 (0.085)	0.027 (0.087)	0.059 (0.093)
<i>Education</i>	0.068 (0.011)***	0.070 (0.012)***	0.065 (0.010)***	0.063 (0.011)***
<i>Empty dwellings</i>	0.004 (0.005)		0.003 (0.006)	
<i>Age of first sex</i>		0.011 (0.019)		0.007 (0.015)
<i>Lack of self confidence</i>			-0.103 (0.042)**	-0.106 (0.046)**
<i>Married</i>			0.054 (0.097)	0.093 (0.134)
<i>Number of children</i>			-0.018 (0.064)	-0.067 (0.093)
<i>Age of first job</i>			-0.003 (0.010)	0.001 (0.009)
Estimation	2SLS	2SLS	2SLS	2SLS
Observations	457	457	456	456

Robust standard errors in parentheses

** significant at 10%; ** significant at 5%; *** significant at 1%*

Columns 1 and 3: excluded instrument is age of first sex

Columns 2 and 4: excluded instrument is empty dwellings

Other regressors included in all columns: same as in Table 5.3

Figure 4.1. Employment ratios by age & gender – 2005

Source: OECD

—▲— Women —■— Men

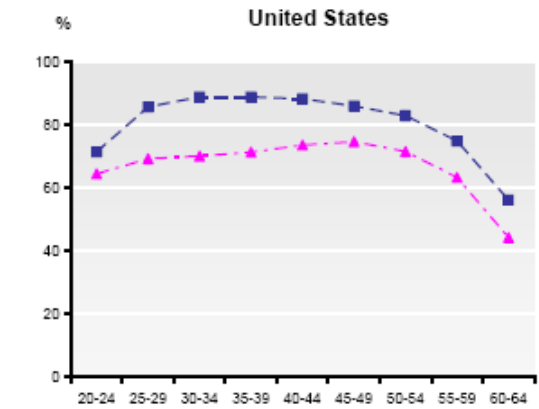
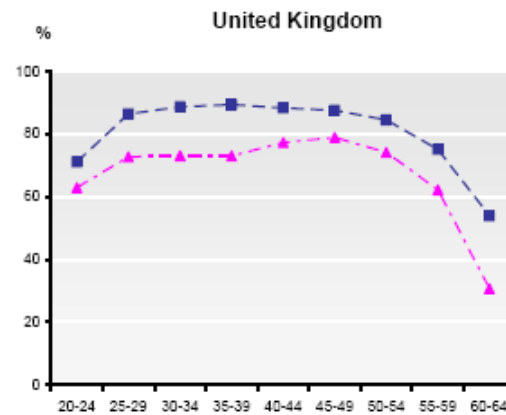
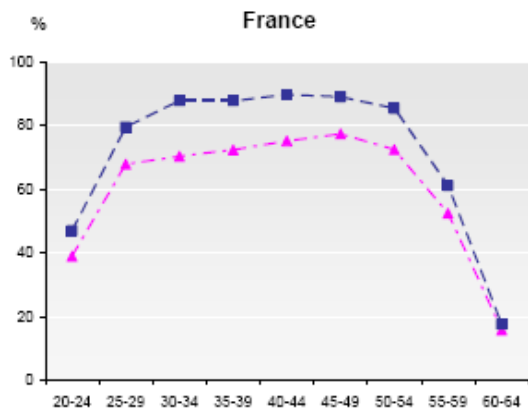
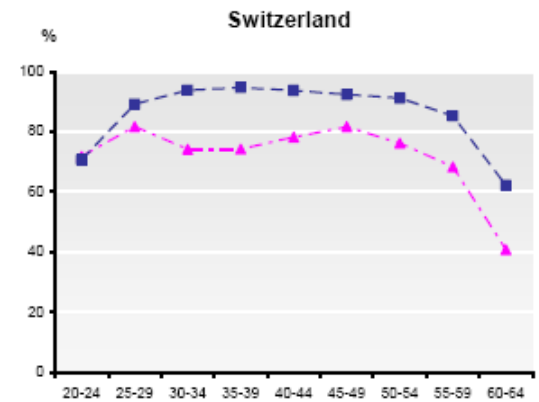
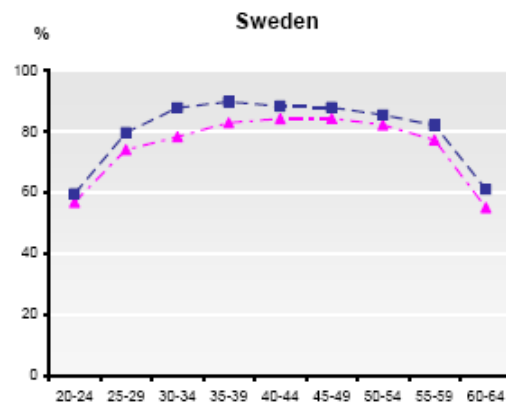
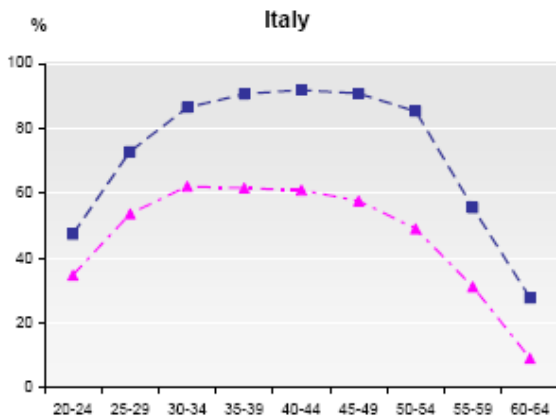
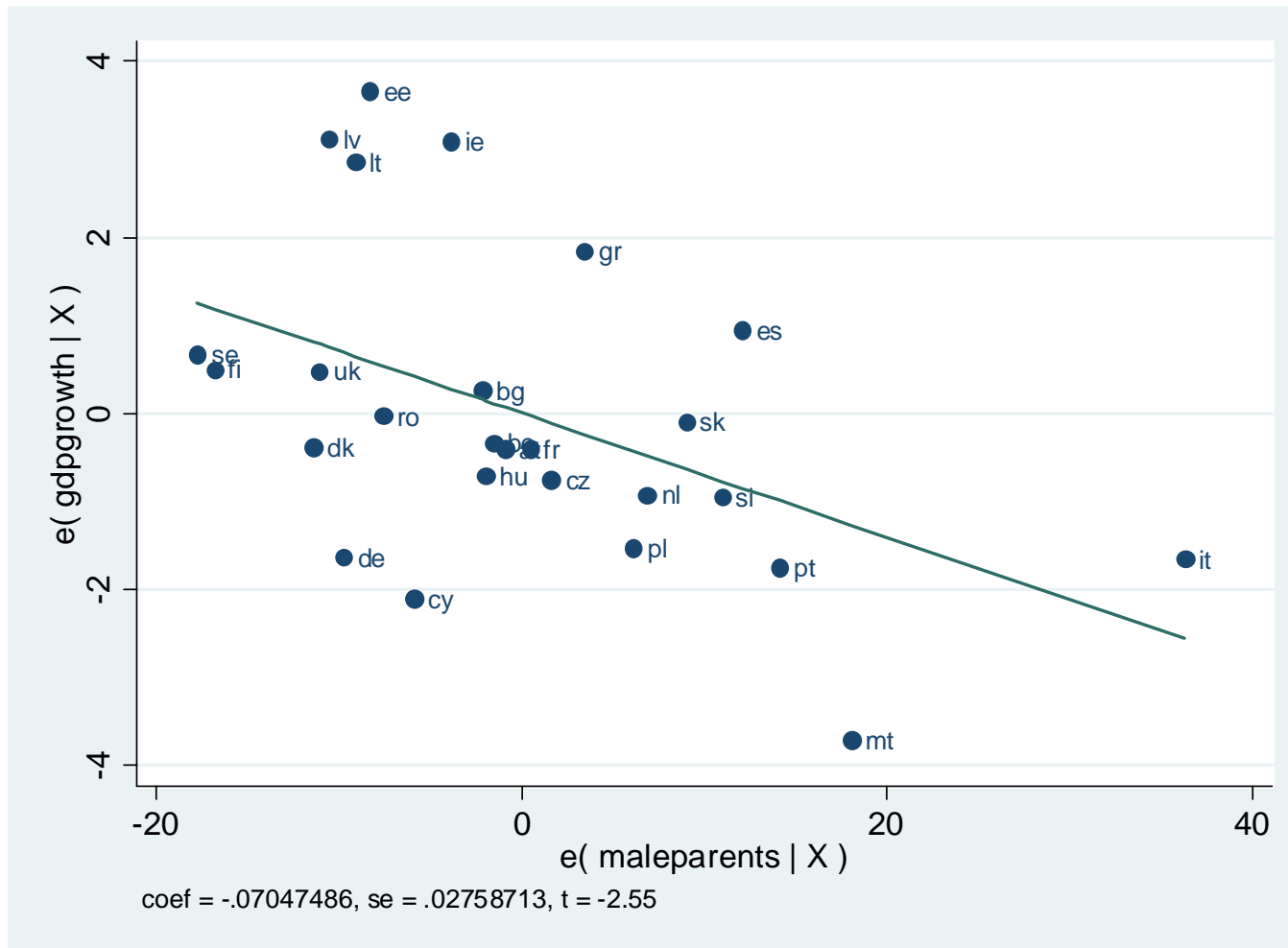


Figure 4.2 – GDP growth (2001-05) and percentage of men aged 18-34 living in parental home in 2001 in the EU



Residual regression plots after controlling for real GDP per capita in 2000 and a dummy variable for EU 15 countries