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The impact of parental separation on young Italians' trajectories towards adulthood

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Abstract

While many studies investigate the effects of parental separation on children, whether in terms of short-term adjustment or long-term effects, the tendency is to examine each outcome in isolation, thus overlooking any interdependencies between them. In this paper, we focus on the impact of parental separation on two main aspects defining the transition to adulthood: attainment of economic independence and the formation of one's own household. Specifically, we examine in a comprehensive way whether young Italians whose parents separated during childhood or youth follow different trajectories compared to those whose parents remained together. Using data from two cross-sectional rounds of the "Families and Social Subjects" survey conducted in 2009 and 2016, we implement a sequence analysis multistate model procedure. Our results suggest that children of non-intact families follow particular trajectories, especially with respect to the formation of their own household, where cohabitation is favored.

Keywords: Parental separation, Transition to adulthood, Economic independence, Household formation, Sequence analysis, Competing risk models

Introduction

In many societies, the number of children who spend the entirety of their childhood and adolescence with both biological parents still married is declining, while those experiencing parental separation is increasing (Andersson et al., 2017; OECD, 2019). It is thus unsurprising that the impact of parental separation on children has attracted much scholarly attention (e.g., Härkönen et al., 2017). Undoubtedly, parental separation changes children's lives in many ways. For one, they cease to live full-time with both parents, implying a certain level of stress and the need to adapt to a new situation. Separation can also result in very heterogeneous family contexts, with different levels of exposure to parental conflict (Amato, 2010). After separation the child may receive less involved parenting from the non-resident parent (usually the father: e.g., Zilincikova & Albertini, 2022), and the parenting style of the resident parent (usually the mother) is likely to change. Beyond shifts in family relationships, parental separation can also lead to a drop in household economic resources (Kalmijn et al., 2007; Uunk, 2004).

Previous literature on the effects of these changes on children's lives has examined both short-term adjustments, for example, in terms of their well-being (Amato, 2006;

Brown, 2006; Kiernan & Mensah, 2009; Mandemakers & Kalmijn, 2014; Osborne & McLanahan, 2007), and long-term effects, such as the process of leaving home, union and family formation (Feldhaus & Heintz-Martin, 2015; Härkönen et al., 2021; Ongaro & Mazzuco, 2009; Teachman, 2003), or the intergenerational transmission of divorce (Feldhaus & Heintz-Martin, 2015; Li & Wu, 2008; Teachman, 2002), as well as its effect on educational attainment and risky behaviors (Bernardi & Boertien, 2016; Bernardi & Radl, 2014; Cavanagh & Huston, 2006; Grätz, 2015; Guetto et al., 2022).

However, most of these studies look at each outcome in isolation, thus missing any interdependencies between the different events. Here, we take a comprehensive approach, examining the effects of parental separation on all of the key events marking the transition to adulthood. In other words, we consider the transition to adulthood to be a complex process, defined by more than a single event, such as leaving home or entering the first union.

Following the life course approach, we view life as a multidimensional process (e.g., Elder, 1995, 1998), involving parallel paths that are highly interrelated and mutually influential. This approach is all the more necessary as the life course of young adults has become increasingly de-standardized and differentiated since the 1970s due to educational expansion, cultural change, and employment uncertainty, among other factors (Buchmann & Kriesi, 2011; Shanahan, 2000). Adult roles and economic autonomy are achieved through more diversified life trajectories than in previous decades, with the timing, order, and duration of the key events increasingly heterogeneous.

In taking into account the complex processes that define the transition to adulthood, our objective is to verify whether young adults whose parents separated follow different trajectories compared to those with intact families. In doing so, specifically, we consider two main aspects defining the transition to adulthood: the attainment of economic independence from one's parents (based on the events of end of education, labor market entry, and leaving the parental home) and the formation of one's own household (based on the events of leaving the parental home, first union entry, and parenthood). We moreover examine both the *timing* of events and their characteristics, i.e., educational level attained, reasons for leaving the parental home, and union type. As for the methodology, we apply the Sequence Analysis Multistate Model (SAMM) procedure, which aims to simultaneously study the occurrence of an event and the sub-trajectory immediately following it over a pre-defined period of time. Applying the usual combination of sequence analysis and cluster analysis of sequences for the transition to adulthood (which is common in the literature: see, e.g., Billari, 2001) and the estimation of a subsequent multinomial logistic regression for sequence trajectories would have been incorrect, because parental separation is an event that necessarily should be managed as time varying. But even the use of other types of time-dependent analyses, such as competitive-risk event history models, would not have provided any classification of the trajectories we intend to reconstruct, being limited to examining the impact of parental separation on each individual event.

We focus on Italy, a country with particular characteristics, including persistent traditional family behaviors, making study of the transition to adulthood especially worthwhile as a representative example of the Mediterranean region. The data come from the

two most recent cross-sectional rounds of the "Families and Social Subjects" (FSS) survey conducted by the Italian National Institute of Statistics (Istat) in 2009 and 2016.

In the period examined here, and in particular up to the 1990s, parental separation in Italy was marked by significant selectivity. It was primarily individuals with higher socioeconomic status and those residing in large urban areas who were more likely to undergo this relatively novel experience. Their advantaged position allowed them to better manage the legal and financial costs of separation, as well as the considerable social stigma associated with divorce, particularly when young children were involved. Although this selection should be taken into account when reading our results, we believe that they can still be useful to better understand the consequences of divorce among the children involved.

This paper is organized as follows. In the following section, we theoretically consider the events marking the transition to adulthood and their interrelationship with parental separation, as well as discuss empirical studies on the relationship between parental separation and the key events characterizing the transition to adulthood. In the same section, we describe the Italian context and outline the aim and the research questions of the current paper. Then, we present the data and our analysis strategy. Results follow and finally, we offer some concluding remarks.

Background, context, and research questions

Theoretical considerations and previous findings

In examining the various events marking the transition to adulthood and the interplay of different mechanisms when parental separation occurs, empirical research has consistently found adverse effects of parental separation on education outcomes (Bussemakers et al., 2022; Conger et al., 2010; Eustache & Jonathan, 2023; Fomby, 2013; Gähler & Palmtag, 2015; Kalmijn, 2010; Magnuson & Berger, 2009; Sapharas et al., 2016; Strohschein et al., 2009; Sun & Li, 2009). Broadly, four main mechanisms have been identified in this association: a reduction in economic resources following separation (Albertini & Dronkers, 2009; Guetto et al., 2022; McKeever & Wolfinger, 2001; Thomson & McLanahan, 2012); change in parental time spent with children and in parenting practices (Beck et al., 2010); parenting stress within the family (Beck et al., 2010; Cooper et al., 2009); and emotional crises in children linked to parental separation (Jekielek, 1998). With the loss of a parent in the household, the co-resident parent (usually the mother) tends to have fewer economic resources, which in turn negatively impacts a child's education, as the child may need to exit schooling earlier in order to obtain full-time employment (Crosnoe & Cavanagh, 2010; Lee & McLanahan, 2015). Parental separation also changes family relationships. While the non-custodial parent obviously spends less time with his/her child, this may also be the case for the custodial parent, given increased responsibilities within the household and possibly the need to spend additional time in the labor market and, consequently, less availability to supervise children and help them with homework, which may affect their academic performance. Finally, parental stress and emotional crises in children triggered by separation are additional factors that can contribute to negative school outcomes (Jeynes, 2002; McLanahan et al., 2013).

As regards the process of leaving the parental home, most empirical evidence shows an earlier exit for children of separated parents (Bernhardt et al., 2005; Goldscheider & Goldscheider, 1998; Holdsworth, 2000; Kalmijn, 2010; Meggiolaro & Ongaro, 2024; Zorlu & Gaalen, 2016). Increasing discord between parents may anticipate departure, as compared to the closer, less conflictual family bonds associated with growing up with two biological parents. A deterioration in household economic conditions due to parental separation can also force children to leave home earlier (Kiernan, 2006; McLanahan & Carlson, 2004). However, in some situations, children experiencing parental separation may instead postpone departure from the parental home due to the need to support their parent (or sibling) in a precarious situation (Mencarini et al., 2012).

Despite the rich literature on the effect of parental separation on the process of young adults' leaving home, there are relatively few studies that examine in detail the diverse effects according to type of exit (Bernhardt et al., 2005; Blaauboer & Mulder, 2010; Ongaro & Mazzuco, 2009). Broadly, the evidence suggests that an earlier exit from the parental home is more likely to occur for non-union reasons than to start a union (see, e.g., Ongaro & Mazzuco, 2009).

The two processes of leaving schooling and leaving the parental home do not occur in isolation, but are closely connected with the other processes. In particular, parental separation seems to be positively associated with early union formation (Bernhardt et al., 2005; Fomby & Bosick, 2013; Ongaro & Mazzuco, 2009). Research shows that children who experience parental separation have a higher rate of early entry into a first union since they tend to "grow up faster" (Weiss, 1979) and are quicker to get romantically involved and enter co-residential unions (Wolfinger, 2005), arguably a response to a home environment that can be economically and socially challenging.

It is also worth noting that parental separation during childhood tends to shift children's values towards more liberal and non-traditional attitudes, lower marital commitment, and more egalitarian, non-traditional gender roles (see, e.g., Amato & DeBoer, 2001; Teachman, 2002; Härkönen et al., 2021; Jacquet & Surra, 2001; Thorsen, 2017). This may influence union formation, increasing the propensity to choose cohabitation rather than marriage as a form of union and, more generally, a preference for less traditional family forms (Kalmijn, 2010; Riggio & Weiser, 2008). Empirical evidence confirms that individuals who experienced parental separation are more likely to cohabit, and to do so at an earlier age (Amato & Kane, 2011; Feldhaus & Heintz-Martin, 2015; Härkönen et al., 2021; Ryan et al., 2009).

The final two events in the transition to adulthood considered here—labor market entry and parenthood—have received much less attention in empirical research. With regard to labor market experience, most studies examine the adverse impact of parental separation on outcomes such as job autonomy, job satisfaction, or occupational status at a given age (Ermisch & Francesconi, 2001; Fronstin et al., 2001). The little research focusing specifically on labor market entry (Aquilino, 1996; Fomby & Bosick, 2013; Herbst-Debby et al., 2023) finds that having experienced parental separation is positively associated with early entry into full-time work, suggesting that the decision of children of non-intact families to leave education earlier encourages earlier further transitions (Aquilino, 1996). In other words, young adults' life paths in terms of

labor force participation and family formation are influenced by education outcomes, confirming the importance of understanding the interconnections between these domains.

Finally, a few studies analyzing the impact of having experienced parental separation on the transition to parenthood find a positive association with early childbearing (Ermisch & Francesconi, 2001; Fomby & Bosick, 2013), especially if outside marriage (Cherlin et al., 1995; Kiernan & Hobcraft, 1997). The fact that children whose parents divorce may become parents earlier could be due to difficult home situations, early sexual activity, and/or limited use of adequate contraception (Albrecht & Teachman, 2003; Hofferth & Goldscheider, 2010). Again, there is a strong interconnection between these life transitions, so that looking at them separately is to risk missing important information.

The Italian case and the current study

Until the early 2000s, Italy was considered an exception in the European context for its low marital dissolution rates (Istat, 2010; Sobotka & Toulemon, 2008). The dearth of studies on the process of transitioning to adulthood of children of separated couples in Italy is therefore not all that surprising (Mencarini et al., 2012; Ongaro & Mazzuco, 2009). In recent years, however, separation and divorce rates have risen considerably (Istat, 2016), and the share of second and higher-order marriages has increased (Istat, 2024a).

At the same time, there has been a shift in the socio-economic gradient of divorce. Given the strong social stigma attached to divorce in the past (at least until the 1990s), divorced couples tended to be highly educated and belong to the highest social strata of the population. Then, during the 2000s, those belonging to the lower social strata also became more likely to dissolve their marriages, suggesting the emergence of a reversing educational gradient in divorce, from positive to negative (Salvini & Vignoli, 2011; Bastianelli et al. 2024).

Despite a strong shift towards the secularization of family behaviors in Italy, the family remains pivotal in young people's lives, and later and longer processes continue to characterize young Italians' transition to adulthood (Sironi et al., 2015). Thus, beyond distinct paths between children living in intact or non-intact families, their trajectories may still differ from those in countries with different social and cultural backgrounds and shorter processes, such as in north-west Europe or Scandinavia (Cook & Furstenberg, 2002).

Considering the particular Italian context and drawing on the life course approach, this paper aims to assess if and how parental separation is associated with young Italians' transition to adulthood, operationalized as the attainment of economic independence from one's parents, and the formation of one's own household. Broadly speaking, not necessarily these two aspects are interrelated or sequential, in that a young person could be economically independent without forming his/her own household, just as family formation could precede economic independence from parents (if, for example, co-residing in the same household).

Thus, we translated our objective of verifying whether young adults whose parents separated follow different trajectories compared to those with intact families into two

questions, trying also to specify our expectations according to the Italian socio-cultural and economic peculiarities. Thus, first we begin our work by investigating young people's economic independence and asking ourselves:

RQ1: Do young Italians whose parents separated follow different paths towards economic independence compared to those who grew up in intact families?

Achieving economic independence is a considerable challenge for all young Italians. In this respect, the average educational attainment of young people in Italy is lower than in most other European countries, while the number of secondary school dropouts is higher (European Commission, 2022). Meanwhile, the school-to-work transition is not without its challenges, as reflected by the high number of young people not in education or training (so-called NEET) and the high youth (and especially female) unemployment rate (Caltabiano & Rosina, 2018; Pastore, 2019). Moreover, the labor market flexibilization characterizing Italy from the 1980s (Barbieri & Scherer, 2009) and the economic crisis of 2008 increased the economic vulnerability of young people (Barbieri, 2011; Vignoli et al., 2016). Given this state of affair, we do not expect to observe significant differences between the trajectories of children of separated parents and those with intact families. Indeed, until recently the socio-economic gradient of divorce in Italy was positive and, thus, children of families with higher socio-economic status, namely, those more advantaged in the labor market, were also those more likely to live parental separation. The reduction in economic resources, which usually follows a couple's separation, could counterbalance the higher socio-economic advantage of those non-intact families and, as a consequence, lead to similar patterns between children of intact and non-intact families.

The second aspect that we want to investigate in young people's transition to adulthood is the formation of one's own household. So, we ask ourselves:

RQ2: Do young Italians whose parents separated follow different paths towards the formation of their own household compared to those grew up in intact families?

Family formation is certainly linked to economic independence, but it is also driven by cultural values, which are very strong in Italy. Traditionally, Italians have tended to leave the parental home at later ages with respect to their European counterparts (Aassve et al., 2002, 2013) and mainly for union-related reasons (usually marriage). Unmarried cohabitation is, indeed, far less common than elsewhere in Europe, even if marriage rates have started to decline in recent decades and cohabitation has become more common (Bonarini, 2017; Pirani & Vignoli, 2016), as have children born out of wedlock (Istat, 2024b). This setting is further reinforced by a critical housing market (characterized by the scarcity of affordable rented accommodation) and a welfare system that is not particularly generous towards young people (see, e.g., Rosina et al., 2007; Barbieri, 2011), which still heavily rely in a familistic welfare regime (Dalla Zuanna, 2001; Dalla Zuanna & Micheli, 2004). We therefore expect that young people's pathways towards the formation of one's own household might differ more significantly between the two groups, with children of separated parents more likely to engage in more secularized behaviors.

Data and methods

Data

We use data from the two most recent cross-sectional rounds of the "Families and Social Subjects" (FSS) survey conducted in Italy by the Italian National Institute of Statistics (Istat) in 2009 and 2016. The 2009 round consists of a nationally representative sample of about 20,000 households; the 2016 round comprises a sample of nearly 25,000 people aged 18 and over. The two rounds provide fully comparable data on a broad range of socio-economic, demographic, and family characteristics and can be pooled and analyzed together in order to guarantee a larger sample size.

In particular, the surveys offer retrospective information on important life course events, such as leaving the parental home and union formation. Data on education and employment history is also available. Parental separation is investigated by asking if respondents' parents separated or not, and if so the year this occurred.

The sample we use for our analysis consists of 24,127 people who, at the time of interview, were between 25 and 49 years of age (see Table 4 in Appendix A for the sample composition by gender and survey year). The lower bound was chosen in order to follow, at least partially, all individuals during their first years in the transition to adulthood process; the upper bound avoids including older cohorts for whom parental separation was very rare.

Table 1 presents descriptive statistics on the five key life events (exit from formal education, labor market entry, leaving the parental home, union entry, parenthood) by parental separation. In our sample, most people had grown up in an intact family, whereas only 6.3% of young people had experienced parental dissolution by the age of 35 (with similar proportions between the two groups in terms of those who experienced parental separation during their childhood or youth).

Young people from intact families experienced education exit, union entry, and parenthood at the threshold ages of each event in higher proportions than young people in the two groups with separated parents (but differences are very small: see Table 1 for the thresholds). Instead, a higher proportion of young people with separated parents entered the labor market and left the parental home by the age of 25 (30) with respect to young people from intact families (but, again, differences are negligible).

Table 1 Descriptive statistics by family of origin

	Intact family		**Parental separation at 0–14 years of age**		**Parental separation at 15–35 years of age**	
	n	**%**	***n***	**%**	***n***	**%**
Observations	22,613	*93.7*	802	*3.3*	712	*3.0*
End of education *(by the age of 25)*	19,040	*84.2*	669	*83.4*	588	*82.6*
Labor market entry *(by the age of 25)*	15,290	*67.6*	598	*74.6*	512	*71.9*
Leaving parental home *(by the age of 30)*	15,834	*70.0*	599	*74.7*	519	*72.9*
First union entry *(by the age of 35)*	15,554	*68.8*	527	*65.7*	465	*65.3*
First child's birth *(by the age of 35)*	11,945	*52.8*	370	*46.1*	339	*47.6*

Pooled sample from FSS 2009 and 2016

Strategy of analysis

Following the theoretical approach of life course research, we use the sequence analysis multistate model (SAMM) to study how parental separation is associated with young people's transition to adulthood (Studer et al., 2018; see Liao et al., 2022 and Raab & Struffolino, 2022 for an introduction to sequence analysis; see Appendix B for technical details).

The SAMM procedure is a two-step application of (1) sequence analysis (SA) and cluster analysis (CA) to identify typical pathways, and (2) multistate event history model to study the risk of following each kind of pathways, identified in the first step and constituting the outcome in the second step. We implement here the two steps of the SAMM procedure for the two main aspects of the transition to adulthood: economic independence and the formation of an independent household. Two key events are considered as starting points for these two aspects: the end of education, for young people's economic independence, and exit from the parental home, for own household formation. The other life events marking the transition into adulthood come into play through these events. Given that the two steps of the procedure are the same, in what follows, we first describe the SAMM procedure applied to young people's economic independence. We then turn to the procedure applied to own household formation, elaborating on specifics such as states, number of years, and model covariates.

Economic independence

The starting point marking young people's economic independence is the end of education. To study this process, we create respondents' sequences of transition to adulthood focusing on the following events: end of education, labor market entry, and leaving the parental home. While labor market entry has only two possible states (no entry/entry), the other life course events are more detailed. Specifically, the education level distinguishes between three possible statuses: still studying, low medium (lower secondary/vocational education at most), and high (upper secondary or higher) education level. Leaving home includes the following statuses: still living with the family of origin, leaving to enter a union, and leaving for reasons other than union formation. The total number of possible statuses is therefore equal to 18, and all statuses are absorbing in that once a person has experienced an event of interest (e.g., s/he left the parental home to form a union), s/he no longer changes status. Finally, each sequence covers the period from age 12 to 35 with an annual observation unit.

In the first step of the SAMM procedure, we extract 20,171 sub-sequences of 7 years, where respondents are still studying in the first year and end their education in the second year. Employing the partitioning around medoid (PAM) clustering technique, we then identified seven clusters as the optimal solution with respect to both other algorithms (e.g., Ward's algorithm) and other clusters number.

In the second step of the SAMM procedure, we use a multistate model to estimate the effect of both time-constant and time-varying explanatory variables (listed below) on the likelihood of following each type of sub-sequence. Because we need to estimate a hazard function for each typical sub-sequence cluster, we use a competing risk discrete-time event history model, with person-years nested within individuals (Allison, 1982; Steele

et al., 2004; Studer et al., 2018). In this setting, we estimate the likelihood of experiencing one of the seven typical sub-sequences for the end of education instead of (1) any other or (2) remaining in the education spell as defined by the sequences. Time at risk starts when the respondent is 12, and the baseline hazard is respondent's age, grouped into three categories: 12–18, 19–24, and 25–29, which correspond to the period during which a boy or a girl is usually enrolled in secondary education, or at university, or has concluded his/her education.

We estimate the relationship between young people's trajectories and parental separation by including a dichotomous time-varying covariate signaling if parental separation occurred (see Model A1, Table 8 in Appendix A, responding to RQ1).

We also include several control variables, referring both to the respondent and his/her parents.[1] For the respondent, we control for gender, birth cohort (in three categories [1960–1969; 1970–1979; 1980–1991] in order to capture cultural changes over the period considered), whether the respondent has siblings (yes/no), and macro-area of residence (distinguishing between the North, Center, and South/Islands, as social stigmatization of separation has weakened more slowly in the South compared to the rest of Italy). As for the parents, we include the following: parental education, measured as the highest level of education between the parents (primary or lower; lower secondary/vocational; upper secondary/tertiary); whether the mother was employed or not when the respondent was 15 (her labor market involvement or inactivity may imply less or more time dedicated to children, as well as the availability of additional resources); and father's social class when the respondent was 15 (distinguishing between upper class, middle class, lower middle class, working class, and finally a residual category for those not employed).

Formation of one's own household

To study the second non-economic life course pathway, namely, the formation of young people's own household, we take exit from the parental home as the starting point and create respondents' sequences of transition to adulthood focusing on the following events: leaving the parental home, first union entry, and parenthood. Leaving home and parenthood have only two possible states (no/yes), while partnership distinguishes between whether the respondent started cohabiting or married, as opposed to remaining single. The number of possible statuses is thus 12, and all statuses are absorbing. Finally, each sequence covers the period from age 15 to 40 with an annual observation unit.

In the first step of the SAMM procedure, we extract 17,789 sub-sequences of 5 years, where respondents are still living in the parental home in the first year and leave the second year. As in the procedure used for economic independence, we opt for the PAM clustering technique using the distance matrix based on LCS. Accordingly, we choose the number of clusters maximizing these cluster quality measures, opting for the six-cluster solution.

In the second step of the SAMM procedure, we estimate the relationship between several explanatory variables and the likelihood of following each typical sub-sequence

[1] We tested the inclusion of several interactions between parental separation and other relevant variables that could moderate the relationship. All interaction terms were too statistically insignificant to be included.

cluster using a competing risk discrete-time event history model, with person-years nested within individuals. In this setting, we estimate the risk of experiencing one of the six typical sub-sequences for leaving the parental home instead of (1) any other or (2) remaining in the parental home spell as defined by the sequences. Time at risk starts when the respondent is 15, and the baseline hazard is respondent's age, grouped into four categories: 15–19, 20–24, 25–29, and 30–35.

The relationship between young people's trajectories and parental separation is estimated by including a time-varying covariate signaling whether parents separated (see Model B1, Table 9 in Appendix A, responding to RQ2). We also include several control variables,[2] referring both to the respondent and his/her parents.[3] For the respondents, we control for final education level (primary or lower, lower secondary or vocational, upper secondary, tertiary), working condition[4] (not employed, permanent position, temporary position, self-employed), gender, birth cohort, whether or not the respondent has siblings, and macro-area of residence. Parents' control variables include parents' educational attainment, mother's employment status, and father's social class, both when the respondent was aged 14.

Results

The relationship between parental separation and the trajectory typologies for the transition to adulthood

Young people's trajectories towards economic independence

We begin the description of our results with a brief presentation of the trajectories that mark young people's transition to adulthood, and more specifically that on Italians' trajectories towards economic independence, followed by those towards the formation of young people's own household (see Table 6 in Appendix A for a full description of pathways).

Table 2 and Fig. 1 show the seven different clusters identified for answering RQ1, where the cluster labels reflect their main features, namely, the end of education, entry into the labor market, and leaving the parental home for union or non-union-related reasons.

The main distinction is between a group of four clusters—whose respondents attained a low-medium education level—and a group of three clusters—whose respondents attained a high education level. Accordingly, their end of education occurred at different ages (see Table 2 for median ages). Remarkably, the "Low-Educated NEET" cluster, which is also the most numerous (23.0% of respondent sub-sequences), has the lowest percentage of respondents that had experienced parental separation by the time they had concluded their education (2.8%), whereas the two smallest clusters (namely, "Low-Educated Leaving & Working" and "High-Educated Leaving & Working," corresponding to 6.1% and 8.0% of respondents, respectively) are also those with the highest

[2] Where the covariates included in the model are the same as in the model for the end of education sub-sequences, we do not repeat the different categories of each control variable.

[3] We tested the inclusion of several interactions between parental separation and other relevant variables that could moderate the relationship, but all interaction terms were too statistically insignificant to be included.

[4] For the model estimation, we dropped 69 observations for which the start or end date of the job around the sub-sequences was missing. The resulting total number of observations is 17,720.

Table 2 Cluster labels, numerosity, and some characteristics of young people's trajectory towards economic independence

Cluster label	abs. freq.	%	Median age at end of education	% respondents who experienced parental separation
Low-Educated NEET	4640	23.0	16	2.8
Low-Educated Slow to Work	2601	12.9	16	3.5
Low-Educated Working	3706	18.4	17	3.9
Low-Educated Leaving & Working	1236	6.1	18	7.4
High-Educated NEET	2032	10.1	19	3.1
High-Educated Working	4340	21.5	20	3.9
High-Educated Leaving & Working	1616	8.0	24	6.2
Total	20,171	100.0	18	3.9

percentages of respondents who had experienced parental separation by the end of their education (7.4% and 6.2%, respectively).

In answer to RQ1, Fig. 2 shows predicted probabilities of belonging to the seven different clusters for young people's trajectory towards economic independence, according to respondents' parental separation. Most of the predicted probabilities overlap between the two groups of respondents (intact family vs. parental separation), except for the two clusters in which individuals leave the parental home within 7 years of exiting schooling. Thus, both more educated and less educated children of separated parents seem to transition faster towards entering the labor market, and especially towards leaving the parental home, irrespective of education level attained. Meanwhile, having grown up in a non-intact family due to parental separation does not seem to indicate a clear pattern towards lower or higher educational attainment.

Young people's trajectories towards own household formation

Young Italians' pathways towards the formation of young people's own household are briefly presented before illustrating the results for RQ2 (see Table 8 in Appendix for a full description of pathways).

Table 3 and Fig. 3 show the six different clusters identified for young people's family formation in an independent household. Here, too, the cluster labels recall their main features: leaving home, union entry, and parenthood.

Notably, the "Leave & Cohabit" and especially the "Leave & Cohabit, Parenthood" clusters are the least numerous (11.6% and 5.2% of the sub-sequences, respectively), implying that cohabitation was not so frequent among these birth cohorts (the youngest birth cohort is from 1991). These two clusters are also characterized by the highest percentages of respondents who experienced parental separation before exiting the parental home (9.4% and 8.6%, respectively). In contrast, the lowest percentages of respondents who experienced parental separation before leaving the parental home are the "Leave & Married, Slow to Parenthood" and the "Leave & Married, Fast to Parenthood" (2.6% and 2.5% of sub-sequences, respectively), followed by the "Leave & Married" cluster.

In answer to RQ2, Fig. 4 shows predicted probabilities of belonging to the six different clusters for young people's trajectory towards own household formation, according to

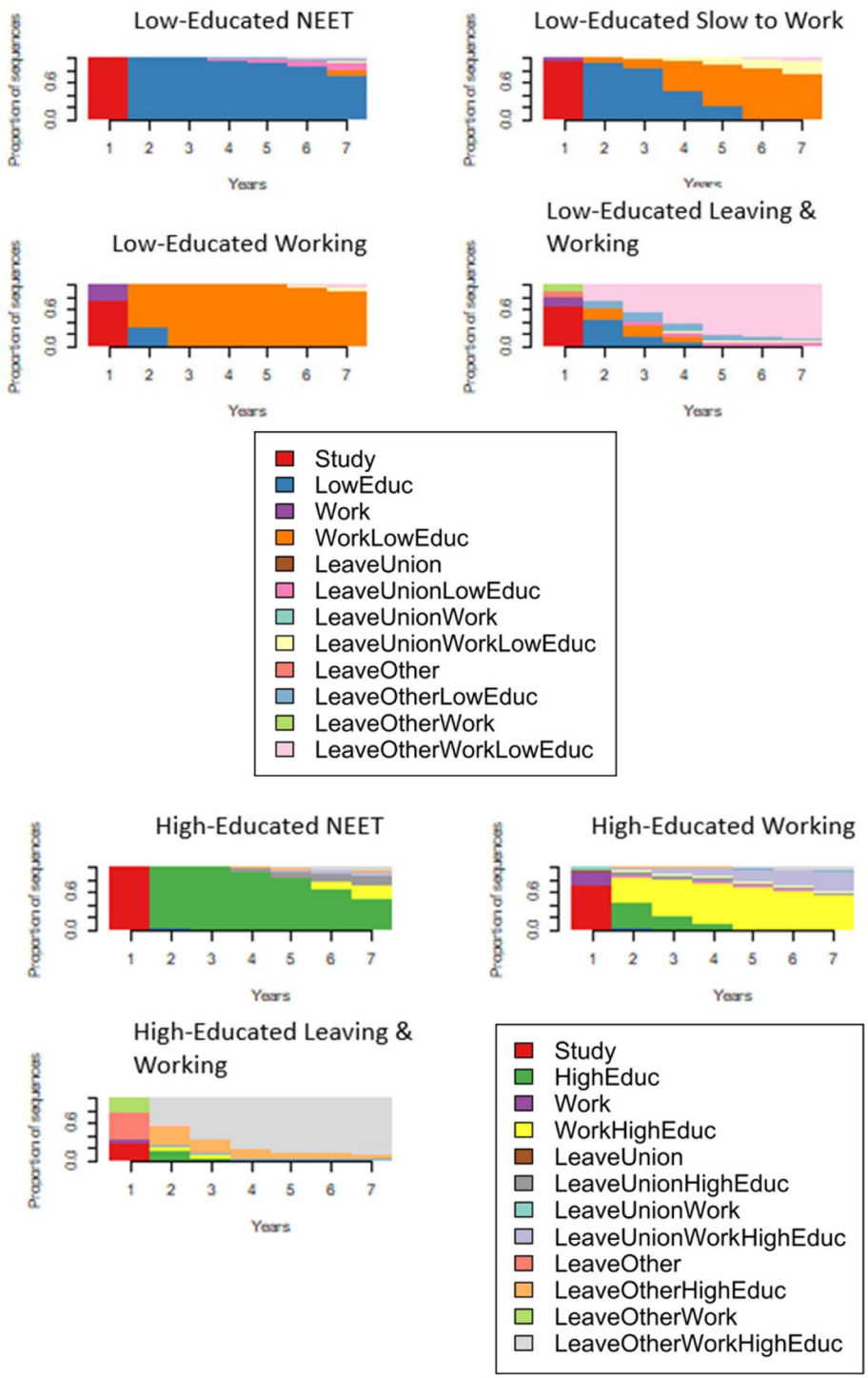

Fig. 1 Cluster sub-sequences for young people's trajectory towards economic independence

respondents' parental separation. On one hand, children of non-intact families show a greater propensity to leave home for non-union-related reasons (1 out of 3: "Leave" cluster) or to enter their first cohabitation ("Leave & Cohabit" and "Leave & Cohabit, Parenthood" clusters). On the other hand, children who experienced parental separation have

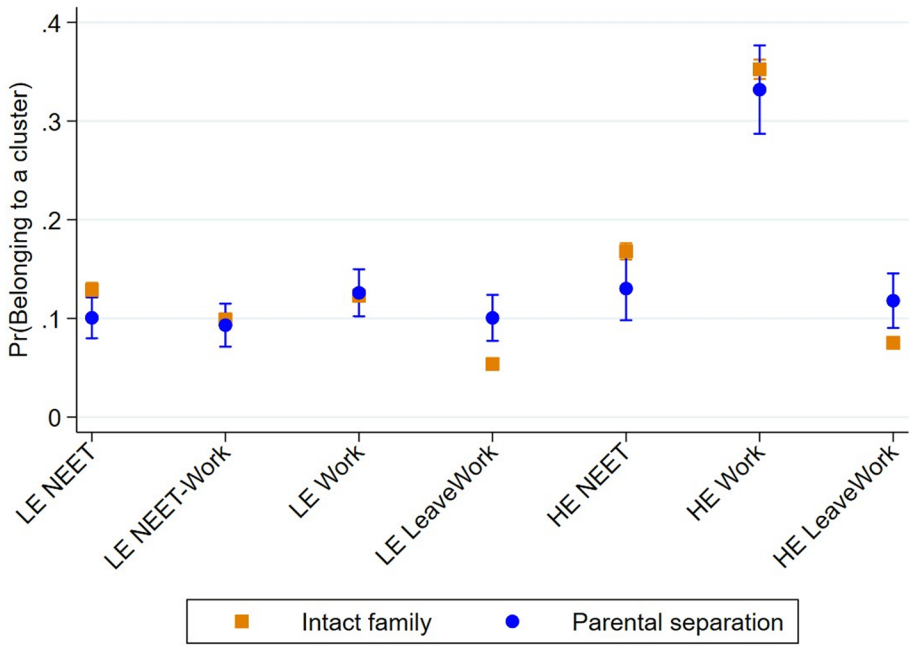

Fig. 2 Predicted probabilities of being in a given cluster for young people's trajectory towards economic independence, by parental separation. To estimate predicted probabilities, we allow parental separation to vary and keep age group, gender, birth cohort, having siblings, macro-area of residence, parental education, mother's employment, and father's social class at their mean values. Model A1 in Table 8 in Appendix provides the complete results

Table 3 Cluster labels, numerosity, and some characteristics of young people's trajectory towards own household formation

Cluster label	abs. freq.	%	Median age for leaving home	% respondents who experienced parental separation
Leave	5142	28.9	19	5.3
Leave & Married	2785	15.7	25	3.5
Leave & Married, Slow to Parenthood	3137	17.6	25	2.6
Leave & Married, Fast to Parenthood	3746	21.1	23	2.5
Leave & Cohabiting	2062	11.6	24	9.4
Leave & Cohabiting, Parenthood	917	5.2	24	8.6
Total	17,789	100.0	23	4.6

a lower propensity to enter directly into marriage compared to those who grew up in an intact family. The largest gaps between the two groups appear in the "Leave & Married, Slow to Parenthood" and "Leave & Married, Fast to Parenthood" clusters, where the predicted probability (p.p.) of belonging to one of these two clusters is, respectively, 12.1 and 11.1 p.p. lower for children of non-intact families. Meanwhile, the "Leave & Cohabit" cluster is more common among children of non-intact families (13.6 p.p. higher). This last cluster embodies an evident non-traditional pattern, where 42.4% of the respondents had not yet had children by the time of interview. In contrast, the most traditional cultural behavior of having children within a few years of direct entry into marriage is not common among children of non-intact families. Notably, the three patterns that

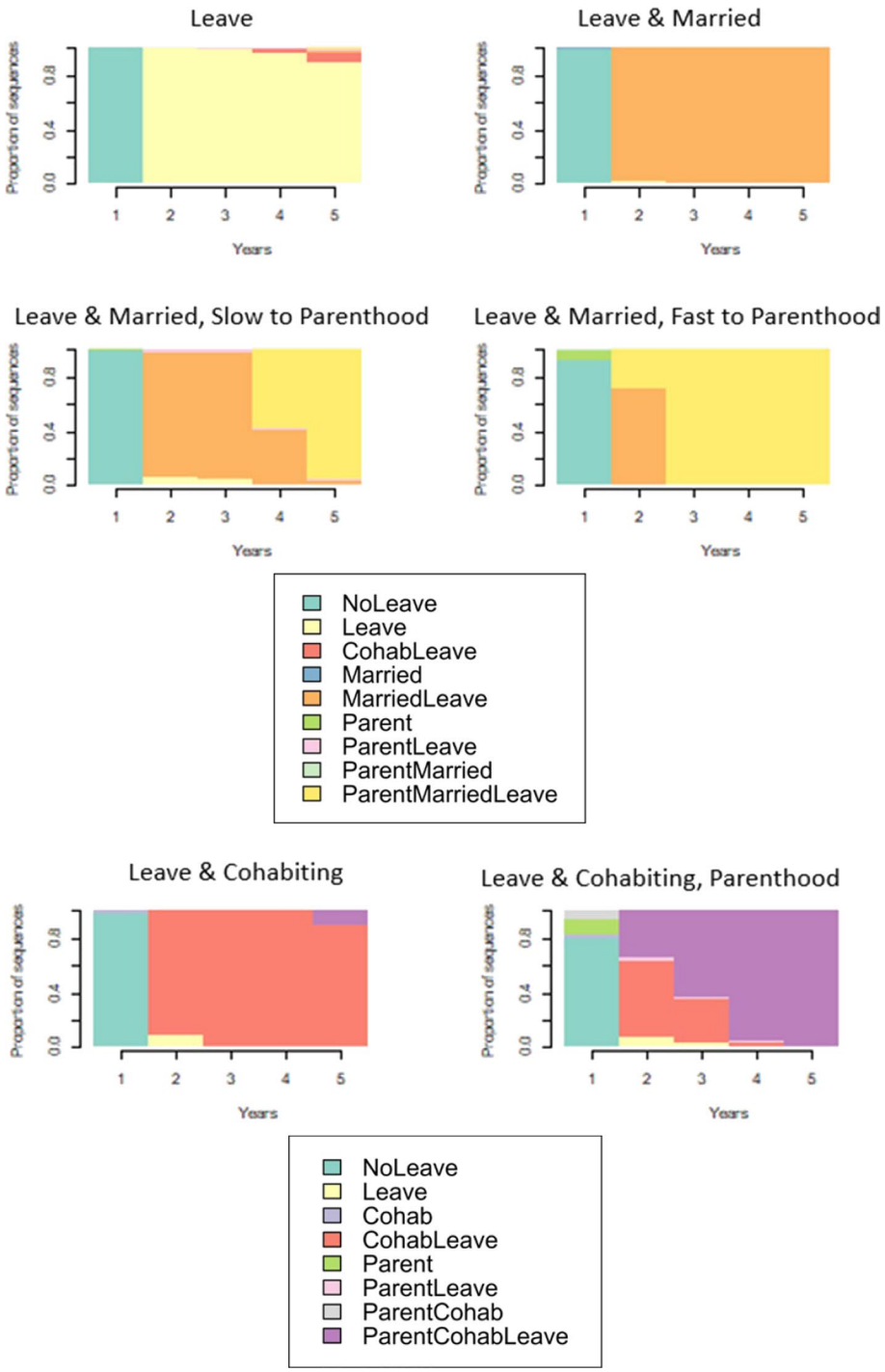

Fig. 3 Cluster sub-sequences for young people's trajectory towards their own household formation

involve parenthood within five years of leaving the parental home are the least popular among children of non-intact families, be it within marriage or cohabitation.[5]

[5] Respondents within the "Leave & Cohabiting, Parenthood" cluster may become a parent within marriage or within cohabitation as the sub-sequence only checks the first union entry. More precisely, 82.7% of young people in this cluster have a child within cohabitation, whereas only 17.3% of them become a parent within marriage.

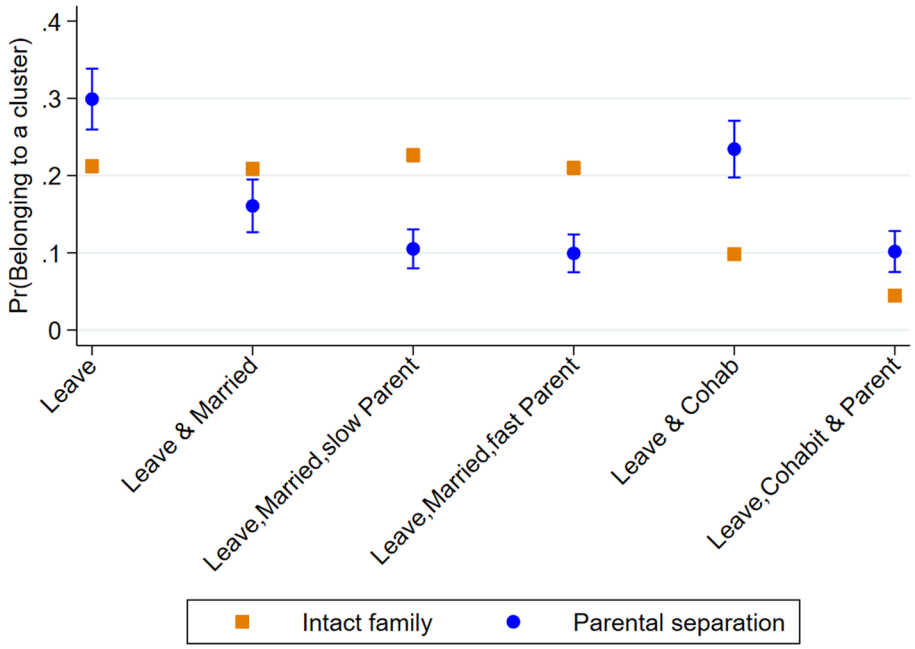

Fig. 4 Predicted probabilities of being in a given cluster for young people's trajectory towards own household formation, by parental separation. To estimate predicted probabilities, we allow parental separation to vary and keep age group, gender, final education level, working conditions, birth cohort, having siblings, macro-area of residence, parental education, mother's employment, and father's social class at their mean values. Model B1 in Table 9 in Appendix provides the complete results

Additional results: the relationship between age at parental separation and the trajectory typologies for the transition to adulthood

To investigate more deeply the relationship between parental separation and transition to adulthood, prior research suggests that the timing of family instability may have an impact on children (see, e.g., Fomby, 2013; Fomby & Bosick, 2013). For this reason, we did some additional analyses exploring whether the age at parental separation plays a role in affecting young people's trajectories for the transition to adulthood, comparing those who lived parental separation during childhood and early adolescence and those who lived it during late adolescence and youth (often neglected in the literature).

Thus, in Models A1 and B1, we replaced the dichotomous explanatory variable of parental separation with a time-constant variable indicating if parental separation occurred within children's age of 14, between the age of 15 and the last age at risk considered for each respondent, or if children's parents never separated up to the last age at risk (see Model A2, Table 8 and Model B2, Table 9 in Appendix A).

Panel *a* of Fig. 5 shows predicted probabilities of belonging to the seven clusters for the trajectory towards economic independence according to respondents' age at parental separation, distinguishing between the occurrence of the latter before or after their fifteenth birthday. Results show that, on one hand, children whose parents separated before they turned 15 behave similarly to children from intact families: all confidence intervals overlap between the two groups. On the other hand, children whose parents separated after they turned 15 show a greater propensity to be highly educated, start working, and leave the parental home compared to their peers from intact families, with nearly 1 out of 3 children prone to belonging in the "High Educated, Leaving &

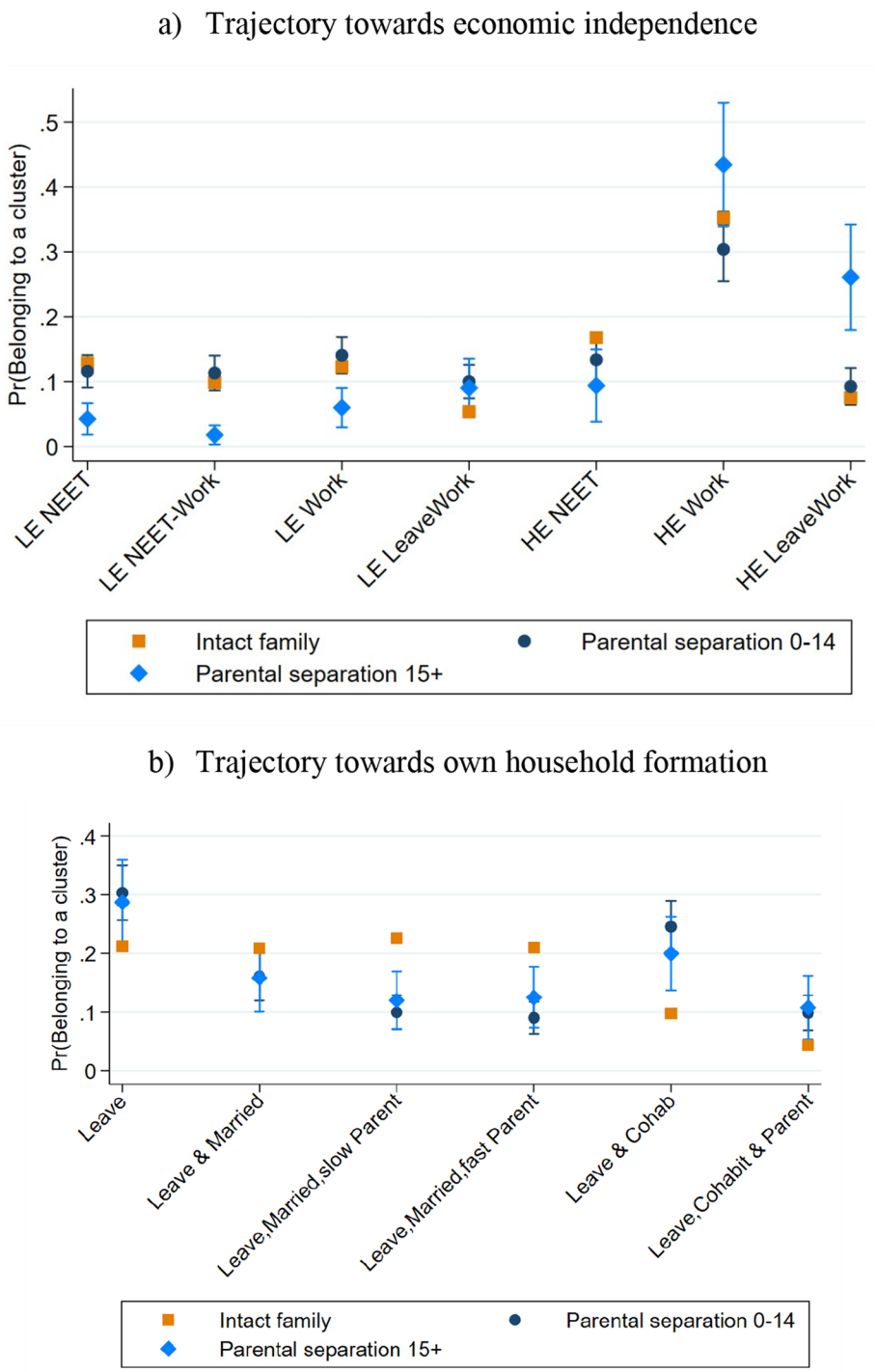

Fig. 5 Predicted probabilities of being in a given cluster for young people's trajectories towards economic independence and own household formation, by children's age at parental separation. To estimate predicted probabilities, we allow children's age at parental separation to vary and keep other control variables at their mean values. Model A2 in Table 8 and Model B2 in Table 9 in Appendix A provide the complete results

Working" cluster. Conversely, the likelihood that this group has a low level of education is definitively lower, except for those belonging to the "Low Educated, Leaving & Working" cluster (who show similar probabilities among the three groups). In sum, children

of parents who separated when they were younger than 15 seem to fall in-between the children of intact families and those whose parents separated after they turned 15: their predicted probabilities are always in the middle between the two groups.

Panel *b* of Fig. 5 shows predicted probabilities of belonging to the six different clusters for the trajectories towards own household formation according to children's age at parental separation. The three most culturally distant clusters (namely, the more traditional "Leave & Married, Slow to Parenthood" and "Leave & Married, Fast to Parenthood" clusters and the non-traditional "Leave & Cohabit" cluster) continue to show no overlapping confidence intervals—irrespective of the age at separation—between children of intact families and those of non-intact families. The confidence intervals of predicted probabilities do overlap for the remaining three clusters.

In sum, children's age at parental separation does not seem to affect much trajectories towards adulthood. Rather, what matters is parental separation itself, irrespective of children's age.

Conclusions and discussion

The increasing number of children who experience parental separation has led to a plethora of studies on its consequences, particularly its impact on the transition to adulthood, from leaving home to union and family formation (Feldhaus & Heintz-Martin, 2015; Härkönen et al., 2021; Ongaro & Mazzuco, 2009). This paper aims to address a shortcoming in the literature, namely, the tendency to treat each event marking the transition to adulthood separately, thus not considering the interdependencies among them. Given its unique characteristics, Italy provides a particularly interesting case for study, and given its closeness to other Mediterranean countries, similar dynamics may also apply to this broad geographical area.

Our findings challenge the traditional distinction between children of non-intact families transitioning more quickly to adulthood versus youth from intact families progressing more slowly to this new life stage. Indeed, they do not point to an earlier exit from education among children of separated parents, or the so-called "divorce penalty" to use the terminology of Bernardi and Radl (2014). This may be a context-specific result, due to a relevant selection among couples who divorce: up until a few decades ago in Italy, separated couples were mostly highly educated people, at the forefront of new family dynamics and with less traditional attitudes. Given that we focus on young people born up to the 1990s, our analyses still concern the recent past, a time when socio-economically advantaged families seem to have been able to shelter their children from the negative consequences of parental separation on education, as observed elsewhere (e.g., Amato & Anthony, 2014; Grätz, 2015).

We do, however, find that children of separated parents tend to transition more quickly towards entering the labor market and especially towards leaving the parental home (in line with previous studies; see, e.g., Bernhardt et al., 2005), independent of the education level attained. This result may reflect young people's aspiration for independence and autonomy, which could be stronger in the case of parental separation, driven by a desire to leave an unpleasant family context. However, parental separation can also provide relief to children by bringing an end to persistent conflict between parents. In this regard, it is important to acknowledge that in the studied cohorts, many highly

conflictual relationships may not have resulted in separation, especially among less affluent families, because divorce was a highly selective phenomenon, involving mostly higher social classes, as mentioned before. Consequently, a considerable number of respondents may have experienced prolonged exposure to a tense family environment, which could have influenced their decision to leave home earlier as a response to challenging living conditions. To sum up, our expectations about the trajectories towards economic independence are satisfied, with children of separated parents that share many similarities with children of intact families.

As regards other events related to the formation of young adults' own household, it is worth highlighting the fact that children who experienced parental separation show a higher propensity to leave home both for non-union-related reasons and to enter their first cohabitation, in line with the findings of Ongaro and Mazzuco (2009). This result can be interpreted in more than one direction. On one hand, a cultural effect could be at play in the formation of an individual's own household. Young people whose parents separated are more likely to distance themselves from their family of origin and to become independent through forming their own household, often through cohabitation. Although marriage is not refused, it is often postponed until more flexible forms of partnership have been experienced. Neither does there appear to be any urgency to become a parent; the tendency is to delay having a first child until several years after household independence. On the other hand, this pattern could simply be a consequence of economic hardship and/or worsening housing conditions due to parental separation. Moreover, since in the cohorts examined here divorce was highly selective on educational level and social class, this greater propensity may also be the result of belonging to higher social strata, that are those who usually adopt new behaviors early.

This last result begs for further study. The transition to parenthood of young people whose parents separated should in particular be investigated in greater depth, given that the diffusion of union instability, and thus of children growing up with separated parents, may be another contributing factor to low fertility in the Italian context in the near future. Do children who grow up with separated parents have a higher propensity to remain childless or do they simply postpone parenthood? Further investigation is, therefore, needed to better understand the means by which parental separation affects children's transition to adulthood, including testing with appropriate data and considering personal attitudes and orientations, to verify which interpretation of our results holds.

Finally, future research might examine different population subgroups. Specifically, it would be interesting to consider potential gender and birth cohort differences. Prior work has, in fact, observed differentiated effects of parental separation according to gender (see, e.g., the studies cited by Fomby & Bosick, 2013). Moreover, given that Italy has in recent years been experiencing important social and cultural changes that had as a consequence an increasingly diffused phenomenon of separation among all strata of the population (see Guetto & Impicciatore, 2021), the influence of parental separation on the transition to adulthood could be very different among the most recent cohorts of individuals, who are increasingly less subject to selection into divorce by education and income. For instance, certain peculiarities, such as the absence of an earlier exit from education among children of separated parents, could disappear. Obviously, this will only be possible when more recent data become available Tables 4, 5, 6, 7, 8, 9.

Appendix A

See Tables 4, 5, 6, 7, 8, 9.

Table 4 Sample composition

	Birth cohorts	*N (%)*		
		Men	**Women**	**Total**
FSS 2009	1960–1984	7404	7707 *(51.0%)*	15,111
FSS 2016	1967–1991	4453	4563 *(50.6%)*	9016
TOTAL	1960–1991	11,857	12,270 *(50.9%)*	24,127

Pooled data stemming from FSS 2009 and 2016

Table 5 Control variables by parental separation by the age of 35

	Intact family		**Parental separation within 35 years of age**		**Total**	
	n	***%***	***n***	***%***	***n***	***%***
Gender						
Male	11,181	49.4	676	44.6	11,857	49.1
Female	11,432	50.6	838	55.4	12,270	50.9
Birth cohort						
1960–1969	7819	34.6	301	19.9	8120	33.7
1970–1979	9437	41.7	629	41.5	10,066	41.7
1980–1991	5357	23.7	584	38.6	5941	24.6
Siblings						
No	2576	11.4	254	16.8	2830	11.7
Yes	20,037	88.6	1260	83.2	21,297	88.3
Parental education						
Primary or lower	9325	41.2	295	19.5	9620	39.9
Lower secondary/vocational	7555	33.4	566	37.4	8121	33.7
Upper secondary/tertiary	5733	25.4	653	43.1	6386	26.5
Mother's employment						
No	13,102	57.9	535	35.3	13,637	56.5
Yes	9097	40.2	942	62.2	10,039	41.6
Missing	414	1.8	37	2.4	451	1.9
Father's profession						
Bourgeoisie	3071	13.6	272	18.0	3343	13.9
Intermediate class	3997	17.7	296	19.6	4293	17.8
Petite Bourgeoisie	3968	17.5	225	14.9	4193	17.4
Working class	9837	43.5	516	34.1	10,353	42.9
Not employed	747	3.3	63	4.2	810	3.4
Missing	993	4.4	142	9.4	1135	4.7
Macro-area of residence						
North	9312	41.2	829	54.8	10,141	42.0
Center	3846	17.0	281	18.6	4127	17.1
South	9455	41.8	404	26.7	9859	40.9
Total	22,613	100.0	1514	100.0	24,127	100.0

Pooled data stemming from FSS 2009 and 2016

Table 6 Pathways towards economic independence, full description

Clustering	n	% working at the beginning of the spell	% working at the end of spell	% leaving for union reasons at the beginning of the spell	% leaving for union reasons at the end of the spell	% leaving for other reasons at the beginning of the spell	% leaving for other reasons at the end of the spell
Low-Educated NEET	4640	0.0	14.3	0.0	14.7	0.0	5.9
Low-Educated Slow to Work	2601	4.5	100.0	0.0	20.2	0.0	5.4
Low-Educated Working	3706	25.5	100.0	0.0	6.7	0.0	3.5
Low-Educated Leaving & Working	1236	27.8	92.4	0.0	8.2	21.6	91.8
High-Educated NEET	2032	0.0	32.3	0.0	22.4	0.0	8.0
High-Educated Working	4340	23.5	92.5	7.9	38.4	0.0	7.6
High-Educated Leaving & Working	1616	30.8	90.5	0.0	0.0	66.0	100.0
Total	20,171	14.5	70.6	1.7	18.2	6.6	18.8

Table 7 Pathways towards the formation of young people's own household, full description

Clustering	*n*	% married at the beginning of the spell	% married at the end of the spell	% cohabiting at the beginning of the spell	% cohabiting at the end of the spell	% parenthood at the beginning of the spell	% parenthood at the end of the spell
Leave	5142	0.0	2.7	0.0	6.6	0.0	1.6
Leave & Married	2785	0.5	100.0	0.0	0.0	0.0	0.0
Leave & Married, Slow to Parenthood	3137	0.3	98.7	0.0	0.0	1.0	97.2
Leave & Married, Fast to Parenthood	3746	1.7	100.0	0.0	0.0	7.7	100.0
Leave & Cohabiting	2062	0.0	0.0	2.7	100.0	0.0	10.3
Leave & Cohabiting, Parenthood	917	0.0	0.0	10.6	100.0	17.1	100.0
Total	17,789	0.5	54.9	0.9	18.7	2.7	45.0

Table 8 Estimated coefficients for Models A1 and A2 for the *Economic independence* process. Competing risks discrete-time event history models with "High-Educated Working" cluster as base outcome

	Model A1			Model A2		
	Coeff	**std. Err.**	***p*-value**	**Coeff**	**std. Err.**	***p*-value**
Low-Educated NEET						
Age class (ref. 12–18)						
19–24	− 2.66	0.09	0.000	− 2.66	0.09	0.000
25–29	− 4.35	0.51	0.000	− 4.35	0.51	0.000
Gender (ref. Male)						
Female	0.02	0.05	0.664	0.02	0.05	0.659
Parental separation (ref. No separation)						
Yes	0.26	0.14	0.065			
Age class at parental separation (ref. No separation)						
0–14				0.29	0.16	0.070
15 +				0.13	0.33	0.684
Birth cohort (ref. 1960–1969)						
1970–1979	0.24	0.06	0.000	0.24	0.06	0.000
1980–1991	0.61	0.07	0.000	0.61	0.07	0.000
Having siblings (ref. No)						
Yes	− 0.01	0.08	0.927	− 0.01	0.08	0.932
Macro-area of residence (ref. North)						
Center	0.41	0.07	0.000	0.41	0.07	0.000
South/Islands	1.25	0.06	0.000	1.25	0.06	0.000
Parental education (ref. Primary or lower)						
Lower secondary/vocational	− 0.45	0.06	0.000	− 0.45	0.06	0.000
Upper secondary/tertiary	− 0.81	0.08	0.000	− 0.81	0.08	0.000
Mother's employment (ref. No)						
Yes	− 0.21	0.05	0.000	− 0.21	0.05	0.000
Unknown	0.50	0.20	0.013	0.50	0.20	0.013
Father's social class (ref. Upper class)						
Middle class	− 0.08	0.10	0.440	− 0.08	0.10	0.437
Lower middle class	0.20	0.10	0.045	0.20	0.10	0.046
Working class	0.44	0.09	0.000	0.44	0.09	0.000
Not employed	0.55	0.17	0.001	0.55	0.17	0.001
Unknown	0.87	0.15	0.000	0.87	0.15	0.000
Constant	− 1.11	0.15	0.000	− 1.11	0.15	0.000
Low-Educated Slow to Work						
Age class (ref. 12–18)						
19–24	− 2.10	0.08	0.000	− 2.09	0.08	0.000
25–29	− 4.37	0.62	0.000	− 4.36	0.62	0.000
Gender (ref. Male)						
Female	− 0.37	0.06	0.000	− 0.37	0.06	0.000
Parental separation (ref. No separation)						
Yes	0.26	0.16	0.097			
Age class at parental separation (ref. No separation)						
0–14				0.36	0.17	0.034
15 +				− 0.77	0.45	0.087
Birth cohort (ref. 1960–1969)						
1970–1979	0.18	0.07	0.007	0.18	0.07	0.007
1980–1991	0.68	0.08	0.000	0.68	0.08	0.000

Table 8 (continued)

	Model A1			Model A2		
	Coeff	**std. Err.**	***p*-value**	**Coeff**	**std. Err.**	***p*-value**
Having siblings (ref. No)						
Yes	0.40	0.09	0.000	0.40	0.09	0.000
Macro-area of residence (ref. North)						
Center	0.01	0.08	0.889	0.01	0.08	0.893
South/Islands	0.10	0.07	0.128	0.10	0.07	0.128
Parental education (ref. Primary or lower)						
Lower secondary/vocational	− 0.22	0.07	0.002	− 0.22	0.07	0.002
Upper secondary/tertiary	− 0.85	0.09	0.000	− 0.85	0.09	0.000
Mother's employment (ref. No)						
Yes	0.06	0.06	0.301	0.06	0.06	0.310
Unknown	0.38	0.24	0.112	0.38	0.24	0.112
Father's social class (ref. Upper class)						
Middle class	− 0.05	0.11	0.652	− 0.05	0.11	0.646
Lower middle class	0.25	0.11	0.023	0.25	0.11	0.024
Working class	0.41	0.10	0.000	0.40	0.10	0.000
Not employed	0.55	0.18	0.003	0.54	0.18	0.003
Unknown	0.50	0.17	0.004	0.49	0.17	0.004
Constant	− 0.84	0.16	0.000	− 0.84	0.16	0.000
Low-Educated Working						
Age class (ref. 12–18)						
19–24	− 1.94	0.07	0.000	− 1.94	0.07	0.000
25–29	− 2.95	0.29	0.000	− 2.95	0.29	0.000
Gender (ref. Male)						
Female	− 0.60	0.05	0.000	− 0.60	0.05	0.000
Parental separation (ref. No separation)						
Yes	0.27	0.14	0.048			
Age class at parental separation (ref. No separation)						
0–14				0.30	0.15	0.048
15 +				0.07	0.30	0.816
Birth cohort (ref. 1960–1969)						
1970–1979	0.37	0.06	0.000	0.37	0.06	0.000
1980–1991	0.96	0.08	0.000	0.96	0.08	0.000
Having siblings (ref. No)						
Yes	0.45	0.08	0.000	0.45	0.08	0.000
Macro-area of residence (ref. North)						
Center	− 0.31	0.07	0.000	− 0.31	0.07	0.000
South/Islands	− 0.60	0.06	0.000	− 0.60	0.06	0.000
Parental education (ref. primary or lower)						
Lower secondary/vocational	− 0.32	0.06	0.000	− 0.32	0.06	0.000
Upper secondary/tertiary	− 1.06	0.08	0.000	− 1.06	0.08	0.000
Mother's employment (ref. No)						
Yes	0.01	0.05	0.821	0.01	0.05	0.825
Unknown	− 0.20	0.24	0.415	− 0.20	0.24	0.415
Father's social class (ref. Upper class)						
Middle class	− 0.15	0.10	0.129	− 0.15	0.10	0.128
Lower middle class	0.28	0.10	0.003	0.28	0.10	0.004
Working class	0.42	0.09	0.000	0.42	0.09	0.000
Not employed	0.29	0.18	0.105	0.28	0.18	0.107

Table 8 (continued)

	Model A1			Model A2		
	Coeff	**std. Err.**	***p*-value**	**Coeff**	**std. Err.**	***p*-value**
Unknown	0.44	0.15	0.004	0.44	0.15	0.004
Constant	− 0.02	0.14	0.867	− 0.02	0.14	0.863
Low-Educated Leaving & Working						
Age class (ref. 12–18)						
19–24	− 1.27	0.09	0.000	− 1.27	0.09	0.000
25–29	− 1.82	0.27	0.000	− 1.82	0.27	0.000
Gender (ref. Male)						
Female	− 0.67	0.07	0.000	− 0.68	0.07	0.000
Parental separation (ref. No separation)						
Yes	0.75	0.16	0.000			
Age class at parental separation (ref. No separation)						
0–14				0.71	0.18	0.000
15 +				0.98	0.30	0.001
Birth cohort (ref. 1960–1969)						
1970–1979	0.30	0.09	0.001	0.30	0.09	0.001
1980–1991	0.81	0.10	0.000	0.80	0.10	0.000
Having siblings (ref. No)						
Yes	0.81	0.13	0.000	0.80	0.13	0.000
Macro-area of residence (ref. North)						
Center	− 0.10	0.10	0.303	− 0.10	0.10	0.304
South/Islands	− 0.25	0.09	0.004	− 0.25	0.09	0.004
Parental education (ref. Primary or lower)						
Lower secondary/vocational	− 0.20	0.09	0.025	− 0.20	0.09	0.025
Upper secondary/tertiary	− 0.38	0.11	0.000	− 0.38	0.11	0.000
Mother's employment (ref. No)						
Yes	0.07	0.08	0.377	0.07	0.08	0.368
Unknown	0.80	0.24	0.001	0.80	0.24	0.001
Father's social class (ref. Upper class)						
Middle class	0.34	0.14	0.014	0.34	0.14	0.014
Lower middle class	0.57	0.14	0.000	0.57	0.14	0.000
Working class	0.70	0.13	0.000	0.70	0.13	0.000
Not employed	0.78	0.24	0.001	0.79	0.24	0.001
Unknown	1.07	0.20	0.000	1.07	0.20	0.000
Constant	− 1.88	0.21	0.000	− 1.88	0.21	0.000
High-Educated NEET						
Age class (ref. 12–18)						
19–24	− 0.57	0.04	0.000	− 0.57	0.04	0.000
25–29	− 1.24	0.11	0.000	− 1.24	0.11	0.000
Gender (ref. Male)						
Female	0.17	0.06	0.005	0.17	0.06	0.005
Age class at parental separation (ref. No separation)						
0–14						
15 +						
Parental separation (ref. No separation)				0.22	0.19	0.249
Yes	0.14	0.17	0.405	− 0.27	0.36	0.450
Birth cohort (ref. 1960–1969)						
1970–1979	− 0.07	0.07	0.295	− 0.07	0.07	0.292
1980–1991	− 0.36	0.09	0.000	− 0.36	0.09	0.000

Table 8 (continued)

	Model A1			Model A2		
	Coeff	**std. Err.**	***p*-value**	**Coeff**	**std. Err.**	***p*-value**
Having siblings (ref. No)						
Yes	− 0.07	0.09	0.456	− 0.06	0.09	0.463
Macro-area of residence (ref. North)						
Center	0.60	0.09	0.000	0.60	0.09	0.000
South/Islands	1.56	0.07	0.000	1.56	0.07	0.000
Parental education (ref. Primary or lower)						
Lower secondary/vocational	− 0.03	0.07	0.712	− 0.03	0.08	0.708
Upper secondary/tertiary	− 0.03	0.09	0.741	− 0.03	0.09	0.737
Mother's employment (ref. No)						
Yes	− 0.05	0.06	0.398	− 0.05	0.06	0.393
Unknown	− 0.16	0.28	0.568	− 0.16	0.28	0.570
Father's social class (ref. Upper class)						
Middle class	0.09	0.10	0.371	0.09	0.10	0.383
Lower middle class	0.01	0.11	0.902	0.01	0.11	0.923
Working class	0.15	0.10	0.106	0.15	0.10	0.112
Not employed	− 0.12	0.21	0.562	− 0.13	0.21	0.543
Unknown	0.18	0.18	0.307	0.18	0.18	0.330
Constant	− 1.49	0.17	0.000	− 1.49	0.17	0.000
High-Educated Working	***Base outcome***					
High-Educated Leaving & Working						
Age class (ref. 12–18)						
19–24	1.16	0.04	0.000	1.15	0.04	0.000
25–29	1.40	0.08	0.000	1.40	0.08	0.000
Gender (ref. Male)						
Female	− 0.42	0.07	0.000	− 0.43	0.07	0.000
Age class at parental separation (ref. No separation)						
0–14						
15 +						
Parental separation (ref. No separation)				0.25	0.20	0.201
Yes	0.34	0.16	0.031	0.53	0.24	0.030
Birth cohort (ref. 1960–1969)						
1970–1979	0.10	0.08	0.203	0.11	0.08	0.202
1980–1991	0.16	0.10	0.120	0.16	0.10	0.123
Having siblings (ref. No)						
Yes	0.38	0.11	0.000	0.38	0.11	0.001
Macro-area of residence (ref. North)						
Center	− 0.18	0.10	0.054	− 0.19	0.10	0.053
South/Islands	0.03	0.08	0.689	0.03	0.08	0.699
Parental education (ref. Primary or lower)						
Lower secondary/vocational	0.02	0.10	0.833	0.02	0.10	0.830
Upper secondary/tertiary	0.17	0.10	0.096	0.17	0.10	0.094
Mother's employment (ref. No)						
Yes	0.22	0.07	0.002	0.22	0.07	0.002
Unknown	0.31	0.32	0.331	0.31	0.32	0.331
Father's social class (ref. Upper class)						
Middle class	− 0.16	0.10	0.109	− 0.16	0.10	0.113
Lower middle class	− 0.23	0.12	0.050	− 0.23	0.12	0.053

Table 8 (continued)

High-Educated Working	***Base outcome***					
Working class	− 0.27	0.11	0.010	− 0.27	0.11	0.011
Not employed	− 0.09	0.23	0.694	− 0.08	0.23	0.722
Unknown	0.04	0.20	0.844	0.05	0.20	0.808
Constant	− 1.48	0.19	0.000	− 1.47	0.19	0.000

Table 9 Estimated coefficients for Models B1 and B2 for the *Formation of own household* process. Competing risks discrete-time event history models with "Leave" cluster as base outcome

	Model B1			**Model B2**		
	Coeff	**std. Err.**	***p*-value**	**Coeff**	**std. Err.**	***p*-value**
Leave	***Base outcome***					
Leave & Married						
Age class (ref. 15–19)						
20–24	0.33	0.03	0.000	0.34	0.03	0.000
25–29	0.32	0.05	0.000	0.32	0.05	0.000
30–35	0.08	0.10	0.420	0.08	0.10	0.404
Gender (ref. Male)						
Female	0.92	0.06	0.000	0.92	0.06	0.000
Parental separation (ref. No separation)						
Yes	− 0.24	0.15	0.107			
Age class at parental separation (ref. No separation)						
0–14				− 0.17	0.18	0.344
15 +				− 0.45	0.26	0.075
Final educational level (ref. Primary or lower)						
Lower secondary/ vocational	0.55	0.06	0.000	0.55	0.06	0.000
Upper secondary	0.43	0.07	0.000	0.43	0.07	0.000
Tertiary	0.64	0.14	0.000	0.64	0.14	0.000
Working condition (ref. Not employed)						
Permanent position	0.51	0.06	0.000	0.51	0.06	0.000
Temporary position	0.13	0.08	0.105	0.13	0.08	0.104
Self-employed	0.63	0.11	0.000	0.63	0.11	0.000
Birth cohort (ref. 1960–1969)						
1970–1979	− 0.43	0.06	0.000	− 0.43	0.06	0.000
1980–1991	− 1.44	0.09	0.000	− 1.44	0.09	0.000
Having siblings (ref. No)						
Yes	− 0.07	0.08	0.420	− 0.07	0.08	0.428
Macro-area of residence (ref. North)						
Center	0.14	0.08	0.070	0.14	0.08	0.070
South/Islands	0.25	0.06	0.000	0.25	0.06	0.000
Parental education (ref. Primary or lower)						
Lower secondary/ vocational	− 0.14	0.07	0.041	− 0.14	0.07	0.041
Upper secondary/ tertiary	− 0.45	0.08	0.000	− 0.45	0.08	0.000

Table 9 (continued)

	Model B1			Model B2		
	Coeff	**std. Err.**	***p*-value**	**Coeff**	**std. Err.**	***p*-value**
Leave	***Base outcome***					
Mother's employment (ref. No)						
Yes	− 0.17	0.06	0.003	− 0.17	0.06	0.003
Unknown	− 0.35	0.22	0.116	− 0.35	0.22	0.115
Father's social class (ref. Upper class)						
Middle class	0.22	0.10	0.023	0.22	0.10	0.023
Lower middle class	0.17	0.10	0.099	0.17	0.10	0.100
Working class	0.19	0.09	0.038	0.19	0.09	0.039
Not employed	− 0.06	0.17	0.717	− 0.06	0.17	0.713
Unknown	− 0.10	0.15	0.538	− 0.10	0.15	0.515
Constant	− 1.69	0.15	0.000	− 1.69	0.15	0.000
Leave & Married, Slow to Parenthood						
Age class (ref. 15–19)						
20–24	0.31	0.03	0.000	0.31	0.03	0.000
25–29	0.24	0.05	0.000	0.24	0.05	0.000
30–35	− 0.23	0.10	0.021	− 0.23	0.10	0.022
Gender (ref. Male)						
Female	0.91	0.06	0.000	0.91	0.06	0.000
Parental separation (ref. No separation)						
Yes	− 0.61	0.15	0.000			
Age class at parental separation (ref. No separation)						
0–14				− 0.58	0.19	0.002
15 +				− 0.71	0.27	0.010
Final educational level (ref. Primary or lower)						
Lower secondary/ vocational	0.58	0.06	0.000	0.58	0.06	0.000
Upper secondary	0.63	0.07	0.000	0.63	0.07	0.000
Tertiary	0.78	0.14	0.000	0.78	0.14	0.000
Working condition (ref. Not employed)						
Permanent position	0.46	0.06	0.000	0.46	0.06	0.000
Temporary position	0.00	0.08	0.983	0.00	0.08	0.978
Self-employed	0.59	0.10	0.000	0.59	0.10	0.000
Birth cohort (ref. 1960–1969)						
1970–1979	− 0.51	0.06	0.000	− 0.51	0.06	0.000
1980–1991	− 1.45	0.09	0.000	− 1.45	0.09	0.000
Having siblings (ref. No)						
Yes	0.13	0.09	0.142	0.13	0.09	0.140
Macro-area of residence (ref. North)						
Center	0.45	0.08	0.000	0.45	0.08	0.000
South/Islands	0.68	0.06	0.000	0.68	0.06	0.000
Parental education (ref. Primary or lower)						
Lower secondary/ vocational	− 0.14	0.07	0.038	− 0.14	0.07	0.038
Upper secondary/ tertiary	− 0.55	0.08	0.000	− 0.55	0.08	0.000
Mother's employment (ref. No)						
Yes	− 0.21	0.06	0.000	− 0.21	0.06	0.000
Unknown	0.08	0.20	0.681	0.08	0.20	0.683

Table 9 (continued)

	Model B1			Model B2		
	Coeff	**std. Err.**	***p*-value**	**Coeff**	**std. Err.**	***p*-value**
Leave	***Base outcome***					
Father's social class (ref. Upper class)						
Middle class	− 0.09	0.10	0.363	− 0.09	0.10	0.365
Lower middle class	0.01	0.10	0.917	0.01	0.10	0.919
Working class	0.03	0.09	0.708	0.03	0.09	0.709
Not employed	− 0.64	0.17	0.000	− 0.64	0.17	0.000
Unknown	− 0.40	0.15	0.009	− 0.41	0.15	0.008
Constant	− 1.73	0.15	0.000	− 1.73	0.15	0.000
Leave & Married, Fast to Parenthood						
Age class (ref. 15–19)						
20–24	0.17	0.03	0.000	0.17	0.03	0.000
25–29	0.09	0.05	0.064	0.09	0.05	0.061
30–35	0.02	0.10	0.824	0.02	0.10	0.818
Gender (ref. Male)						
Female	1.00	0.06	0.000	1.00	0.06	0.000
Parental separation (ref. No separation)						
Yes	− 0.46	0.16	0.004			
Age class at parental separation (ref. No separation)						
0–14				− 0.47	0.19	0.014
15 +				− 0.47	0.27	0.086
Final educational level (ref. Primary or lower)						
Lower secondary/ vocational	1.05	0.05	0.000	1.05	0.05	0.000
Upper secondary	0.59	0.08	0.000	0.59	0.08	0.000
Tertiary	0.85	0.15	0.000	0.85	0.15	0.000
Working condition (ref. Not employed)						
Permanent position	0.41	0.06	0.000	0.41	0.06	0.000
Temporary position	0.04	0.08	0.627	0.04	0.08	0.623
Self-employed	0.58	0.11	0.000	0.58	0.11	0.000
Birth cohort (ref. 1960–1969)						
1970–1979	− 0.66	0.06	0.000	− 0.66	0.06	0.000
1980–1991	− 1.47	0.09	0.000	− 1.47	0.09	0.000
Having siblings (ref. No)						
Yes	0.27	0.09	0.004	0.27	0.09	0.004
Macro-area of residence (ref. North)						
Center	0.56	0.08	0.000	0.57	0.08	0.000
South/Islands	1.26	0.06	0.000	1.26	0.06	0.000
Parental education (ref. Primary or lower)						
Lower secondary/ vocational	− 0.20	0.07	0.002	− 0.20	0.07	0.002
Upper secondary/ tertiary	− 0.61	0.08	0.000	− 0.61	0.08	0.000
Mother's employment (ref. No)						
Yes	− 0.14	0.06	0.013	− 0.14	0.06	0.013
Unknown	− 0.31	0.21	0.137	− 0.31	0.21	0.136
Father's social class (ref. Upper class)						
Middle class	− 0.01	0.10	0.905	− 0.01	0.10	0.908
Lower middle class	0.10	0.10	0.328	0.10	0.10	0.327

Table 9 (continued)

	Model B1			Model B2		
	Coeff	**std. Err.**	***p*-value**	**Coeff**	**std. Err.**	***p*-value**
Leave	***Base outcome***					
Working class	0.16	0.09	0.072	0.16	0.09	0.072
Not employed	− 0.40	0.17	0.017	− 0.40	0.17	0.017
Unknown	− 0.23	0.15	0.135	− 0.23	0.15	0.135
Constant	− 2.48	0.16	0.000	− 2.48	0.16	0.000
Leave & Cohabiting						
Age class (ref. 15–19)						
20–24	0.32	0.03	0.000	0.32	0.03	0.000
25–29	0.45	0.05	0.000	0.46	0.05	0.000
30–35	0.50	0.10	0.000	0.50	0.10	0.000
Gender (ref. Male)						
Female	0.60	0.06	0.000	0.60	0.06	0.000
Parental separation (ref. No separation)						
Yes	0.18	0.12	0.136			
Age class at parental separation (ref. No separation)						
0–14				0.26	0.14	0.062
15 +				− 0.07	0.23	0.771
Final educational level (ref. Primary or lower)						
Lower secondary/ vocational	0.50	0.06	0.000	0.50	0.06	0.000
Upper secondary	− 0.10	0.09	0.272	− 0.10	0.09	0.273
Tertiary	0.31	0.14	0.031	0.31	0.14	0.030
Working condition (ref. Not employed)						
Permanent position	0.55	0.06	0.000	0.54	0.06	0.000
Temporary position	0.53	0.08	0.000	0.53	0.08	0.000
Self-employed	0.39	0.12	0.002	0.39	0.12	0.002
Birth cohort (ref. 1960–1969)						
1970–1979	0.63	0.08	0.000	0.63	0.08	0.000
1980–1991	0.61	0.09	0.000	0.61	0.09	0.000
Having siblings (ref. No)						
Yes	− 0.09	0.09	0.320	− 0.09	0.09	0.331
Macro-area of residence (ref. North)						
Center	− 0.17	0.08	0.037	− 0.17	0.08	0.038
South/Islands	− 1.01	0.08	0.000	− 1.01	0.08	0.000
Parental education (ref. Primary or lower)						
Lower secondary/ vocational	0.32	0.08	0.000	0.33	0.08	0.000
Upper secondary/ tertiary	0.12	0.09	0.186	0.12	0.09	0.189
Mother's employment (ref. No)						
Yes	0.07	0.06	0.248	0.07	0.06	0.253
Unknown	− 0.02	0.25	0.945	− 0.02	0.25	0.936
Father's social class (ref. Upper class)						
Middle class	0.03	0.10	0.771	0.03	0.10	0.762
Lower middle class	− 0.04	0.11	0.737	− 0.04	0.11	0.732
Working class	0.03	0.10	0.766	0.03	0.10	0.766
Not employed	0.12	0.19	0.531	0.11	0.19	0.535
Unknown	− 0.18	0.17	0.293	− 0.18	0.17	0.270

Table 9 (continued)

	Model B1			Model B2		
	Coeff	**std. Err.**	***p*-value**	**Coeff**	**std. Err.**	***p*-value**
Leave	***Base outcome***					
Constant	− 2.33	0.17	0.000	− 2.33	0.17	0.000
Leave & Cohabiting, Parenthood						
Age class (ref. 15–19)						
20–24	0.36	0.04	0.000	0.36	0.04	0.000
25–29	0.75	0.07	0.000	0.75	0.07	0.000
30–35	1.14	0.12	0.000	1.14	0.12	0.000
Gender (ref. Male)						
Female	0.79	0.09	0.000	0.79	0.09	0.000
Parental separation (ref. No separation)						
Yes	0.36	0.17	0.033			
Age class at parental separation (ref. No separation)						
0–14				0.39	0.19	0.047
15 +				0.26	0.32	0.406
Final educational level (ref. Primary or lower)						
Lower secondary/ vocational	0.73	0.09	0.000	0.73	0.09	0.000
Upper secondary	0.04	0.13	0.743	0.04	0.13	0.741
Tertiary	0.38	0.19	0.047	0.38	0.19	0.047
Working condition (ref. Not employed)						
Permanent position	0.43	0.08	0.000	0.43	0.08	0.000
Temporary position	0.35	0.11	0.002	0.35	0.11	0.002
Self-employed	0.42	0.16	0.009	0.42	0.16	0.009
Birth cohort (ref. 1960–1969)						
1970–1979	0.41	0.11	0.000	0.41	0.11	0.000
1980–1991	0.69	0.13	0.000	0.69	0.13	0.000
Having siblings (ref. No)						
Yes	0.24	0.14	0.082	0.24	0.14	0.081
Macro-area of residence (ref. North)						
Center	0.06	0.12	0.594	0.06	0.12	0.593
South/Islands	− 0.42	0.10	0.000	− 0.42	0.10	0.000
Parental education (ref. primary or lower)						
Lower secondary/ vocational	0.04	0.11	0.722	0.04	0.11	0.721
Upper secondary/ tertiary	− 0.38	0.13	0.005	− 0.38	0.13	0.005
Mother's employment (ref. No)						
Yes	0.05	0.09	0.555	0.05	0.09	0.556
Unknown	− 0.36	0.37	0.326	− 0.36	0.37	0.325
Father's social class (ref. Upper class)						
Middle class	− 0.18	0.15	0.256	− 0.18	0.15	0.256
Lower middle class	− 0.21	0.16	0.173	− 0.21	0.16	0.173
Working class	− 0.06	0.13	0.682	− 0.05	0.13	0.683
Not employed	− 0.65	0.29	0.027	− 0.65	0.29	0.027
Unknown	0.23	0.21	0.283	0.22	0.21	0.290
Constant	− 3.71	0.23	0.000	− 3.71	0.23	0.000

Appendix B—The SAMM procedure

In our work, we applied one of the most recent advancements in sequence analysis (Studer et al., 2018), namely, the sequence analysis multistate model (SAMM) to study how parental separation is associated with young people's transition to adulthood.

The SAMM procedure is a step-wise application of (1) sequence analysis (SA) and cluster analysis (CA) to identify typical pathways and (2) multistate event history model to study the risk of following each kind of pathways, identified in the first step and constituting the outcome in the second step. With respect to other methods, such a procedure offers several advantages because it allows for modeling the relationship between time-varying covariates (in our context, parental separation) and patterns of change over the life course. Moreover, we can unveil potential interdependencies between states (in our case, the end of education and the formation of an independent household) and transitions towards trajectories. Finally, we can handle censored observations, which can be included in the analysis even if only partially observed.

In our analysis, we applied the SAMM procedure for the two main aspects of the transition to adulthood: economic independence and the formation of an independent household. The starting point for economic independence is set to the end of education, whereas for household formation the exit from the parental home is considered. In what follows, we describe the SAMM procedure providing more details on the method.

Young people's economic independence

First step: sequence analysis and cluster analysis

We create respondents' sequences of transition to adulthood focusing on the following events: end of education, labor market entry, and leaving the parental home. While labor market entry has only two possible states (no entry/entry), the other life course events are more detailed. Specifically, the final education level distinguishes between three possible statuses: still studying, low-medium (lower secondary/vocational education at most), and high (upper secondary or higher) education level. Leaving home includes the following statuses: still living with the family of origin, leaving to enter a union, and leaving for reasons other than union formation. The total number of possible statuses is therefore equal to 18, and all statuses are absorbed in that once a person has experienced an event of interest (e.g., s/he left the parental home to form a union), s/he no longer changes status. In this respect, due to data limitations, we cannot treat education and the exit from the parental home as recurrent events, because the questionnaire asks only when the respondent ended his/her education or when s/he left his/her parental home.

Thus, each sequence spans the period from age 12 to 35, with an annual observation unit, resulting in a total of 24 observation years. To be included in the analysis, respondents had to be enrolled in education during their first year of observation. We also tested alternative starting ages, such as 13 and 15 years, but a portion of respondents had to be excluded because they had completed their education before reaching these ages—4.4% before age 13 and 23.3% before age 15. This exclusion primarily arises from the fact that for individuals born between January 1, 1952, and December 31, 1984 (i.e., most of our sample), at least eight years of education were compulsory, typically completed by

ages 13–14. Consequently, many had already left education by age 15. For the remaining respondents born after this period, a minimum of nine years of compulsory education applied.

Then, we extract 20,171 sub-sequences of 7 years, where respondents are still studying in the first year and end their education in the second year: a seven-year period provides insight into the medium-term dynamics after leaving formal education. We tested a shorter sub-sequence length of 5 years, but some medium-term dynamics were lost. Thus, for each respondent the sub-sequence could start from a minimum of 12 years old (if concluding her/his education at 13) up to a maximum of 28 (if concluding her/his education at 29). The number of sub-sequences is smaller than the original sample of 24,127 respondents because 942 individuals declared an age too low to have completed their education, 1284 individuals had not concluded their education at the time of interview or had concluded their education after the age of 35, and 1,730 individuals had not concluded their education at least 6 years before the interview date (if younger than 35) or before age 35 (namely, 29).

We then evaluated the distance matrix among sub-sequences using distance based on the longest common attributes (LCS) and employed the partitioning around medoid (PAM) clustering technique. As a cluster quality measure, we followed widely employed measures in sequence analysis, such as the average silhouette width, which measures the coherence of the assignment of each sequence to a cluster and thus provides a way to assess the optimal number of clusters, and the point biserial correlation, which measures the "capacity" of the clustering to reproduce the distances (Studer 2013). In our context, both average silhouette widths and point biserial correlation consistently supported seven clusters as the best grouping (e.g., Devillanova, Raitano, and Struffolino 2019; Raab and Struffolino 2019) with respect to both other algorithms (e.g., Ward's algorithm), which pointed to a seven-cluster solution as the optimal one, and other cluster number. As an example, for the PAM clustering technique, the average silhouette width for all seven clusters is positive, with a minimum value of 0.260 and a maximum value of 0.735; for Ward's algorithm based on the OM distance matrix (with constant substitution costs) and the seven-cluster solution, the average silhouette width is negative for one cluster, reaching the minimum value of − 0.148, whereas the maximum value is 0.901. Thus, we opted for a higher overall quality of all seven clusters (guaranteed by the PAM technique) than a higher heterogeneity in cluster quality (got with the Ward's algorithm).

Second step: multistate event history model

In the second step of the SAMM procedure, we use a multistate model to estimate the effect of both time-constant and time-varying explanatory variables (listed in the main text) on the likelihood of following each type of sub-sequence. Because we need to estimate a hazard function for each typical sub-sequence cluster, we use a competing risk discrete-time event history model, with person-years nested within individuals (Allison, 1982; Steele et al., 2004; Studer et al., 2018). In this setting, we estimate the likelihood of experiencing one of the seven typical sub-sequences for the end of education instead of (1) any other or (2) remaining in the education spell as defined by the sequences. Multiple spells for each respondent may occur according to how many years each respondent

spends in education, in the same state before transitioning towards the end of education. Time at risk starts when the respondent is 12, and the baseline hazard is respondent's age, grouped into three categories: 12–18, 19–24, and 25–29.

We estimate the relationship between young people's trajectories and parental separation by including a dichotomous time-varying covariate signaling if parental separation occurred.

Young people's household formation

First step: sequence analysis and cluster analysis

To study the formation of young people's own household, we take exit from the parental home as the starting point, and create respondents' sequences of transition to adulthood focusing on the following events: leaving the parental home, first union entry, and parenthood. Leaving home and parenthood have only two possible states (no/yes), while partnership distinguishes between whether the respondent started cohabiting or married, as opposed to remaining single. The number of possible statuses is thus 12, and all statuses are absorbing. Finally, each sequence covers the period from age 15 to 40 with an annual observation unit, totaling 26 observation years.

Then, we extract 17,789 sub-sequences of 5 years, where respondents are still living in the parental home in the first year and leave the second year, opting for a shorter length of sequences because a period of 5 years provides insight into the short- to medium-term dynamics after exit from the parental home. Also in this case, the number of sub-sequences is smaller than the original sample of 24,127 respondents because 427 individuals left their parental home before the age of 15, 4489 individuals had not left the parental home at the time of interview or by 40 years of age, and 1422 individuals had not left the parental home at least 4 years before the interview (if younger than 40) or before 40 (namely, 36). Thus, for each respondent the sub-sequence could start from a minimum of 16 years old (if leaving her/his parental home at 16) up to a maximum of 35 (if leaving her/his parental home at 36).

As in the procedure used for economic independence, we chose the number of clusters maximizing several cluster quality measures, opting for the six-cluster solution. In this case, both the PAM clustering technique and Ward's algorithm gave very similar, excellent results, with all six clusters having positive average silhouette width with a mean value of 0.736 for both techniques. Consequently, we opted for the distance matrix based on LCS and PAM clustering techniques only for similarity with the process of economic independence.

Second step: multistate event history model

In the second step of the SAMM procedure, we estimated the relationship between several explanatory variables and the likelihood of following each typical sub-sequence cluster using a competing risk discrete-time event history model, with person-years nested within individuals. In this setting, we estimate the risk of experiencing one of the six typical sub-sequences for leaving the parental home instead of (1) any other or (2) remaining in the parental home spell as defined by the sequences. Time at risk starts when the respondent is 15, and the baseline hazard is respondent's age, grouped into four categories: 15–19, 20–24, 25–29, and 30–35.

The relationship between young people's trajectories and parental separation is estimated by including a dichotomous time-varying covariate signaling whether parents separated.

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Author contributions
All authors have made substantial contributions to the manuscript, which jointly conceptualized the paper. Marcantonio Caltabiano was responsible for the writing of the section Introduction and the Italian case and the current study. Silvia Meggiolaro was responsible for the writing of the sections Theoretical considerations and previous findings and Concusions and discussion. Valentina Tocchioni focused on the methodology and analysis and was responsible for the writing of the research questions and of the sections Data and methods and Results and of the appendices. All authors read, commented, and agreed on the current version of the manuscript.

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Data availability
Our empirical research is based on a proprietary dataset released by the Italian National Institute of Statistics, in accordance with the Research Protocol for conducting studies on the theme "Socio-economic Aspects and Family Dynamics in Italy" agreed with Istat for the use of the survey FSS 2016.

Declarations

Competing interests
The authors have no competing interests to declare.

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