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The gendered role of occupational characteristics in lifelong singlehood across Italian birth cohorts

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While concerns have been raised about declining marriage and fertility rates and increasing union dissolution, less attention has been paid to individuals remaining single. We ask whether individuals with different occupational characteristics experience different chances of remaining single throughout their lives and whether this relationship has changed across birth cohorts for men or women. We focus on Italy, a familistic context where exacerbated work–family conflict may hinder family formation for career-oriented women, while the male breadwinner norm makes occupational outcomes crucial for men’s mating market chances. Based on Kaplan–Meier survival curves and logistic regression models using rich retrospective survey data, our analysis suggests that stronger labour market attachment is positively associated with singlehood for women and negatively for men. The work–family trade-off appears to have disappeared for women across the birth cohorts studied, whereas careers have become increasingly relevant for men, suggesting that the male breadwinner model is strongly entrenched in Italy.

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Introduction

A general postponement of the transition to adulthood has been observed in different European contexts in recent decades (Fokkema and Liefbroer 2008). Young people are living in their parental homes for longer periods, and this delays their entry into marriage or first union. When they do eventually move out, they are more likely to live independently than in a couple (Billari et al. 2002; Billari and Rosina 2004; Fokkema and Liefbroer 2008; Billari and Liefbroer 2010). While studies on the diminishing likelihood of marriage and fertility have proliferated in recent years, with some scholars pointing to a trend towards ‘less family’, there remains a paucity of research focusing on the other side of the coin: namely, lifelong singlehood. The few existing empirical studies providing a sociological inquiry into the phenomenon (Dykstra and Poortman 2010; Wiik and Dommermuth 2014; Bellani et al. 2017) generally refer to lifelong singles as individuals who have not

experienced a stable co-residential partnership by a given age (usually around 40), thus having only partially completed the ‘standard’ twentieth-century transition to adulthood. From a life-course perspective (Blossfeld and Huinink 1991; Buchmann and Kriesi 2011; van den Berg and Verbakel 2022), singlehood could be viewed as never achieving the status of ‘cohabiting partner’, motivating an investigation of the characteristics and life courses of individuals who never enter a stable co-residential union.

Under this definition, lifelong singles are an internally heterogeneous group (Fitzpatrick 2023; Mortelmans et al. 2023). Some may be at risk of experiencing the negative consequences of both not having a partner and living alone (Esteve et al. 2020; Marsh 2023). For instance, these individuals are unable to benefit from economies of scale in the housing market and in their daily expenses, aspects that are likely to have a negative impact on their housing and living standards. Indeed, existing research has highlighted the negative impact of

living alone on housing conditions and poverty (Bennett and Dixon 2006; Quintano and D'Agostino 2006), which, in turn, can adversely affect health and well-being (Hill et al. 2009). Other people who fall within the definition of lifelong singles may be living with others, such as their children in the case of lone parents (if they have never married or cohabited), their parents, or flatmates. Although these groups of singles are often less affected by negative consequences than those living alone, single parents, especially mothers, are not spared the associated financial hardships and negative health outcomes (Neises and Grüneberg 2005; Nieuwenhuis and Maldonado 2018). Additionally, some lifelong singles may lack autonomy and independence in making financial and consumption decisions, resulting from delayed (or missed) departure from the parental home (Mulder 2009), or may face higher living costs due to the lack of pooling of resources, as is likely to be the case in non-romantic cohabitations. In other words, although lifelong singlehood is a broad umbrella term that includes people in different living arrangements without a cohabiting partner or spouse, it is, in any case, associated with higher risks in economic and health terms and is, therefore, a category worth studying in more detail.

Among the constellations of partnership and living arrangements, and of particular importance for the definition of lifelong singlehood, are couples living apart together (LAT) and couples living together apart (LTA). While the former refers to non-residential partnerships (Roseneil 2006), the latter refers to separated or divorced individuals still sharing a household (Levin 2004; Cross-Barnet et al. 2011). Both categories challenge the current definition of singlehood, which generally implies the absence of a romantic *and* cohabiting partner. LAT relationships, for instance, are romantic in nature but without a cohabiting arrangement, whereas LTA relationships involve cohabitation without a romantic component. Beyond the conceptual challenge, surveys often fail to identify these types of relationships because of the tripartite model that distinguishes between single, cohabiting, and married individuals (Roseneil 2006).

Acknowledging the relevance of the interplay between work and family domains (Aisenbrey and Fasang 2017; Bernardi et al. 2019) and of between-cohort comparisons, our study focuses on the gendered association between occupational characteristics and the occurrence of lifelong singlehood across cohorts of Italian men and women. In line with previous research on declining fertility rates

and growing union dissolution, existing studies have suggested that the increased participation of women in higher education and the labour market are the main determinants of the recent spread of single-person households (see e.g. Bellani et al. 2017 for an overview of the European context). The underlying mechanism is that women—who are increasingly focused on their education and careers—are choosing to delay or even forgo important family milestones, such as partnering and marriage. Put differently, the convergence of men's and women's labour market trajectories may be eroding the attractiveness of marriage for women.

The contribution of this paper is threefold. First, we present a novel description of between-cohort changes in the proportion of lifelong singles among Italian men and women. Research on lifelong singlehood has focused primarily on the United States (US) and Northern Europe (e.g. Sweeney 2002; Dykstra and Poortman 2010; Jalovaara 2012; Wiik and Dommermuth 2014), whereas much less is known about South European countries, especially the Italian context. Although the overall postponement of the transition to adulthood seems to confirm the 'less family' scenario proposed by the Second Demographic Transition framework (Lesthaeghe 1995, 2020), the pace and timing of this demographic shift appear to vary according to specific institutional (economic and cultural) features of each society. Billari et al. (2002) and Billari and Rosina (2004) referred to a 'latest-late' leaving home behaviour among young people in Mediterranean countries such as Italy, highlighting the common co-occurrence of leaving the parental home and marriage. This suggests that in this context, low state support for young people hinders economic independence and, consequently, family formation in early adulthood. The overall delay in the transition to adulthood and the spread of single households in Europe can thus be understood as reflecting societal changes that have affected the set of contextual resources, opportunities, and constraints that shape individuals' lives. Given Italy's familistic welfare state and peculiar labour market features, focusing on the Italian case could shed light on the generalizability of previous findings concerning the role of occupational characteristics in singlehood, thereby increasing our knowledge of the relevance of institutional characteristics.

Second, we examine the role of different occupational characteristics in men's and women's chances of remaining single. Various indicators may send different signals and have distinct consequences in the mating market (see also Bastianelli and

Vignoli 2022). We test the relevance of time spent in employment, average occupational status, and atypical employment as three indicators of different labour market domains: labour market attachment, performance, and job instability, respectively. In so doing, we add to the existing literature on the relationship between work and family domains.

Finally, we provide a more fine-grained examination of how labour market achievements have influenced the likelihood of remaining without a co-residential partnership across different cohorts, separately by sex. Our study relied on a sample of individuals born between the early twentieth century and the 1970s. This allowed us to explore lifelong singlehood and its correlates in light of the substantial changes that have occurred over the past century (in the Italian context, these include women's increased labour force participation and the labour market flexibilization focused on young people and women).

The Italian context

Before presenting the theoretical perspectives that may be useful in understanding the gendered relationship between occupational characteristics and lifelong singlehood, it is crucial first to account for the institutional settings of the context under consideration and their changes over time. To contextualize our analysis, we focus on Italy's welfare state, gender norms, and labour market features, paying particular attention to their relevance for women's employment and young people's timing of leaving home and family formation. Indeed, singlehood (or partnering) is strongly linked to other key life events/stages and to different domains: most notably, labour market participation and outcomes, leaving the parental home, and fertility behaviours.

Postponing the transition to adulthood, as widely observed across Europe in recent decades (Fokkema and Liefbroer 2008; Ferraretto and Vitali 2023), appears to be particularly prevalent in Mediterranean countries. In the Italian context, scholars have observed a tendency towards a latest-late leaving home behaviour among young people (Billari et al. 2002; Billari and Rosina 2004), suggesting a strong interrelationship between departure from the parental home and marriage. The overlap between moving out of the parental home and union formation for young Italian men and women suggests that occupational security and economic resources play an essential role in the timing and occurrence of both transitional events. Inevitably, these dynamics also affect the

occurrence and timing of the transition to parenthood. This is a crucial aspect, especially in South European contexts, which are characterized by very low total fertility (1.2 in Italy in 2022, according to data from the World Bank (2022)). In Italy, the postponed or missed transition to a first child is often involuntary (Vignoli et al. 2020; Guetto et al. 2023), another aspect pointing to the vital role of institutional setting and structural factors in determining important demographic and life-course opportunities and choices.

Among the most relevant factors delaying the timing of not only leaving home but also fertility and the overall transition to adulthood, the combination of low welfare provisions (Billari and Rosina 2004; Fokkema and Liefbroer 2008; Di Giulio et al. 2019) and structural features of the labour market (Barbieri and Scherer 2009; Barbieri 2011; Barbieri et al. 2015, 2019) has been proposed as playing an influential role. During the 1990s, Italy adopted a set of policies aimed at labour market deregulation (Barbieri and Scherer 2009). This so-called 'flexibilization at the margins' increased the prevalence of atypical employment, especially among younger cohorts. Consequently, young Italians often experience economic uncertainty during the years when they should be achieving the occupational security and economic independence needed for transitioning to adulthood and entering the family formation phase. There is a large body of empirical evidence pointing to a relationship between occupational/economic circumstances and family dynamics in general (Kreyenfeld et al. 2012), particularly within the Italian context. Research on Italy has consistently shown that greater occupational or economic instability—whether framed as uncertainty or precarity—leads to delays or a higher likelihood of opting out of critical steps in the transition to adulthood and family formation. These steps include leaving the parental home (Iacovou 2010; Bertolini et al. 2017; Meggiolaro and Ongaro 2024), partnering or getting married (Oppenheimer 1988; Blossfeld et al. 2006; Livi Bacci 2008; Vignoli et al. 2016), and transitioning to parenthood (Vignoli et al. 2020).

While the aforementioned literature points unambiguously to the relevance of labour market and economic conditions for demographic events and transitions, it also highlights that such relationships are likely to be gendered, especially in contexts with an entrenched male breadwinner norm, such as Italy. In parallel with increased labour market precariousness across birth cohorts, the Italian context does not provide sufficient support to working women and mothers (Dotti Sani and Scherer 2018;

Gioachin and Zamberlan 2024), thus exacerbating the work–family conflict for women investing in their careers. The incompatibility between women’s roles within and outside the household is further exacerbated by traditional norms supporting the persistence of the male breadwinner model (Lomazzi 2017; Bastianelli and Vignoli 2022). In such contexts, women are more likely to face a trade-off between labour market and economic outcomes and major life-course events (Alderotti 2022; Gioachin and Zamberlan 2024), whereas for men, the two domains tend to go hand in hand, with better occupational and economic outcomes being associated with higher odds of partnership (Vignoli et al. 2016) and lower odds of separation (Bastianelli and Vignoli 2022).

These features make Italy a particularly interesting case for studying the relationship between occupational/economic characteristics and lifelong singlehood.

Theoretical framework and hypotheses

Two theoretical perspectives proved useful in framing our examination of how and why occupational characteristics may be associated with the occurrence of lifelong singlehood and whether this association differs between men and women and across birth cohorts. Economic theories of family formation (Becker 1991) predict a trade-off between work and family for women but a positive association between men’s labour market performance and partnering. In contrast, more dynamic theoretical perspectives (e.g. Oppenheimer 1997) stress the fundamental role of changes in work–family models and expect the positive (for women) and negative (for men) associations between participation and attainment in the labour market and singlehood to have weakened over time in parallel with the rise of the dual-earner/dual-carer work–family model. These perspectives lead to different expectations about the role of occupational characteristics in men’s and women’s likelihoods of remaining single, particularly when different birth cohorts are considered.

The economic and institutional foundations of marriage

Among the most influential micro-level theories on marriage and union formation is Becker’s New Home Economics (henceforth NHE) (Becker 1991). Following this microeconomic perspective,

individuals are assumed to choose rationally whether to enter into a stable union depending on perceived related gains, which are further contingent on the specialization of different-sex partners in complementary labour market or household activities. According to this framework, highly educated women and less educated men will face the highest risks of being left out of the mating market. On the one hand, for highly educated women, union formation may not represent an optimal and attractive option, considering the traditional gendered division of unpaid work that could lead to an underutilization of their human capital and a plausible reduction in their labour market gains and economic power. On the other hand, for men, less education may signify worse labour market and economic prospects, thereby hindering their chances of finding a partner. In line with this perspective, the existing literature on assortative mating in the marriage market has consistently reported a sex-specific effect of educational and occupational achievement on union formation and partnering (Oppenheimer 1988, 1997; Blossfeld 2009; Vignoli et al. 2016; Cantalini 2017; De Hauw et al. 2017; Corti and Scherer 2021).

However, the existing literature has also highlighted the contingent nature of this mechanism. The argument is that the influence of individuals’ labour force participation and labour market outcomes on the dynamics of family formation, as predicted by the NHE framework, will vary according to the degree of incompatibility between work and family domains generated by institutional contexts. More specifically, societies characterized by a strong gendered division of labour due to institutional obstacles to combining work and family are expected to report a stronger and more sex-specific (i.e. particularly negative for women) impact of individual attainment in the labour market on partnership and family formation. Conversely, the more the institutional setting promotes gender equality in the division of labour by supporting work–family balance, the better the opportunity structure for combining work and family will be, thus leading to a diminished role of occupational achievement in union formation for both men and women (Blossfeld 1995; Liefbroer and Corijn 1999).

Consistent with the argument that the institutional setting is crucial in shaping the opportunity structures for career and partner choices, especially where greater gender equality is reinforced, evidence from North European contexts points to a positive association between labour market outcomes and union formation for women as well (Jalovaara 2012). However, adopting Italy as a case study

forced us to acknowledge the constraints posited on partnering decisions by the familistic welfare regime and institutional configuration of the Italian labour market. In Italy, welfare provisions for working women are low, and overarching opportunity structures prevent many women from pursuing an active role in the labour market (Dotti Sani and Scherer 2018; Gioachin and Zamberlan 2024). Thus, the interplay between work and family trajectories for women is such that investing in one of the two is likely to be negatively related to the chances of investing in the other. On the men's side of the mating market, the persistence of the male breadwinner family model puts pressure on men to maintain continuous labour market attachment and invest in their occupational outcomes (Lomazzi 2017; Bastianelli and Vignoli 2022). As (prospects of) better labour market outcomes are a signal of men's capacity to carry out the role of main breadwinner, they are likely to be positively associated with men's probability of partnering. Against this background, our expectations were that:

Hypothesis 1a: A stronger attachment to the labour market and better occupational outcomes will be positively associated with the occurrence of singlehood for women.

Hypothesis 1b: A stronger attachment to the labour market and better occupational outcomes will be negatively associated with the occurrence of singlehood for men.

Changing families, changing singles?

Several scholars have raised concerns about the adequacy of the NHE framework in accounting for historical changes—that is, the shift from the male breadwinner model towards the emergence of a dual-earner/dual-carer model—in the division of paid and unpaid labour between partners. Oppenheimer's (1997) theory of marriage argues that the increased investment of women in the labour market, together with increased levels of gender egalitarianism at the macro level, has altered the dynamics of marital bargaining.

More precisely, this theoretical perspective predicts that the slow erosion of the male breadwinner model and the spread of the dual-earner/dual-carer model—characterized by the 'masculinization' of women's labour market histories and women's increased contribution to the economic sustenance of the family—have made the ideal characteristics of potential partners more similar for men and women. In contrast with predictions from the NHE perspective, the greatest

advantages of marriage in this vein derive from a collaborative model in which both partners contribute financially to the sustenance of the household (Oppenheimer 1997; Jalovaara 2012). Accordingly, in societies where the collaborative dual-earner model has spread, both men and women in the mating market should benefit from better labour market outcomes (i.e. the chances of finding a partner should increase; Sweeney 2002). From this perspective, men's occupational attainment may have become less important for union formation as a more egalitarian division of work among the sexes has become the new norm. In line with this rationale, Jalovaara (2012) observed a union-promoting effect of educational attainment and income for both sexes in Finland, which was especially prominent for young women (compared with men).

While this more dynamic perspective on the gendered relationship between work outcomes and the likelihood of remaining single has found empirical support in Nordic countries, there may be some concerns as to whether this is also the case in South European contexts. In the latter, macro-institutional settings, accompanied by ingrained cultural norms, continue to support the more traditional work–family model (Lomazzi 2017; Bastianelli and Vignoli 2022), with women's primary responsibility being the household and family spheres and men's participation and outcomes in the labour market being crucial for family maintenance.

Thus, our second set of hypotheses about possible changes between cohorts in the gendered relationship between work attainment and the likelihood of remaining single predicts more modest changes over time than those observed in more egalitarian contexts. For women, we expected those in more recent cohorts to have benefited in part from the increased 'daily synchronicity' of investments in both career and family (Billari and Rosina 2004). In the mating market for men, however, the importance of labour market outcomes for union formation was expected to have hardly changed over time, reflecting the persistence of the male breadwinner norm in the Italian context. Accordingly, we formulated the following hypotheses, which, by focusing on variation over time, complement those informed by the NHE perspective:

Hypothesis 2a: The positive association between labour market attachment/occupational characteristics and the occurrence of lifelong singlehood has weakened across birth cohorts for women.

Hypothesis 2b: The association between labour market attachment/occupational characteristics and

the occurrence of lifelong singlehood has remained negative across birth cohorts for men.

Data and measures

Data

Data were drawn from the 2016 wave of the multipurpose survey ‘Families, Social Subjects and Life Cycle’ run by the Istituto Nazionale di Statistica (ISTAT). Respondents aged 18 and above were randomly sampled from the Italian population, thus constituting a representative sample of the adult population residing in Italy. Due to its retrospective nature, the survey includes information on individual and family life courses and work histories. For the purpose of this study, we relied on these retrospective data to gain insights into the occurrence and timing of significant cohabitation and marital events. We further focused on work histories to gather crucial information about individuals’ occupational achievement.

The final sample included Italian men and women born between 1941 and 1971 ($N = 10,093$). With the aim of reducing selection (into singlehood) among the oldest respondents, the sample was restricted to individuals born in 1941 at the earliest and thus aged a maximum of 75 years in 2016. We further restricted the sample to individuals born in 1971 at the latest (the original data set included individuals born up to 1998) to ensure that respondents’ family and work histories were observable for all individuals sampled up to age 45 (crucial for the definition of both singlehood and occupational characteristics, as explained shortly).

Variables

Dependent variable: Lifelong singlehood. Previous research on the topic (Dykstra and Poortman 2010; Wiik and Dommermuth 2014; Bellani et al. 2017) generally defines lifelong singles as individuals who have experienced neither a significant cohabitation episode nor a marriage by age 40. According to these studies, individuals who have never partnered by this age are expected to be more likely to remain single permanently due to personal constraints or preferences and/or the composition of the mating market. Acknowledging the latest-late leaving home behaviour that characterizes the Italian context (Billari et al. 2002; Billari and Rosina 2004), we moved the threshold for the definition of lifelong singlehood from age 40 to age 45.

Although this decision increased the need for caution in drawing comparisons with existing research on the phenomenon, it better captured lifelong singlehood as a context-specific phenomenon. The occurrence of lifelong singlehood was measured through a dichotomous variable coded ‘1’ = ‘Single’ for those who had not experienced a significant co-residential partnership (either marriage or a cohabitation lasting at least two years) by age 45, and ‘0’ otherwise.

With regard to the criterion that defined a cohabitation as significant if lasting at least two years, we performed robustness checks by setting the minimum duration to 6, 12, or 18 months and found no significant changes in the proportion of lifelong singles (by sex and cohort) in our sample. Results of these robustness checks are reported in Figure S1 (supplementary material). These findings suggest that any underestimation of the phenomenon—whether due to a strict definition of what constitutes a significant co-residential partnership or the misidentification of respondents in LAT and LTA arrangements—would likely be negligible.

While our main dependent variable is the dichotomous measure of lifelong singlehood, in the initial descriptive analyses, especially for the Kaplan–Meier curves (described in greater detail in the Analytic strategy section), we relied on a measure of permanence in singlehood before the occurrence of the first significant partnering event.

Independent variables: Labour market attachment and occupational outcomes. Aiming to provide a nuanced account of the relevance of different employment and occupational characteristics for lifelong singlehood, we captured individual outcomes in the labour market by multiple variables constructed through survey information on respondents’ work histories (covering their first to their 11th job episodes). For variables concerning respondents’ occupational attainment, we excluded employment episodes occurring before individuals had completed their education and after they had reached age 45. The first restriction was performed with the aim of considering only significant employment episodes, excluding periods of employment occurring while a respondent’s primary activity was that of student. Concerning the second restriction, defining an observational span with the same upper-level threshold as the outcome variable (i.e. age 45) enabled us to reduce the risk of reverse causality in our estimates. Furthermore, since our interest lies in the interconnectedness between labour

market outcomes and (missed) partnering, it made sense to restrict the observational span to the initial phase of respondents' careers up to their peak, after which their career would be expected to settle. Lastly, among the subgroup of individuals who had obtained their highest level of education aged 30 or above (primarily respondents from the earliest birth cohort who obtained their university degree after a period of employment), employment episodes that occurred before achieving their highest educational title were likely to be meaningful. Thus, for this subgroup, we decided to set the start of their working career as the start of their last employment episode before turning 30.

The aforementioned time span (from completion of education to age 45) was used to gather information on individual work histories and construct three main variables of occupational achievement: labour market attachment, performance, and job instability. First, we computed the proportion of time spent in employment over the considered observational span, specifically the number of years spent in employment over the total number of years in which the respondent had been observed within the work-related observational span. Individuals who had never experienced an employment episode were assigned a value of '0'.

Second, we constructed a metric variable measuring the average occupational status attained by respondents over the considered time span. Occupational status was assessed using scores from the International Socio-Economic Index (ISEI) of occupational status (Ganzeboom 2010) for each employment episode in the time span. The ISEI index scales occupations by the average level of education and earnings of job holders. ISEI scores were obtained from the classification of professions reported in the survey, CP2011, which is compatible with the International Standard Classification of Occupations (ISCO), from which ISEI scores are derived. Individuals who had never worked were assigned a value of '0'. Given the right-skewed distribution of ISEI scores, regression models also included a squared version of the variable to allow for non-linearities.

Finally, to account for the contractual and economic precariousness associated with atypical contracts, we included a measure of time spent in atypical employment over the time spent employed. Following Barbieri and Scherer (2009), we considered dependent employees in permanent employment, the traditional self-employed, those in liberal professions, and entrepreneurs as in 'typical' jobs. Conversely, we coded dependent employees in

temporary employment, occasional workers, collaborators, and pseudo-self-employed individuals as in 'atypical' jobs. This distinction between 'typical' and 'atypical' reflected the juxtaposition between standard and less standard types of contracts rather than capturing atypical employment as historically defined after labour market deregulation in Italy. This allowed for comparisons between cohorts, regardless of the historical period in which respondents had participated in the workforce.

To provide more straightforward findings, we transformed the continuous variable concerning the proportion of time spent in atypical employment into a categorical measure that grouped individuals according to whether they had never worked, worked half or more of their employment span in typical employment, or worked more than half of their employment span in atypical employment. Again, individuals with no employment episodes were coded as a separate category.

Birth cohorts. To test our between-cohort hypotheses, we ran the models separately according to birth cohort. As the final sample included individuals born between 1941 and 1971, we observed men and women born over a span of 30 years. Given our general hypotheses on the temporal change in the role of occupational characteristics in lifelong singlehood, we differentiated between three birth cohorts, each ranging over a span of around 10 years. These cohorts comprised individuals born in the periods 1941–50, 1951–60, and 1961–71. Whereas the consequences of institutional reforms in the Italian labour market are likely to have influenced the work and life courses of respondents primarily in the most recent cohort, the rise of gender-egalitarian trends may have shaped gender norms and relationships for men and women from the two earliest cohorts onwards.

Control variables. Our logistic regression models estimating the probability of being lifelong single controlled for age, age squared, educational level, and macro-area of residence ('North-West', 'North-East', 'Center', and 'South & Islands'). Following Dykstra and Poortman (2010), we further included a variable capturing whether a respondent's parents were divorced, to account for the influence of family history and related marriage norms on individual partnering behaviours. Due to data availability, these measures were cross-sectional and referred to the survey year (2016).

Descriptive statistics for all the variables included in the analyses are presented in Tables S1 and S2 in the supplementary material. Tables S3, S4, S5, and S6 report descriptive statistics separately for partnered and single individuals, for the pooled sample and by cohort.

Analytic strategy

First, to provide an initial descriptive overview of the occurrence and timing of the first significant partnering event, we relied on event history analysis, specifically Kaplan–Meier survival curves. In this paper, we focus our interpretation on the change between cohorts in the proportion of lifelong single men and women.

Second, with the aim of assessing the role of occupational outcomes in the probability of remaining single and analysing whether and how such a relationship had changed across birth cohorts of Italian men and women, we performed logistic regression models with the occurrence of lifelong singlehood as the outcome variable. More precisely, to test Hypotheses 1a and 1b, we ran logistic regression models separately by sex, including birth cohort as a control variable. The same models were performed separately by sex and birth cohort to test Hypotheses 2a and 2b, which focus on changes over time in the association of interest. To allow for comparisons among different models and groups (Mood 2010), we present the results based on average marginal effects (AMEs) and predicted values. Each analysis includes population weights to ensure representativity of the sample.

Results

Lifelong singlehood: Sex and cohort differences

Figure 1 shows the proportion of Italian men and women who remained single by birth cohort. Decreases in the Kaplan–Meier survival curves indicate that an increasing proportion of individuals has experienced a significant partnering event by each age. The proportion of individuals still single at age 45 (indicated by the level at which the survival curves end) indicates the share of lifelong singles. Overall, we can see that the proportion of lifelong singles has increased across birth cohorts. While this holds true for both sexes, we can observe larger between-cohort differences within the men’s subsample. Comparing the proportion of male respondents who remained unpartnered by age 45 (the end of the age span considered), single men accounted for 7 per cent of men in the 1941–50 cohort, whereas they constituted 10 per cent of those born in 1951–60 and approximately 19 per cent of those in the most recent birth cohort (born in 1961–71). Smaller between-cohort differences by age 45 are observed for women, with about 7–8 per cent of women remaining single among the earlier cohorts and 14 per cent among the most recent. This result seems to mirror the tendency for women to enter a stable union earlier in life than their male counterparts, as indicated by the steeper decrease in the survival curves for the former compared with the latter.

The high (and increasing) proportions of men and women categorized as lifelong singles may also be

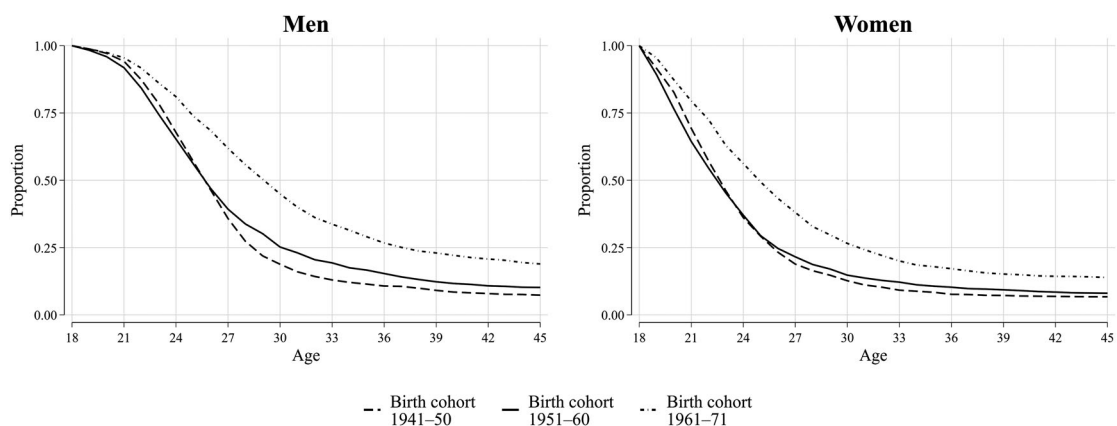


Figure 1 Kaplan–Meier survival curves of the persistence of lifelong singlehood, by sex and across birth cohorts

Note: $N = 10,093$.

Source: ISTAT FSS (2016).

due to the impossibility of identifying LAT relationships with the data used. However, the transient nature of such arrangements and their prevalence at younger ages (well before the age of 45 considered here) (Asendorpf 2008; Castro-Martín et al. 2008; Mortelmans et al. 2015; Lewin 2018) reassures us that these findings are unlikely to have been driven entirely by this phenomenon.

The role of labour market attachment and occupational characteristics

To assess the role of labour market attachment and occupational characteristics in shaping the chances of individuals remaining single, we ran logistic regression models estimating AMEs separately for men and women, including relevant controls and population weights, as presented in Table 1. Looking at labour market attachment, proxied by the proportion of time spent in employment, the higher this proportion, the less likely it was for men to remain single. Men who were employed over the entire time span considered were around 13 percentage points less likely to remain single compared with those who were always inactive. Interestingly, this association is reversed for women: The higher the proportion of time women spent in employment, the higher their chances of remaining single. Women who were employed for the entire time span considered were five percentage points

more likely to remain single compared with those who were always inactive. These findings align with Hypotheses 1a and 1b, according to which greater labour market attachment will be associated with a lower chance of remaining single for men but a higher chance for women.

Looking at the average occupational status attained over the time span, coefficients point to the expected relationship: negative for men (the higher the occupational status, the lower the chances of being single) and positive for women (the higher the status, the higher the chances of remaining single). However, these coefficients are small in size and not statistically significant.

Finally, working more frequently under typical employment contracts as opposed to atypical ones significantly reduced the likelihood of remaining single for men but not for women (for whom the coefficient points in the opposite direction but does not reach statistical significance). This finding, too, is in line with Hypothesis 1b, which predicts a negative relationship between occupational achievement and singlehood for men.

To investigate the relationship between occupational attainment and lifelong singlehood further, Figure 2 presents for men and women the predicted probabilities of remaining single, conditional on the proportion of time spent in atypical employment. The predicted probabilities for this categorical variable add to the previous results (in Table 1) by showing the predicted probabilities for all

Table 1 Role of occupational characteristics in lifelong singlehood by sex: Average marginal effects from logistic regression models

	AME (standard error)	
	Men	Women
<i>Proportion of time in employment</i>	−0.13*** (0.03)	0.05** (0.02)
<i>Average occupational status (ISEI)</i>	−0.00 (0.00)	0.00 (0.00)
<i>Average occupational status (ISEI, squared)</i>	−0.00 (0.00)	−0.00 (0.00)
<i>Proportion of time in (a)typical employment (ref: Atypical—more than half)</i>		
Typical—half or more	−0.08** (0.03)	0.02 (0.02)
Never worked	−0.07 (0.06)	0.07 (0.06)
<i>N</i>	5,052	5,041

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Notes: Control variables are age, age squared, educational level, and macro-area of residence. Logistic regression results are shown in Table S7, supplementary material.

Source: ISTAT FSS (2016).

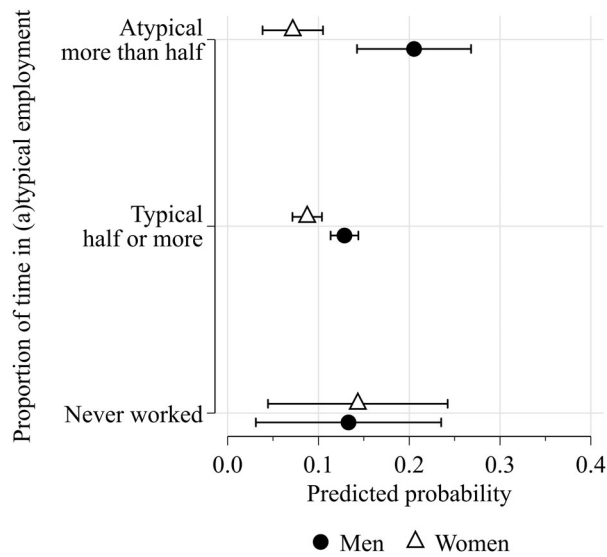


Figure 2 Role of atypical employment in lifelong singlehood by sex: Predicted probabilities from logistic regression models

Notes: $N=10,093$. Logistic regression results are shown in Table S7. Horizontal bars show 95 per cent confidence intervals. Source: As for Figure 1.

categories, including individuals who have never been employed. We still refer to p -values from the respective AMEs presented in Table 1 (see also Table S7 for logistic regression results) to test the statistical significance of group differences.

Focusing on women, no statistically significant differences emerged between those who spent more than half of their working lives in atypical employment and those who worked with more stable contracts: the probability of remaining single was around 0.08 for both groups. This probability increased to about 0.14 for the more select group of women who had never worked. For men, no substantial or statistically significant differences in the probability of remaining single were observed between those who held permanent contracts for half or more of their working lives and those who never worked. For both groups, the chances of being single by age 45 were around 0.13. This probability increased to around 0.21 for men who had atypical contracts for more than half of their working career, thus indicating that an unstable labour market position has a negative signalling power for men in the mating market. It is worth noting that, unlike for women, men's atypical employment—rather than their inactivity—seems to be negatively perceived by potential partners in the mating market.

In our first set of hypotheses, we aimed to test the explanatory power of different indicators of labour market attachment and occupational characteristics on lifelong singlehood. In line with the NHE

perspective and considering the institutional characteristics of the Italian context, we expected such achievements to be positively associated with women's and negatively associated with men's lifelong singlehood. These expectations were supported when looking at time spent in employment over the observed career span and, for men, also when focusing on typical vs atypical employment. In other words, men with more stable working careers were less likely to remain single than those more frequently employed through atypical contracts.

Changes in the role of occupational characteristics across birth cohorts

With the aim of testing our second set of hypotheses regarding changes in the role of labour market characteristics in lifelong singlehood in Italy over time, we calculated the AMEs of labour market attachment, average occupational status, and the proportion of time spent in atypical employment using logistic regression models, separately by sex and birth cohort, as presented in Table 2.

In terms of labour market attachment, notable findings emerged when examining the role of employment participation in men's singlehood. In line with Hypothesis 2b, the proportion of time spent in employment maintained a negative relationship with lifelong singlehood; however, it increased both in magnitude (i.e. becoming more strongly negative) and statistical significance between the

Table 2 Role of occupational characteristics in lifelong singlehood by sex and across birth cohorts: Average marginal effects from logistic regression models

	AME (standard error)					
	Men			Women		
	1941–50	1951–60	1961–71	1941–50	1951–60	1961–71
<i>Proportion of time in employment</i>	–0.06 (0.04)	–0.14*** (0.04)	–0.17*** (0.05)	0.13*** (0.05)	0.10*** (0.03)	–0.02 (0.04)
<i>Average occupational status (ISEI)</i>	–0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
<i>Average occupational status (ISEI, squared)</i>	0.00 (0.00)	0.00 (0.00)	–0.00 (0.00)	–0.00 (0.00)	–0.00 (0.00)	–0.00 (0.00)
<i>Proportion of time in (a)typical employment (ref: Atypical—more than half)</i>						
Typical—half or more	–0.05 (0.06)	–0.09 (0.05)	–0.09 (0.05)	0.01 (0.02)	0.03 (0.02)	0.00 (0.04)
Never worked	–0.11* (0.06)	–0.02 (0.12)	–0.03 (0.14)	0.25 (0.20)	0.09 (0.09)	0.04 (0.09)
<i>N</i>	1,195	1,754	2,103	1,201	1,761	2,079

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Notes: Control variables are age, age squared, educational level, and macro-area of residence. Logistic regression results are shown in Tables S8 and S9.

Source: As for Table 1.

earliest birth cohort of men (born in 1941–50) and the more recent cohorts of respondents (born in the 1950s and 1960s). To put it differently, despite trends towards the convergence of men's and women's work–family trajectories, the male breadwinner model seems to have persisted as the norm in the Italian context, such that stronger labour market attachment has maintained (and even increased) its crucial role in men's success in the mating market over time. Our results for women also corroborated Hypothesis 2a, which predicted a decreasing role of labour market characteristics (in this case, time spent in employment) in women's singlehood across birth cohorts. Indeed, the trade-off between work and family formation (positive and statistically significant AME) decreased in size and lost statistical significance across birth cohorts of women.

As partnering is a matching process, outcomes for women and men should also be considered together. Women active in the labour market have become a less selected group over time, which may explain why this occupational characteristic has become less relevant for them across cohorts. At the same time, they may have maintained or even increased their selectivity toward male partners in the mating market, adhering to the principle of homogamy. As a result, occupational outcomes have remained important, or even become more important, for

men's chances of not remaining single across birth cohorts.

We could argue that time spent in employment provides only a marginal overview of the (changing) role of occupational characteristics in men's and women's lifelong singlehood. Looking at the role of average occupational status, this measure emerged as having a null and statistically insignificant relationship with singlehood for both men and women alike. As in Table 1, average occupational status did not appear to play a role in respondents' likelihood of lifelong singlehood.

Finally, focusing on the proportion of time spent in (a)typical employment by men, the negative relationship between having had typical working contracts (as opposed to atypical ones) for half or more of working life and singlehood held across birth cohorts, yet it lacked statistical significance. Interestingly, inactivity (compared with atypical employment) significantly reduced the probability of remaining single for men born in 1941–50 (AME = –0.11). This finding points to the relevance of atypical contracts, also compared with being inactive, for family formation outcomes. Yet, this relationship weakened and lost statistical significance across birth cohorts. Looking at women, we observed an overall weakening of the positive relationship between typical employment or inactivity (compared with atypical employment) and

singlehood across cohorts; however, this was not statistically significant.

Figure 3 shows the predicted probabilities of remaining single for men and women, conditional on the prevalent type of employment, by birth cohort. For men, we observed that more stable employment was consistently associated with a lower likelihood of remaining single compared with atypical employment. In contrast, having more unstable working careers, signalled by a prolonged period of time spent in atypical employment, has gained relevance for men’s partnering chances: for men from the most recent cohort who had spent more than half of their working lives in atypical employment, the probability of remaining single was over 25 per cent, compared with 15 per cent or less for the earlier cohorts. Inactivity has also gained relevance across men’s birth cohorts, leading to a probability of lifelong singlehood of almost 25 per cent in the most recent cohort. For women, we observed that differences in the chances of remaining single between inactive women and those with different types of contracts have decreased across birth cohorts.

The second set of hypotheses aimed to test the temporal changes in the explanatory power of different indicators of labour market attachment and occupational characteristics on lifelong singlehood. We expected the permanence of the male breadwinner norm in Italy to counterbalance the possible equalizing effect of the increased similarity of men’s and women’s working lives across birth

cohorts. While we expected a weaker association between occupational attainment and singlehood for more recent cohorts of women (i.e. a weakening of the work–family trade-off), for men, we expected the relevance of work achievements for outcomes in the mating market to remain stable across cohorts.

Our expectation (Hypothesis 2a) was supported for women concerning their labour market attachment (proxied by the proportion of time spent in employment): the most recent cohort of women was not affected by stronger labour market attachment, while earlier cohorts were more likely to remain single. For men, too, the expectation of stability in the relevance of labour market characteristics for lifelong singlehood (Hypothesis 2b) was corroborated when looking at labour market attachment. In fact, the negative relationship between labour market attachment and singlehood became even stronger across cohorts. For the 1951–60 cohort, the probability of remaining single for men with a more continuous working career was lower (i.e. more strongly negative and statistically significant) than the probability for men from the 1941–50 cohort. A similar change was observed for the comparison between the 1961–71 and the 1951–60 cohorts.

Our results suggest that, in the Italian context, despite the increased participation of women in the labour market, men’s working careers remain relevant (and increasingly so) for their mating market outcomes. These results point to a context-specific gendered relationship between occupational

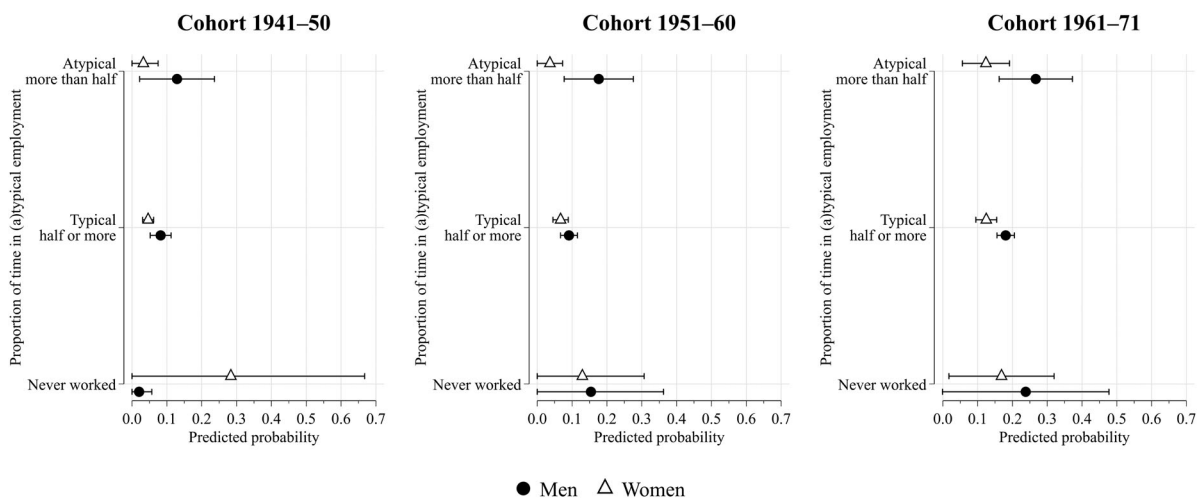


Figure 3 Role of atypical employment in lifelong singlehood, by sex and across birth cohorts: Predicted probabilities from logistic regression models

Notes: $N = 10,093$. Confidence intervals are capped when larger than the axis range. Logistic regression results are shown in Tables S8 and S9. Horizontal bars show 95 per cent confidence intervals.

Source: As for Figure 1.

characteristics and family formation and also a discernible trend in this relationship across cohorts. Indeed, to the best of our knowledge, no existing study focusing on the US or Nordic European countries (e.g. Sweeney 2002; Dykstra and Poortman 2010; Jalovaara 2012; Wiik and Dommermuth 2014) has observed a similar increased relevance of working careers for men's mating chances.

Discussion and conclusions

In this contribution, we have provided a novel examination of the occupational characteristics of individuals who remain single, defined as not having experienced a significant cohabitation event or marriage by the age of 45 and thus having only partially completed the 'standard' transition to adulthood. By doing so, we aimed to contribute to a growing body of research on singlehood and its determinants. Singles are a heterogeneous group, including individuals effectively living alone and with no romantic relationship; such individuals are prevented from the possibility of benefiting from economies of scale, and this may negatively impact their housing and living standards (Bennett and Dixon 2006; Quintano and D'Agostino 2006). Moreover, the absence of a partner is often associated with childlessness and may have negative consequences on overall health and economic independence later in life (Kalmijn 2013). Similarly, singles living with others (e.g. lone parents, adults living with their parents) are also likely to experience financial hardship and negative health outcomes related to their household situation.

These risks are likely to be even greater in contexts where individuals' reliance on family often compensates for the limited role of the welfare state, as is the case in Italy, where the familistic nature of the welfare state may exacerbate sex and social class disparities over the life course. Italy, therefore, represented a suitable case study for advancing our knowledge on the phenomenon of lifelong singlehood, especially considering that research on this topic has been conducted mostly in the US and Northern Europe (e.g. Sweeney 2002; Dykstra and Poortman 2010; Jalovaara 2012; Wiik and Dommermuth 2014). As a further contribution to the existing literature, we have provided the first empirical examination of sex and cohort differences in the proportion of lifelong singles and the relationship between occupational characteristics and singlehood in a South European context.

Our findings suggest that lifelong singlehood is a phenomenon that has increased in size across birth cohorts in Italy. As indicated by the Kaplan–Meier survival curves, although this holds true for both men and women, lifelong singlehood has been increasing at a faster pace for men. In the most recent birth cohort of individuals, born between 1961 and 1971, around 14 per cent of women and 19 per cent of men had not experienced any significant partnering event before they turned 45.

Drawing on different theoretical perspectives, we put forward hypotheses that labour market attachment and occupational attainment would be significantly related to the occurrence of lifelong singlehood, although varying between men and women. Following the NHE perspective, we expected a trade-off between work achievement and the likelihood of partnering for women. The opposite was expected for men: the stronger their labour market attachment and the higher their achievement, the more positive the signals in the mating market and the lower their chances of remaining single. We also added a more dynamic perspective to this scenario, considering between-cohort changes in the interrelationship between work and family. However, partly departing from the existing literature on the topic, we expected the overall trends towards the convergence of men's and women's work trajectories to be counteracted by the predominance of the male breadwinner model in Southern Europe. This led us to expect that the association between the labour and mating markets for men and women would have changed only partially over birth cohorts in Italy, in contrast to the findings of previous studies in other cultural/institutional contexts (e.g. Sweeney 2002; Dykstra and Poortman 2010; Jalovaara 2012; Wiik and Dommermuth 2014).

Our findings indicate that in the Italian context, occupational characteristics, particularly labour market attachment, are far more important—and increasingly so—for men's mating market outcomes than for women's. Concerning labour market attachment, the expected work–family trade-off for women clearly emerged among the two earlier cohorts. Following Hakim's preference theory (2000), this finding may indicate a polarization between work-oriented women (who entered the labour market and remained in employment) and family-oriented and adaptive women (who, in the face of institutional constraints to balancing work and family, opted for the latter at the expense of the former). However, we can also generally confirm the expected softening trend in the work–family trade-off: the most recent

cohort of women appears to have been less penalized in terms of partnership chances from stronger labour market attachment (proxied by the proportion of time spent in employment). This finding may be reflective of institutional changes (e.g. the provision of public childcare) that have reshaped opportunities for women, making it easier to balance work and family responsibilities. It may also be due to the decreasing selectivity of women in employment. Future research could examine macro-level trends (e.g. women's employment participation) in relation to lifelong singlehood and work histories. This would help to determine whether Italian women have benefited from increased support in balancing work and family responsibilities, or if a more heterogeneous group of women—particularly in terms of partnering behaviour—has entered the labour market.

For men, our findings point to an even more radical scenario than we expected. Rather than *stability* in the relevance of occupational characteristics for men's lifelong singlehood, we found an *increased* probability of finding a partner before age 45 for men with a stronger labour market attachment. Although not reaching statistical significance, the findings for typical as opposed to atypical employment point to the same outcome: that is, an increasingly negative relationship between stable working careers and singlehood across cohorts. We deem these results particularly interesting as they point to a rather new and still unexplored trend in the existing literature. The two dimensions of work and family formation (the latter limited to partnering) appear to be strongly interrelated for men and, surprisingly, increasingly so over time. Despite the increased involvement of women in the workforce and the spread of the dual-earner/dual-carer work–family model, the male breadwinner model and, thus, men's labour market attainment and economic prospects seem to remain the dominant norm in the Italian context. The increasing relevance of men's working careers for their mating market outcomes is likely to have spillover effects on their housing, living, and fertility outcomes. Increased differentiation between men with different labour market outcomes may fuel social inequalities, whereby poor employment and economic achievement go hand in hand with poor chances of finding a partner.

For this reason, it would be particularly relevant for future studies to explore the conditions under which labour market achievement influences lifelong singlehood. We focused on Italy, a context which is lagging behind in terms of gender-egalitarian

attitudes (Esping-Andersen 2009; Lomazzi 2017) and the transition to the dual-earner/dual-carer work–family model (Kowalewska and Vitali 2021), plausibly due to a lack of policy support for families and children, leading to negative consequences for women's (especially mothers') employment participation and outcomes (Dotti Sani and Scherer 2018). Are these institutional features responsible for our finding of a persisting male breadwinner model in partnering dynamics? The non-alignment of our results with those found in previous studies on the topic (e.g. Liefbroer and Corijn 1999) seems to suggest the relevance of country-specific institutional features in driving the relationship between occupational characteristics and lifelong singlehood, but comparative research on the determinants of lifelong singlehood would shed further light on this issue.

Our study was not without limitations. Concerning the data, recall bias may have been at play due to the retrospective nature of work histories, especially for the earlier cohort of men and women. Yet, this data source enabled us to follow individuals over their entire life span and work history, thus being well suited to answering our research questions. Moreover, we relied on rather broad classifications (e.g. the dichotomous distinction into typical/atypical employment throughout each individual's career) to explore the role of occupational attainment, a choice that should have reduced the bias introduced by recall issues.

Another limitation related to the available data was the impossibility of identifying individuals in the sample who were in LAT or LTA partnerships. In fact, while we had information on marriage and cohabitation episodes, we were unable to ascertain if non-cohabiting individuals were in a romantic partnership or if cohabiting individuals were (still) in a partnership. Although the failure to identify LAT relationships may have resulted in an overestimation of the proportion of singles, the potential harm to our contribution was likely negligible, as we focused on the Italian context, where the LAT arrangement occurs primarily between young adults who face economic barriers to forming a joint household (Mortelmans et al. 2015). Similarly, existing research in the European context has shown that the prevalence of LAT relationships is highest between ages 20 and 30 and decreases with age (Asendorpf 2008; Lewin 2018). In other words, LAT partnerships appear to be a transient relationship phase associated with the postponement of co-residential unions (Castro-Martín et al. 2008). Moreover, as our definition of lifelong

singles factored in the cohabitation and marital histories of individuals aged 45, the likelihood of misidentifying individuals in LAT arrangements was low, given the low prevalence of such relationships at older ages.

In contrast, failure to identify LTA relationships may have led to an underestimation of single people, in romantic but not necessarily in residential terms. Research on LTA arrangements is still scarce, and it is rarely possible to identify them in existing data sets. However, existing studies have shown that it is frequently a temporary phenomenon and that its prevalence has not changed significantly over time (e.g. for France, see Rault and Régnier-Loilier 2020). Potential bias in our analyses is likely to have been limited because if LTA individuals were married (or previously married) or had spent at least two years in a romantic cohabitation, they were correctly coded in our analyses as not being lifelong singles. In other words, the underestimation of the prevalence of singlehood due to LTA arrangements was a risk only for unmarried couples who had not been living together for a significant amount of time: a phenomenon that is likely rare. Nevertheless, LAT and LTA arrangements are an increasingly important phenomenon, with crucial implications for the well-being of individuals, couples, and children. More detailed data sources and further research are needed to understand these phenomena better and to separate these arrangements from the study of other forms of partnership or singlehood.

Another potentially relevant piece of information that was missing from the data was longitudinal details on individual health (which was only collected cross-sectionally in 2016). This represents a shortcoming, especially for our interpretation of the role that occupational and economic inactivity plays in singlehood, as it may be that some personal traits (e.g. poor health) could explain both inactivity and singlehood.

In addition, we were unable to investigate the relationship between economic outcomes (i.e. income) and singlehood, as no income measurement was available in the data used. Future research could examine in greater detail whether income and income variations throughout an individual's career are relevant predictors of outcomes in the mating market and if singlehood is associated with higher income levels (e.g. for career-oriented women in earlier birth cohorts).

Another limitation, related to the nature of the outcome of interest, namely a life-course status rather than a specific event, was the impossibility of establishing a specific causal order. Although

our analyses were informed by relevant theoretical perspectives and previous empirical research, and although we ensured that all employment/occupational measures were collected before the age at which lifelong singlehood was measured (i.e. 45 years), we could not rule out the possibility that a lack of significant partnership and cohabitation episodes at a younger age may have led individuals to invest more (or less) in the labour market sphere. The interrelationship between the labour market and family formation spheres is at the heart of the issue examined in this paper (and other papers focusing on related issues; see e.g. Bastianelli and Vignoli 2022). Thus, even without being able to claim a specific causal order, we believe that our findings add significantly to the existing literature on lifelong singlehood.

Even in light of these limitations, our results indicate a softening of the work–family trade-off for women across cohorts. However, we found an increasing association between men's labour market attachment and their chances of partnering, which challenges most existing studies on the topic and calls for better contextualization of the phenomenon of singlehood and its relationship with the occupational dimension.

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- 2 Please address all correspondence to Beatrice Caniglia, Department of Sociology and Social Research, University of Trento, Via Verdi, 26, 38122 Trento TN, Italy; or by E-mail: beatrice.caniglia@unitn.it.
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- 4 Data availability: The full data set of the ISTAT multi-purpose survey 'Families, Social Subjects and Life Cycle' (2016 wave) is not publicly available and cannot be distributed for reproduction purposes. Access to the microdata is granted free of charge on formal request for Scientific Use Files by members of a recognized research institution, as indicated on the following website: <https://www.istat.it/en/analysis-and-products/microdata-files>. Additional information, metadata, and a toy data set can be found at the following website: <https://www.istat.it/en/archivio/236643> (version in Italian available at: <https://www.istat.it/it/archivio/256707>).

Disclosure statement

No potential conflict of interest was reported by the authors.

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