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Unstable employment careers and (quasi-)completed fertility: evidence from the labour market deregulation in Italy

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Most research on the fertility consequences of labour market instability has focussed on the transition to parenthood, ignoring potential 'catching up' effects and, thus, the more encompassing view on cohort fertility. This work extends on this point by analysing the consequences of employment instability on (quasi-)completed fertility for men and women in Italy. From a cohort perspective, we look at fertility outcomes at age 41 among those who experienced labour market deregulation (cohorts born between 1966 and 1975) in comparison with the previous cohorts (those born between 1951 and 1965) and relate the fertility outcome to the instability of their employment histories. Based on data from a large-scale, nationally representative retrospective survey, we find that fragmented employment careers and atypical employment periods come with a lower likelihood of ever becoming a parent and a higher probability of having fewer children compared to those with continuous, stable careers. Our study suggests that the consequences of rising labour market instability not only lead to a postponement of childbearing but also lead to overall lower numbers of children, especially for men and younger cohorts. This study adds to previous research by suggesting that recuperation in employment instability-induced childbearing postponement does not take place to a sufficient extent, at least in Italy.

Introduction

Up to the crisis of the Ford-Keynesian equilibrium (i.e., during approximately the late 1970s), permanent employment represented the standard work arrangement for the ideal-typical industrial worker, usually maintained for most of one's career. Since the 1980s—as a consequence of the EU-wide process of 'Dual-Employment Protection Legislation (EPL) reforms' (Bentolila, Dolado and Jimeno, 2019)—workers' turnover rates have rapidly risen (OECD, 2015), especially for workers in the secondary, less-protected, labour market. Notwithstanding the fact that 'flexible forms of employment' have never accounted for more than one-fifth of each country's total employment (Eurostat, 2020), employment instability (here intended as episodes of non-standard, flexible employment, and non-employment spells) has been institutionally concentrated on highly specific, working-age population groups—namely the youth (Barbieri, 2009)—generating rising uncertainty about future earnings and labour market outcomes, as well as life-course opportunities (Bentolila *et al*., 2021). Previous studies have shown employment instability to have consequences for fertility (Kohler, Billari and Ortega, 2002; Alderotti *et al*., 2021; Pieroni *et al*., 2023), though depending on the macro-contextual situation (Barbieri *et al*., 2015; Bastianelli, Guetto and Vignoli, 2023) and on the characteristics of the individuals, with clearly gendered effects (Vignoli, Drefahl and De Santis, 2012; Guetto, Tocchioni and Vignoli, 2023; Scherer and Brini, 2023).

Most studies have addressed the fertility consequences of rising employment instability by analyzing time-to-event data, often focussing on the effects of such specific situations as episodes of temporary employment or unemployment (van Wijk, de Valk and Liefbroer, 2022). However, single indicators of instability are often insufficient for capturing the

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link between employment uncertainty and fertility (Bernardi, Huinink and Settersten, 2019; Vignoli *et al*., 2020a; Buh, 2023). Several studies have examined the long-term effects of employment instability using complex measures of work–life instability (Ciganda, 2015; Busetta, Mendola and Vignoli, 2019), incorporating the information contained in the entire employment trajectory of individuals. Such multiple indicators proved to have more explanatory power in predicting fertility intentions and outcomes than single indicators measuring a specific 'atypical' employment status. Furthermore, while a focus on each parity transition allows dealing with causal dynamics, it mixes timing and probability effects and, more importantly, misses the 'overall' life-course impact of the process of labour market deregulation on fertility. It also raises concerns relative to right-censoring, which disproportionally concentrates on younger cohorts.

This study addresses the limitations of prior research by analyzing (quasi-)completed fertility instead of single fertility transitions. While the effect of employment instability on *completed* fertility has rarely been investigated, a handful of studies have indeed focussed on the effects of unstable employment careers on fertility later in life (Pailhé and Solaz, 2012; Clark and Lepinteur, 2022). We enrich this research by focussing on (quasi-)completed fertility in Italy. Fertility has been declining across the globe but has reached particularly low levels in some contexts, including Italy, with a record-low total fertility rate (TFR) of 1.19 children per woman registered in 1995 (Istat, 2023). In the following years, Italian fertility fluctuated around very low levels, with a TFR of 1.24 in 2022 (Istat, 2023). While these levels may have multiple causes, employment instability and its related economic uncertainties have garnered significant academic attention (Vignoli, Tocchioni and Mattei, 2020; Alderotti *et al*., 2021). Although TFR decline originated before the onset of the process of labour market deregulation, we maintain that (i) labour market deregulation worsened a long-term socio-demographic and cultural process, and (ii) the relevance of these structural constraints to fertility decisions is of particular importance, given that, differently from drivers related to changing preferences or values, they are, in principle, open for policy interventions and state support to address lower-than-desired fertility (Sobotka and Beaujouan, 2014).

Labour market deregulation led to labour market segmentation, also referred to as 'dualization' (Emmenegger *et al*., 2012; Rueda, 2014), to stress the divide between primary and secondary labour market sectors and its spill-overs on overall life-course well-being. Importantly, the increasing employment instability is concentrated on young people in their childbearing years, who are particularly at risk of remaining trapped in the secondary labour market and experiencing sequences of interrupted work careers (carousel careers made of repeated spells of temporary employment and subsequent unemployment). This likely carries consequences for family formation and fertility, although assessing the impact of these reforms on fertility is far from straightforward for both substantive and methodological reasons. This is especially true as reforms occurred in the context of rapidly changing family dynamics. Now, as the first cohorts affected by deregulation policies are beginning to reach the end of their reproductive period, it becomes possible to observe the consequences of (increased) employment instability on *completed* fertility, thus considering also possible recuperation effects. This is where this study makes its contribution. We investigate the association between employment career instability and (quasi-)completed fertility in Italy for men and women, comparing fertility outcomes at age 41 among cohorts who experienced labour market deregulation (born between 1966 and 1975) with the fertility outcomes of previous ones (those born between 1951 and 1965). The main reforms responsible for the labour market deregulation in Italy were implemented in the second half of the 1990s; accordingly, we reasonably surmise that individuals belonging to the older cohorts have experienced virtually no labour market deregulation, while younger cohorts have been increasingly exposed to the labour market deregulation process. We investigate the association between employment history, measured through a set of indicators capturing employment instability and the overall number of children. To clarify, we do not claim to explain fertility trends that result from many factors but rather focus on one, yet important, factor (in its various components): employment instability. We aim to establish the phenomenon after having specified the general lack of certainty about what is affecting completed fertility in Italy and using appropriate research data, but we leave it to future research to identify the causal mechanisms.[1]

Background literature

The Italian context: labour market deregulation at the margin

In reaction to persistently high unemployment levels, European countries in the 1980s started deregulating their labour markets (Bentolila, Dolado and Jimeno, 2012). At the core of this process was the idea of a trade-off between employment and equality, according to which only a sharp increase in inequality in either wage and/or job protection would have favoured labour market fluidity and thus pushed firms to increase their labour demand (Bentolila, Dolado and Jimeno, 2019). The expectation was to accelerate the labour

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market entry process (school-to-work transition) and to lower un- and non-employment (mainly among the young and women). Weakening institutional regulation increased individuals' exposure to labour market risks, but the specific form of deregulation defined who was particularly exposed. What has been labelled 'partial and targeted flexibilization' (Esping-Andersen and Regini, 2000) meant that flexibility was increased and legal protection reduced through the introduction and de-regulation of so-called non-standard or atypical employment relations for specific groups within the labour market—either labour market entrants or the unskilled (Barbieri, 2009)—while leaving the degree of employment guarantees and legal protections attached to 'standard', permanent employment positions substantially unchanged.

The strategy of a stratified reform was common all-over continental Europe (Emmenegger *et al*., 2012), but the consequences in terms of labour market dualization were particularly harsh in Southern Europe. In the Italian context, the main *de facto* reform leading to the current labour market segmentation dates back to 1997 (the 'Treu package'), with additional changes in 2003 (the 'Biagi law'). Since then, the use of non-standard/atypical contracts has been continuously extended, with only very recent government attempts to impose restrictions on the use of temporary employment (e.g., the 2018 'Dignity Decree'), although subsequently weakened. An ample amount of literature has documented that the expected positive effects on employment rates failed to appear, except for a brief 'honeymoon-effect' (Boeri and Garibaldi, 2007; Barbieri and Cutuli, 2016). Without substantial economic growth, the fear that, with these reforms, stable forms of employment would have been crowded out for younger cohorts was confirmed (Kahn, 2010; Barbieri *et al*., 2019).

The result was increased employment instability in Italy, particularly for labour market entrants, yet without significant increases to (regular) employment or decreases in unemployment risks (OECD, 2002; Barbieri and Cutuli, 2016; Daruich, Di Addario and Saggio, 2023).[2] Temporary employment comes with much lower employment stability and higher unemployment risks. Instability is combined with significantly lower salaries, worse employment conditions (OECD, 2002; Barbieri and Cutuli, 2009), high risks of entrapment in what became a 'secondary labour market' (Blanchard and Landier, 2002), and uncertain futures (Vignoli *et al*., 2020b).

Employment instability and fertility: theory and research hypotheses

The theoretical link between employment situations and fertility decisions is straightforward and revolves around the fact that children (increasingly) come with costs, and the demand for children depends not least upon available resources (Becker, 1960). At the same time, employment also became increasingly relevant for women (Goldin, 2006), both in terms of self-realization in roles other than that of the mother (Dotti Sani and Scherer, 2018; Lesthaeghe, 2020) and for economic reasons, as men's income, alone, is often no longer enough to satisfy the financial needs of an entire family (Blossfeld and Mills, 2005). Therefore, the decision to have a(nother) child usually requires a certain level of economic well-being and a reasonable level of certainty and predictability of the future financial and occupational situation (Kohler, Billari and Ortega, 2002; Vignoli *et al*., 2020b; Pieroni *et al*., 2023)—at least in wealthy societies, where having children has become a choice rather than a mandatory step in peoples' lives (Doepke *et al*., 2023).

Previous research has documented an existing link between weak economic conditions or reduced EPL and declining fertility levels (Sobotka, Skirbekk and Philipov, 2011; Bastianelli, Guetto and Vignoli, 2023). However, most contributions over the last decades have focussed on the micro-level consequences of employment instability, which is widely considered to hamper family formation (Kreyenfeld, Andersson and Pailhe, 2012; Vignoli, Tocchioni and Mattei, 2020), to delay the transition to parenthood, and to reduce the final number of children (see, e.g., Ciganda, 2015; Hsu, 2022)—although with somewhat mixed findings (see Alderotti *et al*., 2021 for an overview). The results depend on the institutional context encompassing labour markets, welfare, and family policies. While in Central and Northern Europe, the literature often finds no (or weak) differences between temporary and permanent workers in their chances of having a (first) child (Gebel and Giesecke, 2009; de Lange *et al*., 2014; Barbieri *et al*., 2015; but see also van Wijk, de Valk and Liefbroer, 2021, 2022), employment instability seems to strongly affect fertility behaviours in Southern Europe, primarily studied in terms of transition to motherhood (Prifti and Vuri, 2013; Barbieri *et al*., 2015; Vignoli, Tocchioni and Mattei, 2020). The strong dependence of family behaviours on the individual's labour market situation in Southern Europe can be attributed to the sub-protective welfare state (Gallie and Paugam, 2000), which cannot compensate for low pay or job losses nor provide a generally supportive context for families. In line with previous research supporting the strong dependence of family behaviours on individuals' employment conditions in Italy, *we expect that an unstable employment situation*—i.e., *experiencing atypical or non-employment spells—leads to a reduced childbearing risk, both in terms of the transition to the first and second child (Hypothesis 1)*.

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Nonetheless, focussing on the *current employment situation* and its instantaneous effects on the timing of fertility transitions provides only a limited picture. In fact, some evidence suggests that individuals tend to catch-up on fertility at some point, for instance, upon reaching a stable employment situation (Barbieri *et al*., 2015), so the tempo effect does not necessarily translate into a quantum effect. Among the few authors who have treated completed fertility, Pailhé and Solaz (2012) showed that, in France, employment instability tends to delay first parenthood but has a relatively weak effect on lifetime fertility. Clark and Lepinteur (2022) instead reported that job instability reduces family size but not the probability of parenthood itself. Employment instability may affect completed fertility through a variety of channels. For example, prolonged exposure to temporary employment also means reduced human capital accumulation through lower on-the-job training (Cutuli and Guetto 2013), as well as lower accumulation of economic resources (Scherer, 2009; van Wijk, de Valk and Liefbroer, 2021), particularly in the context of a dualized labour market like that of Italy. Lower human capital accumulation and persistently lower wages may have negative consequences for an individual's capability of fertility recuperation at later ages, thus linking employment instability to lower completed fertility. Furthermore, the impact of employment instability may depend on its timing and duration. Recent research has underlined how *cumulative* employment instability may affect fertility outcomes (Ciganda, 2015; Schmitt, 2021; van Wijk, de Valk and Liefbroer, 2022) and intentions (Busetta, Mendola and Vignoli, 2019). These findings emphasize the need to adopt a broader longitudinal perspective and to examine the whole quality and structure of work life—well beyond snapshots of single points in time. This is even more relevant given the consequences of labour market deregulation for employment careers. Notwithstanding the limited research available, completed fertility is the more relevant outcome, both socially and in terms of population dynamics. Therefore, we look at individuals' career trajectories and advance that *persistent instability, in terms of prolonged or repeated joblessness and entrapment in secondary/unstable employment, reduces (quasi-)completed fertility (Hypothesis 2)*.

Another factor moderating the relevance of the employment-fertility link is labour market deregulation. Labour market deregulation not only came with increasing shares of unstable or atypical positions but also led to increased dualization, coming with lower outflows from secondary labour market positions towards stable employment, resulting in *career* instability and fragmentation, with severe long-term consequences of unstable, non-standard employment. In Italy, cohorts entering the labour market from the second half of the 1990s onwards are affected by this. Therefore, beyond increasingly common unstable employment positions for younger cohorts (i.e., the composition effect), *we might also expect the effects of employment instability on fertility timing and quantum to have become more severe over cohorts (Hypothesis 3)*.

For women, the link between labour market instability and fertility is theoretically ambiguous, and the expectations are often complex (Barbieri *et al*., 2015; Alderotti, 2022). Women might rely on the alternative role of mothers (Friedman, Hechter and Kanazawa, 1994) if labour market possibilities are limited, especially when they have a partner providing a family income (Vignoli, Drefahl and De Santis, 2012) or have access to a generous welfare state (Blossfeld and Mills, 2005). In particular, periods of non-employment might have different meanings for women, as they might lower the opportunity costs of children (Butz and Ward, 1979), and thus, in some cases, result in higher chances of becoming mothers or having an additional child. Among others, Busetta, Mendola and Vignoli (2019) showed that, for Italy, *his* (persistent) joblessness is more significant to a couple's fertility intentions than *hers*, and single-earner couples are often found to have higher first-birth rates than dual-earner couples (Vignoli, Drefahl and De Santis, 2012). Similarly, non-standard contracts might be indicative of women's preferences for flexible work arrangements rather than constraints (Hakim, 2000), implying lower labour market attachment and higher family orientation. However, in line with the changing roles of women (Goldin, 2006), most recent studies have found that temporary employment delays the transition to parenthood, especially for women (Alderotti *et al*., 2021; Schmitt, 2021; Scherer and Brini, 2023). While considering that differences in gender roles may be more pronounced in traditional contexts, with employment instability generally playing a stronger negative role in shaping fertility timing and quantum for men, *we expect employment instability to have become increasingly important for women across cohorts, leading to a convergence in the results for men and women (Hypothesis 4)*.

Data and methods

We use data from the survey '*Famiglie, Soggetti Sociali e Ciclo di Vita*' (FSS), conducted by the Italian Statistical Office (Istat) in 2016.[3] The FSS survey includes high-quality retrospective information on individual fertility and labour market histories, with monthly detail, and information about the respondents' socio-economic background. We focussed on individuals aged 41 or over at the time of the interview,

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i.e., women and men born up to 1975. The choice of the age threshold was set so as to get as close as possible to the end of individuals' reproductive age, as well as to simultaneously include cohorts young enough to have experienced the consequences of the deregulation reforms, studying their (quasi-)completed fertility.[4] Individuals born before 1951 were not included in the study, as they did not experience the labour market deregulation process, and their careers unfolded under very different historical circumstances (i.e., the post-war reconstruction and subsequent 'economic miracle'). The resulting analytical sample included 5,579 women and 5,355 men.

The modelling strategy relied on two sets of analyses. First, we used event history analysis (EHA) to replicate, with more recent data and limiting right-censoring due to the age selection, previous studies analyzing the relationship between individuals' employment status and both the transitions to parenthood and to the second child. For the analysis of the transition to parenthood, individuals entered the observation at age 16 and exited at the conception of their first child (i.e., 9 months prior to birth), leading to a live birth or when they turned 41—whichever came first. For the transition to the second child, individuals entered the observation upon having their first child and exited on the conception of their second child (leading to a live birth) or when they turned 41—whichever came first. We employed discrete-time EHA models (Allison, 1984) with monthly data and standard errors clustered at the individual level. In these analyses, the major explanatory variable was the time-varying employment condition, which distinguished between employed with permanent contracts, employed with atypical[5] contracts, 'traditional' self-employed, and not employed.

In the second set of analyses, we studied the relationship between several indicators of unstable employment history and (quasi-)completed fertility. The dependent variable was the number of children at age 41, which allowed us to focus on the relationship between employment history and the number of children without confounding timing and probability effects. The number of children was modelled by multinomial logistic regression (MLR) as well as by generalized Poisson regressions. Poisson regressions were employed to estimate the number of children at age 41 for profiles defined by different values on the employment history variables.[6] MLR instead provides a nuanced picture of the factors bringing to different parities. We distinguished between three categories: no children, one child, and two or more children (due to the number of cases, a more detailed division was not possible). We report the results of MLRs through average marginal effects (AMEs), and set the 'one child' category as a reference for interpreting the AMEs as the changes in the probability of either being childless or having 2 or more children at age 41.

In addition, instead of considering single episodes of atypical employment and to have a more encompassing measure of instability, the 'multifaceted' effect of employment histories was taken into account. In order to limit reverse causality issues (or, in this context, 'anticipatory analysis', see Hoem and Kreyenfeld, 2006), indicators of employment history were computed by only considering the employment career before the conception of the first child for those who had (at least) one child, and the employment career up to the cohort-and sex-specific mean age at first conception for those who remained childless. However, we acknowledge that measuring indicators of employment history using different periods of observation depending on the outcome may have introduced bias in our results (Elwert and Winship, 2014). We discuss this aspect in greater detail in the Additional analyses and robustness checks section, where we support the validity of our findings.

We used a set of indicators describing individuals' labour market trajectories between 16 years and the conception of the first child or the cohort- and sex-specific mean age at first conception, considering qualitative aspects of the career composition (distinguishing different states) and quantitative measures of career instability (looking at events): (i) the number of months spent with atypical employment contracts (0, 1–11, 12–23, 24–47, 48 and over); (ii) the number of non-employment spells longer than 3 months; and (iii) the speed of the school-to-work transition. The latter indicator measures the number of months between leaving the school system and the first significant job experience lasting at least 6 months (first significant job obtained before completing education, 0–23, 24–47, 48 and over, never worked for over 6 months, never entered the labour market). To mitigate collinearity among labour market-related variables, individuals who have never been employed were assigned a '0' for the first indicator, along with those who had worked but never under atypical contracts. Similarly, regarding the variable for the number of non-employment spells, individuals who had never entered the labour market were grouped together with those who had been employed but had never experienced a non-employment spell.[7] While the first two indicators relate to standard measures of employment instability in socio-demographic research (see, e.g., Alderotti *et al.*, 2021), the speed of the school-to-work transition accounts for the length of the first search for employment, net of non-significant (i.e., shorter than 6 months) jobs. We included the number of months spent with atypical employment contracts as a categorical variable to allow for potential non-linear effects

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on fertility (i.e., a few months of atypical employment may be a stepping stone into stable employment, while persistent atypical employment may have negative consequences on fertility outcomes); conversely, we assumed that the number of non-employment spells would have a linear effect on fertility (e.g., each episode of non-employment likely has a disruptive effect on an individual's career).[8]

The modelling strategies shared a common set of control variables. To compare individuals who were as similar as possible upon leaving the school system but faced different labour market conditions, we controlled for detailed information on family background characteristics, which have been widely acknowledged to influence childbearing behaviour (Rijken and Liefbroer, 2009; Liefbroer and Elzinga, 2012; Barbieri and Bozzon, 2016). Family background was operationalized through the following variables: the highest among parents' educational level (primary, lower secondary, upper secondary, or tertiary); both the mother and father's social class when the respondent was aged 14 (measured through a six-category grouping of the European Socio-economic Classification, hereafter ESeC; see Rose and Harrison, 2007); whether parents had ever separated or divorced; both the mother and father's age at the time of the respondent's birth; and the number of respondents' siblings (continuous variable). Among the individuals' characteristics, we considered whether the respondent was born in Italy or abroad; the educational level (primary or lower secondary, upper secondary, or tertiary); and the macro-area of residence measured at the time of the interview (North-East, North-West, Centre, South). Missing values to control variables were imputed through multiple imputations by chained equations, although the share of missing values was relatively low (0–4 per cent). Finally, while acknowledging that couple formation may operate as a relevant mediator in the relation between employment instability and fertility, we chose not to control for it due to our interest in estimating the total effect of individuals' unstable careers on their (quasi-)completed fertility. However, we re-ran our analyses after controlling for union status (further discussed in Additional analyses and robustness checks section).

All of the analyses were stratified by gender and birth cohort. In the main analysis, we distinguished between a cohort not yet affected by deregulation (those born between 1951 and 1965) and one that entered the labour market when deregulation began (1966–1975). The results were robust to slightly different groupings of the cohorts, i.e., using 1963 and 1967 instead of 1965 as a cut-off year (the results for which are available upon request).

Results

Description

Descriptive statistics of labour market-related variables for all cohorts—also those not included in the fertility analysis due to the respondents' young age—are reported in Table 1. We found clear evidence, based on the above-mentioned indicators, that employment careers became more unstable across cohorts with the progression of labour market deregulation. To also document more recent trends in deregulation and compare the cohorts included in the fertility analysis with the younger cohorts, we relied on a descriptive unaffected by the length of the observation period: the share of individuals whose first job was an atypical one ('Atypical LM entry' in Table 1). For those born between 1951 and 1955, this share was 18.73 per cent for men and 24.75 per cent for women. It increased to 31 per cent for men and 35.30 per cent for women in the 1971–1975 cohort and further rose to 42.29 per cent and 44.39 per cent for men and women, respectively, in the 1981–1985 cohort. Additionally, the share of men spending 4 or more years in atypical employment increased: 10.47 per cent for the 1971–1975 cohort, 15.27 per cent for 1976–1980, and 18.73 per cent for 1981–1985. Among women, the average number of employment interruptions experienced by those from the 1976–1980 and 1981–1985 cohorts was higher compared to any other considered for the fertility analysis. Therefore, our focus on cohorts with (almost) completed fertility history represents only the top of the iceberg: the effects of precarious employment careers are likely to be even more visible with the subsequent (i.e., post-1975) cohorts. Furthermore, women increasingly entered the labour market, though, even in the younger cohorts, the share of those who never worked remained substantial (approximately 28 per cent).

In line with the literature, the data also document a noteworthy decline in the number of children over cohorts: the share of childless men rose from 16.71 per cent in the 1951–1955 cohort to 31.27 per cent for 1971–1975; with the figures for women being 13.94 per cent and 24.45 per cent, respectively. The share with 2 or more children declined by roughly 15 percentage points (pp) for men and 10 pp for women, reaching 44.77 per cent and 49.87 per cent for men and women, respectively.

EHA for the transition to the first and second child

As a first step, we modelled the transition to parenthood and to the second child through discrete-time EHA (see Table 2). For the sake of brevity, we only report the effects of the main explanatory variable—i.e.,

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Table 1 Descriptive statistics of labour market-related variables by cohort

	1951–1955	1956–1960	1961–1965	1966–1970	1971–1975	1976–1980	1981–1985
Men							
Number of children at age 41							
0	16.71%	23.07%	25.28%	32.05%	31.27%	43.29%	61.46%
1	22.71%	24.20%	28.29%	22.42%	23.96%	26.41%	20.93%
2 or more	60.58%	52.73%	46.43%	45.53%	44.77%	30.30%	17.61%
Atypical LM entry	18.73%	22.10%	20.25%	23.47%	31.00%	34.68%	42.29%
Months spent in atypical employment							
0 month	80.61%	78.10%	77.31%	75.37%	68.25%	62.17%	61.02%
1–12 months	4.49%	7.13%	6.91%	7.31%	9.39%	10.02%	7.05%
12–23 months	3.37%	3.31%	3.45%	4.27%	4.92%	5.44%	6.84%
24–47 months	4.29%	5.27%	4.48%	5.09%	6.98%	7.10%	6.36%
48 months or more	7.24 %	6.20%	7.84%	7.96%	10.47%	15.27%	18.73%
Number of work interruptions	0.38	0.41	0.45	0.48	0.52	0.75	0.68
Time from educ. to first employment							
Before completing education	23.67%	20.66%	18.95%	20.20%	20.93%	19.34%	20.13%
0–23 months	25.61%	28.00%	31.28%	29.72%	27.91%	31.78%	29.37%
24–47 months	16.02%	18.70%	16.90%	15.02%	14.67%	14.60%	13.83%
48 months or more	18.98%	16.43%	19.51%	22.25%	20.48%	23.08%	18.22%
Never worked for more than 6 months	3.37%	2.07%	2.15%	1.40%	2.86%	1.38%	2.28%
Never worked	12.04%	13.43%	10.18%	10.34%	11.99%	9.43%	14.22%
Women							
Number of children at age 41							
0	13.94%	15.48%	16.89%	19.35%	24.45%	25.34%	45.14%
1	24.09%	21.83%	24.71%	28.35%	25.68%	26.27%	23.63%
2 or more	61.97%	62.69%	58.40%	52.30%	49.87%	48.39%	31.23%
Atypical LM entry	24.75%	25.75%	31.97%	30.14%	35.30%	37.51%	44.39%
Months spent in atypical employment							
0 month	81.73%	80.35%	78.33%	77.25%	69.86%	68.89%	61.08%
1–12 months	5.95%	6.58%	7.93%	6.80%	8.83%	7.92%	9.30%
12–23 months	4.07%	4.02%	3.70%	4.03%	6.49%	6.39%	6.11%
24–47 months	3.44%	4.39%	5.20%	5.63%	7.41%	6.08%	8.00%
48 months or more	4.80%	4.66%	4.85%	6.30%	7.41%	10.73%	15.51%
Number of work interruptions	0.27	0.31	0.39	0.39	0.45	0.57	0.62

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Table 1 Continued

	1951–1955	1956–1960	1961–1965	1966–1970	1971–1975	1976–1980	1981–1985
Time from educ. to first employment							
Before completing education	14.61%	13.99%	15.59%	15.87%	16.15%	16.93%	16.44%
0–23 months	19.21%	23.86%	22.73%	24.94%	26.81%	25.65%	27.29%
24–47 months	11.69%	10.05%	9.43%	9.66%	11.24%	10.76%	10.65%
48 months or more	12.42%	7.95%	8.02%	10.66%	13.32%	15.05%	12.78%
Never worked for more than 6 months	3.86%	4.02%	3.96%	3.27%	3.16%	2.09%	2.61%
Never worked	36.74%	39.58%	39.82%	34.68%	28.73%	28.52%	27.80%

Note: Population weights have been applied. The 1976–1980 and 1981–1985 cohorts (columns in gray) were not included in the fertility analysis. For the 1951–1975 cohorts, employment-related variables were computed by considering the employment career before the conception of the first child for those who had (at least) one child. For individuals who remained childless, the computation was based on the employment career up to the cohort- and sex-specific mean age at first conception. For the 1976–1985 cohorts, no censoring was applied after the conception of the first child to compensate for the shortened observation window. Descriptive statistics for the control variables are reported in Supplementary Tables A1 and A2.
Source: Authors' elaboration on FSS 2016 data.

time-varying employment status—by gender and cohort. In addition to the odds ratios (ORs), we report, for each category of employment status, the yearly variation in the probability of experiencing the event with respect to the reference category (i.e., permanent employment), computed as the AME (which refers to the monthly variation in the probability of having a(nother) child) multiplied by 12, expressed in pp. Full models are reported in Supplementary Tables A3–A4.

Regarding the transition to parenthood, the findings indicate that atypical employment is linked to a reduced likelihood of first birth, particularly among younger cohorts in the context of labour market deregulation. For instance, men with atypical contracts face 27 per cent and 43 per cent lower odds of having a first child in the 1951–1965 and 1966–1975 cohorts, respectively, translating to a yearly decrease in the probability of first childbirth by 1.5 pp and 1.9 pp, respectively. A similar—but weaker—relationship was detected among women, with virtually no changes across cohorts (OR = 0.80 and OR = 0.79 for the 1951–1965 and 1966–1975 cohorts).

While self-employment is generally not substantially different from permanent employment, non-employment, especially among men, seems to hinder parenthood. With respect to their counterparts with permanent employment, the ORs of transition to parenthood for non-employed men are 0.43 and 0.44 (corresponding to a decrease in the yearly probability of having the first child by 3.1 pp and 2.4 pp) for the 1951–1965 and 1966–1975 cohorts, respectively. Among women, a weaker, negative association between non-employment and the probability of having the first child was detected only for the youngest cohorts (OR = 0.88, corresponding to a variation of –0.7 pp in the yearly probability of conception). This suggests a partial convergence among men's and women's fertility drivers.

Regarding the transition to the second child, no significant association with employment status emerged among men and women from the 1951–1965 cohort. Conversely, among men from the recent 1966–1975 cohort, both experiencing atypical employment and non-employment were found to relate to a lower yearly probability of having a second child by 9.4 pp and 6.4 pp, respectively, compared to having a permanent contract (OR = 0.67 for atypical employment; OR = 0.77 for non-employment).

Among women from the recent cohort, the monthly probability of having a second child decreased by 5.2 pp (OR = 0.80) if they were in atypical employment and increased by 6.6 pp (OR = 1.25) for self-employed (although such estimates had low statistical precision), while no significant change was found for non-employed, with respect to women with a permanent contract.

Ultimately, experiencing precarious forms of employment seems to delay both the transitions to the first and second child, thus confirming H1. These effects seem more pronounced among recent cohorts concerning the transition to the first child but only apply to recent cohorts for the second, thus offering support for H3. Lastly, findings offer only partial support for H4—specifically, the convergence between men and women in the relationship between employment instability and fertility. Notably, non-employment significantly (and

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Table 2 Discrete-time EHA models, transition to the first child and second child. OR and percentage variations in the yearly probability of experiencing the event are reported

	Cohort 1951–1965				Cohort 1966–1975			
	Men		Women		Men		Women	
	OR	Yearly change	OR	Yearly change	OR	Yearly change	OR	Yearly change
Transition to the first child								
Employment (ref. permanent)								
Atypical empl.	0.73***	–1.5 pp	0.80**	–1.2 pp	0.57***	–1.9 pp	0.79**	–1.1 pp
Self-empl.	0.91*	–0.5 pp	1.06	0.3 pp	1.02	0.1 pp	0.91	–0.5 pp
Not empl.	0.43***	–3.1 pp	0.99	–0.1 pp	0.44***	–2.4 pp	0.88**	–0.7 pp
N	3,013		3,133		2,335		2,374	
Person-months	582,961		466,234		489,873		405,721	
Transition to the second child								
Employment (ref. permanent)								
Atypical empl.	1.05	1.6 pp	0.92	–2.2 pp	0.67***	–9.4 pp	0.80*	–5.2 pp
Self-empl.	1.07	1.8 pp	1.13	3.7 pp	0.99	–0.0 pp	1.25*	6.6 pp
Not empl.	0.88	–2.9 pp	0.92	–2.1 pp	0.77**	–6.4 pp	0.96	–0.9 pp
N	2,433		2,662		1,621		1,845	
Person-months	75,258		72,101		42,557		50,513	

Note: Control variables include parental education, parents' union dissolution, both parents' age and social class (ESeC) when the respondent was 14, number of siblings, respondent's place of birth, and educational level.
*$P < 0.10$, **$P < 0.05$, ***$P < 0.01$.
Source: Authors' elaboration on FSS 2016 data.

negatively) influenced the risk of transitioning to motherhood only among the more recent cohort.

The analysis of quasi-completed fertility

Transitioning from analyzing each parity to exploring completed fertility and the impact of unstable employment, Table 3 presents MLR results on the number of children at age 41 by gender and cohort. We report AMEs related to employment careers for the probabilities of being childless or having two or more children at age 41. Full models are available in Supplementary Tables A5–A6.

The experience of atypical employment for the older cohort is only weakly and non-monotonically related to the number of children at age 41, while a strong negative relation emerges in the more recent cohort. In fact, among the older cohort, spending a moderate amount of time (i.e., 24–47 months, compared to 0 month) in atypical employment is related to higher chances of having 2 or more children by 10.6 pp among men and 11.7 pp among women. Instead, spending four or more years (rather than zero) in atypical employment has no significant influence on fertility for either men or women. Conversely, among men born between 1966 and 1975, those who spent more than 4 years in atypical employment (10.5 per cent of men from those cohorts in the analytical sample) were found to be 10.6 pp more likely to be childless and 8.6 pp less likely to have 2 or more children by age 41 with respect to those who spent 0 month in atypical employment, *ceteris paribus*. Among women from the same cohort, those who spent between 24 and 47 months in atypical employment were 7.9 pp less likely to have 2 or more children by age 41, and those who spent over 4 years in atypical employment (roughly 8.8 per cent of women from this cohort in the sample) were 2.9 pp more likely to be childless and 4.8 pp less likely to have 2 or more children by age 41 than those who were never atypically employed.

Work interruptions are negatively linked to childbearing for both men and women. On average, each additional work interruption increased the likelihood of being childless at age 41 among men (3.1 pp for the older cohort and 4.3 pp for the younger) and reduced the probability of having 2 or more children (5 pp for the older cohort, 6 pp for the younger). While the effect was notable, the percentage of men with more than one work interruption was relatively low (9.0 per cent

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Table 3 MLR on the number of children at 41, labour-related variables. AMEs

	Cohorts 1951–1965				Cohorts 1966–1975			
	Men		Women		Men		Women	
	0	2+	0	2+	0	2+	0	2+
Months atyp. empl. (ref. 0)								
1–11 months	−0.026	0.038	0.054*	0.045	0.058	−0.011	−0.020	0.070
12–23 months	−0.025	0.060	0.018	0.001	0.032	0.004	0.041	−0.044
24–47 months	−0.055*	0.106*	−0.035	0.117*	−0.045	0.021	−0.080	−0.079*
48 months or more	−0.015	−0.034	0.018	−0.011	0.106***	−0.086**	0.029*	−0.048*
N of work interrup.	0.031***	−0.050***	0.018**	−0.046***	0.043***	−0.060***	0.032***	−0.037***
Time between educ. and first relevant job (ref. < 24 m.)								
Before completing education	0.026	−0.008	0.039**	−0.009	−0.037	0.047	0.007	0.025
24–47 months	0.028	0.002	0.031	−0.053*	−0.035	0.020	0.028	−0.007
48 months or more	0.064***	−0.079***	0.119***	−0.113***	0.092***	−0.073**	0.111***	−0.116***
Have worked, but not >6 months	−0.080**	0.081	−0.038	−0.023	−0.053	0.026	−0.097***	0.101*
Never worked	0.064***	−0.046	0.049*	0.038*	0.148***	−0.073**	0.048*	0.053*
N	3,019		3,187		2,336		2,392	

Note: Control variables are the same as in Table 2.
*$P < 0.10$, **$P < 0.05$, ***$P < 0.01$.
Source: Authors' elaboration on FSS 2016 data.

for the older, cohort 12.5 per cent for the younger). Women showed a weaker negative association, with each additional work interruption associated with a 1.8 pp increase in childlessness for the older cohort, 3.2 pp for the younger cohort, and a decrease in the probability of having 2 or more children (4.6 pp for the older cohort, 3.7 pp for the younger).

Finally, the time elapsed between the completion of education and the beginning of the first relevant employment spell (i.e., longer than 6 months) is also negatively associated with completed fertility levels. Among those born between 1951 and 1965, compared to those who had their first relevant employment within 2 years since exiting the school system, men who had their first relevant job over 4 years later were 6.4 pp more likely to be childless and 7.9 pp less likely to have 2 or more children by age 41, and women who had their first significant employment experience over 4 years later were 11.9 pp more likely to be childless and 11.3 pp less likely to have 2 or more children by the threshold age. Women from both cohorts who had never worked showed a slightly higher likelihood of being childless (by 4.9 and 4.8 pp) and a greater likelihood of having 2 or more children (by 3.8 and 5.3 pp) compared to those entering significant employment within 2 years of completing education. In the younger cohort, women working for less than 6 months were 9.7 pp more likely to be childless and 10.1 pp less likely to have 2 or more children compared to the reference category.

These results strongly support H2, thus demonstrating a significant association between employment instability—measured by time spent in atypical employment, the number of non-employment spells, and the duration between completing education and securing the first job—and reduced (quasi-)completed fertility. We also found support for H3 in that both men and women who had experienced 4 or more years of atypical employment were significantly more likely to be childless and less likely to have 2 or more children at age 41 only among the cohort affected by labour market deregulation. Spending between two and four years in atypical employment is positively related to (quasi-)completed fertility among the older cohort but negatively related to (quasi-)completed fertility among women from the younger cohort. Thus, spending a relatively short period (i.e., one or two years) in atypical employment could even entail positive effects among the older cohort, as long as it represents a stepping stone into a stable position in the labour market. Lastly, no conclusive evidence was found to support H4. These results confirm findings from previous

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studies, demonstrating that atypical employment and work interruptions play a more significant role in men's fertility than in women's.

Predicted fertility outcomes for profiles with different employment histories

To substantiate the findings and address the implications of diverse labour market characteristics on (quasi-)completed cohort fertility, Figure 1 illustrates the predicted number of children at age 41 for various profiles—simulating a cohort fertility estimate. Generalized Poisson regression models were used separately by gender and birth cohort. Confidence intervals at 83.5 per cent (following Goldstein and Healy, 1995) are here reported, with the full models available in Supplementary Table A7. The chosen profiles compare precarious and stable work careers, representing realistic combinations of labour market-related characteristics. The 'precarious career' profile illustrates an individual who had two non-employment spells (5.6 per cent of the sample) and spent over 4 years in atypical employment (7.9 per cent). The 'stable career' profile describes an individual who spent no time in atypical employment (75.4 per cent of the sample) and who had never experienced non-employment spells (71.8 per cent). A third profile is defined by women who had never entered the labour market before the conception of the first child or before the cohort- and sex-specific age at first childbearing.[9]

Among men, a precarious work career is associated with a significantly lower predicted number of children by age 41 compared to those with stable employment. This difference was more pronounced in the 1966–1975 cohort and weaker in the older cohort. In the latter, a man with a precarious career is predicted to have 1.22 children, while for a man with a stable career, this figure is 1.53 (+25 per cent). In the recent cohorts, the gap widens, with 0.90 for the precarious profile vs. 1.30 for the stable profile (+44 per cent). Among women in the older cohort, those with a precarious career are predicted to have 1.34 children, compared to 1.72 for those with stable employment (+28 per cent) and 1.86 for women who never entered the labour market. Similarly to men, the difference between precarious and stable profiles grew in the recent cohort (1.12 vs. 1.50, +34 per cent), while the prediction for women who never entered the labour market is 1.69.

In sum, an unstable employment career is associated with lower fertility for men and women, and the effect of career instability is more evident for the younger cohorts. These results, while again re-confirming H2 and H3, are substantial and carry relevant implications for the consequences of labour market deregulation for the very low fertility countries of Southern Europe. Contrary to our expectations, H4 received no support. Our findings indicate that employment instability, in relative terms, exerts a more pronounced impact on men's fertility than on women's.

Additional analyses and robustness checks

Our findings are robust across various analyses. We tested the resilience of results to alternative measures of key variables—time in atypical employment and number of non-employment spells. As discussed in the Data and methods section, these indicators were measured considering the time until the conception leading to the first child for those who had at least one child by age 41 and the time up to the cohort- and sex-specific mean age at first conception for the non-parents. This approach mitigated concerns regarding reverse causality and ensured a comparable observation period—on average—for childless individuals and those with children. However, it did not account for the employment instability experienced after the

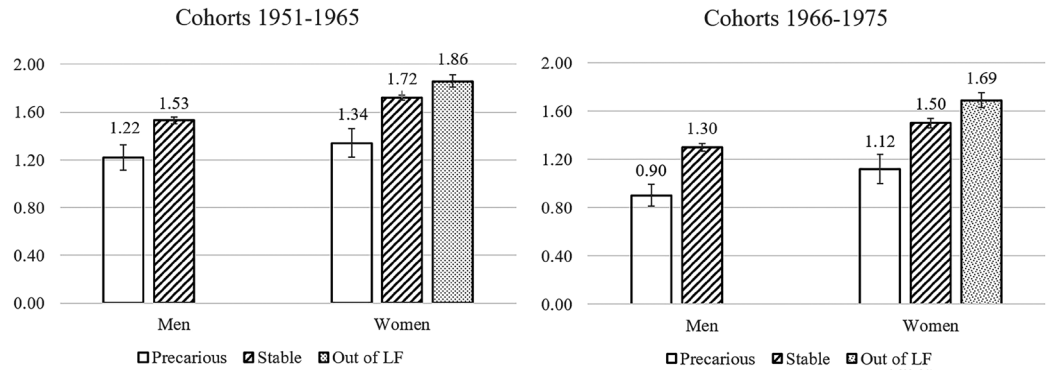

Figure 1 Predicted number of children by age 41, separately by cohort, sex, and labour market profile.

Source: Authors' elaboration on FSS 2016 data.

Note: Predictions from Poisson regression models (reported in Supplementary Table A7). Control variables are the same as in Table 2.

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mean age at first conception by childless individuals, which could potentially hamper the transition to parenthood at later ages. Thus, we repeated the MLR analyses examining the entire period until age 41 for childless individuals. The results were largely consistent with those from the main specification and confirmed that both atypical employment and non-employment spells were negatively related to (quasi-)completed fertility, especially among the younger cohorts. AMEs were slightly larger, and, especially among women, the p-values became slightly smaller (see Supplementary Table A8). However, the latter approach—that is, tying observation periods to fertility outcomes—may have introduced bias due to varied lengths of observation for childless individuals compared to those with children (Elwert and Winship, 2014). Acknowledging this challenge, we conducted additional analyses focussing on the early stages of employment careers, independent of fertility timing. We repeated our MLR analyses using a dummy variable indicating the type of contract of respondents' first employment episode of any duration (unlimited-time, atypical, self-employed, or never entered the labour market) and a dummy variable indicating whether the respondent had experienced at least one non-employment spell within the first five years following their departure from the school system. The results, reported in Supplementary Table A9, confirm our findings. They indicate that entering the labour market with an atypical contract at the beginning of one's career has become detrimental to fertility in the younger cohorts, especially among men. In addition, experiencing at least one non-employment spell during the first five years after exiting the school system substantively reduces the probability of having two or more children among men from the younger cohorts—although the same results were not significant among women. While the latter analytical strategy avoids limitations associated with the observation period of employment careers, it shifts the study's focus from the accumulation of employment instability across individuals' careers to the experience of employment instability at their very beginning—clearly a prominent, but distinct, research topic (see, e.g., Guetto, Tocchioni and Vignoli, 2023).

Secondly, we incorporated interactions between sex, cohorts, and employment-related variables in MLRs instead of using stratified analysis. While we maintained stratified models as our primary approach, models with interactions generally support our findings. For instance, in sex-specific models, the interaction between time in atypical employment and cohort reveals a significantly larger negative effect on the likelihood of having two or more children at age 41 for recent cohorts among both men and women (results available upon request).

While analyzing the total effect of employment instability, we did not initially control for mediators. However, considering the potential mediating role of union formation, a supplementary analysis included a control for union history (ever married, ever cohabited without marriage, never married nor cohabited). The additional control indicated a reduction in the magnitude and statistical significance of labour market instability measures, highlighting the mediating influence of union formation on the relationship between employment instability and fertility. The detailed results are available upon request.

Discussion

Based on Italian data from the 2016 FSS survey and extending the analysis beyond single transitions by considering (quasi-)completed fertility and more encompassing measures of employment careers, this article deals with the association between employment instability and fertility, adopting a cohort perspective separately for men and women.

Investigating the relationship between men's and women's current employment situation and the transition to the first and second child using time-to-event analysis, we find confirmation that experiencing atypical- or non-employment spells leads to fertility postponement (H1). However, our main contribution regards the analysis of (quasi-)completed fertility: we show that employment instability, measured by adopting more encompassing indicators based on career trajectories and considering different employment states, is related to a higher probability of childlessness and a lower probability of having two or more children at age 41. Hence, employment instability not only leads to fertility postponement but actually lowers overall fertility as recuperation does not take place to a sufficient extent. The results confirm that the persistency in unstable employment situations and the accumulation of precarious job spells—consequences of increased labour market dualization and career fragmentation—reduce fertility outcomes more severely than single episodes, thus corroborating H2.

Analyses stratified by birth cohorts allowed us to assess the extent to which negative consequences of employment instability for fertility increase over time and with the onset of labour market deregulation that affected the younger cohorts (H3). We find that employment instability not only increased over cohorts with the deregulation in due course but also that the adverse effects for fertility behaviour became stronger for the younger cohorts directly affected by labour market deregulation reforms. This might be due to the fact that, over the years covered by our analyses, atypical employment has increasingly become a trap

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into fragmented careers (Barbieri and Scherer, 2009; Barbieri *et al*., 2019). The increasingly negative consequences of instability are observed both in the time-to-event models—particularly concerning the transition to the second child—and in MLRs, as men and women who have spent 4 years or more in atypical employment show lower (quasi-)completed fertility by age 41 only among the more recent cohorts.

Employment situations are, in general, more relevant for men, as is to be expected in a still rather traditional gender context as the Italian one, while in the case of women, the results suggest that stronger labour market attachment is associated with lower fertility. While, on the one hand, we provide evidence that women outside of the labour force are the ones with the highest fertility across all cohorts (a result that cannot be found with the usual time-to-event techniques), on the other, our results do not confirm the notion that employment conditions would gain importance also among women in the younger cohorts (H4)—at least for those who completed their fertility and eventually entered the labour market. Indeed, we only found partial indications of gender convergence in the negative effect of non-employment on the transition to parenthood.

It is worth noting that it is one thing to assess the influence of employment instability on individuals' fertility before and after deregulation, but quite another to investigate the *impact of labour market deregulation on fertility* (see, e.g., Bastianelli, Guetto and Vignoli, 2023). The consequences of deregulation on total fertility are indeed much more difficult to evaluate, and quantifying the causal impact of labour market deregulation goes beyond the aims of this study. Notwithstanding, we documented how increasing employment instability adds to the existing cohort trends, further exacerbating declining total fertility.

This work is not free of limitations. Employment histories in the FSS data were collected retrospectively and might, therefore, be affected by memory bias (Manzoni *et al*., 2010), leading to possible underestimates of employment instability, especially among the older cohorts. However, at the same time, the older cohorts (born 1951–1965) are less exposed, if at all, to labour market deregulation; thus, their careers were generally less fragmented than those of the younger cohorts. Additionally, most employment instability—especially regarding short employment spells—is notably experienced at the beginning of one's career, which we accounted for by controlling for the time between completing education and the first significant job. Moreover, we had to concentrate on employment instability only, though other objective (e.g., income) and subjective sources of employment/economic uncertainty may also be relevant (van Wijk, de Valk and Liefbroer, 2021). Individuals' perceptions of life insecurity and their subjective framing of the situation—as well as both women's and men's views and attitudes about their roles—may considerably complement the objective situation of employment instability, thus affecting an individual's fertility decisions (Kreyenfeld, 2010; Ciganda, 2015; Vignoli *et al*., 2020b; Guetto, Bazzani and Vignoli, 2022). Unfortunately, information on income or subjective perceptions is not available in the data (or cannot be used retrospectively). We also acknowledge that, while controlling for a large set of variables in our models, some characteristics potentially relevant to the employment/fertility link were omitted because they were unobserved (e.g., mental health, wealth, and home ownership). We should also note that establishing causal effects is particularly difficult—notwithstanding our use of longitudinal information—as the measure of employment histories might still be endogenous to the fertility outcome. Finally, the two decades since the introduction of labour market reforms still represent a relatively limited time span to assess their ultimate consequences for completed fertility.

Conclusion

This study is among the very few to investigate the effects of employment instability on completed fertility, and—to the best of our knowledge—it is the first study for Italy, thus providing a novel insight. Whereas the socio-demographic literature has prudently suggested a possible catch-up in employment instability-induced childbearing postponement (e.g., Pailhé and Solaz, 2012, for France), our study instead suggests that, at least for Italy, (rising) labour market instability not only postpones childbearing but also leads to overall lower fertility, that is (quasi-)*completed* fertility. This is an important addition to previous research and suggests that recuperation is not occurring to a sufficient extent. Importantly, career trajectories in terms of the number of (non-)employment episodes and time spent in unstable employment turn out to be relevant and provide a more nuanced picture. Labour market deregulation contributed to the diffusion of unstable employment positions, and the resulting labour market dualization came with increasingly negative fertility consequences. In a country like Italy, with an already very low fertility rate, this cannot but contribute to massive societal ageing and population decline. Further, these instability effects are already substantial in the cohorts under study and can reasonably be expected to grow further among those cohorts excluded from our analyses as they have yet to complete their fertility histories. Southern European policy orientation favouring additional labour market deregulation at the margins clashes with the increasing awareness—among social scientists—of the social and demographic consequences

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of rising career fragmentation and instability. From a socio-demographic perspective, if our results are to be believed, interventions seem urgent.

Notes

1. Hereafter, we shall use such terms as 'effect', 'impact', 'affecting', or 'consequences' of atypical employment; however, we cannot interpret our results as causal as there might be critical biases for causal inference, as extensively discussed in the concluding section.
2. The 2015 Jobs Act, introducing a new form of subsidized rising-protection employment contract, produced growth in formally open-ended contracts, which survived until the subsidies remained in place.
3. FSS is a large-scale, nationally representative survey of 24,753 individuals aged 18 or over and residing in Italy. Respondents are interviewed face-to-face with paper-and-pencil interviews. The survey response rate was 78.2 per cent. The sampling procedure consists of a two-stage stratified random sample.
4. Age 41 does not represent an undue truncation: in Supplementary Tables A10–A11, the different median ages at first, second, and third child, stratified by cohort and sex, are reported for truncated and non-truncated samples. For women, across cohorts and parities, differences between the two samples are extremely small and not significant. We also estimated survival functions for the first, second, and third births by sex and cohort, which were basically stable after age 40, even for third births (results available upon request).
5. 'Atypical' employment comprises members of cooperatives, seasonal/occasional collaborators, and pseudo-self-employed among the self-employed, training/apprenticeship contracts, and temporary employees among the dependent employees. In Italy, firms often use apprenticeship and training contracts as leverage to reduce labour costs, and these contracts are thus not necessarily conducive to a stable work contract with the same firm once they have expired.
6. As the equidispersion assumption (i.e., the mean and the variance of the data being the same) was violated in our data—which are instead characterized by underdispersion—we opted for a generalized Poisson regression model to avoid underestimating standard errors and misleading inferences (Harris, Yang and Hardin, 2012).
7. We repeated the analyses, restricting the sample to individuals who had ever worked to address collinearity among labour market-related variables. The results (available upon request) remained substantively unchanged.
8. Put differently, we applied a set of concomitant measures of 'employment instability', which reflect the multidimensionality of the concept, but without further investigating potential conditioning effects. Consequently, our analysis obtained 'direct effects' of each dimension instead of 'total effects'.
9. 102 observations in our sample corresponded to the precarious profile, compared to 6,878 for the stable profile. Finally, the share of women who had never (i.e., before the conception of the first child or before the cohort- and sex-specific mean age at first child) entered the labour market was 38 per cent for the 1951–1965 cohort and 30 per cent for the 1966–1975 cohort.

Supplementary data

Supplementary data are available at *ESR* online.

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Data availability

The full dataset of the Istat Multipurpose Household Survey on: *Famiglie, Soggetti Sociali e Ciclo di Vita* (2016 wave) is not publicly available and cannot be distributed for reproduction purposes. Access to the microdata is granted free of charge upon 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 dataset can be found at the following website: https://www.istat.it/en/archivio/236643. The data used were obtained within the Research Protocol "Aspetti socio-economici e dinamiche familiari in Italia," formalized between Istat and a network of Universities (the state Universities of Bari, Florence, and Padua and Bocconi University in Milan).

References

Alderotti, G. *et al*. (2021). Employment instability and fertility in Europe: a meta-analysis. *Demography*, **58**, 871–900.

Alderotti, G. (2022). Female employment and first childbirth in Italy: what news? *Genus*, **78**, 1–19.

Allison, P. (1984). *Event History Analysis*. Newbury Park: Sage Publications.

Barbieri, P. (2009). Flexible employment and inequality in Europe. *European Sociological Review*, **25**, 621–628.

Downloaded from https://academic.oup.com/esr/article/41/2/299/7670832 by guest on 25 October 2025

Barbieri, P. *et al*. (2015). The rise of a Latin model? Family and Fertility consequences of employment Instability in Italy and Spain. *European Societies*, **17**, 423–446.

Barbieri, P. *et al*. (2019). Substitution, entrapment, and inefficiency? Cohort inequalities in a two-tier labour market. *Socio-Economic Review*, **17**, 409–431.

Barbieri, P. and Bozzon, R. (2016). Welfare, labour market deregulation and households' poverty risks: an analysis of the risk of entering poverty at childbirth in different European welfare clusters. *Journal of European Social Policy*, **26**, 99–123.

Barbieri, P. and Cutuli, G. (2009). *Equal Job, Unequal Pay. Fixed Term Contracts and Wage Differentials in the Italian Labor Market*. *Quaderni del dipartimento di Sociologia e Ricerca Sociale*. Working Paper No. 45 . Trento: Dipartimento di Sociologia e Ricerca Sociale, Università degli Studi di Trento.

Barbieri, P. and Cutuli, G. (2016). Employment protection legislation, labour market dualism, and inequality in Europe. *European Sociological Review*, **32**, 501–516.

Barbieri, P. and Scherer, S. (2009). Labour market flexibilization and its consequences in Italy. *European Sociological Review*, **25**, 677–692.

Bastianelli, E., Guetto, R. and Vignoli, D. (2023). Employment protection legislation, labour market dualism, and fertility in Europe. *European Journal of Population = Revue Europeenne de Demographie*, **39**, 15.

Becker, G. (1960). An economic analysis of fertility. In Becker, G. S. (Ed.), *Demographic and Economic Change in Developed Countries, Universities-National Bureau of Economic Research Conference Series 11*. Princeton, NJ: NBER, pp. 209–231.

Bentolila, S. *et al*. (2021). Lost in recession: youth employment and earnings in Spain. *SERIEs (Berl)*, **13**, 11–49.

Bentolila, S., Dolado, J. J. and Jimeno, J. F. (2012). Reforming an insider-outsider labor market: the Spanish experience. *IZA Journal of European Labor Studies*, **1**, 1–29.

Bentolila, S., Dolado, J. J. and Jimeno, J. F. (2019). *Dual Labour Markets Revisited*. IZA DP No. 12126.

Bernardi, L., Huinink, J. and Settersten, R. (2019). The life course cube: a tool for studying lives. *Advances in Life Course Research*, **41**, 100258.

Blanchard, O. and Landier, A. (2002). The perverse effects of partial labour market reform: fixed-term contracts in France. *Economic Journal*, **112**, F214–F244.

Blossfeld, H.-P. and Mills, M. (2005). Globalization, uncertainty and the early life course. A theoretical framework. In Blossfeld, H.-P. *et al*. (Eds.), *Globalization, Uncertainty and Youth in Society: The Losers in a Globalizing World*. London: Routledge, pp. 1–23.

Boeri, T. and Garibaldi, P. (2007). Two tier reforms of employment protection: a honeymoon effect? *Economic Journal*, **117**, F357–F385.

Buh, B. (2023). Measuring the effect of employment uncertainty on fertility in low-fertility contexts: an overview of existing measures. *Genus*, **79**, 4.

Busetta, A., Mendola, D. and Vignoli, D. (2019). Persistent joblessness and fertility intentions. *Demographic Research*, **40**, 185–218.

Butz, W. and Ward, M. (1979). The emergence of countercyclical us fertility. *American Economic Review*, **49**, 318–328.

Ciganda, D. (2015). Unstable work histories and fertility in France: an adaptation of sequence complexity measures to employment trajectories. *Demographic Research*, **32**, 843–876.

Clark, A. E. and Lepinteur, A. (2022). A natural experiment on job insecurity and fertility in France. *The Review of Economics and Statistics*, **104**, 386–398.

Cutuli, G. and Guetto, R. (2013). Fixed-term contracts, economic conjuncture, and training opportunities: a comparative analysis across European labour markets. *European Sociological Review*, **29**, 616–629.

Daruich, D., Di Addario, S. and Saggio, R. (2023). The effects of partial employment protection reforms: evidence from Italy. *Review of Economic Studies*, **90**, 2880–2942.

de Lange, M., Wolbers, M. H., Gesthuizen, M. and Ultee, W. C. (2014). The impact of macro-and micro-economic uncertainty on family formation in the Netherlands. *European Journal of Population*, **30**, 161–185.

Doepke, M. *et al*. (2023). The economics of fertility: A new era. In *Handbook of the Economics of the Family* (Vol. **1**). Amsterdam, Netherlands: Elsevier, pp. 151–254.

Dotti Sani, G. M. and Scherer, S. (2018). Maternal employment: enabling factors in context. *Work, Employment and Society*, **32**, 75–92.

Elwert, F. and Winship, C. (2014). Endogenous selection bias: the problem of conditioning on a collider variable. *Annual Review of Sociology*, **40**, 31–53.

Emmenegger, P. *et al*. (2012). *The Age of Dualization: The Changing Face of Inequality in Deindustrializing Societies*. Oxford, UK: Oxford University Press.

Esping-Andersen, G. and Regini, M. (Eds.). (2000). *Why Deregulate Labour Markets?* Oxford: Oxford University Press.

Eurostat (2020). *How Usual Is It to Work from Home?* Eurostat, available from: <https://ec.europa.eu/eurostat/web/products-eurostat-news/-/DDN-20200206-1> [accessed 17 January 2024].

Friedman, D., Hechter, M. and Kanazawa, S. (1994). A theory of the value of children. *Demography*, **31**, 375–401.

Gallie, D. and Paugam, S. (2000). *Welfare Regimes and the Experience of Unemployment in Europe*. Oxford: Oxford University Press.

Gebel, M. and Giesecke, J. (2009). Labour market flexibility and inequality: the changing risk patterns of temporary employment in West Germany. *Zeitschrift für Arbeitsmarktforschung*, **42**, 234–251.

Goldin, C. (2006). The quiet revolution that transformed women's employment, education, and family. *American Economic Review*, **96**, 1–21.

Goldstein, H. and Healy, M. J. (1995). The graphical presentation of a collection of means. *Journal of the Royal Statistical Society: Series A (Statistics in Society)*, **158**, 175–177.

Guetto, R., Bazzani, G. and Vignoli, D. (2022). Narratives of the future and fertility decision-making in uncertain times. An application to the COVID-19 pandemic. *Vienna Yearbook of Population Research*, **20**, 1–1.

Guetto, R., Tocchioni, V. and Vignoli, D. (2023). The social impact of labour market flexibilization and its fertility consequences in Italy. *Societal Impacts*, **1**, 100021.

Hakim, C. (2000). *Work-Lifestyle Choices in the 21st Century: Preference Theory*. Oxford: Oxford UP.

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Harris, T., Yang, Z. and Hardin, J. W. (2012). Modeling underdispersed count data with generalized Poisson regression. *The Stata Journal*, **12**, 736–747.

Hoem, J. M. and Kreyenfeld, M. (2006). Anticipatory analysis and its alternatives in life-course research. Part 1: the role of education in the study of first childbearing. *Demographic Research*, **15**, 461–484.

Hsu, C. H. (2022). Work and fertility in Taiwan: how do women's and men's career sequences associate with fertility outcomes? *Longitudinal and Life Course Studies*, **13**, 380–411.

Istat (2023). *Natalità e Fecondità della Popolazione Residente, Anno 2022*. available from: <https://www.istat.it/it/archivio/289772> [accessed 17 January 2024].

Kahn, L. M. (2010). Employment protection reforms, employment and the incidence of temporary jobs in Europe: 1996–2001. *Labour Economics*, **17**(1), 1–15.

Kohler, H. -P., Billari, F. C. and Ortega, J. A. (2002). The emergence of lowest–low fertility in Europe during the 1990s. *Population and Development Review*, **28**, 641–680.

Kreyenfeld, M. (2010). Uncertainties in female employment careers and the postponement of parenthood in Germany. *European Sociological Review*, **26**, 351–366.

Kreyenfeld, M., Andersson, G. and Pailhé, A. (2012). Economic uncertainty and family dynamics in Europe: introduction. *Demographic Research*, **27**, 835–852.

Lesthaeghe, R. (2020). The second demographic transition, 1986–2020: sub-replacement fertility and rising cohabitation—a global update. *Genus*, **76**, 1–38.

Liefbroer, A. C. and Elzinga, C. H. (2012). Intergenerational transmission of behavioural patterns: How similar are parents' and children's demographic trajectories? *Advances in Life Course Research*, **17**, 1–10.

Manzoni, A. *et al.* (2010). 2. Memory bias in retrospectively collected employment careers: a model-based approach to correct for measurement error. *Sociological methodology*, **40**, 39–73.

OECD (2002). *OECD Employment Outlook*. Paris: Organization for Economic Co-operation and Development.

OECD (2015). *In it Together: Why Less Inequality Benefits All*. Paris: Organization for Economic Co-operation and Development.

Pailhé, A. and Solaz, A. (2012). The influence of employment uncertainty on childbearing in France: a tempo or quantum effect? *Demographic Research*, **26**, 1–40.

Pieroni, L. *et al.* (2023). Temporary employment and fertility in Italy: the effect of two labor market reforms in the early 2000s. *Economic Modelling*, **124**, 106298. doi:10.1016/j.econmod.2023.106298

Prifti, E. and Vuri, D. (2013). Employment protection and fertility: evidence from the 1990 Italian reform. *Labour Economics*, **23**, 77–88.

Rijken, A. J. and Liefbroer, A. C. (2009). Influences of the family of origin on the timing and quantum of fertility in the Netherlands. *Population Studies*, **63**, 71–85.

Rose, D. and Harrison, E. (2007). The European socio-economic classification: a new social class schema for comparative European research. *European Societies*, **9**, 459–490.

Rueda, D. (2014). Dualization, crisis and the welfare state. *Socio-Economic Review*, **12**, 381–407.

Scherer, S. (2009). The social consequences of insecure jobs. *Social Indicators Research*, **93**, 527–547.

Scherer, S. and Brini, E. (2023). Employment instability and childbirth over the last 20 years in Italy. *European Journal of Population*, **39**, 31.

Schmitt, C. (2021). The impact of economic uncertainty, precarious employment, and risk attitudes on the transition to parenthood. *Advances in Life Course Research*, **47**, 100402.

Sobotka, T. and Beaujouan, E. (2014). Two is best? The persistence of a two-child family ideal in Europe. *Population and Development Review*, **40**, 391–419.

Sobotka, T., Skirbekk, V. and Philipov, D. (2011). Economic recession and fertility in the developed world. *Population and Development Review*, **37**, 267–306.

van Wijk, D. C., de Valk, E. and Liefbroer, A. C. (2021). Temporary employment and family formation: an income or insecurity effect? *European Sociological Review*, **37**, 641–658.

van Wijk, D. C., de Valk, H. A. G. and Liefbroer, A. C. (2022). Economic precariousness and the transition to parenthood: a dynamic and multidimensional approach. *European Journal of Population*, **38**, 457–483.

Vignoli, D. *et al.* (2020a). Uncertainty and narratives of the future: a theoretical framework for contemporary fertility. In Schoen, R. (Ed.), *Analyzing Contemporary Fertility*. Vol. **51**. Berlin: Springer, pp. 25–47.

Vignoli, D. *et al.* (2020b). A reflection on economic uncertainty and fertility in Europe: the narrative framework. *Genus*, **76**, 28.

Vignoli, D., Drefahl, S. and De Santis, G. (2012). Whose job instability affects the likelihood of becoming a parent in Italy? A tale of two partners. *Demographic Research*, **26**, 41–62.

Vignoli, D., Tocchioni, V. and Mattei, A. (2020). The impact of job uncertainty on first-birth postponement. *Advances in Life Course Research*, **45**, 100308.

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