Is the effect of job uncertainty on fertility intentions channeled by subjective well-being?

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ABSTRACT

This article combines two apparently distinct strands of contemporary research on fertility: the literature on economic uncertainty and fertility; and the literature on subjective well-being and fertility. We advance the hypothesis that the impact of jobs with uncertain conditions on fertility intentions is channeled by an individual's level of subjective well-being, which captures also unmeasured amenities of the job, including prestige, work-life balance, or welfare provision. To offer evidence for this hypothesis, we apply techniques of mediation analysis to data from two rounds of the European Social Survey (ESS 2004 and 2010). Our analysis suggested that the effect of jobs with uncertain conditions on fertility intentions depends on the level of subjective well-being: the negative effect is found *only* when subjective well-being is relatively low (i.e. life satisfaction levels equal or below six). Detailed results show that parents and older individuals have lower fertility intentions than childless and younger individuals when they have a job with uncertain conditions and a consequent low subjective well-being. We also found that – while the economic crisis was underway in 2010 – it was especially the deterioration in men's position in the labor market that was associated with lower fertility plans.

1. Introduction

New forms of employment, in most cases limited-duration jobs, have been growing everywhere in Europe over the last decades, a development that has diminished individuals' trust in future economic activities. A generalized sense of uncertainty, passing down from employment to the private sphere, has driven fertility intentions (Busetta, Mendola, & Vignoli, 2019; Hanappi, Ryser, Bernardi, & Le Goff, 2017; Modena, Rondinelli, & Sabatini, 2013; Sinyavskaya & Billingsley, 2015; Vignoli, Rinesi, & Mussino, 2013) and behavior (Adsera, 2011; Barbieri, Bozzon, Scherer, & Grotti, 2015; Caltabiano, Comolli, & Rosina, 2017; de la Rica & Iza, 2005; Kreyenfeld, Andersson, & Pailhé, 2012; Pailhé & Solaz, 2012; Sobotka, Skirbekk, & Philipov, 2011; Vignoli, Drefahl, & De Santis, 2012; Vignoli, Tocchioni, & Mattei, 2019). Evidence of a clear link between jobs with uncertain conditions and fertility (and fertility intentions) is still, however, shaky. We contribute here to the literature on how fertility is affected by jobs with uncertain conditions. We do so by adding a further element to theoretical and empirical discussions on the topic, namely the level of individuals' subjective well-being (SWB).

Previous research has failed to acknowledge that individuals might differ with respect to how they react and take decisions in uncertain

employment situations (Bernardi, Klarner, & von der Lippe, 2009; Kreyenfeld, 2010). Furthermore, for some occupations – depending, in part, on the prestige of a given job – short-term contracts, or dispatch work, are the norm and are not perceived as heightening uncertainty. Temporary jobs might be attractive when they refer to top-level, well-paid professions – e.g. independent consultants – that also facilitate a good work-family balance, especially for mothers (Blossfeld, 1997; European Foundation, 2008; Hakim, 1997). When temporary jobs are a voluntary choice, they can enhance job satisfaction and life quality, particularly for highly-skilled workers (Guest & Clinton, 2006). For others, however, exposure to precarious work conditions may, over time, create rising economic uncertainty among workers, and affect their well-being (Kalleberg, 2009). In this article, we posit that taking into consideration the level of SWB of individuals might help distinguishing these different work conditions in the fertility decision-making process. Self-reported overall wellbeing also depends on job satisfaction, which can be linked to measured characteristics, such as income or the typology of the job contract, but also to other non-measured amenities related to that job, including welfare provisions. Specifically, we hypothesize that the effect of jobs with uncertain conditions on the intention to have a child may be channeled by an individual's SWB levels. The mechanism might be imagined to operate in two successive

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steps. First, feelings of uncertainty spread from an individual's work life to his or her private life, as precarious jobs might affect levels of overall SWB, for instance by shifting job satisfaction and life meaning. Second, in countries where having children is typically the result of an intended choice, individuals' SWB has been proved to be positively linked to reproductive behavior (Le Moglie, Mencarini, & Rapallini, 2015; Mencarini, Vignoli, Zeydanli, & Kim, 2018).

Henceforth, this paper hypothesizes that the effect of a job with uncertain conditions on fertility intentions might not be a *direct* one. It might, instead, operate *indirectly*, modifying first the SWB level and, only subsequently, fertility intentions. Fertility intentions have been generally regarded as a good predictor of behavior at the individual level (Rindfuss, Morgan, & Swicegood, 1988; Schoen, Astone, Kim, Nathanson, & Fields, 1999; Westoff & Ryder, 1977)[1] . Considering SWB as a key factor channeling the impact of jobs with uncertain conditions on fertility intentions, will help in discerning different types of temporary and precarious jobs, which might also be characterized by very diverse levels of job prestige (Hanappi et al., 2012) and heterogeneous perceptions of uncertainty. Importantly, the role of SWB may operate differently in different life course stages. We thus pay special attention to critical junctures in the life course by distinguishing between the childless and parents (Neyer, Lappegard, & Vignoli, 2013) and between younger and older adults (Bernardi et al., 2009; Kreyenfeld, 2010).

To provide first evidence for such a hypothesis, we have applied techniques of mediation analysis to European Social Survey data (ESS 2004 and 2010) on heterosexual couples. In addition to its well-known methodological rigor, the ESS is useful since it provides measures of labor-market status and characteristics, as well as several questions about life satisfaction as part of its core questionnaire. Moreover, for the rounds considered, the ESS included measures of fertility intentions. Countries within the ESS vary both in terms of reported SWB and of welfare and employment protection legislation. There is also a useful temporal span: the fact that the two surveys were carried out in 2004 and 2010 allows us to compare data collected both before and during the Great Recession. Consequently, ESS seems particularly well-suited in offering initial evidence about the potential mediating role of SWB in the relationship between jobs with uncertain conditions and fertility intentions.

2. Background

2.1. Economic uncertainty and fertility

A classical perspective on low fertility comes from the New Home Economics (from now on NHE; Becker, 1993), which translated the theory of consumer choice over to reproductive choice. According to this framework, women's employment, together with higher educational levels, raises the *opportunity cost* of childrearing, thus reducing fertility. Another influential narrative on low fertility, which builds, instead, on the sociological foundations of value change and individualization, is the Second Demographic Transition (from now on SDT; Lesthaeghe, 1995; Van de Kaa, 1987). Here the idea is that in postmodern societies individuals, in particular women, reprioritize their careers and self-actualization over family and childbearing. Neither the NHE nor the SDT explicitly consider the role of economic uncertainty, however. The demand for fertility is conceived as being determined by permanent (household) income, the opportunity cost of children, individual tastes, and self-realization needs: all factors assumed as being subject to only slow change. In recent years, however, the role of

economic uncertainty – that embodies fluctuations in income, wealth, and preferences – can no longer be disregarded in fertility decision-making.

Following a diachronic perspective, a first reference to the relations between economic uncertainty and fertility was made in the seminal work of Ranjan (1999). He developed a theoretical model, following Dixit and Pindyck (1994) and the financial option literature, in which uncertainty about future income leads people to postpone childbearing to less uncertain times. He theorized that decision makers tend to avoid irreversible and long-term decisions when people do not know what the future holds. Some years later, Kohler, Billari, and Ortega (2002) advanced that couples in low fertility countries limited their childbearing owing to economic uncertainty caused by economic crises or depression. A deeper focus on the concept of economic uncertainty for fertility research was then made within the multi-country project of Blossfeld et al. (2005) (see, for a summary, Mills & Blossfeld, 2013). They argued that contemporary globalized societies are intrinsically permeated by economic uncertainty, as they are characterized by new phenomena such as delocalization, internationalization and the deregulation of the labor market. It would be expected that such conditions affect family formation (de la Rica & Iza, 2005; Gutiérrez-Domènech, 2008; Mills & Blossfeld, 2013) and that they be viewed as primary forces behind low fertility in contemporary Europe (Goldstein, Kreyenfeld, Jasilioniene, & Örsal, 2013; Kreyenfeld et al., 2012; Morgan, Cumberworth, & Wimer, 2011; Schneider, 2015).

The present study follows the demographic literature conceiving economic uncertainty as an individual risk factor, mainly related to unfavorable labor market status and prospects. We specifically addresse the role of jobs with uncertain conditions (i.e. short-term contract jobs; Mills & Blossfeld, 2013; Kreyenfeld et al., 2012; Vignoli et al., 2019).

2.2. A new actor in the story: the role of SWB

This paper argues that there is a missing dimension in the discussion of fertility and jobs with uncertain conditions; namely, the role of SWB, which may constitute a strong mediator in the effects of having a job with uncertain conditions on fertility choices and therefore, intentions. Feelings of uncertainty pass over, according to this hypothesis, from the work sphere to the private sphere. Individuals' reactions to precarious jobs and subjective perceptions of subsequent uncertainty entail heterogeneous levels of job satisfaction and life meaning, leading to often decreasing – but uneven – levels of overall SWB. In the following, we review theoretical arguments and empirical evidence making the case that at the individual level: 1) SWB can be considered a proxy of job characteristics usually not measured through surveys, such as the job's amenities or infrastructure provisions; 2) jobs with uncertain conditions affect SWB; and 3) higher levels of SWB are linked to higher fertility intentions.

First, non-measured aspects of a job can produce different levels of job satisfaction, which will add up to individuals' overall level of SWB. When considering individual jobs, self-reported wellbeing is a proxy of all non-measured amenities related to that job, which are not necessarily captured by the level of wage, such as geographic location, time of commuting, quality of canteen, etc., and also welfare provisions allowing work and life balance, i.e. flexibility of time schedule, possibilities of parental leaves or of smart working. According to Clark, Frijters, & Shields, 2008, SWB is not only a reasonable measure of the economic notion of decision utility, scoring as a good proxy of individual utility, but it also captures the residual effect of non-measured elements (e.g., in Clark and Senik (2006) with respect to wages and job position, in Luechinger (2009) and Levinson (2012) to air pollution or in Ferreira and Moro (2010) to environmental valuation). Clark and Senik (2006) found that workers in certain sectors are significantly more satisfied, ceteris paribus, than those in others, that does not depend by wages nor pay satisfaction, or by the hours of work alone. If a high satisfaction sector is not a high-wage sector, then others, often

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[1] Fertility intentions are less predictive at the aggregate level than at the individual level. Moreover, there are many factors that influence the realization of intended fertility, such as religiosity, country of residence, certainty of intention. The strength of the link between intentions and realization may, thus, vary by the factors included (Régnier-Loilier & Vignoli, 2011).

non-measured aspects of the job, are producing higher satisfaction. For instance, Clark and Senik (2006) found "inexplicably" higher job satisfaction among British part-time workers with respect to the French ones. Therefore, the usual classification of jobs in terms of self-employment, public and private sector, permanent or temporary positions, part-time or full time, are incomplete without a valuation of local amenities or personal welfare. When there is not detailed information about such job features, measures of SWB can be used as a valuation tool.

Second, having a job with uncertain conditions seems to affect individuals' levels of SWB. The expansion of temporary job contracts, dispatch work and involuntarily self-employment has meant more insecurity and precariousness, especially for young workers and their families. According to the Stiglitz, Sen, and Fitoussi (2009, p. 198), "economic insecurity may be defined as uncertainty about the material conditions that may prevail in the future. This insecurity may generate stress and anxiety in the people concerned." In this vein, while some scholars have suggested that flexible forms of employment lead to general benefits for workers (e.g., Benach & Muntaner, 2007; Blossfeld, 1997; Guest & Clinton, 2006; Hakim, 1997; Kalleberg, Reskin, & Hudson, 2000; La Valle, Arthur, Milward, Scott, & Clayden, 2002; Nätti, 1993), most argue that temporary work arrangements have negative consequences for both occupational prospects and private life, including the worker's health (e.g., Benavides, Benach, Diez-Roux, & Roman, 2000; Ferrie, 2001; Ferrie et al., 2005; Benach & Muntaner, 2007; Kalleberg, 2009). This is mainly due to lower continuity, a lack of stability, and the poorer work conditions associated with uncertain forms of employment. Fears and anxiety created by economic uncertainty have negative consequences for life quality and, therefore, for individuals' levels of SWB (D'Ambrosio, 2012). The anxiety generated by uncertainty about the future, or anticipation of difficulties, is linked to today's resources, with wealthier people being better able to buffer future problems (Bossert & D'Ambrosio, 2009; D'Ambrosio, 2012). Even physical and mental health can be compromised by atypical work arrangements (Pirani, 2017), as has been proved by analyses of panel data (Pirani & Salvini, 2015).

There is an additional, pivotal reason that poses SWB as a central concept in the study of the effects of the diffusion of jobs with uncertain conditions on fertility. The movement towards more flexible labor markets was intended to increase employment, reduce unemployment and help women to reconcile paid work and family life (e.g., Benach & Muntaner, 2007; Guest & Clinton, 2006). An assessment of SWB levels may help disentangle "flexibility" from "insecurity". The effect of flexibility and insecurity on fertility planning can pull in opposite directions. Flexible jobs might facilitate a good parental balance between paid work and family life: with flexible work hours and higher autonomy in the organization of work hours (e.g., Cousins & Tang, 2004; Lewis & den Dulk, 2010; Hill, Erickson, Fellows, Martinengo, & Allen, 2014; OECD, 2002, p. 129). Furthermore, flexible employment in top-level jobs could be seen as being increasingly attractive in light of more complex and less standard family life courses, such as those experienced by young adults in contemporary Europe (European Foundation, 2008). Research from the U.S., European Nordic countries and the UK have shown that flexible work may entail high wages (Kalleberg et al., 2000), and may represent a way to sample a variety of occupational experiences or a necessary phase while moving towards a more integrated position in the labor market (Booth, Francesconi, & Frank, 2002; Virtanen et al., 2005). Taken together, these situations could lead to high levels of SWB, and potentially to higher fertility intentions. But "flexibility" may, instead, easily turn into "insecurity". The negative consequences of insecure jobs for career prospects are well documented: temporary employees, dispatch workers and the involuntarily self-employed face greater career instability, higher unemployment risks, lower chances of upward mobility and there is a considerable risk of getting trapped in insecure employment (Auer & Danzer, 2015; Barbieri et al., 2015; Busetta et al., 2019; Raymo & Shibata, 2017). On

average, lower remuneration (net of work hours and occupation) accompanies non-permanent and dispatch employment (OECD, 2002). Temporary employment and precarious work might, therefore, imply a general feeling of future economic uncertainty that, in turn, may negatively affect family life and fertility plans.

Third, in low fertility societies, where childbearing has become part of a series of choices aimed at the self-realization of individuals (Van de Kaa, 1987), SWB seems undeniably to play a role. It does so not only as an outcome following demographic events (see Kohler & Mencarini, 2016 for a review), but also in *driving* childbearing decisions and outcomes. Medical studies in psychosomatics find that a low level of SWB, measured in terms of depression and stress, reduces fecundity, and increases the frequency of miscarriages and stillbirths, thereby lowering fertility (Zemishlany & Weizman, 2008). A series of recent demographic studies have, meanwhile, proved how higher SWB means more offspring (Aassve, Mencarini, & Sironi, 2015). Aassve, Goisis, and Sironi (2012) confirm a general positive link between childbearing and SWB in developed countries (as already argued in). Cetre, Clark, and Senik (2016), examining the decision-making process of parenthood, provide evidence of positive selection, whereby happier (or more satisfied) people are more likely to have children. Likewise, using the European Social Survey, Billari (2009) finds that happier people want to have more children. Perelli-Harris (2006) shows that in Russia SWB is positively linked to wanting and having additional children. Parr and Guest (2010) finds that life satisfaction is a determinant of fertility in Australia and that, for both sexes, there is a strong positive relationship between prior satisfaction with life and fertility two years later. Le Moglie et al. (2015) suggest that an increase in SWB might result in an increase in the likelihood of having a second child, at least in Germany. In a comparative setting, Mencarini et al. (2018) have shown that higher levels of SWB are, indeed, associated with a higher probability of having children in Australia, Germany, Great Britain, Russia, South Korea, Switzerland, and the USA – with only small differences between countries. In a nutshell, life satisfaction favours reproduction in low fertility Western societies.

2.3. Outline of analysis

We address a new research question, derived from the considerations elaborated so far: *does the level of SWB channel the effect of having a job with uncertain conditions on fertility intentions?* We also aim to verify whether SWB mediates the effects of jobs with uncertain conditions on fertility intentions differently among various groups, distinguished by gender, age number of children, and period of analysis. We look at women's and men's childbearing intentions separately, because employment has different consequences on parenthood by gender; something amplified by gender equality settings (Mencarini & Tanturri, 2004; Misra, Budig, & Moller, 2007; Raymo & Shibata, 2017; Sanchez & Thomson, 1997). Second, we explore parity-progression intentions, i.e. differences by current parenthood status, because the intention to have children is different for childless adults or for those who are already parents (Billari, Philipov, & Testa, 2009; Ciritel, De Rose, & Arezzo, 2019). Third, we inspect different life course stages by juxtaposing younger and older adults (Kreyenfeld et al., 2012). Finally, we distinguish between the data collected in 2004, before the onset of the Great Recession, and those collected in 2010, when the crisis was underway. The global Great Recession, which started by the financial crisis in the US in 2007, brought about downturns in the labor markets, and hit almost all European countries. Many experienced plummeting Gross Domestic Product and rising unemployment from 2008 to 2016, with consequences on total fertility (Matysiak, Sobotka, & Vignoli, 2020). Hence, our focus on periods before and during the recession adds important insights into our understanding of the nexus between having a job with uncertain conditions and fertility intentions.

Availability of the three key variables that measure SWB, job uncertainty, and fertility intentions, makes ESS a unique data source for investigating the specified research question. Countries where

individuals come from differ in those three variables. They have different job legislation, which may in turn systematically affect individuals' perception of job uncertainty. The countries also vary in terms of the distribution of SWB, as well as total fertility rates. For instance, individuals in the Nordic countries enjoy strong employment protection, higher fertility and score higher, too, in terms of reported life satisfaction. Countries in the South score lower on SWB and have lower fertility, whereas in terms of the job market, one finds a relevant duality, where those with secure jobs have very low uncertainty, whereas those without a permanent contract, face rather high uncertainty. Likewise, in Anglo-Saxon countries, job protection is weaker, whereas fertility is higher. Consequently, in the empirical implementation, we make efforts in controlling for these systematic differences. We do so by first grouping countries and by applying country group fixed effects, as well as by including macro indicators reflecting the nature of the labor markets across counties. The control for country clusters also takes into account any systematic difference in response due to cultural factors. That is, individuals across countries, may have a different interpretation or different cultural cues to what such a question means, and therefore answer differently. Such differences may be driven by normative factors, or even differences in linguistic meaning.

3. Data and method

3.1. Mediation analysis framework

Mediation analysis allows an understanding of *if* and *to what extent* a variable *M* mediates the effect of a treatment variable *A* on the outcome variable *Y*. Hence, the mediator is supposed to uncover the channels through which the exposure variable affects the outcome variable (MacKinnon, 2008). Even if this study is mostly exploratory, partly due to the cross-sectional nature of the data used, the mediation framework employs a causal language. This language should be considered confined to the statistical literature used, and should not be generalized to make substantive causal conclusions.

In our analysis, fertility intentions are the outcome variable (*Y*), while "treatment" is represented by having a job with uncertain conditions (*A*), and the level of SWB identifies the mediation variable (*M*) – see Fig. 1. We argue that the effect of jobs with uncertain conditions on fertility intentions might not translate into a direct effect, but might, instead, operate indirectly, modifying, first, the level of SWB and subsequently fertility. With the aim of formalizing these direct and indirect effects, we conceptualize, for each person, the existence of a counterfactual outcome $Y(a)$, which denotes the outcome that we would (possibly contrary to fact) have observed for that person had the exposure *A* been set to the value *a* through intervention or manipulation (Hernan, 2004; Rubin, 1978). We refer to variables such as $Y(a)$ as "counterfactual outcomes". If the exposure *A* is dichotomous (e.g. taking value zero for individuals with permanent employment and one for those with jobs with uncertain conditions), then we think of each observation as having two counterfactual outcomes, $Y(0)$ and $Y(1)$. Thus, we define the average effect of the exposure on the outcome as the expected difference $E[Y(1) - Y(0)]$ between two counterfactual outcomes for the same study population.

The previous concepts can be extended in order to define direct and indirect effects. In this paper, we followed Valeri and VanderWeele's (2013) extensions of Baron and Kenny's initial parametric approach to mediation analysis (1986), using the *counterfactual approach* in order to account for cases in which the exposure and the mediator interact in their effects on the outcome. This approach fits our application: employment condition (*treatment*) and SWB (*mediator*) are supposed to be correlated, as they could influence one another, and their interaction may affect fertility intentions. Indeed, it would be particularly unrealistic to assume that the exposure and the mediator's effects have no interaction in their effects on the outcome, as it would mean that jobs with uncertain conditions and SWB do not influence each other at all. Building on VanderWeele and Vansteelandt (2009, 2010), the effect of jobs with uncertain conditions on fertility intentions is allowed to vary by individuals' SWB levels.

The exposure-mediator interaction allows us to isolate the *controlled direct effect* (CDE). Let us consider the counterfactual variable $M(a)$ which denotes the value of the mediator if – possibly contrary to fact – the exposure *A* were set to *a*. We are interested in understanding whether part of the impact of *A* on *Y* is mediated by *M*. To this end, we need to define, for each individual, $Y(a, m)$ as the outcome that – possibly contrary to fact – we would have observed for that person if the exposure *A* had been set to the value *a*, and, likewise, *M* to the value *m*, through some intervention or manipulation. For a dichotomous exposure, the controlled direct effect of the exposure on the outcome, controlling for M, can be defined as the expected contrast $E[Y(1, m) - Y(0, m)]$ (Pearl, 2001; Robins & Greenland, 1992). In our case, the CDE expresses the average change in fertility intentions that would have occurred if individuals had changed their job status (from a permanent job to a job with uncertain conditions), but their level of
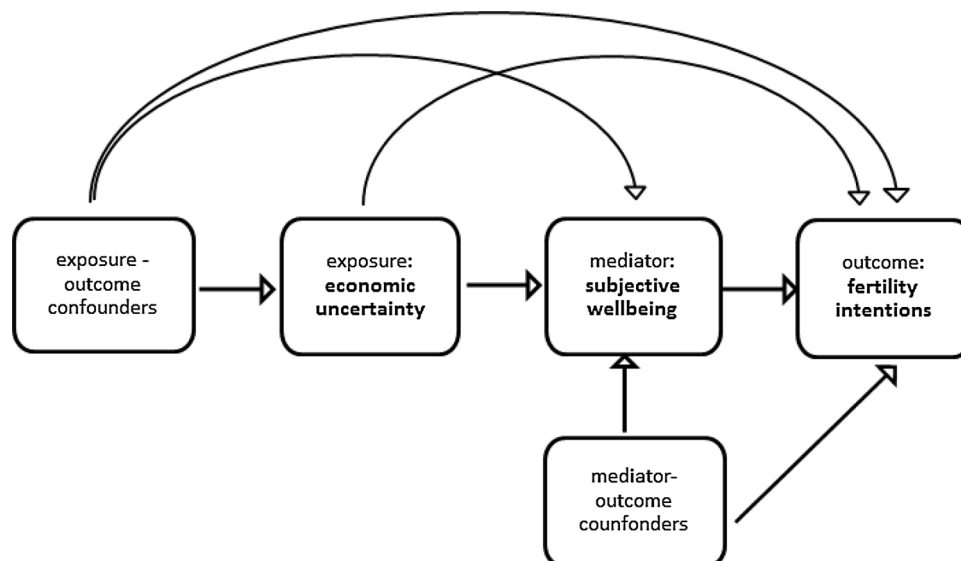

Fig. 1. Example of the effect of jobs with uncertain conditions on fertility intentions mediated by the level of SWB, with both exposure-outcome confounders and mediator-outcome confounders.

SWB had stayed the same. Note that if the interaction between exposure (i.e., jobs with uncertain conditions) and mediator (i.e., SWB) is not present, the CDE would correspond to a *natural direct effect* NDE, which is defined as the expected contrast $E[Y(1, M(0)) - Y(0, M(0))]$ (Pearl, 2001). Without exposure-mediator interaction NDE and CDE are equal and indistinguishable – in other terms, the controlled direct effect would have the same identical value for any level of the mediator (VanderWeele & Vansteelandt, 2009).

3.2. Data and operationalization

In order to disentangle whether the effect of jobs with uncertain conditions on fertility intentions is channeled by the level of SWB, we use data from the ESS, a series of comparative surveys, which have been conducted every two years since 2002. For this study, we selected the waves containing questions on fertility intentions; namely, Round 2 (2004) and Round 5 (2010). Different waves of the ESS also include different countries and, therefore, in order to compare the 2004 wave with the 2010 wave, we only use the twenty-two countries included in both waves: Austria, Belgium, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, the Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland, Ukraine, and the United Kingdom.

For this analysis, we use a dichotomous treatment that accounts for having a job with uncertain conditions. It takes value 0 if the respondent has a permanent job, while it takes value 1 if the respondent has a temporary work contract or a dispatch work or if s/he is "involuntarily" self-employed. Hence, the meaning of a treatment change from 0 to 1 represents the passage from a permanent working condition to fixed-term or uncertain working condition. Given the diversity of employment regulation in Europe, the distinction between temporary and permanent workers may assume different meanings in different countries: where the employment protection legislation of standard employment is quite limited, the distinction between temporary and permanent contracts is less relevant (e.g., the UK or Ireland). Self-employed and freelance people have no contractual employment guarantee *per se*. Accordingly, from previous analyses we know that self-employment inhibits fertility choices especially among men (Noseleit, 2014; Tölke & Diewald, 2003). Nevertheless, not all kinds of self-employment are precarious. In fact, some self-employed workers, especially entrepreneurs, achieve a higher earning capacity compared to dependent workers, increasing their income security. To address this issue, we included all self-employed with ISCO (International Standard Classification of Occupations) category "1" – namely managers, directors, or the self-employed who employ other people – together with workers with a permanent contract. Conversely, other self-employed situations are considered as jobs with uncertain conditions. Note that self-employed persons represent a minority within our group of non-permanent workers (less than 10%).

As for the mediation variable, we utilize, as a proxy of SWB, the level of individuals' life satisfaction. We rely on the question "all things considered, how satisfied are you with your life as a whole nowadays?" The answers were given on a scale from 0 to 10, where 0 means that the respondent is extremely unsatisfied with life, while 10 means that he or she is extremely satisfied. The average life satisfaction is systematically higher for permanent contract workers (around 7.4 for men and women in both years of survey) compared to workers with uncertain jobs (around 7.1 for men and 7.2 for women); the difference between groups is significant at 5%. See online Appendix for the percent distribution of the mediation variable. The distribution proves largely consistent across different population groups. In addition, it reassures that cells with levels of life satisfaction greater or equal than four include enough cases to allow robust model estimations.

The outcome – individuals' fertility intentions – is operationalized based on how the respondents' answers the question "do you plan to have a child within the next three years?". The answers were: "Definitely not", "probably not", "probably yes", "definitely yes". By

limiting the question about childbearing intentions to a foreseeable period, we overcome some of the problems normally associated with surveying intentions. Answers to questions about an individual's fertility intention in general, such as "how many children do you intend to (ever) have", are likely to capture a social norm. Respondents are more likely to say the number of children individuals *think* that they should have, rather than what they *believe* they will have. Such general questions, therefore, tend to lead to answers that confound intentions and social norms. Questions on intentions that cover a foreseeable time-period, and that are, therefore, "in close temporal proximity to the prospective behavior" (Ajzen & Fishbein, 1973, p. 49), are considered to be better predictors of behavior (Philipov, 2009). Because the mediation framework does not allow ordinal logit models, we dichotomize fertility intention answers into two groups: those who *definitely do* want a child against all others (see Table A1 in the Appendix A for descriptive statistics of the two groups of individuals). The choice for this dichotomization is that the model converges better with rare outcomes (Valeri & VanderWeele, 2013). In addition, it has been shown that "definitely yes" answers to the question on short-term fertility intentions represent the best predictors for actual fertility, while individuals replying "*probably yes*" tend to systematically overestimate fertility outcomes (Mencarini, Vignoli, & Gottard, 2015; Régnier-Loilier & Vignoli, 2011).

By definition, the sample is restricted to employed individuals. Altogether, we selected 10,565 partnered individuals aged $20 - 45$. Including non-partnered men and women would have distorted the interpretation of the results, because the answer to the question on childbearing intentions would likely have been influenced by the fact that these women/men had no partner at the time of the interview. Following the recommendation of ESS, design-weights are applied to adjust for the partially different sample strategies.

3.3. Model specification and identification

We estimated the likelihood of being definitely intentioned to have a child through a logistic regression model. We estimated the level of SWB through a linear regression model. The causal interpretation of the direct and indirect effects requires three major assumptions, which ensure the identifiability of the model: i) there must be no unmeasured confounding of the treatment-outcome relationship; ii) there must be no unmeasured confounding of the mediator-outcome relationship; and (iii) there must be no unmeasured confounding of the treatment-mediator relationship.

To seek to meet these assumptions, models include: respondent's age (included as a continuous variable[2]) and gender (1 = "men"; 2 = "women"); parity (0 = "childless"; 1 = "parents"); respondent's educational level (1 = "primary and vocational education"; 2 = "secondary education"; 3 = "tertiary education"); previous unemployment experiences (0 = "never been unemployed for a period longer than 3 months"; 1 = "at least once"); partner's working condition (1 = "employed"; 2 = "self-employed"; 3 = "unemployed"; 4 = "inactive"); household income (in tertiles); the share of household income provided by the respondent (1 = "none or small"; 2 = "about a half"; 3 = "large or all"); religiosity (grouped as 0 = "not religious at all" or "moderately religious"; 1 = "very religious"); the ESS wave (0 = "2004 wave"; 1 = "2010 wave"); and the country groups (1 = "Northern countries", Denmark, Finland, Norway, Sweden; 2 = "Western European countries", France, Belgium, the Netherlands; 3 = "southern countries", Greece, Spain, Portugal; 4 = "German-speaking countries", Austria, Germany, Switzerland; 5 = "Central and Eastern European countries", Estonia, the Czech Republic, Hungary, Poland, Slovenia, Slovakia, Ukraine; 6 = "Anglo-Saxon countries", United Kingdom, Ireland).

Unconfoundedness is a strong and untestable assumption, which is violated whenever there are unobserved variables that affect both the outcome and the likelihood of receiving the treatment. In our study,

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[2] Age did not present a meaningful quadratic shape.

unconfoundedness might be violated due to the presence of latent (unobservable) variables, such as personality traits or family orientation, which can affect the relations between exposure-outcome, mediator-exposure, and mediator-outcome. Nevertheless, despite these potential confounders, we view the unconfoundedness assumption as a useful starting point. We have information on a large set of background variables, some of which can also be viewed as a proxy for important latent confounders. Therefore, the assumption that most relevant variables are observed seems to us to be a reasonable approximation[3]. In addition, our fertility intentions estimates are "conservative" in the sense that, if any bias is present, this points toward an underestimation of the negative impact of employment uncertainty on potential postponement. For instance, family-oriented women may respond to unfavourable employment prospects by choosing the "alternative career" of mothers.

Given the data structure (individuals nested in countries), it would be tempting to opt for a multi-level extension of the adopted mediation framework. Recent simulations suggest that, with reasonable sizes of individuals within each country, but with only a small number of countries, analysts can reliably estimate individual-level effects. However, estimates of parameters summarizing country effects are likely to be unreliable (Bryan & Jenkins, 2015). We would need, then, a larger number of countries to implement a multilevel approach in our study properly. The specific sample sizes are too low to run country-specific analyses, and the analyses separated by country groups also offered very limited statistical precision. We, thus, opted to include country groups (in a fixed effect approach). Note that the social consequences of jobs with uncertain conditions are very much micro-level driven, as previous research clearly showed (Scherer, 2009). Nonetheless, we improved the model specification by including a set of country-specific labor-market macro-covariates that were deemed to control for country-specific fixed effects as well as for country-specific labor-market aspects. They are: (1) the extent of unemployment protection measured by unemployment replacement rates (OECD, 2004, 2010); (2) the youth unemployment rate in 2004 and 2010 (Eurostat data retrieved on 16/10/2017); and (3) the differential in Employment Protection Legislations between permanent and fixed-term workers (EPL-gap, Barbieri & Cutuli, 2016; OECD, 2004 and 2010).

4. Results

4.1. Overall effects

Estimating a logit model predicting the likelihood of being definitely intentioned to have a child net of all confounders included in the equation, we find that jobs with uncertain conditions are negatively linked with positive fertility intentions (Table A2, Appendix A). Put simply, individuals working with uncertain conditions are less likely to express positive fertility intentions than their permanently employed counterparts (odds ratio = 0.91). Furthermore, after estimating a model with an interaction effect between having a job with uncertain conditions and SWB, the picture becomes clearer. The interaction term, being positive and significant, suggests that the odds of positive fertility intentions are higher when an individual has higher life satisfaction, even if they have jobs with uncertain conditions.

Going to the core of our investigation, we move towards the results of the mediation analysis. Because our mediation framework acknowledges the possibility of an exposure–mediator interaction, it should be noted that the controlled direct effect varies according to

various *a priori* fixed levels of SWB. Hence, we can explore the average change in positive fertility intentions if an individual were to have changed his/her job status (from a permanent job to a job with uncertain conditions) with SWB fixed at different levels (Fig. 2). We find that the effect of working with uncertain conditions on fertility intentions is moderated by different SWB levels. The lower the level of SWB, the stronger the negative effect of an economically uncertain condition on fertility plans. For example, among individuals with a life satisfaction level of 5 (see Table A3 in the Appendix A for the results in all the subgroups considered), changing their occupational status from permanent to temporary/uncertain decreases the probability of being definitely intentioned to have a child by about 25 %. Interestingly, for higher levels of SWB, being working with uncertain conditions does not significantly affect the likelihood of positive fertility intentions.

Concisely, our pooled analysis suggests that the effect of jobs with uncertain conditions on fertility intentions is shaped by the level of SWB: the negative effect is found *only* when SWB is relatively low.

4.2. Gender- and life-course stages

Fig. 3 displays the controlled direct effects of jobs with uncertain conditions on positive fertility intentions by gender, fixing the level of SWB at different values. Overall, the relationship between an uncertain employment situation and fertility intentions seems to be mediated by SWB for both genders, and especially among men. A transition from a permanent job to a job with uncertain conditions is associated with lower fertility intentions among men, but only when that transition is coupled with low levels of SWB.

The effect of jobs with uncertain conditions on fertility intentions can assume different connotations across the life course. Hence, as a next step, we segmented the analysis by parenthood status and age. Unfortunately, we cannot look simultaneously at age and parenthood status due to the small number of observations. Again, the core of our investigation is the comparison between the *controlled direct effects*, calculated by different levels of life satisfaction. Looking at Fig. 4, we find an almost flat trend for childless individuals, while those who have already at least one child are affected by jobs with uncertain conditions in a way that depends strongly on their SWB. Parents with lower levels of SWB are less likely to be definitely intentioned to have another child if they are undergoing jobs with uncertain conditions. But such effects fade away as the level of SWB increases, and even turns positive for very high levels of SWB (i.e. life satisfaction equals to 8 or 9). For example, the *controlled direct effect* for parents with level 4 of life satisfaction is 0.63, meaning that, in this subgroup, a change in the job situation, from a permanent job to a job with uncertain conditions, reduces the odds of being highly-intentioned to have a child by 37 %.

We continue by exploring the heterogeneity of the effect before and after the age of 28 by gender. Note that we also used other age-specific cut-off points, but we selected 28 years of age because it allows for a more balanced stratification of the analysis. As shown in Fig. 5, there are considerable differences between the two groups. Among younger individuals, the relationship between having a job with uncertain conditions and fertility intentions is weak and it hardly changes with different levels of life satisfaction, either among men or women. Conversely, looking at individuals older than 28 the situation is reversed. Changing from stable employment to a job with uncertain conditions later in life decreases the positive fertility intentions of individuals with low levels of life satisfaction (i.e., lower than 7). For example, when life satisfaction is held at 5, changing from a permanent to a job with uncertain conditions is associated with a reduction in the odds of being highly intentioned to have a child. The numbers fall by 26 % among women and by 30 % among men (the effect is significant among the latter).

4.3. The effect of the great recession

Our analytic sample consists of data from two different ESS waves,

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[3] We conducted some robustness checks in order to test for the sensitivity of the results to model specification. In separate steps, we added to the model several variables (e.g., self-assessed adequacy of household income) and removed others (e.g. religiosity, household income). Final results, though, were not affected. Results are also robust to changes in variable specifications (i.e. we tested different categorizations of educational level, parity, and religiosity).
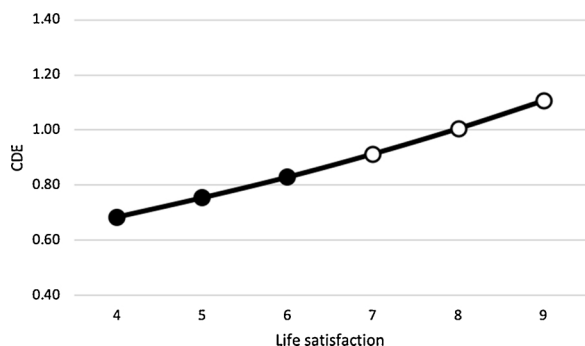
Fig. 2. The impact of a change in people's job (from a permanent job to a job with uncertain conditions) on the odds ratio of being highly-intentioned to have a child, according to various levels of individuals' life satisfaction (CDE - controlled direct effect). Odds Ratios. N = 10,565.
Note: results are controlled for respondent's age and educational level, gender, parity, religiosity, household income, previous unemployment experiences, partner's work, welfare and year of survey.
Source: our elaboration on ESS data (rounds 2 and 5). Full dot: significant effect (10 %); empty dot: not significant effect.
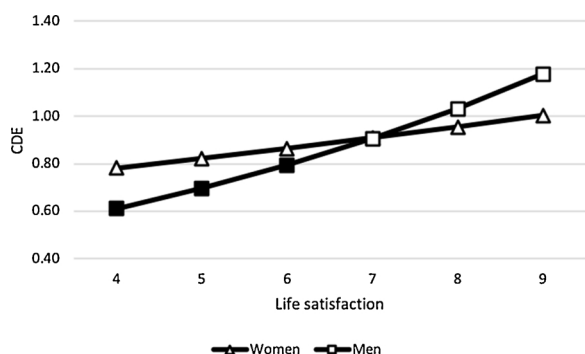

Fig. 3. The impact of a change in men and women's job (from a permanent job to a job with uncertain conditions) on the odds ratio of being highly-intentioned to have a child, according to various levels of individuals' life satisfaction (CDE - controlled direct effect). Odds Ratios. N = 5005 for women, N = 5560 for men.
Note: results are controlled for respondent's age and educational level, parity, religiosity, household income, share of household income provided by the respondent, previous unemployment experiences, partner's work, welfare, and year of survey.
Source: our elaboration on ESS data (rounds 2 and 5). Full dot: significant effect (10 %); empty dot: not significant effect.

2004 and 2010. This fact allows us to compare data collected from before and during the Great Recession. To explore whether men and women react differently to important economic shocks in terms of fertility intentions, we stratified the analysis by gender and wave. It is worth noting that the results of this additional analysis do not seem to be very precise because we are focusing on relatively small cells. There are considerable differences between the two periods (Fig. 6). By focusing once again on the controlled direct effect, we note that the relationship between jobs with uncertain conditions, life satisfaction and fertility intentions remains almost unchanged among women, while it changes among men.

For men and women in 2004, controlled direct effects illustrate no obvious pattern. In 2010, the picture changes, and men seem to be the most affected by changes in their employment situation as the Great Recession started to permeate European countries. A change from a permanent job to a job with uncertain conditions decreases men's positive fertility intentions much more in 2010 than in 2004. Holding life satisfaction at level 5, for example, changing from a permanent job to a job with uncertain conditions would decrease fertility by 11 % in 2004 (not significant) and by 46 % in 2010 (significant).
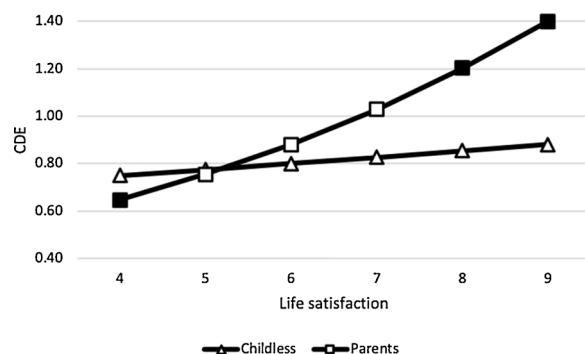

Fig. 4. The impact of a change in people's jobs (from a permanent job to a job with uncertain conditions) on the odds ratio of being highly-intentioned to have a child, according to various levels of individuals' life satisfaction (CDE – controlled direct effect), separately for parents and childless individuals. Odds Ratios. N = 2750 for childless, N = 7815 for parents.
Note: results are controlled for respondent's age and educational level, gender, religiosity, household income, share of household income provided by the respondent, previous unemployment experiences, partner's work, welfare, and year of survey.
Source: our elaboration on ESS data (rounds 2 and 5). Full dot: significant effect (10 %); empty dot: no significant effect.

5. Concluding discussion

In this article, we advance the hypothesis that the effect of jobs with uncertain conditions on fertility intentions is channeled by individuals' levels of SWB. We explore this hypothesis by applying mediation analysis techniques to ESS data. Overall, our analysis suggests that the effect of having a job with uncertain conditions on fertility intentions depends on the level of SWB individuals face: the negative effect is found *only* when SWB is relatively low (that is life satisfaction equal or below six), probably reflecting a negative evaluation of the non-measured amenities and welfare provisions connected to that job. A person's social-psychological well-being mediates the effect of jobs with uncertain conditions on her/his (short-term) fertility intentions.

This novel result combines two apparently distinct strands of research on contemporary fertility: the literature on economic uncertainty; and fertility and the literature on SWB and fertility. Previous results on the effect of jobs with uncertain conditions on fertility offered contradictory findings. Here we suggest that such findings did not properly account for the nature of these jobs, which can embody very different work positions. With our analysis, we have been able to highlight the existence of a group of individuals who work with a temporary job, but who manage the consequent sense of economic uncertainty well. As a result, they enjoy relatively high levels of SWB and do not significantly differ in terms of fertility intentions from their permanently employed counterparts. They are a minority, though, and are likely to perform temporary, dispatch or freelance jobs with high social prestige, or in top-level "flexible" self-employed positions. There are, instead, precarious workers who seem to suffer in their job and experience, as a consequence, low levels of SWB. They represent most non-permanent workers, who are likely to face uncertain lives characterized by intermittent, low-paid "stopgap" jobs. These temporary or involuntarily self-employed workers are less likely to intend to have children.

Interesting specific findings emerge when we analyze how SWB mediates the impact of non-permanent employment on fertility intentions in different social groups. Critical junctures over the life course do play a decisive role. The negative effects of jobs with uncertain conditions on fertility intentions are elevated among older individuals, especially men, who are coupled with lower levels of SWB after their transition to adulthood. Experiencing job uncertainty might be sustainable during the first spells of work at younger ages, and compatible, then, with positive fertility intentions; conversely, in later adult life,
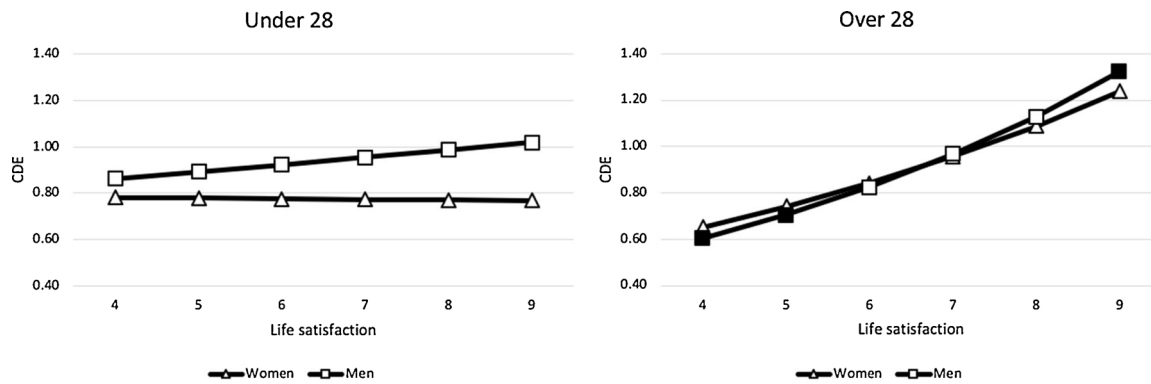
Fig. 5. The impact of a change in men and women's job (from a permanent job to a job with uncertain conditions) on the odds ratio of being highly-intentioned to have a child, according to various levels of individuals' life satisfaction (CDE – controlled direct effect) for under 28 and over 28. Odds Ratios. N = 786 for women under 28, N = 691 for men under 28, N = 4219 for women under 28; N = 4869 for men over 28.
Note: results are controlled for respondent's age and educational level, religiosity, household income, share of household income provided by the respondent, previous unemployment experiences, partner's work, welfare and year of survey.
Source: our elaboration on data. Full dot: significant effect (10 %); empty dot: no significant effect.

having a job with uncertain conditions is more likely to interfere with the intentions to have a(nother) child. In addition, childbearing intentions are certainly different for childless people compared to those who are already parents. Childless individuals do not necessarily consider permanent employment as a prerequisite for planning for children. By contrast, for parents who already have at least one child, jobs with uncertain conditions play essentially a negative role on subsequent fertility intentions, in particular for those with lower SWB levels. For individuals enjoying higher SWB standards, however, the intention to have a further child does not seem to be linked to the uncertainty of their labor-market position. This result is consistent with other studies which have found a particular significant and positive effect of SWB for the transition to the second (and higher parity) child (Le Moglie et al., 2015; Luppi, 2016; Mencarini et al., 2018). The SWB of those who have already had a child is influenced by the first childbirth itself, usually in a negative way, moderated by the objective and perceived balance between paid work and family life (Matysiak, Mencarini, & Vignoli, 2016). Put simply, the SWB levels represent a continuum proxy between the favorable (and therefore happy) flexibility of less stable jobs, and the negative uncertainty of unstable jobs, facilitating, or on the contrary, inhibiting, intentions to have (further) offspring.

We also found gendered patterns comparing the period before and during the recession. In 2004, prior to the recession, women reported a higher negatively effect of the uncertainty in their jobs: women facing

low levels of life satisfaction were significantly less likely to intend to have a child. However, in 2010 the performance of men in the labor market proves crucial. In times of economic turbulence, it seems that labor-market uncertainty for men, when coupled with low levels of SWB, represents a particularly unfavorable environment for family planning. This finding seems to provide support for the writings of Oppenheimer (1988, 2003), who argued that the deterioration of men's position in the labor market and the declining ability of men to serve as the family's breadwinner are key factors for understanding, among other family events, fertility decline. This has been recently confirmed for Japan by Raymo and Shibata (2017). We deliberately abstain from giving a more articulated and definite interpretation of this finding because of the small-scale sample used in this analysis. We believe, though, that it deserves attention in future research.

Our study does present several caveats. The focus on differences between non-permanent and permanent workers tells only a relatively narrow part of the story. The role of "inactivity" or "unemployment" cannot be excluded in the overall framing of the links between fertility and employment uncertainty. The adopted methodological framework allowed only a binary treatment, which is standard practice in mediation analysis. In addition, the focus on working persons leads to sample selection issues. For instance, the experience of a strong level of uncertainty might encourage an individual to terminate employment and hence to leave the sample. A failure to control for this selection may lead
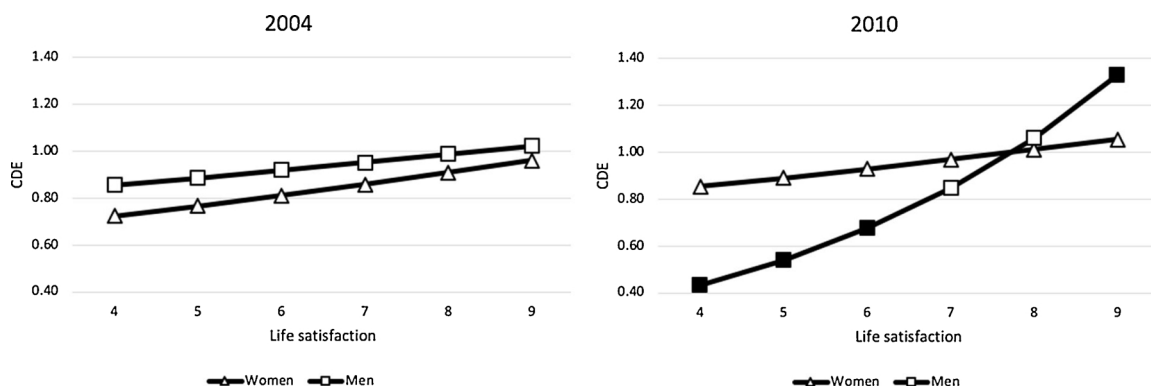

Fig. 6. The impact of a change in men and women's job (from a permanent job to a job with uncertain conditions) on the odds ratio of being highly-intentioned to have a child, according to various levels of individuals' life satisfaction (CDE – controlled direct effect) in 2004 and 2010. Odds Ratios. N = 2533 for women in 2004; N = 2906 for men in 2004; N = 2472 for women in 2010; N = 2654 for men in 2010.
Note: results are controlled for respondent's age and educational level, religiosity, household income, share of household income provided by the respondent, previous unemployment experiences, partner's work, and welfare.
Source: our elaboration on data. Full dot: significant effect (10 %); empty dot: no significant effect.

to an underestimation of the direct and indirect effects of jobs with un-certain conditions on fertility intentions. As such the effects that we found may be even stronger than indicated in our results. Finally, we cannot exclude the presence of reverse causation. It might be argued that working in a job with uncertain conditions inhibits fertility intentions, leading – in turn – to a reduction in SWB. Similarly, individuals with higher fertility intentions might be systematically characterized by higher levels of SWB. As such they may underestimate the risks of en-tering a secondary labor-market job and over-estimate the flexibility of non-standard employment. The mediation analysis proposed in this paper does not allow this reverse causality to be taken into account.

We believe this analysis raises important questions about family formation and employment uncertainty in post-industrial societies by advancing the role of SWB, proxy of un-measured characteristics of that job position, as a key mechanism through which jobs with uncertain conditions affect fertility intentions. An exploratory study of this kind is a necessary first step, and opens up the way to further studies. First, conditional on the availability of panel data, our approach is easily

applicable to fertility behavior; and might be fruitfully exploited there to understand causation better. Second, despite controlling for country clusters and country-specific labor-market variables, we are certainly aware that our aggregate results might mask country (clusters) differ-entials. This analysis can be extended to test the relationship between fertility, labor-market uncertainty, and SWB by comparing differentials effects between countries, even if – to the best of our knowledge – there are not yet any data at hand to allow this second development.

Acknowledgements

Appendix A

Table A1

Descriptive statistics for individuals who definitely intend to have a child and those who do not. Means for continuous variables and percentages for categorical variables.

Source: our elaboration on ESS data (rounds 2 and 5, 2004 and 2010).

	Definitely intended to have a child	Other
Life satisfaction	7.50	7.12
Age	31.08	36.06
Education		
Lower secondary	12.69 %	17.70 %
Upper secondary	49.58 %	53.79 %
Tertiary	37.73 %	28.52 %
Respondent's employment		
Precarious	24.20 %	23.46 %
Unlimited-time	75.80 %	76.54 %
Household income		
First tertile	31.44 %	33.79 %
Second tertile	32.77 %	30.87 %
Third tertile	35.79 %	35.34 %
Share of household income provided by the respondent		
None/small	16.27 %	18.81 %
About a half	68.73 %	64.25 %
Large/all	15.00 %	16.94 %
Partner's employment		
Employed	62.07 %	58.87 %
Self-employed	9.62 %	10.15 %
Unemployed	4.52 %	4.83 %
Inactive	23.79 %	26.15 %
Parity		
Childless	49.74 %	19.85 %
Parents	50.26 %	80.15 %
Welfare		
Nordic	19.43 %	18.13 %
Continental	16.35 %	13.15 %
Southern	13.89 %	14.33 %
German-speaking	13.93 %	15.84 %
CEE	26.58 %	29.02 %
Anglo-Saxon	9.82 %	9.53 %
Religious		
Not at all/moderately religious	71.72 %	73.00 %
Very religious	28.28 %	27.00 %
Previous experiences of unemployment (> 3months)		
No	65.23 %	66.45 %
Yes	34.77 %	33.55 %
Gender		
Men	44.24 %	43.05 %
Women	55.76 %	56.95 %
ESS wave		
2004	52.09 %	53.47 %
2010	47.91 %	46.53 %

Table A2

Logit models predicting the probability of being definitely intentioned to have a child. Coefficients. N = 10,565.
Source: our elaboration on ESS data (rounds 2 and 5, 2004 and 2010).

Variable	Model 1		Model 2	
Intercept	1.69	***	3.21	***
Precarious employment	−0.09	**	−0.09	
Life satisfaction			0.04	**
Precarious * Life satisfaction			0.09	**
Age	−0.03	***	−0.12	***
Gender (ref. Men)	0.02		−0.21	***
2010 (ref. 2004)	0.15	***	0.14	**
Parents (ref. Childless)	0.05		−0.80	***
Educational level (ref. Tertiary)				
Primary	−0.28	***	−0.57	***
Secondary	−0.18	***	−0.31	***
Welfare (ref. UK + Ireland)				
Nordic countries	0.77	***	−0.06	
Continental countries	0.08		0.14	
Southern countries	−0.13	*	0.31	**
German-speaking countries	0.25	***	−0.20	
CEE countries	−0.10		0.01	
Partner's working status (ref. Employed)				
Self-employed	0.05		0.17	*
Unemployed	−0.34	***	−0.20	**
Inactive	0.02		−0.11	
Household income level (ref. 3rd tertile)				
First tertile	−0.73	***	−0.16	*
Second tertile	−0.21	**	−0.06	
Share of household income provided by the respondent (ref. high/all)				
about a half	0.01		0.00	
low/none	−0.09		−0.11	
Prev. unempl. experience (> 3months) (ref.no)				
Yes	−0.34	***	0.15	**
Religiosity (ref. not at all/moderately religious)				
very religious	0.32	***	0.16	**
EPL gap	−0.01		−0.03	
Youth unemployment rate	−0.01	***	−0.01	*
Unemployment replacement rate	0.00		0.00	

Table A3

Results of mediation analyses performed on the subgroups considered in the article (causal effects are estimated holding life satisfaction at level 5). Odds Ratios.
Source: our elaboration on ESS data (rounds 2 and 5, 2004 and 2010).

	CDE	
Pooled	0.75	**
Women	0.82	
Men	0.70	**
Childless	0.77	
Parents	0.75	
Women under 28	0.78	
Men under 28	0.89	
Women over 28	0.74	
Men over 28	0.70	*
Women 2004	0.76	
Men 2004	0.89	
Women 2010	0.87	
Men 2010	0.54	**

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

Note: results are controlled for respondent's age and educational level, gender, parity, partner's work, religiosity, household income level, share of household income provided by the respondent, previous unemployment experience, welfare, year of survey.

Appendix B. Supplementary data

Supplementary material related to this article can be found, in the online version, at doi:https://doi.org/10.1016/j.alcr.2020.100343.

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