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OBJECTIVE

In this study we test whether perceived stability of employment and perceived resilience to potential job loss affect fertility intentions, net of individual level risk attitudes and considering variation in the local macroeconomic conditions.

BACKGROUND

The role of employment uncertainty as a fertility driver has been explored in a number of studies with a limited set of constructs, and with inconclusive results. A key reason for this heterogeneous pattern is that scholars did not recognize the multidimensionality and the prospective nature of employment uncertainty. We address these oversights by considering two key dimensions of employment uncertainty: perceived stability of employment and perceived resilience to potential job loss.

METHOD

Our study is conducted using the newly-released 2017 OECD Italian Trustlab survey and its built-in module on self-assessed employment uncertainty (N=521). We perform multivariate analysis using ordered logistic regression.

RESULTS

Perception of employment resilience was a powerful predictor of fertility intentions, whereas perception of employment stability had only a limited impact. The observed relationship between resilience and fertility intentions was robust to the inclusion of person-specific risk attitude and it did not depend on aggregate-level variables, such as unemployment and fixed-term contract rates in the area of residence.

CONCLUSION

With this paper, we argue that the notion of resilience is crucial for making sense of economic prospects in connection to fertility planning.

Keywords: Employment Uncertainty; Fertility Intentions; Resilience; Stability; Italy; Trustlab survey

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INTRODUCTION

In the last years, the notion of employment uncertainty has become increasingly common in the writings of social scientists, not least in fertility research (Kreyenfeld, Andresson & Pahile, 2012). The Great Recession (2007-2009) with its downturns in both financial and labor markets, has meant a greater interest in understanding whether employment uncertainty affects fertility intentions and fertility behavior (Livingston, 2011; Morgan, Cumberworth & Wimer, 2011; Schneider, 2015). But if the literature on the topic is booming, there are a series of theoretical lacuna around the idea of employment uncertainty.

Employment uncertainty is a relative concept – relative to expectations that economic prospects are stable at a given level. In family demography, it is customarily operationalized as present and past labor market disadvantages: e.g. unemployment, short-term contract jobs, under-employment, involuntary part-time, or a combination of these (Karabchuk, 2018; Kreyenfeld, Andersson & Pailhé 2012; Mills & Blossfeld 2013). Nonetheless, empirical evidence on the nexus between perceived levels of employment uncertainty and fertility remains inconclusive (Kreyenfeld, Andresson & Pahile, 2012; Sobotka, Skirbekk & Philipov, 2011). We posit that a key reason for this heterogeneous pattern is that scholars fail to recognize the multidimensionality and the prospective nature of employment uncertainty. In this paper, we operationalize employment uncertainty through two indicators of future economic prospects and we test their relevance for fertility intentions. We distinguish between perceived uncertainty regarding stability in employment and perceived uncertainty with respect to the capacity to be resilient, i.e. to recover from adverse events, such as job losses. We argue that being uncertain with respect to employment stability versus being resilient in the face of a lost job might have different consequences for fertility intentions. Indeed, fertility intentions follow the desire for childbearing and anticipate concrete behavior by reflecting the combined effect of desired fertility and situational constraints (Thomson & Brandreth, 1995). This is, to the best of our knowledge, the first attempt to focus on resilience in a study of employment uncertainty and fertility intentions.

We consider the perception of stability and resilience in employment as two distinct uncertainty narratives around jobs (Beckert & Bronk, 2018). In this study we verify whether the association between these two narratives and fertility intentions: (i) holds net of person-specific idiosyncratic risk preferences; and (ii) is moderated by the objective economic context.

First, we acknowledge that conceptualizing uncertainty as an “immanent value” – using terminology *à la* Friedman et al. (1994) – downplays the fact that individuals are heterogeneous in their person-specific risk attitudes (e.g., Sverke & Hellgren, 2002). An increasing number of studies have dealt with subjective measures of employment uncertainty (Bhaumik & Nugent, 2011; Fahlén & Oláh, 2018; Hofmann and Hohmeyer, 2013; Kreyenfeld, 2009; Witte & Wagner, 1995). Nonetheless, no study tested whether their effect on fertility remains after accounting for person-specific risk attitudes, which may affect how people perceive uncertainty and make fertility choices. Second, unfavorable macroeconomic conditions can influence the perception of employment uncertainty even for those with relatively secure employment prospects (Hofmann, Kreyenfeld & Uhlendor, 2017; Hoem, 2000). As such these conditions can affect fertility intentions. This study includes moderation models meant to address whether context variables moderate the association between individuals’ perception of employment uncertainty and their fertility intentions.

In sum, our contribution is threefold. We propose an operationalization of two dimensions of perceived employment uncertainty – stability and resilience – and we test their relevance for predicting fertility intentions, net of socio-economic characteristics. In addition, we test whether the link between these constructs and fertility planning holds net of person-specific risk attitudes. Finally, we explore the possibility that labor market context matters in moderating the effects of employment-related perceptions on fertility plans. To this end, we rely on a unique survey that includes a number of questions relating to employment uncertainty *vis á vis* respondents’ fertility intentions: the Trustlab survey for Italy. Trustlab is a project launched by OECD in 2016, aimed at creating the first internationally comparable and nationally representative database on trust and social preferences, using both survey and experimental approaches (Aassve et al., 2018). Italy represents an interesting

laboratory, where the combination of macroeconomic turbulence, the targeted and partial labor market de-regulation, and weak family policies created a general atmosphere of uncertainty that makes fertility decisions more difficult to assess (Barbieri et al., 2015). This state of affairs is accompanied by extraordinary regional differences, both for fertility levels and for unemployment and term-limited contract levels.

BACKGROUND

Employment Uncertainty: Stability Versus Resilience

In socio-demographic studies, “economic uncertainty” remains an elusive and highly debated term. Its conceptualization in economics, as the inability to assign probabilities to outcomes influencing one’s own economic situation (Beckert, 1996; Knight, 1921), leading to uncertainty about future economic prospects (Bloom, 2014; Moore, 2016), seems incomplete. Beckert & Bronk (2018) recognize that uncertainty is one of the salient characteristics of a capitalist society. Still individuals need to take decisions even if uncertainty hinders the possibility of a rational calculation with regards to future events. Imagination and the ability to devise different scenarios play a major role in planning for the future. In this framework assessing perceived employment uncertainty means evaluating the narratives attached to different aspects of economic life and understanding how individuals project them into the future. Following Beckert and Bronk (2018), we view employment uncertainty as a set of narratives related to the labor market employed for making sense of the future.

Here we propose a conceptual distinction between perceived employment uncertainty related to the ability to keep the current situation stable as opposed to uncertainty linked to the ability of an individual to recover from adverse events. These two prospects may matter differently for fertility intentions. This is especially the case if we remember that childbearing decisions may not be driven by a reasonable likelihood of having an adequate level of income, but rather by the optimistic perception that, even in the worst possible scenario, things would “work out”. Here we have a neglected concept for discussing the subjective perception of employment uncertainty and its impact

on fertility: that of *resilience*. From a micro perspective, resilience has been defined as “a dynamic process encompassing positive adaptation within the context of significant adversity” (Luthar, Cicchetti & Becker, 2000, p. 543). Rather than being a fixed psychological trait, resilience is considered to be a dynamic ability that can be actively stimulated (Conger & Conger, 2002; Luthar, 2015; Luthar, Cicchetti & Becker, 2000). In this study, we rely on a notion of adaptive resilience (Martin, 2012; Martin and Sunley, 2015; Simmie & Martin, 2012), that is the ability of individuals to react to negative shocks through adaptation and movement to a new equilibrium. It is worth noting that resilience is a relative concept. An individual or a system may be resilient to some types of adverse events but not to others (Masten and Wright, 2009). Here, we focus on perceived uncertainty and resilience to a negative shock affecting employment status, such as becoming unemployed. The perceived uncertainty regarding the ability to recover from failure can matter for fertility intentions. After all, the birth of a child is an event that is likely to be followed, in the family unit, by lower financial resources and loss of job opportunities. This is especially true in Southern Europe (Barbieri & Bozzon, 2016).

The research carried out to date does not provide a unified theoretical framework for unpacking the multiple narratives underlying the concept of employment uncertainty. Nor has any attempt been made to understand how uncertainty with respect to economic stability and resilience can matter differently for fertility intentions. We introduce resilience as a dimension of employment uncertainty, one that is relevant in determining fertility intentions as opposed to perception of employment stability. These two dimensions have never been considered separately in fertility intention research, and their importance as distinct determinants of fertility intentions has been downplayed.

Employment Uncertainty and Risk Attitudes

Individuals might differ with respect to how they react and take decisions in uncertain economic situations (Bernardi, Klarner & Von der Lippe, 2008): they are heterogeneous in how they feel and tolerate uncertainty. Hence, subjective perceptions of uncertainty are influenced by individual

attitudes to risk (Knight, 1921). These attitudes can be quite stable (like personality traits), ranging from risk aversion to risk loving. There is a distinction, both theoretical and empirical, between uncertainty and risk. While uncertainty relates to the inability to assign a probability to possible events, risk instead encompasses a known distribution of payoffs (Tversky and Fox, 1995), and the possibility for the individual to rationally choose, based on his or her own attitudes to risk. Having children is considered risky insofar, as it leads to higher expenditure and lower income, for at least some time after birth. The extent to which people are willing to have children can depend on their risk propensity, an attitude that should be measured separately from any assessment of their perceived employment uncertainty. Hence, measures of uncertainty would embed an individual's risk component, which needs to be assessed separately. From an empirical standpoint, using subjective measures of employment uncertainty to predict fertility intentions, without controlling for individual risk attitudes, may lead to biased estimates due to omitted variables (Angrist and Pischke, 2009). This point has been neglected in previous research employing micro-level measures of employment uncertainty (Huinink, 2015), mostly due to lack of survey items regarding risk attitudes.

The Aggregate-Level Objective Employment Uncertainty

The place where the individual lives, and his or her social environment, is crucial in driving fertility decision-making (Hoem, 2000). Anchoring effects may occur (Kahneman, 1992) as individuals form judgments about their own economic prospects based on the economic conditions prevailing around them. In addition, the prevalent economic conditions of others may affect individuals' perception of employment uncertainty, moderating the relationship between subjective perception of employment uncertainty and fertility intentions (Schneider, 2015). This hypothesis is supported by previous empirical evidence. Even individuals with relatively stable job conditions reported lower fertility intentions in the midst of general economic deterioration (Fiori, Graham & Rinesi, 2018).

Against this backdrop, the relationship between perceived employment uncertainty and fertility intentions may be moderated by aggregate-level economic conditions, suggesting that an

individual's perceptions of his or her economic prospects may be anchored in a local context. In order to assess this hypothesis, we propose a moderation model, where our indicators of employment uncertainty are interacted with variables measuring macroeconomic conditions in the area of residence.

Economic and Non-Economic Determinants of Fertility Intentions

The relationship between the perception of employment uncertainty and fertility intentions may be influenced by other economic and non-economic variables. These variables need to be considered as they could confound the main relationship of interest. In this section we will present the variables that may affect both fertility intentions and perceived employment uncertainty.

Age has proven to be an important predictor of fertility intentions and behavior. The relationship between age and fertility is usually represented by a reversed U-shaped curve, with a higher probability of childbearing as age increases, reaching a maximum and then decreasing again (Menken, 1985). At the same time the literature in life course research suggests that objective and perceived employment uncertainty are age dependent. Younger individuals are more exposed to the employment uncertainty typical of the globalized world (Mills & Blossfeld, 2003). Precarious work arrangements are more common among the young, making the transition to adulthood a longer process than it used to be (Heinz, 2009).

Parity is an important predictor of future fertility intentions (Morgan, 1982). Intentions to have a child are often considered as “parity-progression intentions”, with childless individuals displaying higher fertility intentions than those who already have children (Billari, Philipov & Testa, 2009). Parenthood is also a life-changing event, which might affect both the economic outlook of couples and their intention to have more children. There is evidence that childbearing entails a wage penalty for mothers (Anderson, Binder & Krause, 2002), increasing the degree of economic uncertainty in the household. Moreover, employment opportunities may be lower for women after their first child (Correll & Benard, 2007; McRae, 1993), adding to perceived employment uncertainty.

Gender is another important socio-demographic factor that accounts for structural differences in both childbearing intentions and perceptions of employment uncertainty between men and women (Neyer, Lappegård & Vignoli, 2013). Male objective employment uncertainty is a strong predictor of fertility (Vignoli, Drefahl & De Santis, 2012), while evidence for women and their objective and perceived employment uncertainty affecting fertility is mixed (Fahlén & Oláh, 2018; Hofmann & Hohmeyer, 2013; Kreyenfeld, 2009; Modena, Rondinelli & Sabatini, 2013).

Regarding socio-economic selectivity factors, investment in human capital has a relevant effect on both fertility decision-making and perception of employment uncertainty. Better educated individuals have an incentive to postpone childbirth to maximize the potential earnings produced by their previous investments in human capital (Kravadal & Rindfuss, 2008; Rindfuss, Bumpass & St. John, 1980). Education is also often considered as a valid marker of economic prospects (Kreyenfeld, 2002), as more education is correlated with lower employment uncertainty and a better ability to plan for the future (Adsera, 2011). Thus, individuals may form expectations regarding their future level of employment uncertainty based on their level of education.

Employment status and characteristics are equally relevant. The literature highlights the difference between the self-employed and employees, since the former may have higher fertility intentions due to their more flexible working hours (Boden, 1999; Noseleit, 2014). On the other hand, the self-employed and employees see employment uncertainty differently from one another. Those that choose self-employment tend to be over optimistic and they tolerate a higher degree of employment uncertainty than employees (Dawson & Henley, 2013).

Household income might be another crucial selectivity factor. High income households may be able to react better to employment uncertainty, thus, all things being equal, they may have higher fertility intentions (Johnson & Lean, 1985). On the other hand, individuals living in high income families may face higher opportunity costs for spending time on childrearing activities. They thus could have lower fertility compared to low income families (Borg, 1989; Schultz, 2006).

Employment Uncertainty and Fertility in Italy

The crisis of the Fordist model during the 1980s led to a structural inability to create new jobs in Europe and a dramatic increase in (especially youth) unemployment rates. On the other side of the Atlantic, the United States had successful occupational outcomes. Social observers imputed this success to the ‘flexibility’ of the North American labor market, as opposed to European markets that were described being as too ‘rigid’ (Cutuli & Guetto, 2012). Southern European labor markets have been characterized by “partial and targeted deregulation” (Esping-Andersen and Regini, 2000). There, the deregulation of employment had an impact almost exclusively on labor market entrants, leaving existing work contracts largely unchanged. Researchers have suggested that these characteristics of Southern European labor markets, with their high levels of youth unemployment and precarious patterns of employment entry, anticipated the fertility decline of these countries during the 1990s (e.g. McDonald, 2000; Adsera, 2004). Italy is a particularly interesting case.

In the last decades, Italy has faced increasing discontinuity in employment trajectories. Labor market deregulation began in the 1990s. The main assumption behind deregulation was that giving firms more flexibility in hiring and retaining employees would lead to the creation of more jobs. The biggest step in labor market deregulation was taken in 1997 (“Treu Law”, L.196/1997), while the subsequent “Biagi Law” (L.30/2003) gave further impulse to “flexible” forms of employment, which were far less protective for the worker than those that had been in place before (Barbieri & Scherer 2009; Bernardi & Nazio, 2005). Ample literature on the topic demonstrated that the process of partial and targeted labor market deregulation contributed to the replacement of secure, unionized labor with precarious, cheaper employment (Barbieri & Bozzon, 2016; Barbieri & Sestito, 2008; Barbieri & Scherer, 2009; Barbieri et al., 2015; Cutuli & Guetto, 2012). In 2016, almost 86% of dependent workers had a permanent contract, whereas more than 14% were employed through fixed-term arrangements (Istat, 2017a). However, there is impressive geographical variation in the prevalence of fixed-term contracts. Some Southern provinces had as high as 30% fixed-term contract rates, as opposed to Northern provinces in which fixed-term contract rates range from 6% to 12% in 2017.

The same degree of geographical variation is evident when looking at the provincial unemployment rate. In 2017, it ranges from less than 4% in a few provinces of Northern Italy to 24% in some Southern provinces.

In a nutshell, in the 1980s and 1990s, European labor markets experienced strong deregulation. Targeted and partial deregulation of Italian labor market and other aspects of globalization (such as privatizations and liberalizations) generated an unprecedented level of structural uncertainty in contemporary Italy (Bernardi & Nazio, 2005). A number of recent studies dealt with the impact of employment uncertainty on childbearing decisions in Italy (e.g., Barbieri et al., 2015; Angeli, Cazzola & Pasquini, 2016). Fertility reached again lowest-low fertility levels in 2017, with a total average fertility of 1.3 children per woman. A limitation of these studies is that they focused solely on objective aspects of employment uncertainty (i.e. the role of contract type), disregarding subjective perceptions. In addition, few studies focused on within-country geographical variation in macroeconomic conditions and, hence, on how the effect of subjective employment uncertainty on fertility intentions is moderated by aggregate-level factors.

METHOD

Data and Sample

Starting in 2016 the OECD, in connection with the OECD Trust Strategy, sponsored Trustlab, a project with the aim of assessing the level of trust by using a variety of tools, including both experiments and psychometric measures. The Italian Trustlab data were collected in October 2017. The baseline sample is nationally representative of the population between 18 and 65 years old and consists of 1,016 respondents, supplemented by a booster sample of 442 women of childbearing age (18 to 45 years old). The survey, developed under the guidance of the OECD, was administered through an online platform by a polling company. The sampling design followed a stratified scheme by age, gender and income. Data is available on a wide variety of topics such as risk attitude, personality traits, socio-demographic characteristics, trust, perception of employment uncertainty,

and fertility intentions. Representativeness tests suggest that the Trustlab sample also mirrors the Italian population at the sub-national level in terms of employment and marital status (Aassve et al., 2018). Trustlab data are available for seven countries (France, Germany, Italy, Korea, the United Kingdom, the United States and Slovenia) but data on fertility intentions was collected only in Italy.

Our analytical sample consisted of cohabiting individuals in employment between 18 and 50 years of age (N=521). We selected cohabiting and married individuals so that fertility intentions can be considered realistic (Neyer, Lappegard & Vignoli, 2013). The average age in the final sample is 37.7 years old, 66.7% of respondents are female and 38.0% are childless.

In previous studies of the relationship between employment uncertainty and fertility, unemployed individuals were also included in the analysis and unemployment was considered as the most uncertain condition in the scale of perception of employment uncertainty (Fahlén and Oláh, 2018). We preferred not to adopt this approach, as it entails comparing a subjective measure (perception of uncertainty) with an objective status (unemployment) in the same variable. We focused, instead, only on employed individuals, since they can reliably answer questions on their future employment outlook both in terms of perceived stability and resilience.

Dependent Variable

In our analysis we are interested in how individuals' projection of employment uncertainty into the future determines fertility decision-making, therefore fertility intentions rather than results are considered as the outcome of interest (Trinitapoli and Yeatman, 2011). Fertility intentions were measured through the question "Do you intend to have a child or another child in the next three years?", where respondents were asked to answer on the following scale: 1 (*definitely not*), 2 (*probably not*), 3 (*probably yes*) and 4 (*definitely yes*). The indication of a time period of three years is crucial for reliable answers. Questions on intentions that cover a credibly short time period, which therefore are "in close temporal proximity to the prospective behavior" (Ajzen & Fishbein, 1973, p.

49), are generally considered to be the best predictors of actual behavior (Mencarini, Vignoli & Gottard, 2015).

Main Independent Variables: Perceived Stability and Resilience

Employment uncertainty can be observed along two different dimensions: uncertainty with respect to the stability of future economic conditions and uncertainty with respect to resilience to negative economic shocks. Perceived uncertainty related to economic stability was operationalized through the question of stability perception: “How likely do you think it is that you will still have a job in six months (if you have one now)?” that allows a response scale ranging from 0 (*very unlikely*) to 10 (*very likely*). The perceived uncertainty with respect to resilience to adverse economic shocks was operationalized through the question on resilience perception: “If you were to lose your job, how likely is it that you would find a job with a similar salary within six months?” that allows a response scale ranging from 0 (*very unlikely*) to 10 (*very likely*). Subjective indicators of resilience are accepted in the literature (Jones & Tanner, 2015; Luthar, Cicchetti & Becker, 2000): individuals often know best the resources available to them in case of adverse events and are able to provide a well-thought out assessment of their ability to recover from adversity (Nguyen & James, 2013).

Model Specification

The impact of the two indicators of employment uncertainty on fertility intentions was assessed using ordered logit models. We included in the model specification several controls representing relevant explanatory variables, which could confound the relationship between fertility intentions and the indicators of employment uncertainty. The U-shaped relationship between age and fertility intentions was modeled using a quadratic term. Parity was operationalized as a dummy for childless respondents (0 = *parent*; 1 = *childless*). The small sample size limited the possibility of distinguishing further by higher-order parity; note, however, that two thirds of the respondents were either childless or had at most one child. Gender was included as a dummy variable (0 = *man*; 1 = *woman*). Education was

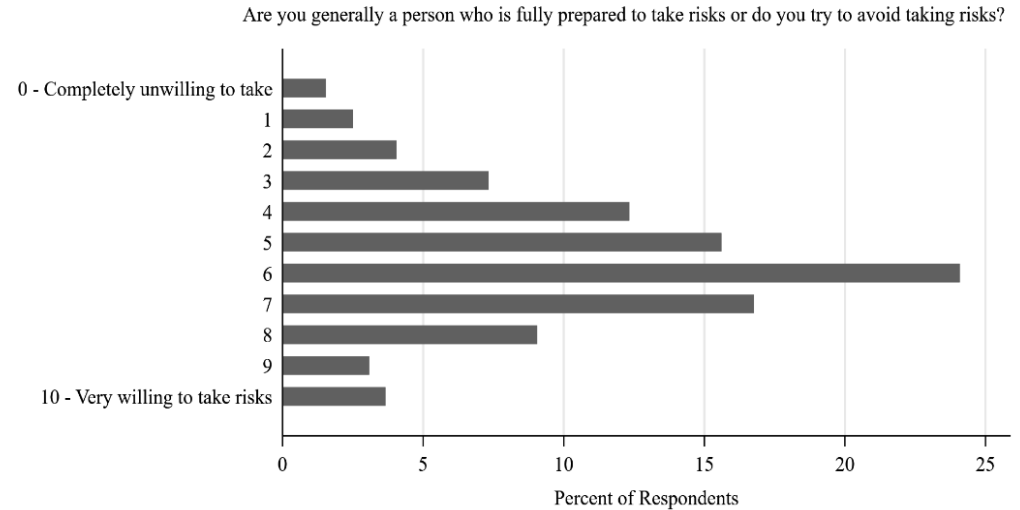
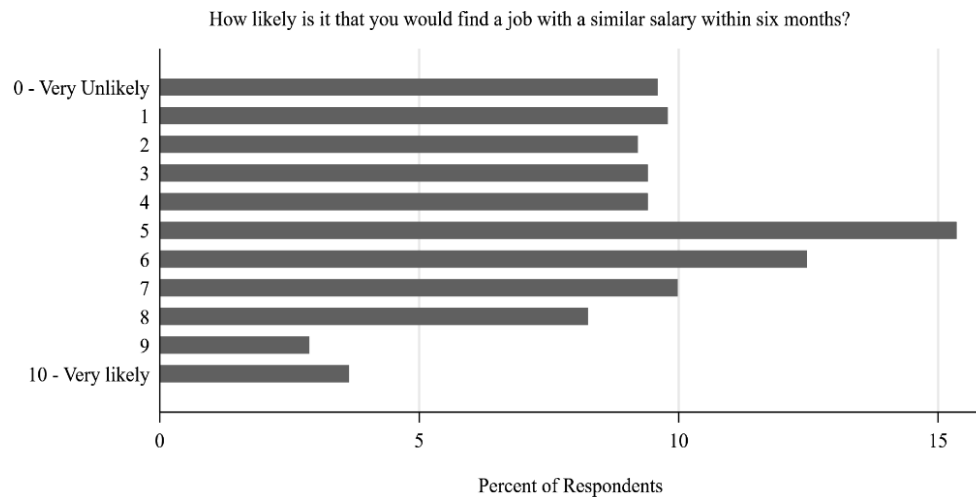
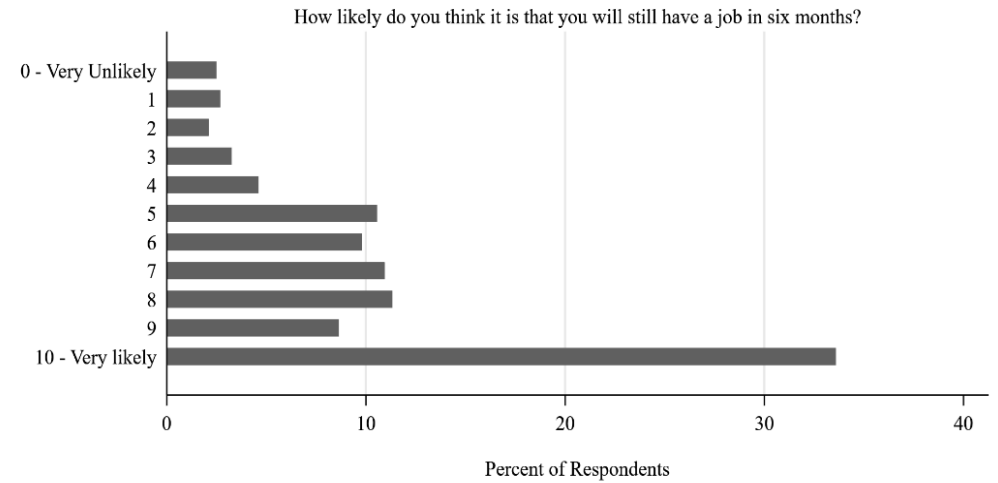
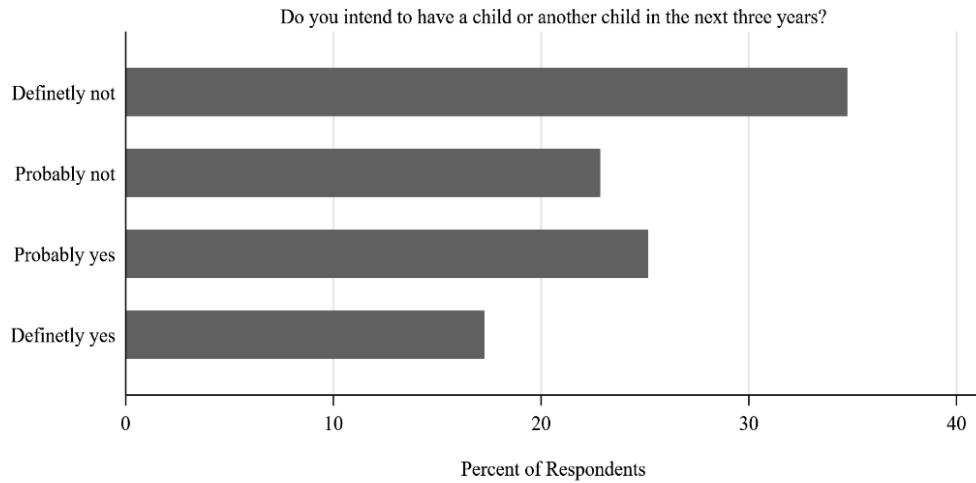
measured using a dummy variable that takes different values for respondents with at least a university degree and for respondents with pre-university qualifications (0 = *highest level of education below university*; 1 = *highest level of education is at least university*). The type of employment is operationalized using a dummy variable that distinguishes between being employed as a dependent worker, compared to being self-employed (0 = *employee*; 1 = *self-employed*). In our analytical sample 38.8% of the respondents attained a university degree and 23.2% were self-employed. Household income was measured as a continuous variable and it includes all the earnings of the household in the twelve months preceding the interview; we used its logarithm in the specification. Our specification also accounted for unobserved heterogeneity by including region-specific fixed-effects.

In addition to the two indicators of prospective employment uncertainty, individual heterogeneity *vis à vis* risk attitude was also considered. Risk attitude is measured through the following survey question: “How do you see yourself: are you generally a person who is fully prepared to take risks or do you try to avoid taking risks?” (Answers range from 0 = *Completely unwilling to take risks* to 10 = *Very willing to take risks*). Considering individual risk attitude is crucial for isolating the effect of employment uncertainty on fertility intentions. The distribution of the categorical ordinal variables of interest (fertility intentions, stability perception, resilience perception and risk attitude) is available in figure 1.

We also aim at understanding to what extent area-level economic conditions moderate the relationship between employment uncertainty and fertility intentions. We expect that the unemployment rate and the incidence of fixed-term contracts in the immediate surroundings *do* moderate the relationship between perceived employment uncertainty and fertility intentions. Thus, we chose the smallest level of aggregation available for the area-level variables. In 2017 Italy had 107 provinces in total, and the respondents in our sample covered 99 of these. However, for some provinces the number of respondents was too limited to perform a valid moderation analysis. In order to overcome this shortcoming, we created a new territorial unit averaging the data from adjacent provinces. We refer to this new territorial unit as a “macro-province”. Ultimately, we computed the

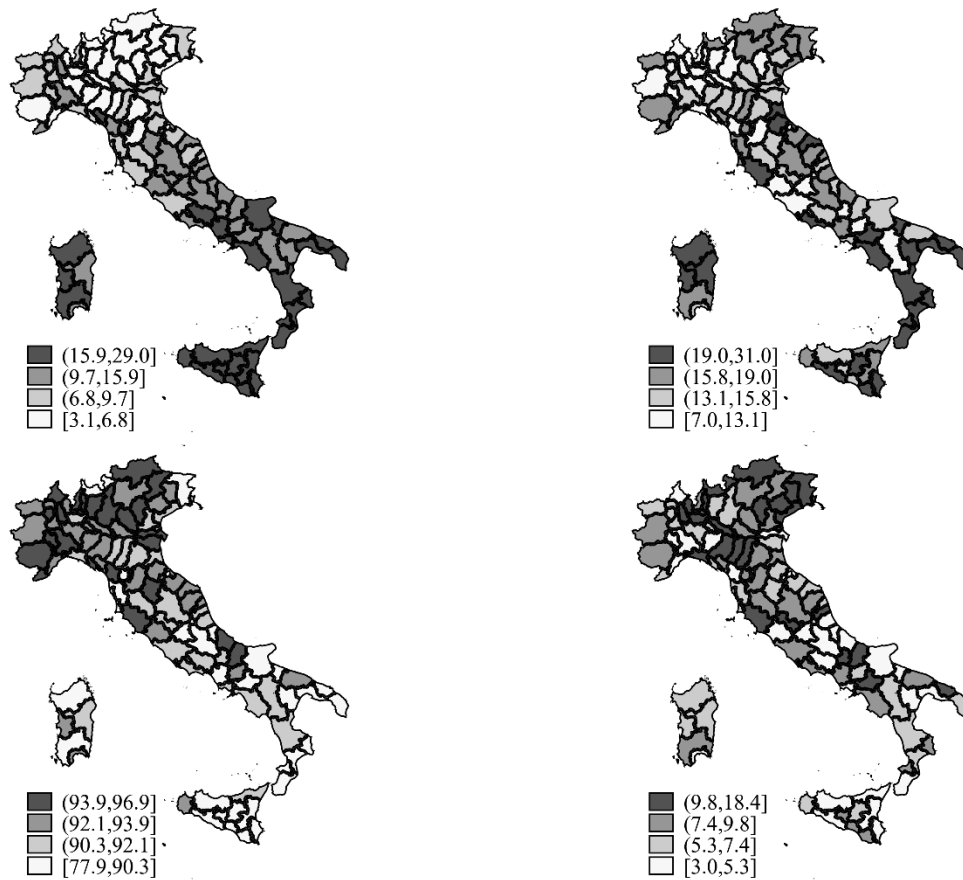
share of fixed-term contracts and the unemployment rate for a total of 65 macro-provinces. Both measures were derived from the Italian Labour Force Survey (ISTAT, 2017^b), a representative sample of the Italian population used for official Italian labor market statistics. The share of fixed-term contracts is obtained from averaging results from the trimester I, trimester II and trimester IV waves of 2017 (trimester III was excluded to avoid bias in measurement due to summer holidays). The employed individuals interviewed in each trimester were 31,727 on average. The unemployment rate at the province level was calculated as the average during the period 2010-2016. From the Labour Force Survey we also derived macro-provincial measures of the perception of employment uncertainty, providing an area-level counterpart to our micro-level indicators of perceived stability and resilience derived from Trustlab. We computed the share of individuals who answered “No” to the question “Do you think it is likely that you will lose/stop your current job in the next six months?” (a marker of stability) and the share of individuals who answered “Yes” to the question “Would you find it easy finding/starting a job similar to the one you are currently employed in?” (a marker of resilience). Figure 2 displays the North-South gradient at the provincial level for unemployment rate, incidence of fixed-term work arrangements, and perceived uncertainty with regards to stability and resilience in employment. When introducing macro context moderators, we adjust the estimates accounting for intra-group correlation at the macro-provincial level of geographic detail (65 macro-provinces). This approach specifies that observations are independent across clusters (i.e. macro-provinces) but not within clusters.

FIGURE 1. DISTRIBUTION OF CATEGORICAL ORDINAL VARIABLES FOR COHABITING EMPLOYED INDIVIDUALS AGED 15-50 (N=521): FERTILITY INTENTIONS (TOP-LEFT), STABILITY PERCEPTION (TOP-RIGHT), RESILIENCE PERCEPTION (BOTTOM-LEFT) AND RISK ATTITUDE (BOTTOM-RIGHT).



Source: Own processing on Trustlab 2017

FIGURE 2. ITALIAN UNEMPLOYMENT RATE (TOP-LEFT), % OF FIXED TERM CONTRACTS (TOP-RIGHT), AREA-LEVEL STABILITY PERCEPTION (BOTTOM-LEFT) AND AREA-LEVEL RESILIENCE PERCEPTION (BOTTOM-RIGHT) AT THE PROVINCIAL LEVEL, ITALY 2017.



Source: Own processing on ISTAT data

RESULTS

In our first two specifications, our dependent variable is fertility intentions and the two indicators of employment uncertainty are our explanatory variables taken one by one (table 1, Model 1a and Model 2a), whereas both indicators are included together in the third specification (table 1, Model 3a). The strongest influence was operated by resilience perception (i.e. confidence in the ability to find a job after job loss), while stability perception (i.e. the self-rated likelihood of keeping a job) did not offer precise statistical estimates at conventional thresholds. When both indicators were included in the model (table 1, Model 3a), Resilience perception remained the most important predictor of fertility intentions (only being childless and age exerted a stronger effect).

Its magnitude and significance, though, decreased slightly compared to the specification in Model 2a of table 1. For each model we test whether our conclusions change after the inclusion of risk attitude. Controlling our estimates for risk attitude resulted in a slight reduction in the magnitude and significance of the coefficients, but the predictive role of resilience perception was confirmed. The socio-demographic controls had the expected signs and magnitudes. Childlessness and age were still among the most important predictors of fertility intentions.

The average marginal effects displayed in table 2 refer to the specification of Model 3b. They include both employment uncertainty indicators and risk attitude among the controls. Increasing the confidence of individuals in their ability to find a job in the case of job loss increased the probability of being definitely intentioned to have a child by 1%. At the same time, an increase of one unit on the 10-point scale of *resilience perception* produced, on average, a decrease of 1.3% in the probability of being definitely intentioned not to have a(nother) child. Table 2 also suggested that the average marginal effect of a change of one unit in stability perception on fertility intentions was non-significant at all levels of the dependent variable. The average marginal effects confirmed that resilience perception was a relevant predictor for fertility intentions, whereas stability perception seemed to play a negligible role.

It might be argued that variability in individual micro responses was driven by differences in terms of perception of employment uncertainty in a given locality. In order to test this hypothesis, we computed two indicators of individual perception of employment uncertainty net of the average area-level perception of employment uncertainty: the variables “Micro-Macro stability perception” and “Micro-Macro resilience perception”. These variables were calculated as the difference between the individual employment uncertainty variables and their area-level counterpart at the macro-provincial level. In order to make the two variables comparable, the ten-point scale individual-level indicators of stability perception and resilience perception were rescaled to be in a range between 0 and 1. The micro and the macro indicators stem from similar questions but they are from two different surveys. Still they can be reliably considered measures of a unique concept as their correlation at the regional

level is above 0.85. These newly constructed variables represent how much each respondent is optimistic with regards to his or her employment perspective compared to other people in their macro-province of residence. Results are displayed in columns 1 and 2 of table 3. This analysis suggested that assigning a higher probability than average to the likelihood of keeping one's job (variable Micro-Macro resilience perception) did not significantly affect the probability of having higher fertility intentions. On the other hand, being more confident than average in finding a job in case of job loss (variable Micro-Macro resilience perception) significantly increased the chances of having higher fertility intentions. Not only the significance but also the magnitude of the coefficient of Micro-Macro resilience perception was substantively larger than that of the coefficient of Micro-Macro stability perception. This result strengthens the robustness of our findings: resilience-related uncertainty was far more relevant than stability-related uncertainty in determining fertility intention.

We then consider the possibility that local economic conditions moderate the relationship between employment uncertainty and fertility intentions. The unemployment and share of fixed-term contract rates in the Italian macro-provinces were divided into tertiles and interacted with our two indicators of perceived employment uncertainty. The main effect of the area-level variables corresponds to their influence when the employment uncertainty indicators are set at their mean. The main effect of the indicators of employment uncertainty refers to their influence when the area-level variables of objective employment uncertainty are set at their first tertile. From Table 4 we can see that the variable resilience perception had a positive significant effect on fertility intentions and this relationship was not significantly moderated by the presence of unemployment or a high share of individuals employed through fixed-term contracts. Stability perception instead was significantly moderated by the level of unemployment. The effect of stability perception on fertility intentions decreased when the respondent lived in a high unemployment province, as showed by the negative sign of the interaction coefficient between stability perception and the third unemployment tertile (Model 1, Table 4).

The same was true when we looked at fixed-term contracts. A large share of fixed-term contracts in the macro-province of residence inverted the sign of the main effect of stability perception on fertility intentions, as showed by the negative interaction coefficient between stability perception and the third tertile of fixed-term contracts (Model 2, Table 4). Nevertheless, the raw coefficients of the interaction terms do not have a straightforward interpretation due to the non-linearity of the ordered logit specification (Karaca-Mandic, Norton & Dowd, 2012; Ai & Norton, 2003). We plotted the Average Marginal Effects (AMEs) of each indicator of employment uncertainty on fertility intentions, at different tertiles of unemployment (figure 2) and share of fixed-term contracts (figure 3). The results were in line with the trend observed in Table 4. The AME of resilience perception followed a similar trend across different unemployment and fixed-term contracts rates tertiles. On the other hand, the trend of the AME of stability perception changed as the macroeconomic conditions in the macro-province of residence deteriorated. Negative macroeconomic conditions – outlined by high unemployment and a high percentage of fixed-term contracts in certain macro-provinces – offset the positive relationship between stability perception and fertility intentions.

Table 1. Results from ordered logistic regression models, predicting the probability of intending to have a(nother) child in the next 5 years

Variable	Model 1a		Model 1b		Model 2a		Model 2b		Model 3a		Model 3b	
	B	SE	B	SE	B	SE	B	SE	B	SE	B	SE
Stability perception	.04 (1.04)	.03	.04 (1.04)	.03					.03 (1.03)	.03	.03 (1.03)	.03
Resilience perception					.10** (1.10)	.03	.09** (1.09)	.03	.09** (1.10)	.03	.08* (1.09)	.03
Risk propensity			.09* (1.10)	.04			.08† (1.08)	.04			.08† (1.08)	.04
Region FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	521		519		521		519		521		519	

Note: Unstandardized logistic coefficients with odds ratios in parentheses. The regression includes: controls for gender; a quadratic term for age; whether the respondent has a university qualification; (log) household income in the last 12 months; a dummy for childless respondents; and one for self-employed respondents. Model 1a includes controls and stability perception. Model 2a includes controls and resilience perception. Model 3a includes stability perception, resilience perception and the controls. Models 1b, 2b and 3b include the control for risk attitude in addition to the same variables respectively of Models 1a, 2a and 3a. Standard errors showed in the columns are robust. ** $p < .01$, * $p < .05$, † $p < .10$.

Table 2. Average Marginal Effects of stability and resilience perception on each level of the dependent variable fertility intention ($N=519$), through ordered logistic regression (Model 3b, $N=519$)

Variable	Definitely not=1			Probably not=2			Probably yes= 3			Definitely yes= 4		
	AME	SE	P>Z	AME	SE	P>Z	AME	SE	P>Z	AME	SE	P>Z
Stability perception	-.004	.005	.442	-.000	.001	.449	.001	.002	.439	.003	.004	.444
Resilience perception	-.013**	.005	.009	-.002*	.001	.026	.005*	.002	.010	.010*	.004	.011

Note: The coefficients in the AME columns represent the Average Marginal Effects of the variables stability perception and resilience perception when they were both included in the regression model. The regression included: controls for risk attitude; gender; a quadratic term for age; whether the respondent has a university qualification; (log) household income in the last 12 months; a dummy for childless respondents; and one for self-employed respondents. Regional fixed-effects are included in the specification. Standard errors showed in the columns are robust. ** $p < .01$, * $p < .05$, † $p < .10$.

Table 3. *Regressing resilience perception and stability perception on fertility intentions using micro-level variables from Trustlab (Model 1) and micro-level variables net of area-level ones (Model 2), N=519*

Variable	Model 1		Model 2	
	B	SE	B	SE
Stability perception	.03 (1.03)	.03		
Resilience perception	.08* (1.09)	.03		
Micro-Macro stability perception			.24 (1.27)	.35
Micro-Macro resilience perception			.84* (2.32)	.35
Region FE	Yes	Yes	Yes	Yes
SE clustered at the provincial level	No	No	Yes	Yes

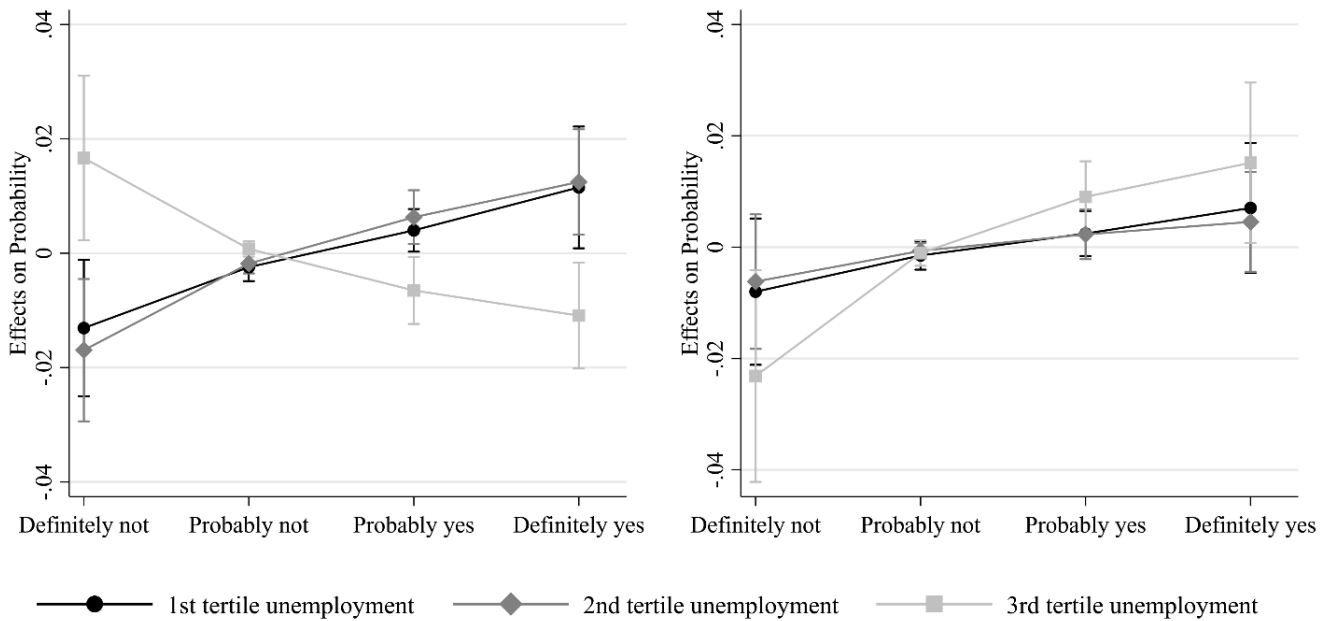
Note: Unstandardized logistic coefficients with odds ratios in parentheses. Regressions include: controls for attitude to risk; gender; a quadratic term for age; whether the respondent has a university qualification; (log) household income in the last 12 months; a dummy for childless respondents and one for self-employed respondents. Errors showed in the columns are robust. *** $p < .001$, ** $p < .01$, * $p < .05$.

Table 4. *Moderation effects of unemployment rate and % of fixed term contracts at the macro-provincial level on the relationship between employment uncertainty and fertility intentions (N=519)*

Variables	Model 1		Model 2	
	B	SE	B	SE
Stability perception	.09†	.05	.06	.04
	(1.09)		(1.06)	
Resilience perception	.05	.06	.08*	.03
	(1.06)		(1.09)	
Omitted category: 1st tertile unemployment:				
2nd tertile unemployment	-.28	.30		
	(.76)			
3rd tertile unemployment	-.51	.33		
	(.60)			
Stability perception*2nd tertile unemployment	.02	.07		
	(1.02)			
Stability perception*3rd tertile unemployment	-.19**	.07		
	(.82)			
Resilience perception*2nd tertile unemployment	-.01	.07		
	(.98)			
Resilience perception*3rd tertile unemployment	.09	.10		
	(1.10)			
Omitted category: 1st tertile fixed-term contracts:				
2nd tertile fixed-term contracts			-.83†	.43
			(.43)	
3rd tertile fixed-term contracts			-1.00**	.36
			(.37)	
Stability perception*2nd tertile fixed-term contracts			.03	.09
			(1.03)	
Stability perception*3rd tertile fixed-term contracts			-.12†	.07
			(.89)	
Resilience perception*2nd tertile fixed-term contracts			-.05	.07
			(.95)	
Resilience perception*3rd tertile fixed-term contracts			.04	.08
			(1.04)	
SE clustered at the provincial level	Yes	Yes	Yes	Yes
Regional FE	Yes	Yes	Yes	Yes

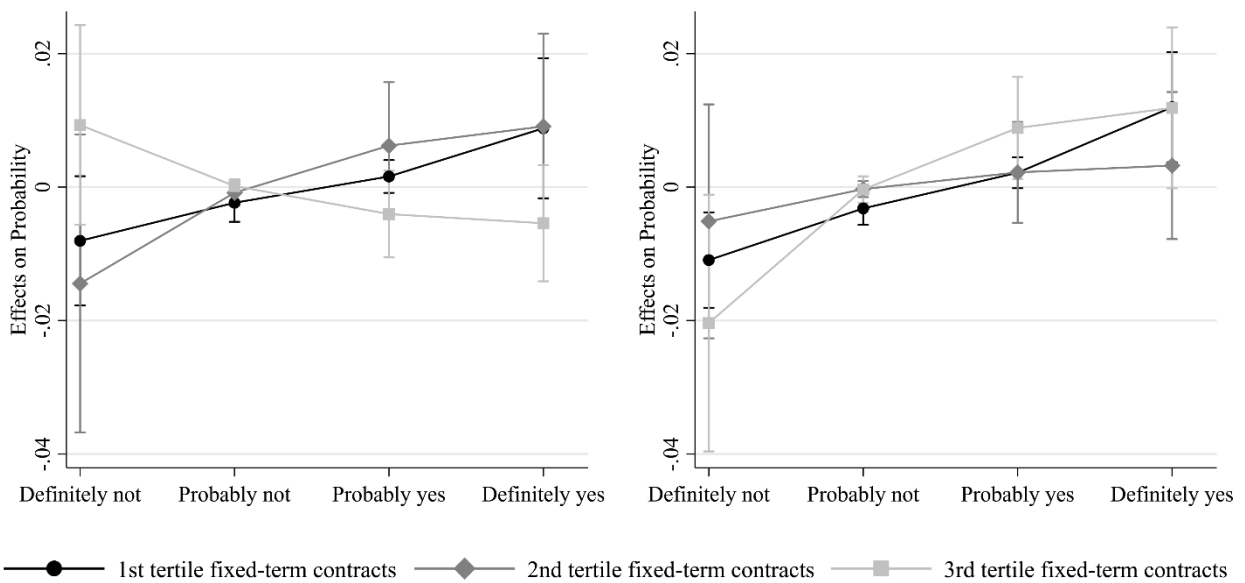
Note: Unstandardized logistic coefficients with odds ratios in parentheses. Regressions include: controls for attitudes to risk; gender; a quadratic term for age; whether the respondent has a university qualification; (log) household income in the last 12 months; a dummy for childless respondents and one for self-employed respondents. Errors showed in the columns are robust. ** p < .01, * p < .05, † p < .10.

FIGURE 2. AVERAGE MARGINAL EFFECTS OF THE INDICATORS OF STABILITY PERCEPTION (ON THE LEFT) AND RESILIENCE PERCEPTION (ON THE RIGHT) ON FERTILITY INTENTIONS, BY UNEMPLOYMENT RATE (90% CONFIDENCE INTERVALS, MODEL 1, N=519).



Note: Average Marginal Effects of Stability perception (on the left) and Resilience perception (on the right) are calculated on the four levels of the dependent variable fertility intentions, by unemployment rate in the macro-province of residence. Fertility intentions is measured through the question: “Do you intend to have a child or another child in the next three years?”, and answers range from 1 (*definitely not*) to 4 (*definitely yes*).

FIGURE 3. AVERAGE MARGINAL EFFECTS OF THE INDICATORS OF STABILITY PERCEPTION (ON THE LEFT) AND RESILIENCE PERCEPTION (ON THE RIGHT) ON FERTILITY INTENTIONS, BY % OF FIXED-TERM CONTRACTS (90% CONFIDENCE INTERVALS, MODEL 2, N=519).



Note: Average Marginal Effects of stability perception (on the left) and resilience perception (on the right) are calculated on the four levels of the dependent variable fertility intentions, by percentage of fixed-term contracts in the macro-province of residence. Fertility intentions is measured through the question: “Do you intend to have a child or another child in the next three years?”, and answers range from 1 (*definitely not*) to 4 (*definitely yes*).

ROBUSTNESS CHECKS

Our findings may not be valid without a series of robustness checks. The analysis was carried out using ordinal logistic regression. This type of model rests on the assumption that the log-odds of going from a category to the other of the dependent variable (in this case, for example, to pass from 3=*maybe yes* to 4=*definitely yes*) change by the same proportion, and that, therefore, they can be represented by a unique coefficient. The alternative is the generalized ordered logit, which often provides very similar results at the cost of a less parsimonious specification (Long & Freese, 2014). We formally test the assumption of proportional odds ratios using the Brant test (Brant, 1990). Table 5 displays the results of the Brant test for three model specifications: in Model 1 fertility intentions were regressed over stability perception and the controls; in Model 2 fertility intentions were regressed over resilience perception and the controls; and in Model 3 fertility intentions were regressed over both indicators of employment uncertainty and the controls. The p-value of the test statistic was above 0.1 for most variables across the three specifications, thus failing to reject the null hypothesis of proportional odds ratios. Importantly, the hypothesis of proportional odds ratios was not violated for any of the two indicators of employment uncertainty, irrespective of the specification considered. The assumption of proportional odds ratios was violated only for gender, but the null hypothesis was rejected with a significance level of just 10%. Given these results, we opted for using the ordinal logistic regression, that is more parsimonious than the alternative generalized ordered logit.

Even though the assumptions needed for the use of an ordered logit were fulfilled, non-linear models present several other challenges in their interpretation and use.

Karlson, Holm & Breen (2012) and Mood (2010) suggest that in non-linear models the coefficients of regressions including different independent variables cannot be directly compared due to changing unobserved heterogeneity across models. Thus, we cannot draw conclusions about the relative size of the coefficients of our two indicators of employment uncertainty, displayed in Table 1. To overcome this issue, we make the coefficients comparable through a y-standardization (Menard, 2011;

Mood, 2010). After implementing this procedure, the relative magnitude of the coefficients remains unchanged, supporting our findings (tables available upon request). Besides employing the y-standardization procedure to get around some of the most common limitations of non-linear models, we also replicated the specifications displayed in tables 1, 3 and 4 using linear probability models (Horrace & Oaxaca, 2006). The results obtained are in line with those achieved using an ordered logistic regression model (again tables are available upon request).

Table 5. *Brant test for the null hypothesis of proportional odds ratios (N=519)*

VARIABLES	Model 1		Model 2		Model 3	
	chi2	p>chi2	chi2	p>chi2	chi2	p>chi2
All	25.98	.100	24.49	.140	27.80	.114
Stability perception	3.44	.179			3.59	.166
Resilience perception			2.00	.368	1.79	.408
Risk propensity	1.21	.547	1.32	.516	1.36	.506
Women	5.07	.079	4.86	.088	5.18	.075
Age	3.45	.179	3.44	.179	3.28	.194
Age squared	2.70	.259	2.63	.269	2.49	.288
Tertiary educated	.67	.714	.40	.817	.56	.754
Self-employed	1.63	.444	2.32	.314	1.48	.478
Household income (Log)	3.49	.174	3.93	.140	3.56	.169
Childless	3.04	.218	2.83	.243	3.08	.214

Note: A significant test statistic provides evidence that the parallel regression assumption has been violated.

DISCUSSION

This article contributes to the literature on the relationship between employment uncertainty and fertility intentions. We introduced resilience perception, defined as the respondents' uncertainty with regards to the ability to recover from negative shocks such as a job loss. This is an innovative step in the study of fertility intentions. In past research the underlying assumption was that what matters for fertility intentions is uncertainty with regards to job stability (e.g., Kreyenfeld, 2009; Modena, Rondinelli & Sabatini, 2013; Fahlén & Oláh, 2018). But this neglected the importance of uncertainty with respect to resilience to job loss.

Ultimately, our contribution is threefold. First, we aim at understanding whether what matters for fertility decision-making is to feel sure that one will keep the same job (stability perception) or to be sure that a new job can be found should the current one be lost (resilience perception). We tested, first, which indicator of employment uncertainty is more relevant for fertility intentions. Second, we tested whether the relationship between our indicators of employment uncertainty and fertility intentions are robust to individual-level risk attitudes. We separated the influence of risk from that of uncertainty both theoretically and empirically, a task that was rarely accomplished in previous research on fertility intentions despite being of high theoretical relevance (Knight, 1921). Finally, we tested whether the relationship between our indicators of employment uncertainty and fertility intentions were moderated by the objective economic conditions in the macro-province of residence.

Our results confirmed that individuals build their own narrative of employment uncertainty around their perception of stability and resilience. Perceived resilience to job loss seems of particular relevance for fertility planning, outperforming uncertainties related to the stability of current employment. An increase by 1 point in the perceived resilience scale on average produced a 1% increase in the probability of a strong intention of having children, and reduced by 1.3% the intention of wishing not to have children at all. The magnitude of the effect of perceived resilience was large when compared to the Average Marginal Effects of the other coefficients in the model; only being childless and age exerted a stronger effect on fertility intentions. On the other hand, the Average Marginal Effect of stability perception on fertility intentions not only is non-significant, but the magnitude for all levels of the dependent variable is close to zero (and about one-tenth of the magnitude of the coefficients of resilience perception). This result remains robust net of the macro-provincial level of confidence in the ability to find employment.

There is an important distinction between perceived uncertainty of employment retention and resilience to possible layoffs. We posit that childbearing decisions are more responsive to resilience perception, because individuals anticipate that after a child is born “nothing stays the same” (Anderson, Binder & Krause, 2002). Therefore, counting on the expectation of having stable

employment may be of limited value in building a convincing narrative where childbearing is a possible outcome in the near future. Childbearing increases uncertainty with regards to the evolution of any existing career path both in terms of employment stability and earnings, especially for women, influencing total future family income. Individuals may feel unsure with respect to the extent that their employer will welcome their childbearing choices, even though they (or their partner) enjoy stable employment conditions. Thus, perceptions of low uncertainty with respect to employment stability may be of limited relevance in fertility decision-making. On the other hand, what really enables individuals to state a preference for childbearing in the near future is their narrative, namely the belief that even in the case of job loss they would be able to recover.

In interpreting this observed pattern, we should, however, first consider that we are observing a subset of individuals in employment. They may already be taking for granted their employment stability and thus it may not be relevant in discriminating between those with high and those with low fertility intentions. This would be plausible to the extent that heterogeneity in terms of contractual arrangements among the employed does not matter for fertility intentions, or assuming that the same contract applies to all the respondents in our sample. Unfortunately, we do not have information about contract type and therefore we cannot directly control for this. Assuming that all respondents in our sample work under the same contract type seems implausible, and the literature provides evidence that permanent jobs facilitate the likelihood of having children whereas short-term contracts inhibit childbearing (e.g., for Italy, Vignoli, Drefahl & De Santis, 2012). Therefore, it is unlikely that the lack of evidence for a link between perception of uncertainty of employment stability and fertility intentions is due to the choice of a subsample that comprises only employed individuals. After all, even among them, there should be substantial heterogeneity because of differences in contractual arrangements.

Our indicators may be capturing individuals' attitudes to risk, rather than the operationalized dimensions of employment uncertainty. This possibility is addressed, including risk attitudes among the control variables. The observed significance and strength of association between perceived

stability/resilience and fertility intentions remain similar after the introduction of risk in the model equation. Nonetheless, attitudes to risk lower the magnitude of the coefficients of the indicators of employment uncertainty. This suggests that here we have a relevant control that should be included in models assessing the effect of employment uncertainty on fertility intentions.

Finally, we considered whether the macroeconomic context moderates the relationship between our two indicators for perceived employment uncertainty and fertility intentions. Interestingly, the coefficient of the variable related to perceived individual resilience to job loss did not vary significantly in regions with higher fixed-term contract or higher unemployment rates. This observation lends support to the hypothesis that resilience matters irrespective of the economic context. At the same time, the effect of perceived employment stability on fertility intentions is moderated by the share of fixed-term contracts and by the unemployment rate at the macro-provincial level. Respondents living in economically disadvantaged areas who perceive a high degree of employment stability may be afraid to lose their position. As a consequence, they are less inclined to raise their level of future uncertainty through childbearing (Karabchuck, 2018). Conversely, those who feel very uncertain in terms of employment stability, when they are living in an area where unemployment or the share of temporary contracts are high, have nothing to lose and may decide to have children in spite of a negative economic environment. The moderation analysis further strengthens the interpretation of our findings. What matters for fertility decision-making is the perception of being able to manage employment-related instability, rather than the (implausible) certainty that nothing will change.

The present paper has important limitations. First, the limited sample size led to imprecise estimates. This is a key drawback, as it inhibits stratification of the analysis by age and parity despite the fact that such distinctions proved to be important in previous research (e.g., Hank and Kreyenfeld, 2003; Billari, Philipov & Testa, 2009). Second, considering only individuals in a partnership we are excluding economically disadvantaged individuals who might struggle to find a partner. This, in particular, holds true for men, whose probability of becoming part of a couple is significantly affected

by their degree of employment uncertainty (Vignoli, Tocchioni & Salvini, 2016). This may further drag downward our estimates of the effect of economic uncertainty on fertility intentions. Similarly, the selection of employed individuals may drag downward our estimates for the effect of employment uncertainty on fertility intentions as those with truly unstable employment might have left employment altogether. Our results, then, are conservative. In addition, we are unable to include information about the partner, which has been found to be relevant in previous studies (Fahlén & Oláh, 2018). Finally, in order to have a sample of individuals that could qualify to respond to both the questions underlying our indicators of employment uncertainty, we focused exclusively on the employed. This selection might lead to an underestimation of the effect of our indicators. After all, workers with more uncertain employment situations might be more likely to have quit employment.

Our study advances the importance of considering how different narratives of employment uncertainty influence fertility intentions, net of person-specific heterogeneity in attitudes to risk. Moreover, we take into account how the macroeconomic conditions in the environment moderate this relationship. This study contributes to the literature studying the link between employment uncertainty and fertility intentions. We show that the concept of employment uncertainty includes distinct narratives of the future (as in Beckert & Bronk, 2018), and that these should be considered separately in order to understand fertility decision-making better. The notion of uncertainty with respect to resilience to negative employment shocks is a crucial element that allows individuals to take fertility decisions in spite of uncertainty.

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