

The Interrelationship of Union Formation and Fertility in Italy: The Role of Economic Uncertainty

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Introduction and Background

During the last years, the relationship between economic uncertainty and family formation has become an increasingly important issue in demographic research. Uncertainty is usually deemed to impact negatively family formation, with individuals in more precarious positions more likely to postpone or forego partnership and parenthood. Despite union formation and childbearing are two interrelated processes, most of the studies on the topic focus on the effect of economic uncertainty on either union formation or fertility, separately. However, fertility does not occur in isolation, but within relationships. A limitation of most previous studies is that they suffer from selection bias: because only partnered individuals are considered, these studies disregard how some men and women are selected into union while others are not. Employment uncertainty, indeed, may lead to the postponement of marriage or uncertain relationships, not only to the postponement/avoidance of fertility. We posit that studying the effect of employment uncertainty on union formation and fertility without taking into consideration the interrelation between family formation processes may generate biased conclusions.

Literature review

Among the main theories linking uncertainty to family formation, Oppenheimer's *uncertainty hypothesis* (1988) suggests that (especially men's) uncertainty about future and current attributes may delay marriage, since unstable job conditions and low socio-economic status jeopardize assortative

mating. Conversely, according to Friedman et al. (1994), right when people experience uncertainty, they might choose to marry in order to reduce biographical uncertainty at least. The recent spread of cohabitation, which is not directly included in Oppenheimer's theory, is explained by the Second Demographic Transition theory through structural and cultural changes involving new family models (e.g., modernization, the rise of higher education, secularization and the rise of individualistic values). Perelli-Harris and Gerber (2011) challenge the SDT framework, suggesting that, instead of being a choice that reflects the spread of new values, cohabitation is practiced by the least educated and most socially disadvantaged individuals, while marriage remains a prerogative of highly educated individuals. Empirical evidence on the topic is mixed and deficient (e.g., Kurz et al. 2005; Koytcheva and Philipov 2008; Kalmijn 2007). Moreover, many studies operationalized the above-mentioned theories using the educational level as a proxy for labor market prospects, which is appropriate, but not enough, because uncertainty is spreading in European labor markets irrespectively of individuals' educational attainment.

Likewise, theoretical premises about the relationship between employment uncertainty and fertility are uncertain. According to the theory developed by Ranjan (1999), individuals tend to postpone childbearing until more certain times, because childbearing is an irreversible event. However, the abovementioned uncertainty reduction framework (Friedman et al. 1994) holds for union formation as well as for fertility: when a woman has limited possibilities in the labor market, she might choose the "alternative career" of becoming a mother. Recent empirical evidence has operationalized employment uncertainty mainly through precarious employment contracts, because individuals with time-limited jobs often carry out monotone and repetitive tasks in physically stressful works, which lead to poor health status and low levels of labor market integration (Kalleberg 2009; Pirani 2017). Nevertheless, it was also argued that temporary employment may improve employment chances for individuals that otherwise would be out of the labor market and may facilitate work/family reconciliation among individuals who prioritize family over career (OECD 2002, Scherer 2009). Existing studies yield conflicting and highly context-dependent findings. In general, time-limited

contracts hinder fertility (e.g., Dupray and Pailhé 2018; Baizán 2005), with some exceptions (e.g., Wolbers 2007; de Lange et al. 2014). In the European context, such effect is particularly strong among women (Pailhé and Solaz 2012) and in Southern European countries (see Alderotti et al. 2019 for a review).

As for the Italian case, the literature on this topic is scarce and incomplete. In general, worsening employment opportunities reduce the likelihood of entry into marriage and favor cohabitation (Vignoli et al. 2016; Bernardi and Nazio 2005). Investigating the relationship between employment and first births with a couple perspective, Vignoli and colleagues (2012) found that when both partners have a permanent employment, couples are more likely to have a child with respect to couples with at least one of the two partners having an insecure job. Conversely, Santarelli (2011) found that couples' employment arrangement played some role in first child rates, with the single earner arrangement experiencing the highest first birth rates.

Aim of the study

A bunch of studies analyzed and modelled *jointly* union formation and transition to parenthood, concluding that such processes are strongly interrelated, and that failing to consider this explicitly can produce misleading results (Lillard and Waite 1993; Baizán et al. 2003; Baizán et al. 2004; Aasve et al. 2006, Trimarchi and Van Bavel 2017). Our aim is to overcome the lack of a study that analyzes simultaneously union formation and transition to parenthood in Italy, which represents an intriguing case of study, because it is characterized by high youth unemployment, traditional values with a strong preference towards marriage (with respect to cohabitation) and low fertility rates.

Data and Methods

We use data from the Household Multipurpose Survey Family and Social Subjects (FSS), released by the Italian Statistical Office. We use retrospective information stemming from the two waves of

2009 and 2016¹. This survey includes detailed information on men's and women's partnership, employment and fertility histories, with monthly precision.

We apply simultaneous hazard models to study first birth and first union formation, considering cohabitation and marriage as competing events. A hazard function is specified for each process, conditional on exogenous and endogenous covariates, and correlated unobserved heterogeneity components, which may include individual risk aversion and home/work-oriented attitudes. Unobserved heterogeneity is specified as a random component that captures what is not picked up by the observed covariates. The statistical specification is derived from the framework developed by Lillard (1993) and consists of three simultaneous hazard equations that capture time to first birth and to first union – marriage or cohabitation, separately, starting from age 15 (subscripts for individuals are omitted for simplicity).

$$\begin{cases} \ln h^B(t) = \theta_1 y^B(t) + \sum_k z_k^B(u_k + t) + \sum_j a_j x_j + \sum_i \alpha_i \omega_i(t) + \varepsilon \\ \ln h^C(t) = \theta_2 y^C(t) + \sum_k z_k^C(u_k + t) + \sum_j d_j x_j + \sum_i \gamma_i \omega_i(t) + \delta \\ \ln h^M(t) = \theta_3 y^M(t) + \sum_k z_k^M(u_k + t) + \sum_j d_j x_j + \sum_i \gamma_i \omega_i(t) + \delta \end{cases} \quad \begin{pmatrix} \varepsilon \\ \delta \end{pmatrix} \sim N \left(\begin{pmatrix} 0 \\ 0 \end{pmatrix}, \begin{pmatrix} \sigma_\varepsilon^2 & \rho_{\varepsilon\delta} \\ \rho_{\delta\varepsilon} & \sigma_\delta^2 \end{pmatrix} \right)$$

Superscripts B, C and M refer to first birth, entering the first cohabitation and first marriage, respectively. The model includes $y(t)$ piecewise linear splines that capture the effect of duration on intensity ($y(t)$), splines that model the effect of covariates that are continuous functions of t (z_k), time-constant covariates (x_j) and time-varying covariates changing at discrete times (ω_i). Among this last group of covariates, the key role in our analysis is played by the employment status combined with the type of job contract. The unobserved time-constant heterogeneity terms are ε and δ . Cohabitation and marriage equations are modelled as competing risks and they share a common heterogeneity component δ . Such terms are assumed to follow a joint bivariate normal distribution and may be correlated.

¹ The 2016 wave has still to be released. It should be available within Autumn 2019.

This model accounts for the dynamics of the processes jointly, in a way that allows the realization of any of the processes to be included as time-varying variables in the remaining processes.

Expected results

We expect employment uncertainty to encourage cohabitation with respect to marriage and discourage childbearing in the Italian context. Nevertheless, it is not clear how economic uncertainty relates with such dynamics *simultaneously*, which will be the main contribution of our study.

Key references

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