



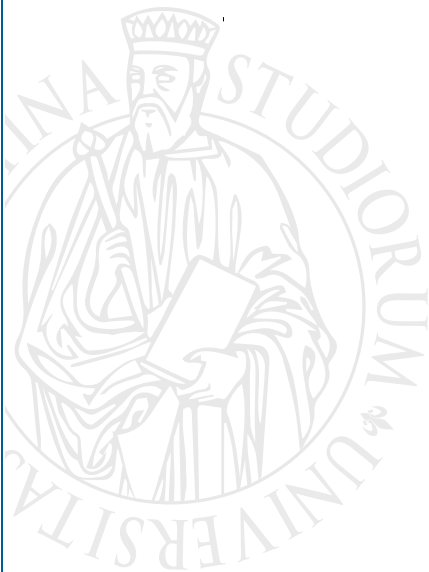
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**First-Birth Gains and Losses
from the First Job in Italy:
The Role of Employment Uncertainty**

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First-Birth Gains and Losses from the First Job in Italy: The Role of Employment Uncertainty

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Abstract

Previous research on the link between employment uncertainty and fertility has focused on the existence of a *statistically significant* effect of contractual arrangements on fertility, largely disregarding the *magnitude* of the effect in question. In this article, we address this oversight for Italy using retrospective data from the nationally representative 2009 Family and Social Subjects survey. We adopt the potential outcome approach to causal inference to quantify the net effect of first jobs (temporary or permanent) on the propensity to have a first child within the first five years of employment. We find that 7% of first-birth losses among women and 5% of first-birth losses among men are attributable to employment uncertainty: they would have had a first child if they had had a permanent job. For women, first-birth losses are especially elevated among those with higher education (reaching 16%), while for men first-birth losses are pronounced among those with low and medium educational attainment.

Keywords: Fertility; First births; Economic uncertainty; Potential outcome approach; Propensity score matching; Italy

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1. Introduction

The relationship between economic conditions and family dynamics is now a major topic of public interest. Economic uncertainty represents a crucial aspect of the globalizing world, caused by deregulation, internationalization, and delocalization (Blossfeld & Hofmeister, 2006; Blossfeld, Mills, & Bernardi, 2006). For individuals, economic uncertainty reflects the likelihood of experiencing adverse labor-market conditions over their life course: namely, spells of employment uncertainty. In contemporary Europe, employment uncertainty is now viewed as a primary force behind the postponement of childbearing and the elimination of higher-parity births (Kreyenfeld, Andersson, & Pailhe, 2012; Philipov, 2002).

A number of macro-level studies have shown that adverse economic conditions, often measured by national unemployment rates, are associated with a decline in total fertility (Adsera, 2004, 2011; Goldstein, Kreyenfeld, Jasilioniene, & Orsal, 2013; Matysiak, Sobotka, & Vignoli, 2017; Sobotka, Skirbekk, & Philipov, 2011). There is the idea, certainly, that macro-level economic downturns translate into micro-level perceptions of economic uncertainty, and that this discourages people from having children. Kohler and colleagues (Kohler, Billari, & Ortega, 2002), who pioneered the literature on economic uncertainty and low fertility in Europe, argued that couples in the lowest-low fertility countries have limited their childbearing due to economic uncertainty. Evidence at the micro level gives, instead, conflicting messages, ranging from positive to negative (Adsera, 2004; Barbieri, Bozzon, Scherer, Grotti, & Lugo, 2015; Edin & Kefalas, 2005; Hofmann, Kreyenfeld, & Uhlenborff, 2017; Kreyenfeld, 2010, 2015; Kreyenfeld et al., 2012; Özcan, Mayer, & Luedicke, 2010; Pailhé & Solaz, 2012; Sobotka et al., 2011; Vignoli, Drefahl, & De Santis, 2012).

There are various sources for these heterogeneous findings. First, most previous research focused on the role of unemployment as an indicator of employment uncertainty (see Kreyenfeld, 2015; Matysiak & Vignoli, 2008 for a review), ignoring or downplaying other factors, such as precarious work contracts (Kurz, Steinhage, & Golsch, 2005; Liefbroer, 2005; Noguera, Castro Martin, & Bonmati, 2005). Young adults often move in and out of low-paid “stopgap” jobs, and work-related uncertainty may affect their decisions (Standing, 2011). Second, group-specific analyses and explanations have often been neglected, but the implicit underlying assumption that people are all equally vulnerable to economic uncertainty is both logically thin and empirically tenuous (Kreyenfeld, 2010). We can expect that the effect of employment uncertainty on fertility varies according to educational qualifications: though, this is still under-investigated. Third and, in our view, most importantly, previous research has concentrated on the *statistical significance* and

the *direction* of the effect of employment uncertainty on fertility, largely disregarding the *magnitude* of the effect in question.

The aim of this work is to advance our understanding on the impact of economic uncertainty on fertility by addressing, for Italy, these lacunae in previous research. In Italy, the spread of flexible and temporary contractual forms has been one of the fastest in Europe over the last decades. These contracts offer very limited guarantees for workers and are offered almost exclusively to the young, whose traditionally high unemployment, in the meantime, has not declined significantly (Barbieri, 2011). The link between employment uncertainty and fertility choices should be conceptualized as a succession of transitions in one's life-course (Kravdal, 2002; Kreyenfeld & Andersson, 2014). Here, we focus on a specific segment of the life course of young Italians – namely, the entry into employment. The first employment spell represents a life-changing event in Italian latest-late transition to adulthood (Billari & Rosina, 2004). Young adults in Italy tend to remain in the parental home, where they receive considerable psychological and material solidarity from parents, until they find a stable and secure job and are thus “prepared” to establish their own family. This “delay syndrome” – using an expression favored by Massimo Livi Bacci (2001) – is now exacerbated by the labor market changes, in which the first job is less and less often characterized by an open-ended contract. Given this state-of-affairs, a postponement in parenthood during the first job may, in turn, affect completed fertility because of the limited time interval left for second or higher order births. Delaying entry into parenthood may, in some cases, also lead to involuntary childlessness.

By adopting a formal framework for causal inference based on the potential outcome approach (Imbens & Rubin, 2015; Rubin, 1974), we focus on the effect of employment uncertainty during the first employment spell in the propensity to have a first child among Italian women and men¹. Under the potential outcome approach to causal inference, we define the impact of a temporary work contract on first birth, as a comparison between potential first-birth progressions under temporary versus permanent work contracts within the first five years of employment. This approach differs from classical methods usually exploited for the analysis of longitudinal and retrospective data, where the focus is on the estimation of model parameters (Blossfeld, Hamerle, & Mayer, 2014; Diggle, Heagerty, Liang, & Zeger, 2002). More specifically, our analysis addresses the following questions: *Is a woman/man who enters employment with a temporary work contract less prone to have a first child than if s/he had a permanent job? Which would the size of first-birth losses or gains be if women/men with a temporary contract had a permanent job? Is the causal*

¹ In the following, we used alternatively the term ‘birth’ and ‘conception’, although our analysis focused on first-child conception resulting in a live birth.

impact of first-job uncertainty heterogeneous with respect to educational qualification? To answer these questions, we reorganize data from the nationally representative 2009 “Family and Social Subject” survey carried out by the Italian Institute of Statistics (ISTAT).

2. Background

2.1 Employment uncertainty and family formation

New forms of “flexible” employment, in most cases jobs with limited durations, have been growing everywhere in Europe over the last decades. Since the 1980s, the labor market of countries with industrialized economies has experienced a strong process of deregulation/segmentation, leading to a substantial change in its overall functioning. The deregulation process and other aspects of the globalization wave (such as privatization and liberalization) have generated an unprecedented level of structural uncertainty in contemporary societies (Mills & Blossfeld, 2005, 2013; Standing, 2014). Several studies demonstrated that these forms of “flexible” employment lead to negative consequences for occupational prospects (Barbieri & Scherer, 2009), poverty risk at childbirth (Barbieri & Bozzon, 2016), health outcomes (Pirani, 2017; Pirani & Salvini, 2015), or private life (Scherer, 2009).

In the realm of fertility research, various studies show that youth unemployment, term-limited working contracts, and unstable employment situations induce a postponement in childbearing (Adsera, 2004; Barbieri et al., 2015; Blossfeld et al., 2006; Kreyenfeld & Andersson, 2014; Özcan et al., 2010; Pailhé & Solaz, 2012; Vignoli et al., 2012). This is especially true among the childless, who put off their plans for family formation (Neels, Theunynck, & Wood, 2013). But there are exceptions: Edin and Kefalas (2005), for instance, showed that the poorest women in non-permanent employment in the United States may decide to have a child before marriage because motherhood may increase their social status and make the future safer. Kreyenfeld (2010) argued, meanwhile, that economic uncertainty accelerated childbearing among poorly educated women living in Germany. These contrary findings demonstrate the importance of taking into account group-specific analyses and explanations, which have all too often been omitted in recent studies (e.g., Barbieri et al., 2015; Vignoli et al., 2012). This omission was motivated by the lack of an adequate sample size allowing one either to conduct separate analyses by different social groups or to estimate meaningful interactions.

The empirical literature examining fertility reactions to economic uncertainty has focused predominantly on women alone. The role of men’s economic uncertainty has, with rare exceptions (e.g., Tölke & Diewald, 2003), been ignored or downplayed. Especially in a male-breadwinner

context, biographical options and constraints are still quite different for men and for women, and empirical analyses have thus to be carried out separately for each gender. Oppenheimer argued (2003; 1988) that the deterioration of men's position in the labor market and the declining ability of men to serve as the family's single breadwinner are key factors for understanding the recent postponement of marriage and fertility. In this study, we examine the impact of economic uncertainty on fertility by investigating the effect of uncertain forms of first job for both men and women.

How the link between economic uncertainty and fertility varies across educational levels remains uncertain. Following a classical micro-economic interpretation of the family, having a child in times of economic uncertainty may impose particularly high opportunity costs on highly-educated individuals, especially women who may react by postponing childbearing (e.g., Adsera, 2004). Conversely, lower-educated individuals may not have much to lose by temporarily withdrawing from the labor market (e.g., Kreyenfeld, 2010). On the other hand, highly-educated individuals or those of an elevated social class usually have greater economic resources and a higher social position in the labor market. Therefore, they may be better equipped to face hardships or spells of employment insecurity (e.g., Sobotka et al., 2011). Our analysis focuses on a crucial, but very specific life course step – namely, when young adults enter employment the first time. While we are able to verify whether higher education represents an inhibitor or a facilitator for childbearing when individuals face uncertainty in their first job, we cannot address these competing expectations in their overall complexity, as things may change later in life.

2.2 Italy

Previous research has demonstrated that public policies play an important role in altering the effects of economic uncertainty on families (Neyer & Andersson, 2008; Sobotka et al., 2011). By providing monetary support or by lowering the opportunity costs of childbearing, these policies offer people some financial security. They thus support young adults in carrying out their fertility desires despite adverse economic conditions in the country. Besides family policies, labor-market policies (such as job search assistance and employment protection) also influence unemployment dynamics and its duration (Adsera, 2004, 2005; OECD, 2006), thus acting indirectly on family-related events. Among European countries, the system of social protection for the unemployed is least generous in Southern Europe (Esping-Andersen, 1999). In addition, Southern Europe is known for having high employment protection and (consequently) high unemployment and high temporary employment among the young (Adsera, 2011; Barbieri et al., 2015). Barbieri and Bozzon (2016) showed that the risk of entering poverty at childbirth is elevated in Southern Europe compared to other parts of the

European Union because of the insufficient protection provided by family policies and welfare policies.

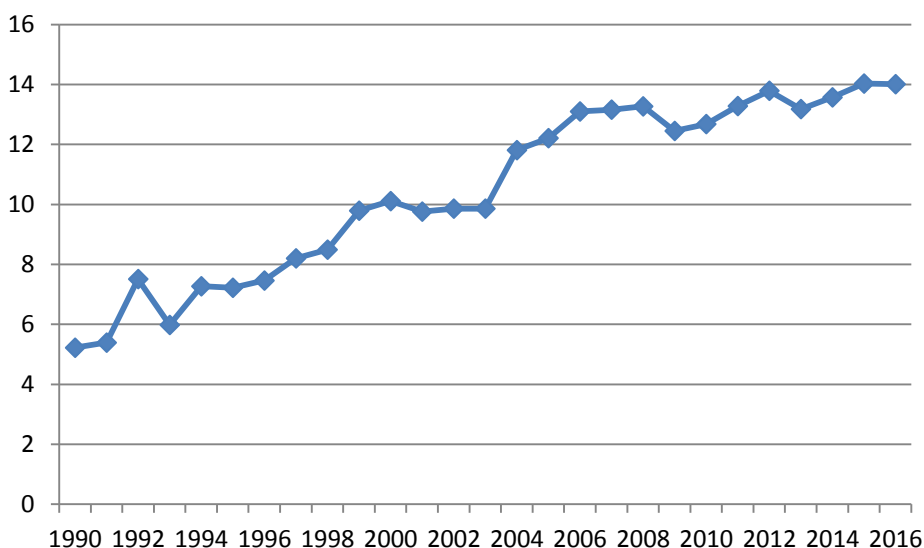
In Italy, from 1990 to 2016, the share of temporary employment among dependent workers had a fast-growing from 5% to 14%, whereas the EU-28 average slightly moved from 10% to 14% (OECD, 2017b; see also Figure 1). In the current law system, the process of labor-market flexibilization began with the introduction of the so-called work-and-training contracts (1983–1984), followed by a weakening of the strict rules for fixed term contracts (L.56/1987), which were subsequently made increasingly more attractive for firms (L.451/1994; L.608/1996). The major step in labor-market deregulation/segmentation was taken in 1997 (‘Treu Law’, L.196/1997), and the ‘Biagi Law’ (L.30/2003) gave further impulse to the spread of ‘flexible’ forms of employment, jobs which were far less ‘protective’ than before, when typically open-ended jobs were the rule (Barbieri & Scherer, 2009; Bernardi & Nazio, 2005). In 2016 nearly fifteen million people had a permanent contract, whereas self-employed people amounted to more than five million (Eurostat, 2017; OECD, 2017a). The largest share of precarious contracts was represented by fixed-term (i.e., temporary) arrangements, which comprised approximately 2.5 million workers. In 2013 contingent contracts (i.e. project-based or contingent work) took in almost 400,000 workers (1.7% of total; Istat, 2014). Through the spread of precarious work contracts, the traditional division between ‘insiders’ and ‘outsiders’ in the Italian labor market has been reinforced (Ferrera, 2000). The former group typically includes older male workers with long-term contracts and solid guarantees in case of unemployment; the latter group comprises mostly young adults with precarious jobs, low pay, and very limited (or nonexistent) safety nets for periods of unemployment.

Italy also represents a relevant case study in gender terms because of its marked gender inequality in the labor market. In the country, the first step in the “gender revolution” (Goldscheider, Bernhardt, & Lappegård, 2015) is currently underway. Labor force participation for women aged 15 to 64 years is still relatively low compared to European standards, although it increased from about 30% in 1979 to 55% in 2016 (International Labor Organization, 2015; OECD, 2017a). In terms of gender equality, at the macro level, Italy scores quite badly, with 50th place in world equality rankings according to the 2016 Gender Gap Index. Italy is a long way off not only the Nordic European countries, which hold the very first positions, but also most other Western and Eastern European countries (ibid). In all, household living standards depend on the market performance of the man: even in dual-earner couples, women are still the main caregivers and men act primarily as household income providers (Aassve, Fuochi, Mencarini, & Mendola, 2015). Even more, job precariousness is gendered. A higher proportion of women are employed in professions

characterized by higher precariousness and inferior job conditions, including low prestige, lower wages, and little by way of responsibilities (Pirani & Salvini, 2015).

The state of the economy and the business cycle is likely to offer an important additional element. For instance, Hofmann et al. (2017) found that the impact of job losses on first births is greater in an economic downturn than in an economic upturn. The effects of the economic recession on family life – and on total fertility – started to register after 2010 (Istat, 2016). This is because the Italian family served as a buffer in mitigating the negative effects of the very first years of the recession among individuals; then, when family savings also started to be affected, the recession seeped into poverty rates and fertility outcomes, too (Sabbadini, 2015). In our empirical investigation, we use data recorded in November 2009. Hence, we think that fertility responses to employment uncertainty may be only slightly affected by the onset of the “Great Recession”.

Figure 1 – Percentage of temporary employment over total dependent employees. Italy, 1990-2016



Source: OECD

3. Data

We analyzed a sample of women and men selected from the Italian Multipurpose Household Survey on Family and Social Subjects (FSS), conducted by ISTAT in November 2009. This is a large scale, nationally-representative survey of approximately 24,000 households and almost 50,000 individuals, with a response rate over 80%. The FSS survey is particularly suitable for our purposes, because it provides retrospective information on fertility, work, partnership, and education histories, as well as information on several background characteristics.

In order to investigate the impact of employment uncertainty during the first employment spell on the likelihood of having a first child, we selected all women and men aged 18-49 years old at the interview date. They had to have been at least 18 and childless at the beginning of their first employment spell² and to have worked at least one year consecutively, thus excluding seasonal jobs. Overall, the sample consisted of 2,783 women and 3,178 men born between 1959 and 1991. Among women, 852 had a first temporary employment (30.6% of the total), and 153 found themselves in the least protected employment condition (the so-called contingent jobs; 5.5% of the total); 1,931 had a first permanent job (69.4%). Among men, 770 had a first temporary employment (24.2% of the total), of whom 96 had contingent jobs (3.0%); 2,408 had a first permanent contract (75.8%). Clearly, the great majority of men and women in our sample enter first employment with a permanent contract. It is also worth noting that employment uncertainty is much higher among women than among men.

4. Method

4.1 Causal Inference Framework

We are interested in estimating the effect of employment uncertainty during the first employment spell on first births. Specifically, we focus on assessing the effect of having a first temporary versus permanent job on entering parenthood. We use retrospective (observational) data where individuals with temporary and permanent jobs might systematically differ in their background characteristics. We faced this issue by using propensity score matching methods under the assumption of selection on observables (Imbens, 2003; Rosenbaum & Rubin, 1983). We conducted the analysis separated by gender.

Our treatment variable was a binary indicator W for the type of employment, where $W_i = 1$ for individuals with a “temporary job” (treated individuals), and $W_i = 0$ for individuals with a “permanent job” (control individuals). Given that employment conditions may change over time – e.g. a person in temporary employment could then get a permanent position, thus changing his/her treatment status – we focused on a single period of employment, namely the first. Temporary and permanent employment may include different employment statuses: here, we run three separate analyses and made three comparisons by varying the group of temporary workers.

(1) First, the treated group was formed by individuals who had a temporary job, which comprised fixed-term and contingent jobs: they both identify precarious forms of employment; with the

² They could have worked before 18, but each previous employment spell had to last at most three months. Otherwise, they are excluded from the sample.

latter being the least protected employment condition: i.e. contingent jobs. The control group was formed by individuals who had a permanent job.

- (2) Second, the treated group only included individuals who had a fixed-term job, and the control group included individuals with a permanent job.
- (3) Third, workers with a contingent job (the treated group) were compared with workers with a permanent job. This comparison put the least protected group of workers against workers with permanent jobs³.

Our outcome variable was the conception of the first child. Under the Stable Unit Treatment Value Assumption (SUTVA; Rubin, 1980), each individual had two potential outcomes: s/he might conceive or not a child if s/he had a permanent job, $Y(0)_i$, or s/he might conceive or not a child if s/he had a temporary job, $Y(1)_i$. The outcome of interest was annually measured each year from the beginning of the first employment spell, up to five years or till the end of the first employment spell, if it occurred earlier. Note that those who ended the first employment before five year were not excluded in the estimation of the outcome of interest for all the five years.

The causal estimand we aimed to estimate is the Average Treatment effect for the Treated (ATT; Imbens & Rubin, 2015):

$$ATT = E[Y(1)_i - Y(0)_i | W_i = 1]$$

In our context, the ATT can be interpreted as the average difference between the proportion of first-child conceptions under temporary versus permanent jobs among those who had a temporary job (the treated group; Imbens & Rubin, 2015).

Since each person was only observed in either the treatment or control group, only one of the two potential outcomes was observed for each individual, and the missing outcome needed to be estimated. Therefore, in order to draw inference on the causal effect of interest, we need to introduce some assumptions on the assignment mechanism. We make the assumption that the assignment mechanism is strongly ignorable (Rosenbaum & Rubin, 1983), which holds if: (a) the treatment assignment is independent of the potential outcomes, conditional on the observed covariates (unconfoundedness): $W_i \perp (Y(0)_i, Y(1)_i) | \mathbf{Z}_i$; (b) overlap: $0 < Pr(W_i = 1 | \mathbf{Z}_i = z) < 1 \forall i$. Unconfoundedness requires that there are no unobserved confounders of the treatment-outcome relationship, and overlap implies that, in large samples, there are treated and control individuals for all values of the covariates. In our context, unconfoundedness appears largely plausible given the large set of selected covariates (as outlined in the next section), and we

³ For men, we did not perform this comparison, because contingent male workers were too few for the analysis.

constructed a subsample that has a substantial degree of overlap by discarding few individuals with limited overlap in terms of covariates.

4.2 Design phase: propensity score matching

Under strong ignorability, we can remove all biases in comparing treated and control persons by adjusting for the observed covariates. The basic idea is to find, for each treated person, one control person with similar background characteristics, and impute the missing potential outcome for each treated person by using the outcome of her/his matched control.

Our matching procedure is based on the propensity score, which is defined as the probability of having a temporary job, given the observed covariates (Rosenbaum & Rubin, 1983): $\Pr(W_i = 1|Z_i)$. The propensity score has two properties: it is a balancing score, that is the treatment is independent of the covariates given the propensity score; and if the treatment assignment is strongly ignorable given the covariates, then it is also strongly ignorable given the propensity score. These properties imply that matching based on the propensity score is sufficient for removing the bias associated with differences in the background variables.

In our study, the set of background variables comprised a wealth of socio-demographic covariates that could influence the birth of the first child and the entry into the labor market (see Tables A1-A3 in Appendix for the complete list). Time-varying variables were fixed at specific points in time: the exit from the parental home was fixed the year before the start of the first employment spell, given that we had only annual information on this covariate. Partnership status was measured three months and twelve before the start of the first employment spell, to avoid anticipatory effects. Highest educational level was measured one, six and twelve months before the start of the first employment spell. Finally, age (as a continuous variable), calendar period and if the person was still in education were fixed one month before the beginning of the first employment spell. Based on the set of observed covariates, we estimated the propensity score by specifying a logit model for the treatment indicator W_i on the background variables. Together with the set of observed covariates, we included some interaction terms in the model specification, in order to obtain estimates of the propensity score that balanced all the covariates between treated and control groups.

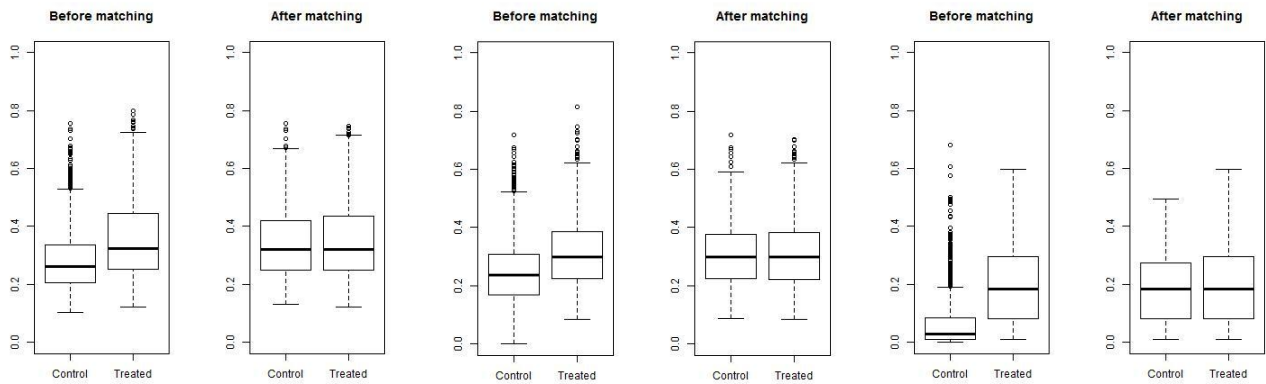
The treated individuals were matched with the control group in terms of propensity scores, using the one-to-one nearest neighbor matching algorithm without replacement (Abadie & Imbens, 2002), with an exact match on age group and education to improve the match, and discarding any observations outside the common support range.

Figure 2 illustrates the balance of the treated and control groups in terms of the propensity score, before and after matching. Each sub-graph shows the propensity score estimates for the control group and the treated group, for the unmatched samples (on the left panel) and for the matched samples (on the right panel). In all cases, the matching procedure seems to work well; after matching, the boxplots for treated individuals and matched controls are very similar. Indeed, we obtained a good balance of the two samples in terms of the covariates (see Tables A1-A3 and Figure 2).

Figure 2 – Boxplots of the propensity score in the treatment and control groups before and after the matching procedure, for the three different comparisons. By gender

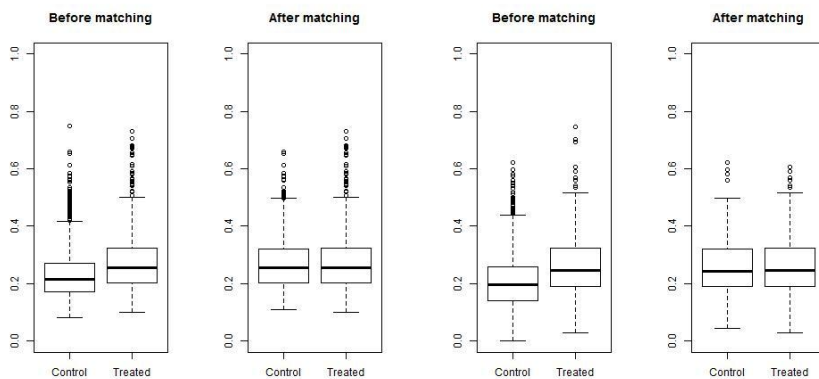
A) Women

- 1) temporary versus permanent jobs 2) fixed-term versus permanent jobs 3) contingent versus permanent jobs



B) Men

- 1) temporary versus permanent jobs 2) fixed-term versus permanent jobs



4.3 Analysis phase: ATT estimation

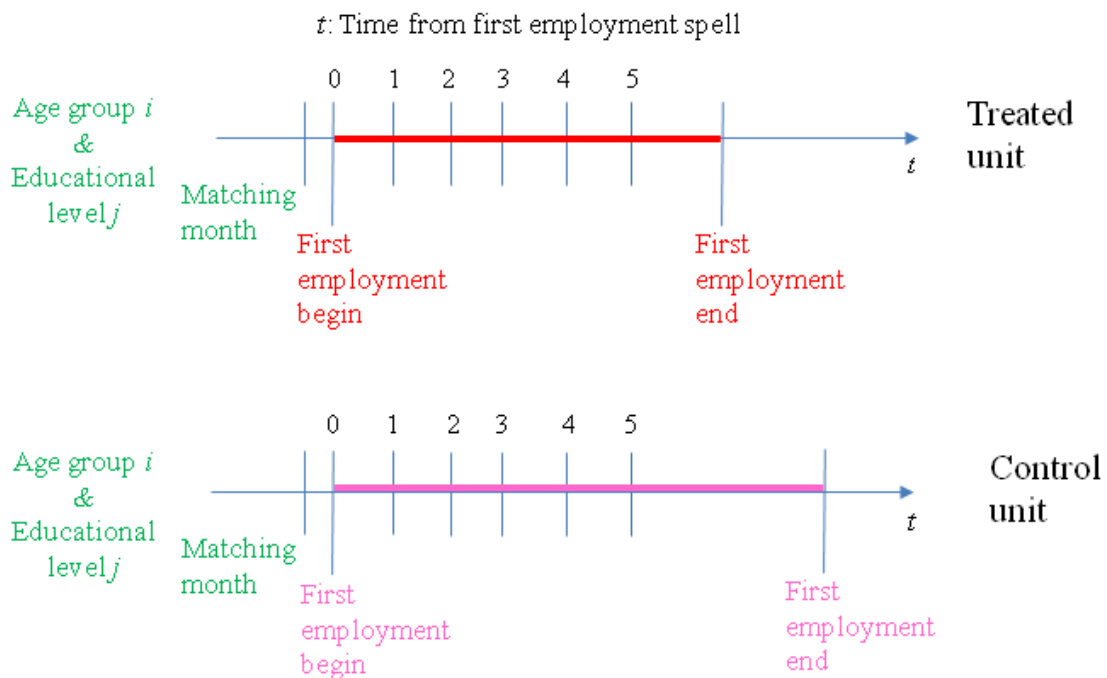
Given the sample of treated and matched-control individuals, for each treated individual we imputed her/his missing potential outcome, $Y(0)_i$, using the outcome of her/his matched-control individual Y_i^C . Then, we estimated the Average Treatment effect for the Treated (ATT):

$$\widehat{ATT} = \frac{1}{N_t} \sum_{i:W_i=1} (Y_i^{obs} - Y_i^C)$$

where $N_t = \sum_{i=1}^N W_i$ is the number of treated individuals.

Figure 3 exemplifies the overall matching and estimation procedure. For each treated person (i.e. a person with a temporary work contract) belonging to the age group i and with educational level j , the matching algorithm looks for a control person (i.e. a person with a permanent job contract) belonging to the same age group and with the same educational level who has the most similar propensity score to the treated person. Then, the missing potential outcome for a treated person (i.e. the potential first-child conception under permanent job) is estimated using the observed outcome for the matched control person (i.e. s/he has effectively conceived or not the first child) each year up to five years from the beginning of the first employment spell.

Figure 3 – Time lines for the matching and estimation procedure



5. Results

We investigated potential gains or losses in the proportion of first-birth conceptions due to uncertainty in first employment within five years from the beginning of the employment spell. In all cases, the percentage of losses increases monotonically: whereas during the first couple of years of employment no ATT estimate is statistically significant, after four years these differences in first-births become significant⁴. Our findings, based on the ATT estimates (see Table 1), suggest that a non-negligible loss of first births is attributable to temporary employment: overall, 7% of women and 5% of men who had a first temporary job would have had the first child if they had had, instead, a permanent job within five years from the beginning of the employment spell. This percentage increases for the second groups of workers (fixed-term versus permanent jobs), reaching 9% and 6% of first-birth loss for women and men, respectively. As for women, for the group of contingent versus permanent workers this effect is even stronger: nearly 10% of women with a contingent job would have had the first child if they had had a permanent job⁵.

Table 1 – Average Treatment effect for the Treated (ATT) on first-child birth from propensity score matching, by type of comparison. Percentage values. By gender

WOMEN	Temporary vs permanent		Fixed-term vs permanent		Contingent vs permanent	
n treated	845		694		153	
	ATT	<i>Confidence interval</i>	ATT	<i>Confidence interval</i>	ATT	<i>Confidence interval</i>
1 year	-1.3	<i>[-2.9; 0.3]</i>	-0.6	<i>[-2.3; 1.1]</i>	-1.3	<i>[-4.4; 1.8]</i>
2 years	-1.8	<i>[-4.1; 0.6]</i>	-0.9	<i>[-3.4; 1.7]</i>	-2.0	<i>[-7.1; 3.2]</i>
3 years	-2.8	<i>[-5.7; 0.1]</i>	-2.9	<i>[-6.1; 0.4]</i>	-5.9	<i>[-12.8; 1.0]</i>
4 years	-4.9	<i>[-8.1; -1.6]</i>	-5.9	<i>[-9.6; -2.3]</i>	-5.9	<i>[-13.5; 1.7]</i>
5 years	-7.5	<i>[-10.9; -4.0]</i>	-9.2	<i>[-13.1; -5.3]</i>	-9.8	<i>[-18.0; -1.7]</i>
MEN						
n treated	796		670			
	ATT	<i>Confidence interval</i>	ATT	<i>Confidence interval</i>		
1 year	-0.3	<i>[-1.7; 1.2]</i>	0.3	<i>[-1.2; 1.8]</i>		
2 years	-1.0	<i>[-3.0; 1.0]</i>	-1.5	<i>[-3.7; 0.7]</i>		
3 years	-1.6	<i>[-4.0; 0.8]</i>	-2.7	<i>[-5.4; 0.0]</i>		
4 years	-3.3	<i>[-6.0; -0.5]</i>	-3.9	<i>[-6.9; -0.9]</i>		
5 years	-4.7	<i>[-7.7; -1.7]</i>	-5.7	<i>[-9.0; -2.4]</i>		

⁴ For the third group of female workers having a contingent job versus a permanent job, the difference is significant only within five years of employment.

⁵ Theoretically, for women the ATT estimate for the first comparison should be an average of the ATT estimates for the other two comparisons, because it comprises both workers with fixed-term and contingent jobs. But this does not apply because of the chosen matching algorithm (one-to-one nearest neighbor matching without replacement). Nevertheless, all the confidence intervals for the ATT estimates of the three comparisons overlap, confirming our approach (see Table 1 for women).

We now assess the heterogeneity of the effects of having a first temporary job by educational level. For this heterogeneity analysis, we replicated the design phase and analysis phase for each subgroup, estimating the propensity score for each category of this covariate (i.e., for individuals with tertiary education, for those with upper-secondary education and for those with at most lower secondary education, separately). We, then, matched the treated and control groups through the one-to-one nearest neighbor matching without replacement. This analysis was made for the group with a temporary job versus a permanent job.

We find that the strongest loss in the proportion of first-birth conceptions among treated individuals is recorded for women with tertiary education (see Table 2): nearly 16% of them did not have a first child because of a first temporary job within five years from the beginning of the employment spell. On the opposite side, just 2% of women who had the lowest educational qualification would have had a first child if they had had a permanent job, and this difference is also not significant. As for men, the strongest loss is recorded for men with a primary or lower secondary education: 7% of them did not have a first child because of a first temporary job within five years from the beginning of the employment spell. For men with secondary education, the loss is not-negligible and evident also within three years after the beginning of the employment spell. On the opposite, the loss emerges for men with the highest educational qualification displays little statistical precision.

Table 2 – Average Treatment effect for the Treated (ATT) on first-child birth from propensity score matching, by highest educational level. Percentage values. By gender

WOMEN	Primary/Lower secondary education		Secondary education		Tertiary education	
n treated	171		542		126	
	ATT	<i>Confidence interval</i>	ATT	<i>Confidence interval</i>	ATT	<i>Confidence interval</i>
1 year	-0.6	<i>[-4.3; 3.2]</i>	-1.3	<i>[-3.3; 0.8]</i>	-1.6	<i>[-4.7; 1.5]</i>
2 years	0.0	<i>[-5.6; 5.6]</i>	-1.9	<i>[-4.7; 1.0]</i>	0.8	<i>[-4.3; 5.8]</i>
3 years	1.2	<i>[-5.5; 7.8]</i>	-3.1	<i>[-6.7; 0.4]</i>	-4.7	<i>[-12.3; 2.7]</i>
4 years	1.2	<i>[-6.1; 8.4]</i>	-5.2	<i>[-9.1; -1.2]</i>	-12.7	<i>[-21.6; -3.8]</i>
5 years	-1.8	<i>[-9.3; 5.8]</i>	-7.0	<i>[-11.2; -2.8]</i>	-15.9	<i>[-25.4; -6.4]</i>
MEN						
n treated	256		411		94	
	ATT	<i>Confidence interval</i>	ATT	<i>Confidence interval</i>	ATT	<i>Confidence interval</i>
1 year	-2.3	<i>[-6.1; 1.5]</i>	-1.0	<i>[-2.6; 0.7]</i>	1.1	<i>[-2.5; 4.6]</i>
2 years	-1.6	<i>[-6.2; 3.1]</i>	-1.7	<i>[-4.0; 0.6]</i>	-3.2	<i>[-8.6; 2.2]</i>
3 years	-5.1	<i>[-10.8; 0.6]</i>	-2.9	<i>[-5.8; -0.1]</i>	-5.3	<i>[-12.0; 1.4]</i>
4 years	-6.3	<i>[-12.4; -0.1]</i>	-4.1	<i>[-7.4; -0.9]</i>	-6.4	<i>[-15.2; 2.4]</i>
5 years	-7.0	<i>[-13.5; -0.6]</i>	-5.4	<i>[-8.9; -1.8]</i>	-6.4	<i>[-15.5; 2.8]</i>

A remark should be made. Being a worker with a permanent or a temporary job affects other life course domains too, such as partnership status. Thus, in our analytical design the type of work

contract might affect first-child birth both directly and indirectly, i.e. through partnership status. As an example, in our sample 21% of men with a permanent work contract were in union at the end of the observation period⁶; on the opposite, only 12% of men with a temporary work contract had a partner. As for women, 32% of those with a permanent work contract were in union at the end of the observation period versus 23% of women with a temporary work contract. Unfortunately, we were not able to conduct the analyses on the sample of individuals who remain in union during the first five years of employment, because the sample size was too small.

6. Conclusions

Stable careers and predictable career prospects were a rule for the immediate postwar generations in Italy. This is no longer the case in contemporary labor markets, and the social consequences of temporary employment are, as a result, high on the scholarly and political agenda. In this article, we concentrated on the consequences of temporary forms of employment on first-birth progression by offering novel results. Contrary to all previous research on the economic uncertainty/fertility nexus for Italy and elsewhere, in this paper we quantified first-birth gains and losses due to economic uncertainty. We found that 7% of first-birth losses among women and 5% among men are due to economic uncertainty: these persons would have had a first child if they had had a first permanent job within the first 5 years of their work career. Employment contracts and career prospects differ not only according to material and immaterial gratifications, but also according to the amount of predictability and security they provide for the workforce that, in turn, has potent effects on fertility outcomes. Precarious and insecure working arrangements imply negative consequences for both occupational prospects and for individuals' private life. These effects are especially severe for contingent workers; namely, those with the lowest employment protection. Our results clearly point to how employment uncertainty has become a substantial force driving the likelihood of parenthood.

We also investigated the heterogeneity of the effects of employment uncertainty on first births with respect to educational qualification. Group-specific analyses are only rarely performed in the literature on economic uncertainty and fertility (e.g., Kreyenfeld, 2015), often because sample sizes are too small. For women, our results are in line with the old-fashioned, but still relevant, micro-economic interpretation of family life, at least in Italy. Highly-educated women have as much as 16% first-birth loss, suggesting higher opportunity costs (or, in sociological terms, "role incompatibilities") among more advantaged women when facing employment uncertainty. To be

⁶ Five years after the beginning of the employment spell, or at the end of the employment spell if it occurred earlier.

sure, higher educated women may prefer a temporary contract but a profession who is highly wished. They may catch up later on their initial fertility loss, when their contract is turned into permanent. Hence, having the first child later in life because of the uncertainty in the first job may, in turn, leave little time for second (or higher) order births or lead to childlessness among tertiary educated women. For men, the higher levels of first-birth losses are to be found among men with the lowest educational qualifications. For these men, establishing a stable, secure, and more or less successful career is likely to be a normative expectation (Tölke & Diewald, 2003) and a precondition for family life with an adequate living standard (Matysiak & Vignoli, 2013). The gendered impact of economic uncertainty among higher-level professions suggests that “breadwinner-qualities” still play a decisive role in establishing a family in Italy.

Our study has several limitations, which represent opportunities for future research. First, it is difficult to evaluate whether observed first-birth losses were mostly driven by the temporary postponement of childbearing in uncertain times or rather by a fall in the underlying level (quantum) of fertility that would also depress completed family sizes for men and for women. The natural evolution of our approach is to develop a life course version of the analytical causal inference framework adopted. This approach would allow us to address each employment and job change over a life course, and the transition to first as well as to higher-order births. Second, though we showed that employment type influences the propensity to have the first child during the first employment spell, we, however, ignored contract duration. Nevertheless, limiting our analyses to workers with contracts that are at least one year long, and focusing on the first five years of employment, we saw that the potential losses in first-child births due to economic uncertainty do not depend merely on employment duration. Third, we had to focus on men and women in isolation. Unfortunately, we could not estimate potential gains or losses in the proportion of first-birth conceptions within couples. Note that we used a retrospective survey that does not include information on ex-partners; here a couple analysis could only be performed for intact couples – i.e., those who had never experienced relationship disruption. Restricting the analysis to intact couples means working with a very small, selected sample. The challenge for future research will be to recognize that family behavior is intertwined with other life-course events. Fertility occurs within relationships – thus it is necessary to account for the employment characteristics of both members of the couple through panel data (unavailable, however, for Italy). Finally, since labor patterns differ with varying workplace structures, social policies, and cultural norms in different countries (e.g. Barbieri et al., 2015; Neyer, Lappegard, & Vignoli, 2013), future research should examine whether the findings of this study work for other societies.

In any event, our theoretically coherent and methodologically strong results have important implications for our understanding of fertility dynamics. They clearly point to the crucial role of employment uncertainty in affecting contemporary fertility dynamics. In this context, the “Great Recession”, which started in autumn 2007 in the United States, has hit almost all European countries, with many having experienced plummeting Gross Domestic Product and rising unemployment for most of the period from 2008 to 2016. The recession has destroyed many jobs, put downward pressure on wages and resulted in a huge strain on government budgets, often resulting in spending cuts for social policies and families. Hence, given the current developments in terms of economic fluctuations in Europe, the spread of labor-market uncertainty will likely continue to be a key driver of contemporary fertility dynamics in the years ahead.

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Appendix

Note to the tables: the primary goal here is to find an adequate specification for the propensity score, which leads to adequate balance between covariate distributions in treatment and control groups in our sample. We are not directly interested in a structural, behavioral or causal interpretation of the propensity score (Imbens & Rubin, 2015). For this reason, a few individuals for some categories of the covariates are not unusual, or even preferred, in estimating the propensity score.

Table A1 – Set of background covariates among workers with a temporary job (treated), workers with a permanent job (control) and matched workers with a permanent job (matched control). Absolute and percentage values. By gender⁷

WOMEN ⁸	Control		Matched control		Matched treated	
	n	%	n	%	n	%
Total	1931		845		845	
In union twelve months before	89	4.6	41	4.9	39	4.6
In union three months before	125	6.5	70	8.3	64	7.6
Age						
18-19	648	33.6	240	28.4	240	28.4
20-24	831	43.0	368	43.6	368	43.6
25-29	349	18.1	176	20.8	176	20.8
30+	103	5.3	61	7.2	61	7.2
Highest educational level twelve months before						
Primary	755	39.1	311	36.8	303	35.9
Upper-secondary	1029	53.3	456	54.0	465	55.0
Tertiary	147	7.6	78	9.2	77	9.1
Highest educational level six months before						
Primary	591	30.6	250	29.6	247	29.2
Upper-secondary	1165	60.3	493	58.3	495	58.6
Tertiary	175	9.1	102	12.1	103	12.2
Highest educational level						
Primary	439	22.7	171	20.2	171	20.2
Upper-secondary	1262	65.4	545	64.5	545	64.5
Tertiary	230	11.9	129	15.3	129	15.3
Still in education	428	22.2	263	31.1	292	34.6
Mother's tertiary education	289	15.1	183	21.9	191	22.8

⁷ When not specified, the time-varying covariates are fixed one month before the beginning of the employment spell.

⁸ The interaction terms included in the model are: Highest educational level one month before x Calendar period; Still in education x Calendar period.

Father's tertiary education	369	19.4	219	26.3	220	26.3
Mother's social class when respondent was 14 ⁹						
No work	1100	58.2	423	51.0	436	52.3
Manual worker	359	19.0	155	18.7	150	18.0
Non-manual employee	249	13.2	149	18.0	155	18.6
Self-employed	155	8.2	83	10.0	74	8.9
Professionals and higher managerial staff	28	1.5	20	2.4	18	2.2
Father's social class when respondent was 14 ⁹						
No work	62	3.3	29	3.5	32	3.9
Manual worker	850	45.2	345	41.6	336	40.6
Non-manual employee	387	20.6	191	23.0	190	22.9
Self-employed	456	24.2	192	23.2	201	24.3
Professionals and higher managerial staff	127	6.7	72	8.7	69	8.3
Parents' separation when respondent was 14	78	4.1	31	3.7	31	3.7
Siblings						
No brothers/sisters	272	14.1	102	12.1	111	13.1
One brother/sister	836	43.3	372	44.0	365	43.2
Two or more brothers/sisters	823	42.6	371	43.9	369	43.7
Macro area of residence ¹⁰						
North-West	494	25.6	179	21.2	173	20.5
North-East	441	22.8	199	23.6	202	23.9
Center	400	20.7	148	17.5	159	18.8
South/Islands	596	30.9	319	37.8	311	36.8
Left the parental home	255	13.2	152	18.0	158	18.7
Calendar period ¹¹						
before 1987	415	21.5	115	13.6	101	12.0
1987-1996	699	36.2	282	33.4	288	34.1
1997-2002	481	24.9	257	30.4	247	29.2
after 2002	336	17.4	191	22.6	209	24.7

Source: own elaboration on survey data (n=2,783). Seven treated individuals were excluded from the matched treated group because they were outside the common support range.

Note: the sum of the different categories is not always equal to n=2,783 because of missing data.

⁹ See Erikson (1984).

¹⁰ The area of residence was collected at the time of the interview. However, it is relatively trouble-free to use the macroarea of residence as a time-constant covariate because Italian internal mobility has been low over recent decades and mainly relegated within short distances only (Reynaud & Conti, 2011).

¹¹ The purpose of this categorization was to reflect key appointments in the flexibilization of the Italian labor market: the entry into force of the Treu Law (1997) and the Biagi Law (2003).

MEN ¹²	Control		Matched control		Matched treated	
	n	%	n	%	n	%
Total	2408		769		769	
In union twelve months before	47	2.0	16	2.1	12	1.6
In union three months before	77	3.2	22	2.9	18	2.3
Age						
18-19	697	29.0	232	30.2	232	30.2
20-24	1148	47.7	344	44.7	344	44.7
25-29	444	18.4	146	19.0	146	19.0
30+	119	4.9	47	6.1	47	6.1
Highest educational level twelve months before						
Primary	1114	46.3	375	48.8	367	47.7
Upper-secondary	1153	47.9	344	44.7	352	45.8
Tertiary	141	5.9	50	6.5	50	6.5
Highest educational level six months before						
Primary	963	40.0	317	41.2	315	41.0
Upper-secondary	1275	53.0	379	49.3	382	49.7
Tertiary	170	7.1	73	9.5	72	9.4
Highest educational level						
Primary	777	32.3	258	33.6	258	33.6
Upper-secondary	1429	59.3	415	54.0	415	54.0
Tertiary	202	8.4	96	12.5	96	12.5
Still in education	399	16.6	213	27.7	217	28.2
Mother's tertiary education	354	14.9	158	21.1	154	20.5
Father's tertiary education	435	18.4	189	25.3	187	25.1
Mother's social class when respondent was 14						
No work	1469	62.1	460	61.1	457	61.0
Manual worker	412	17.4	121	16.1	112	15.0
Non-manual employee	277	11.7	113	15.0	122	16.3
Self-employed	178	7.5	52	6.9	50	6.7
Professionals and higher managerial staff	28	1.2	7	0.9	8	1.1
Father's social class when respondent was 14						
No work	77	3.3	28	3.7	27	3.6
Manual worker	1150	48.7	324	43.3	331	44.3
Non-manual employee	515	21.8	190	25.4	180	24.1
Self-employed	497	21.0	166	22.2	157	21.0

¹² The interaction terms included in the model are: Highest educational level one month before x Calendar period; Still in education x Calendar period.

Professionals and higher managerial staff	124	5.2	41	5.5	52	7.0
Parents' separation when respondent was 14	77	3.2	23	3.0	23	3.0
Siblings						
No brothers/sisters	326	13.5	97	12.6	90	11.7
One brother/sister	950	39.5	288	37.5	295	38.4
Two or more brothers/sisters	1132	47.0	384	49.9	384	49.9
Macro area of residence						
North-West	501	20.8	161	20.9	149	19.4
North-East	492	20.4	145	18.9	139	18.1
Center	435	18.1	134	17.4	136	17.7
South/Islands	980	40.7	329	42.8	345	44.9
Left the parental home	299	12.4	104	13.5	105	13.7
Calendar period						
before 1987	492	20.4	92	12.0	104	13.5
1987-1996	883	36.7	279	36.3	257	33.4
1997-2002	594	24.7	217	28.2	211	27.4
after 2002	439	18.2	181	23.5	197	25.6

Source: own elaboration on survey data (n=3,178). One treated individual was excluded from the matched treated group because he was outside the common support range.

Note: the sum of the different categories is not always equal to n=3,178 because of missing data.

Table A2 – Set of background covariates among workers with a fixed-term job (treated), workers with a permanent job (control) and matched workers with a permanent job (matched control). Absolute and percentage values. By gender¹³

WOMEN¹⁴	Control		Matched control		Matched treated	
	n	%	n	%	n	%
Total	1931		694		694	
In union twelve months before	89	4.6	28	4.0	30	4.3
In union three months before	125	6.5	51	7.4	55	7.9
Age						
18-19	648	33.6	221	31.8	221	31.8
20-24	831	43.0	308	44.4	308	44.4
25-29	349	18.1	122	17.6	122	17.6
30+	103	5.3	43	6.2	43	6.2
Highest educational level twelve months before						
Primary	755	39.1	275	39.6	270	38.9
Upper-secondary	1029	53.3	372	53.6	374	53.9
Tertiary	147	7.6	47	6.8	50	7.2
Highest educational level six months before						
Primary	591	30.6	225	32.4	220	31.7
Upper-secondary	1165	60.3	406	58.5	407	58.7
Tertiary	175	9.1	63	9.1	67	9.7
Highest educational level						
Primary	439	22.7	150	21.6	150	21.6
Upper-secondary	1262	65.4	459	66.1	459	66.1
Tertiary	230	11.9	85	12.3	85	12.3
Still in education	428	22.2	200	28.8	216	31.1
Respondent's social class ¹⁵						
Large employers, higher mgrs/professionals	50	2.7	16	2.4	16	2.4
Lower mgrs/professionals, higher supervisory/technicians	258	13.7	95	14.2	91	13.5
Intermediate occupations	766	40.7	239	35.8	249	37.0
Small employers and self-employed (non-agriculture)	/	/	/	/	/	/
Small employers and self-employed (agriculture)	/	/	/	/	/	/
Lower sales and service	384	20.4	161	24.1	153	22.7
Lower technical	135	7.2	27	4.0	32	4.8

¹³ When not specified, the time-varying covariates are fixed one month before the beginning of the employment spell.

¹⁴ The interaction terms included in the model are: Highest educational level one month before x Calendar period; Still in education x Calendar period; Respondent's social class x Calendar period.

¹⁵ Respondent's social class according to the European Socio-economic Classification (see Harrison & Rose, 2006).

Routine	288	15.3	130	19.5	132	19.6
Mother's tertiary education	289	14.9	116	16.8	130	19.0
Father's tertiary education	369	18.4	143	20.9	159	23.2
Mother's social class when respondent was 14						
No work	1100	62.1	373	54.4	374	54.7
Manual worker	359	17.4	125	18.2	128	18.7
Non-manual employee	249	11.7	110	16.0	109	15.9
Self-employed	155	7.5	67	9.8	61	8.9
Professionals and higher managerial staff	28	1.2	11	1.6	12	1.8
Father's social class when respondent was 14						
No work	62	3.3	24	3.5	25	3.7
Manual worker	850	48.7	288	42.5	291	42.9
Non-manual employee	387	21.8	160	23.6	153	22.5
Self-employed	456	21.0	165	24.3	160	23.6
Professionals and higher managerial staff	127	5.2	41	6.0	50	7.4
Parents' separation when respondent was 14	78	3.2	24	3.5	24	3.5
Siblings						
No brothers/sisters	272	14.1	92	13.3	82	11.8
One brother/sister	836	43.3	306	44.1	299	43.1
Two or more brothers/sisters	823	42.6	296	42.7	313	45.1
Macro area of residence						
North-West	494	25.6	137	19.7	138	19.9
North-East	441	22.8	180	25.9	176	25.4
Center	400	20.7	123	17.7	125	18.0
South/Islands	596	30.9	254	36.6	255	36.7
Left the parental home	255	13.2	103	14.8	122	17.6
Calendar period						
before 1987	415	21.5	97	14.0	100	14.4
1987-1996	699	36.2	264	38.0	243	35.0
1997-2002	481	24.9	191	27.5	193	27.8
after 2002	336	17.4	142	20.5	158	22.8
Employment sector						
public sector	335	17.4	153	22.1	154	22.2
private sector	1546	80.1	525	75.7	519	74.8
public-private sector	50	2.6	16	2.3	21	3.0

Source: own elaboration on survey data (n=2,630). Five treated individuals were excluded from the matched treated group because they were outside the common support range.

Note: the sum of the different categories is not always equal to n=2,630 because of missing data.

MEN ¹⁶	Control		Matched control		Matched treated	
	n	%	n	%	n	%
Total	2408		670		670	
In union twelve months before	47	2.0	13	1.9	10	1.5
In union three months before	77	3.2	21	3.1	17	2.5
Age						
18-19	697	29.0	216	32.2	216	32.2
20-24	1148	47.7	300	44.8	300	44.8
25-29	444	18.4	111	16.6	111	16.6
30+	119	4.9	43	6.4	43	6.4
Highest educational level twelve months before						
Primary	1114	46.3	331	49.4	338	50.5
Upper-secondary	1153	47.9	300	44.8	296	44.2
Tertiary	141	5.9	39	5.8	36	5.4
Highest educational level six months before						
Primary	963	40.0	288	43.0	288	43.0
Upper-secondary	1275	53.0	330	49.3	328	49.0
Tertiary	170	7.1	52	7.8	54	8.1
Highest educational level						
Primary	777	32.3	233	34.8	233	34.8
Upper-secondary	1429	59.3	370	55.2	370	55.2
Tertiary	202	8.4	67	10.0	67	10.0
Still in education	399	16.6	168	25.1	167	24.9
Respondent's social class						
Large employers, higher mgrs/professionals	93	4.0	20	3.1	21	3.2
Lower mgrs/professionals, higher supervisory/technicians	299	12.9	101	15.5	94	14.5
Intermediate occupations	540	23.2	125	19.2	136	20.9
Small employers and self-employed (non-agriculture)	/	/	/	/	/	/
Small employers and self-employed (agriculture)	/	/	/	/	/	/
Lower sales and service	251	10.8	56	8.6	51	7.8
Lower technical	687	29.5	163	25.0	162	24.9
Routine	455	19.6	186	28.6	186	28.6
Mother's tertiary education	354	14.9	110	16.9	125	19.1
Father's tertiary education	435	18.4	143	22.0	151	23.2

¹⁶ The interaction terms included in the model are: Still in education x Age; Respondent's social class x Calendar period.

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Mother's social class when respondent was 14						
No work	1469	62.1	394	60.2	410	62.7
Manual worker	412	17.4	109	16.7	99	15.1
Non-manual employee	277	11.7	88	13.5	93	14.2
Self-employed	178	7.5	58	8.9	45	6.9
Professionals and higher managerial staff	28	1.2	5	0.8	7	1.1
Father's social class when respondent was 14						
No work	77	3.3	27	4.2	23	3.5
Manual worker	1150	48.7	296	45.5	299	45.9
Non-manual employee	515	21.8	157	24.2	150	23.0
Self-employed	497	21.0	136	20.9	140	21.5
Professionals and higher managerial staff	124	5.2	34	5.2	40	6.1
Parents' separation when respondent was 14	77	3.2	23	3.5	23	3.5
Siblings						
No brothers/sisters	326	13.5	64	9.6	73	10.9
One brother/sister	950	39.5	247	36.9	254	37.9
Two or more brothers/sisters	1132	47.0	359	53.6	343	51.2
Macro area of residence						
North-West	501	20.8	120	17.9	123	18.4
North-East	492	20.4	119	17.8	119	17.8
Center	435	18.1	124	18.5	123	18.4
South/Islands	980	40.7	307	45.8	305	45.5
Left the parental home	299	12.4	99	14.8	87	13.0
Calendar period						
before 1987	492	20.4	102	15.2	100	14.9
1987-1996	883	36.7	211	31.5	223	33.3
1997-2002	594	24.7	198	29.6	182	27.2
after 2002	439	18.2	159	23.7	165	24.6
Employment sector						
public sector	354	14.7	93	13.9	113	16.9
private sector	1969	81.8	554	82.7	535	79.9
public-private sector	85	3.5	23	3.4	22	3.3
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Source: own elaboration on survey data (n=3,082). Four treated individuals were excluded from the matched treated group because they were outside the common support range.

Note: the sum of the different categories is not always equal to n=3,082 because of missing data.

Table A3 – Set of background covariates among workers with a contingent job (treated), workers with a permanent job (control) and matched workers with a permanent job (matched control). Absolute and percentage values. Women¹⁷

WOMEN ¹⁸	Control		Matched control		Matched treated	
	n	%	n	%	n	%
Total	1931		153		153	
In union twelve months before	89	4.6	11	7.2	9	5.9
In union three months before	125	6.5	12	7.8	10	6.5
Age						
18-19	648	33.6	19	12.4	19	12.4
20-24	831	43.0	59	38.6	59	38.6
25-29	349	18.1	57	37.3	57	37.3
30+	103	5.3	18	11.8	18	11.8
Highest educational level twelve months before						
Primary	755	39.1	33	21.6	33	21.6
Upper-secondary	1029	53.3	89	58.2	93	60.8
Tertiary	147	7.6	31	20.3	27	17.7
Highest educational level six months before						
Primary	591	30.6	24	15.7	27	17.7
Upper-secondary	1165	60.3	92	60.1	89	58.2
Tertiary	175	9.1	37	24.2	37	24.2
Highest educational level						
Primary	439	22.7	21	13.7	21	13.7
Upper-secondary	1262	65.4	85	55.6	85	55.6
Tertiary	230	11.9	47	30.7	47	30.7
Still in education	428	22.2	75	49.0	78	51.0
Mother's tertiary education	289	15.1	67	43.8	63	41.2
Father's tertiary education	369	19.4	71	25.9	63	41.2
Mother's social class when respondent was 14						
No work	1100	58.2	55	36.4	61	40.4
Manual worker	359	19.0	22	14.6	23	15.2
Non-manual employee	249	13.2	51	33.8	48	31.8
Self-employed	155	8.2	17	11.3	13	8.6
Professionals and higher managerial staff	28	1.5	6	4.0	6	4.0
Father's social class when respondent was 14						

¹⁷ When not specified, the time-varying covariates are fixed one month before the beginning of the employment spell.

¹⁸ The interaction terms included in the model are: Still in education x Age.

No work	62	3.3	4	2.6	7	4.6
Manual worker	850	45.2	41	27.0	43	28.5
Non-manual employee	387	20.6	40	26.3	40	26.5
Self-employed	456	24.2	41	27.0	42	27.8
Professionals and higher managerial staff	127	6.7	26	17.1	19	12.6
Parents' separation when respondent was 14	78	4.1	6	3.9	6	3.9
Siblings						
No brothers/sisters	272	14.1	28	18.3	29	19.0
One brother/sister	836	43.3	73	47.7	69	45.1
Two or more brothers/sisters	823	42.6	52	34.0	55	36.0
Macro area of residence						
North-West	494	25.6	33	21.6	35	22.9
North-East	441	22.8	23	15.0	25	16.3
Center	400	20.7	40	26.1	35	22.9
South/Islands	596	30.9	57	37.3	58	37.9
Left the parental home	255	13.2	30	19.6	38	24.8
Calendar period						
before 1987	415	21.5	1	0.7	1	0.7
1987-1996	699	36.2	49	32.0	45	29.4
1997-2002	481	24.9	50	32.7	54	35.3
after 2002	336	17.4	53	34.6	53	34.6

Source: own elaboration on survey data (n=2,084).

Note: the sum of the different categories is not always equal to n=2,084 because of missing data.

