

ISSN 2279-9362

Collegio Carlo Alberto



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No. 498

March 2017

Carlo Alberto Notebooks

www.carloalberto.org/research/working-papers

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Education and Entry into Motherhood: Does the Field of Education Matter in Italy?

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Abstract

Differences in the transition to first motherhood have been traditionally explained using women's educational attainment and employment instability. Rarely has the attention been addressed to the role of a specific field of education. Using data from the ILFI and focusing by means of event history models on the effect of three dimensions of education – educational enrolment, educational level and educational field – on first birth entry, this study aims at filling this gap for the Italian case. The findings do not show a clear-cut effect of education level and field on first births. Upper-secondary educated women with an unspecified field are those with the lowest probability of having the first child. However, although educational field is not a predictor of female reproductive behaviour as strong in Italy as it has been previously reported in other countries, we find evidence for a positive association between the choice of a 'softer', more female-dominated (and perhaps family-oriented) educational field such as teaching in tertiary education and first births. The inclusion of this qualitative covariate contributes to capturing variations in women's already-existing individual aspirations in regard to family and work but also different opportunities/constraints in the labour market.

Keywords: fertility, first-birth, education, field of study, Italy

1. Introduction

Italy today records one of the lowest total fertility rates in Europe and one of the highest mean ages of women at first marriage and first childbirth. The delay of these major demographic events goes together with a growth in women's educational attainment and labour-force attachment. In 2015 the proportion of Italian women with a tertiary education exceeded that of men, although it was well below the EU-27 female average. Also female activity rates have increased, although they are still far from the level

reached in most European countries (Eurostat 2016). Moreover, Italian women record one of the lowest amounts of time spent in paid work and one of the highest in domestic work in Europe (Francavilla et al. 2010), so that Italy is still distant from a ‘dual earner-dual carer’ gender model (Mencarini and Solera 2016). Gender stereotypes undoubtedly remain strong influences on educational and professional career choices in Italy. Although women’s educational attainment has increased, and now exceeds that of men, women and men continue to choose different educational pathways. There are high proportions of women in education, humanities and arts and health and welfare, medium ones in physical sciences, mathematics and statistics or agriculture, but still low ones in engineering, manufacturing and construction, and especially computing (Unesco 2016).

The relation between education and fertility behavior is well established in the theoretical literature and by empirical evidence. Yet most studies have focused only on the ‘quantitative’ dimension of educational involvement, i.e. on the level of education attained. Only since the early 2000s has attention been addressed to its ‘qualitative’ side: that is, the type of education (e.g. Lappegård and Rønsen 2005; Hoem et al 2006a,b; Martín-García and Baizán 2006; Van Bavel 2010). According to these studies, education is not just a means to accumulate human capital that can be later sold in the labor market and hence a mere indicator of the opportunity costs of childbearing. Education may also imply more than instrumental rationalities and be a proxy for the rewards of childbearing, given that women do not value children equally. In this paper we contend that the choice of a specific educational field may mirror already-existing attitudes and values concerning work and family life, together with a particular field-

specific socialization during the years in education, and some expectations regarding opportunities and constraints in the labour market.

In the literature on the impact of education on fertility, attention to the field of study has continued to expand in recent years (Tesching 2012; Begall and Mills 2013; Oppermann 2014). But not yet Italy, where studies on first-birth decisions have primarily explored the impact of women's educational attainment and employment instability (Bernardi and Nazio 2005; Kertzner *et al.* 2009; Barbieri *et al.* 2015) or the incidence of the educational field only for men (Guetto and Panichella 2011). In this paper we shall analyse whether, and how, the field of study affects the transition to motherhood in Italy, and thus make two major contributions to current knowledge. First, we refer to the three dimensions of education – enrolment, attainment and field. We then control the opportunity structure given by the context (birth cohorts and regions) and women's labour-market position (activity status, occupational class, type of contract, and sector) in order to capture non-instrumental features of educational investments such as those linked to different attitudes and values concerning work and family life.

2.1. The relation between education and fertility: previous research

Education has been widely viewed as one of the main determinants of the postponement of family formation. In general, longer periods spent in education cause postponement because there are normative expectations in society according to which individuals still enrolled in school are not yet prepared to embark on a long-term commitment like parenthood (Blossfeld and Huinink 1991). Indeed, being a student and a mother at the same time is too demanding in terms of both time and money. We would therefore

expect women still participating in the educational system to show lower first-birth risks than women who are no longer enrolled [*H1_a– the student-effect hypothesis*].

On the other hand, as pointed out by the economic theory of the family, higher levels of educational attainment entail a growth in the earning potential of women that raises the (opportunity) cost of eventual employment interruptions for children, thus reducing the demand for them (Becker 1981). Culture-based theories also explain the association between high levels of education and delayed and low fertility. More educational attainment is associated with female emancipation, value change and individualistic preferences, offering women more lifestyle paths and new alternatives to their mere role of wife and mother (Lesthaeghe 2002). In line with these theories and following previous empirical evidence, highly-educated women are thus expected to postpone motherhood [*H2_a– the human capital hypothesis*].

However, more autonomy or more options do not necessarily imply that the wish for a partner or children will be completely abandoned. In fact, “one of the advantages of education is that it opens up new opportunities and allows the individual greater control over his/her own circumstances” (Hoem and Hoem 1989: 64). The delaying influence of a higher level of education on first-birth risks may operate through prolonged educational activity. However, differences in entry into first motherhood may reflect differences in attitudes towards family formation and anticipated future roles and in labor market conditions and prospects (Lappegård and Rønsen 2005).

The type of education certainly plays a role in driving such differences in fertility behavior; and it does so through three underlying mechanisms (Hoem *et al.* 2006a;

Martín-García and Baizán 2006; Tesching 2012). Firstly, irrespective of opportunity costs and resources, the choice of a specific field of study may be indicative of already-existing personality traits, attitudes, and preferences concerning future roles. Gender role theory maintains that there is a differential socialization for women and men. This leads women into educational fields that provide broader cultural knowledge and relational resources and men into competitive fields with more quantitative skills and material returns. However, young women may differ in how they value and desire to invest in different life domains, and such individual preferences guide their choice regarding whether and what to study and whether and when to have children (Lappegård and Rønsen 2005). More precisely, according to this *ex-ante selection effect* (Lesthaeghe 2002), women with favorable values and attitudes towards family life and fertility will tend to enter specific fields and later take up nurturant occupations – such as teaching, social work or healthcare – which are seen as extensions of the traditional gender roles.

Secondly, there may also be a particular *socialization effect*: women's values, attitudes, and expectations may be shaped by the social environment and norms during their formative years and adult life in each particular field of study. This gender socialization effect includes the content of the curricula and the degree of sex segregation in the chosen educational pathway, which reinforces already-existing female preferences associated with education and childbearing and impacts on future family/fertility decisions. For instance, pursuing a particular education that highlights stereotypical female qualities such as teaching and healthcare may foster women's preferences for early family formation and high fertility (Hoem *et al.* 2006a; van Bavel 2010).

Finally, the educational field will have an important effect on *future labor-market conditions in terms of resources and opportunity costs*. Different fields of study convey differences in the chances of finding a job, in the (mis)match with available occupations, or in the time that it takes a woman to get established in the labor market. Additionally, different fields of study vary regarding the type of job to which they lead, in terms of job content, employment security, wages, or family-friendly working conditions. For instance, jobs in the public sector, or generally in the service sector, have lower penalties for career breaks and slowly changing skills (Blau *et al.* 1992). Female-dominated sectors often offer more part-time employment, higher flexibility, and more exit and (re-)entry options (Hoem *et al.* 2006a). Moreover, because they are closely associated with notions of femininity and motherliness, they typically offer lower wages (Ochsenfeld 2014). This reduces the opportunity cost of marriage and motherhood in terms of forgone wages and skill depreciation, provoking an earlier and higher fertility.

Existing evidence on the link between the type of education and fertility is in line with these theorized mechanisms. Indeed, previous studies unanimously report a positive association between traditional female-dominated fields of study, such as teaching and health care, and fertility (Lappegård and Rønsen 2005; Hoem *et al.* 2006a,b; Martín-García and Baizán 2006; Tesching 2012). Following this previous research, in this study we focus on Italy and we test the *educational field hypothesis [H3_a]*, which predicts higher first-birth risks among women trained in more female-dominated and nurture/family-oriented fields with stereotypical female qualities and tasks such as working with or caring for people – teaching and health care. Moreover, female-dominated fields of study but with weaker ties to particular occupations or with less stable career trajectories – general/unspecified educational fields – and lengthier job-

search periods – applied arts and humanities – may lead to a postponement of motherhood (Hoem et al 2006b; Tesching 2012).

2.2. The relation between (field of) education and first-birth decisions in the Italian context

In Italy, existing research on the effect of the field of study on fertility has focused exclusively on men (Guetto and Panichella 2013). It shows that Italian men with secondary educations in ‘gender neutral’ fields of study are the slowest in the transition to first fatherhood, given the total absence of a vocational orientation and, consequently, a less predictable career path. It remains to be analyzed whether this is also the case for Italian women in their transition to first motherhood and whether results for Italian women differ from those previously reported for women in other countries. Indeed, as numerous scholars show, fertility decisions are not context-less. Macro institutional and cultural features shape the value attached to and the calculated cost of motherhood, and they also affect the extent and way in which micro features matter (Bettio and Villa 1998; Van Bavel 2010; Yu 2015).

Hence, the link between education and fertility is embedded in a given context. As Begall and Mills (2012) and Oppermann (2014) argue, the effect of a woman’s (field of) education on fertility may be due to the labor demand structure – that is, to the number and type of occupations available after school – but also to the institutional regulation of the labor market, especially in terms of income prospects and employment security, and to the type of welfare policies, especially in terms of support to families with children for their economic and care responsibilities. In countries where women find it difficult

to achieve a good work-family balance and where men's share of caring responsibilities is still marginal, as in 'familistic' Southern Europe, fertility differentials by education level are larger than in 'social democratic' Nordic countries where the negative educational gradient of fertility may be weakening or even disappearing (Billari and Philipov 2004; Andersson *et al.* 2009; Testa 2012; Neyer *et al.* 2013).

In particular, there is evidence that education polarizes behaviours to a greater extent where a general cultural shift in favour of non-traditional gender roles has not (fully) occurred (Lück 2006). In such relatively traditional contexts, education not only allows entry into primary segments of labour markets and access to good earnings with which to buy childcare (which is particularly important if reconciliation policies are poor), but it also strongly differentiates attitudes (Künzler, 2002; Lück, 2006; Jurado and Naldini 2013). That is, in 'unfriendly' normative settings, also when women become mothers they may receive from education the kind of 'legitimacy to work' that they need in order to overcome traditional gender norms and practices.

Italy is one such 'unfriendly' setting. Previous micro-level analyses indeed confirm that better-educated Italian women importantly postpone motherhood, and that the delay is even longer when women have atypical jobs or are out of the labour force (Barbieri *et al.* 2015), while it is maximum when it is men who are contractually or economically insecure (Bernardi and Nazio 2005). Moreover, there is evidence that in Italy, unlike for instance in Britain, education does not lose statistical significance on continuous labour market careers around motherhood even if the occupational class and other labour market variables are controlled (Solera 2009). This suggests that, in Italy, education captures something more than wage and employment conditions; that is, more than

strict human capital returns. As widely argued, the Italian ‘familistic’ and ‘corporatist’ welfare regime plays a key role. Italian social policies are inadequate to cope with the cost of children: public childcare services for children under three years of age are limited, and financial transfers targeted on families with children remain modest and selective. Moreover, part-time jobs are scarcely available, and until the 1990s –before deregulation reforms– a rigid employment protection system made labour-market entry and re-entry difficult, while thereafter the specific Italian form of flexibilisation ‘at the margins’ – targeted only on new entrants – has propelled the so-called insider-outsider divide (Barbieri and Scherer 2009). In a context of this kind, well-educated women will be more averse to having children, and they risk labour-market interruptions not only because they earn and prefer working more, but also because they know that interruptions may be irreversible (Solera and Bettio 2013).

These features of the Italian context induce us to reformulate previous general hypotheses in a more Italy-embedded direction. In a context where support for the financial and care costs of children is poor, where students in higher education are not entitled to financial aid as happens in other countries, and where the possibility to resume education after interruption at all stages is reduced by the rigidity of the Italian educational system (Hoem *et al.* 2006a), we expect there to be a quite strong educational enrolment postponement effect on transition to first child [*H1_b– the student-effect hypothesis in the Italian context*]. Moreover, given the high level of gender inequality within Italian families in a context of a non-defamilialised welfare state, and in line with previous Italian findings (Testa 2012), we also expect a strong opportunity cost of motherhood in Italy and therefore, a particularly strong effect of education level on first births [*H2_b– the human capital hypothesis in the Italian context*].

The gender division of paid and unpaid work has not only structural but also cultural determinants. It reflects different culturally-rooted models in terms of gender roles and identities but also in terms of motherhood, fatherhood and what is considered as ‘the best for the child’. Cross-country comparative attitudinal data show that attitudes towards gender roles and the centrality of the mother and the family in the definition of ‘the best for the child’ are rather conservative in Italy (Jurado and Naldini 2013; Matysiak and Vignoli 2013). Yet, although widespread, these ‘traditional’ attitudes are not constant across groups and over the life course: they seem less powerful in high-educated women and men, and they tend to change in response to new gender or parenthood practices, also when these new practices have been due to constraints more than preferences (as in the case of fathers taking time for their children because they are ‘left at home’ unemployed) (Naldini 2016). In other words, constraints may force the adoption of new behaviors that in the long run may change attitudes and preferences, making those behaviors more acceptable and ‘normal’.

As underlined by Kotsadam (2011), constraints may also impede the preferences behind type of education from being revealed: in more coercive contexts with low support for care and reconciliation and with strong gendered norms, women and men may be less free to follow their preferences. Plausibly, this has also implications for the effect of type of education on fertility. If field of education is meant to capture also non-instrumental types of investment, that is, differences in women’s traits, aspirations and attitudes about family and work life, its link with the transition to first motherhood may be relevant. Yet, if these different ‘preferences’ do not translate into different behaviors because of strong cultural and structural constraints, on controlling for the instrumental

returns of education in terms of wages and employment conditions, the effect of field of study on transition to first motherhood may be weak. This is what may happen in the Italian context: on controlling for labour market conditions, we expect a relatively small (though positive) effect of the fields associated with stereotypical female qualities such as those concerned with the care of individuals and/or which emphasize interpersonal skills among women [*H3_b educational field hypothesis in the Italian context*].

3. Data, Method, and Variables

The analysis was based on the Longitudinal Survey on Italian Households (ILFI), a five-wave survey first carried out in 1997 on a national representative sample of 9,770 individuals belonging to 4,714 households throughout Italy. We used the entire history of the ILFI as collected in the first wave in 1997 and updated until the last wave dated 2005. Although relatively old, the ILFI is a dataset with a longitudinal design that combines a retrospective with a prospective design in a number of different areas (such as family, work and education including the field) and thus makes it possible to reconstruct complete life histories for different cohorts of women. In order to study transition into first motherhood, we used discrete-time hazard rate models by fitting simple logit regressions to the data. Thus, the dependent variable was the log-odds of the monthly conditional probability of becoming a mother within a particular month, given that the person had not had a child until that time. Following previous studies (e.g. Begall and Mills 2012; Tesching 2012), the dependent variable was equal to 1 nine months before first childbirth to capture the decision to have children more than the actual birth, which might also not occur because of spontaneous abortion.

As crucial independent variables, we included three measures of women's education. *Educational enrolment* was a dummy capturing whether or not the woman was still in education. Following the international standard classification (ISCED 1997), *educational attainment* consisted of three levels: up to lower-secondary education (ISCED 0-2), upper-secondary education (ISCED 3-4) and tertiary education (ISCED 5-6). We also incorporated the variable *field of study*, which referred to the main subject matter of these studies. In low education, field was not applicable. In medium-level education, some fields had small Ns, so we grouped the original categories into three groups. The first group included unspecified basic programs: *general upper-secondary education (licei)*. In the second group, teacher training and health and welfare were merged with humanities and arts in the category *care and social skills* (Martín-García and Baizán 2006). This category – used as the reference – has traditionally been female-dominated and associated with lesser professional aspirations; hence it is expected to be the most inclined to early motherhood. The third group (*others*) included the remaining list of studies within the upper-secondary level of education –vocational programs in the industrial and craft sectors – (Guetto and Panichella 2013). With regard to university level education, we used a more disaggregated specification of fields considering five categories: *humanities and arts; social sciences, business and law; science, architecture, engineering, manufacturing and construction; health and welfare; and teaching and education science*.¹

¹ For university-level education, cases with missing information on the field (3% of women, i.e. 91 cases) were included in the analysis, assigning to them the corresponding field obtained by these women while enrolled in upper-secondary education. Given the high degree of association across categories between both levels of education (available upon request from authors), we chose this option instead of dropping these cases or including them in a separate category.

The impact of these education-linked variables was controlled by a number of variables. We included *birth cohort* and *region of residence* to capture socialisation to different gender/family models and exposure to different sets of opportunities and constraints. Our analysis concerned women born between 1935 and 1974. Because the last interview dated to 2005, only the first three cohorts (i.e. those born between 1935-44, 1945-54 and 1955-64) could be entirely observed for a quite large span of their life courses, until their forties. For the last cohort (1965–1974), we captured the life course as much as possible and not less than 31 years to observe the transition to motherhood. In fact, this is the reason why we excluded the youngest cohorts (those born after 1974), for which we could not at all capture the phase of starting up a family.

Moreover, as already said, numerous studies show that family formation – in particular transition to first child – is encouraged by employment and economic security (permanent well-paid jobs) and by family-friendly jobs like those in the public sector. In order to check whether the impact of level and type of education remains after controlling for these relevant characteristics of the position in the labour market suggesting a ‘use’ of education beyond simple instrumental human capital returns, we introduced the woman’s *activity status* and, if employed, *her occupational class, sector and contract*. In addition, although single motherhood exists as the outcome of out-of-partnership pregnancies or access to technology assisted reproduction, women’s transition to motherhood still occur within stable partnerships and in Italy, especially within marriage. We therefore distinguished whether the woman was *in a union or not*. Finally, as necessary in discrete time models, we included a variable indicating *duration in origin state* – that is, the time elapsing since the opening of our observational window at age 15 (plus *duration squared*, to capture curvilinear chances of becoming mother, as

age increases). With the exception of birth cohort, all these factors change over a person's life course, so they were introduced as time-varying covariates. Table 1 provides an overview of all the variables used in the event-history models and of their distribution.²

Table 1 - Definitions and descriptive statistics for dependent and independent variables

	<i>Label variable</i>	<i>Description</i>	<i>% at age 25</i>	
<i>Observation</i>	From age 15 to first birth or to age 40 (35 for last cohort) if remaining childless			
<i>Dependent Variable</i>	Time to first pregnancy	Measured in months, Dummy=1 if 9 months before first childbirth	63.2 still childless at 25	
		Mean age at first birth	25.8 (sd:-0.088)	
<i>Time-constant Independent variables</i>	Birth cohort	4 groups:		
		1935-44	20.2	
		1945-54	25.5	
		1955-64	25.7	
		1965-74	28.6	
<i>Time-varying Independent variables</i>	Region of residence	3 groups:		
		North	46.2	
		Centre	19.4	
			South	34.4
	<i>Education enrolment</i>	2 groups:	still in education	86.7
			not in education	13.3
	<i>Level of education</i>	3 groups:	lower-secondary	53.7
			upper-secondary	33.6
			tertiary education	12.7
	<i>Type of education at each level</i>	9 groups:	Lower-secondary	55.3
			Upper-secondary	
			Care & Social Skills	5.7
			General	8.7
Others			19.9	
Tertiary				
Arts, Humanities, Religion			2.6	
Law, Economics, Social Sc.			2.6	
Archit, Engin, Natural Sc.			3.1	
Health Professions			0.7	
Teaching, Psychology	1.3			
Duration since 15 ys.	Cumulative months passed since 15 years old			
Duration squared				
Activity status	2 groups:	not employed	51.3	
		employed	48.7	

² Since almost all covariates are time-varying, their distribution changes over time. Here we decided to show it at age 25, an age where most of our women had completed education but were still childless (especially in the last cohort, where mean age at first child passes from 25.4 to 26.8).

Class	4 groups:	service class	25.7
		routine non manual, high	14.2
		self-employed	14.0
		routine low / manual-workers	46.1
Sector and Contract	5 groups:	Private employees	
		Permanent	51.2
		Temporary	6.8
		Without contract	8.3
		Public employees	
		Temporary	10.2
In union	2 groups:	not married or cohabiting	47.1
		married or cohabiting	52.9

Source: ILFI; up to 2005

4. Results: does the field of education matter in Italy?

Our evidence on the link between field of education and transition to first child in Italy is summarised in Table 2, where six discrete event-history models are reported: models 1a and 1b estimate, *ceteris paribus* (birth cohort, region, duration, activity status), the effect of educational enrolment and educational attainment without (a) or with (b) ‘being in a union’; models 2a and 2b add type of education at each education level, again without (a) and with (b) ‘being in a union’; models 3a and 3b control if the effect of type of education remains after the introduction of the woman’s occupational class, sector and contract³.

Table 2- Estimates of discrete time models for becoming first-time mothers in Italy

	Model 1a No Union	Model 1b In Union	Model 2a No Union	Model 2b In Union	Model 3a No union	Model 3b In Union
<i>Birth cohort: 1935-1944</i>						
- 1945-1954	0.25***	0.04	0.25***	0.05	0.25***	0.05
- 1955-1964	0.08*	-0.15*	0.09*	-0.12*	0.10*	-0.13*
- 1965-1974	-0.65***	-0.45***	-0.61***	-0.41***	-0.61***	-0.46***

³ As pointed out in previous studies (Bernardi and Nazio 2005), in Italy being married is the single most important predictor of the transition to the first child. The distinction between a and b models in Table 2 (do not or do introduce the covariate ‘being in a union’) is intended to show the effect of a woman’s educational level and field, ‘gross’ or ‘net’ of the marriage effect.

<i>Region of residence: North</i>						
- Centre	0.04	0.11*	0.04	0.11*	0.04	0.09*
- South	0.13***	0.36***	0.13***	0.35***	0.13**	0.35***
<i>Duration since 15 years</i>	0.04***	0.007***	0.04***	0.007***	0.04***	0.007***
<i>Duration squared</i>	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***
<i>Activity status: not employed</i>						
- employed	-0.19***	-0.10**	-0.20***	-0.14**	-0.12*	-0.10
<i>Education enrolment: out of education</i>						
- in education	-1.09***	-0.69***	-1.06***	-0.69***	-1.06***	-0.65***
<i>Level of education: up to lower-secondary</i>						
- upper-secondary	-0.40***	-0.10				
- tertiary	-0.43***	-0.08				
<i>Type of education at each level: upper-secondary, Care & Social Skills</i>						
- up to lower-secondary			0.38***	0.05	0.50***	0.07
- upper-secondary, General			-0.37***	-0.25**	-0.33***	-0.27**
- upper-secondary, Others			0.04	-0.04	0.16*	-0.04
- tertiary, Arts, Humanities, Religion			-0.13	0.09	-0.13	0.03
- tertiary, Law, Economics, Social Sc.			0.01	0.18	0.03	0.15
- tertiary, Archit, Eng, Natural Science			-0.04	0.07	-0.07	0.04
- tertiary, Health			-0.53**	-0.11	-0.57**	-0.52
- tertiary, Teaching and Psychology			0.33**	0.36**	0.38**	0.30*
<i>Class: service</i>						
- routine non manual, high					-0.19**	-0.26**
- self-employed					-0.20*	-0.16*
- manual o routine non manual, low					-0.29***	-0.10
<i>Sector and contract: private, permanent</i>						
- private, temporary					0.24**	0.40***
- private, without contract					-0.40***	-0.01
- public, permanent					0.14*	0.12
- public, temporary					0.08	0.33***
<i>In Union: no</i>						
- married or cohabiting		3.50***		3.48***		3.46***
Constant	-7.75***	-7.01***	-8.15***	-7.04***	-8.01***	-7.01***
LOG-LIKELIHOOD	-16782.1	-14032.3	-1643.9	-13773.4	-15407.1	-12858.2
NUMBER OF MONTHS-PERSONS	520626	520626	520626	520626	520626	520626
NUMBER OF WOMEN	3522	3522	3522	3522	3522	3522
NUMBER OF TRANSITIONS	2610	2610	2610	2610	2610	2610

Notes: estimates using option « cluster » * p<.10; ** p<.05 ***p<.01
Source: ILFI; up to 2005

The data confirm that women still in education are less likely to become mothers than women who have completed education, and that in general the higher the level of

education attained, the lower the transition to first child. Yet, these effects are not as strong as expected in the Italian ‘familistic’ and ‘corporatist’ setting [*H1_b* and *H2_b* not fully confirmed]. Firstly, being still in education discourages fertility, but the strength of the negative effect is similar to that previously found for example in social-democratic Norway (Lappegård and Ronsen 2005).⁴

Secondly, there is not an unequivocally strong monotonic negative relationship between educational attainment and first birth in Italy: women with an upper-secondary diploma appear to have the same first childbirth risks as tertiary-educated women (Model 1a). Moreover, the postponement effect of high education disappears on controlling whether or not the woman is in a partnership (Model 1b).⁵ This suggests that, in Italy, destandardisation of the life course is not common and that cohabitation, but especially marriage, are still the precondition of having children. In other words, the opportunity cost of motherhood for highly-educated women may be revealed more in the timing of union formation than that of motherhood. This is indeed what emerges from Kertzer et al. (2009), who find that women whose education is low or high experience marriage more rapidly than middle-educated women – the U-shaped effect – while a woman’s level of education does not matter in predicting the first birth transition. The absence of a postponement effect of tertiary-educated women in fertility may also be explained by a catching-up or reverse tendency. There is in fact evidence of a recent weakening of the

⁴ If we translate B coefficients of table 2 into odds ratios, the odds ratio of being enrolled in education versus not being enrolled is equal to 0.32, very similar to the 0.36 of Table 2 in the Norwegian study, which controls for a very similar set of variables.

⁵ This non-existence of a strong monotonic negative relationship of educational attainment may be partly explained by variation across birth cohorts. For the older cohorts (1935-1944; 1945-1954), we observe a significant positive effect of education, which weakens over time and even reverses for the youngest cohort (1965-1974) [Results of Model 1b by birth cohort not shown here but available upon request].

educational gradient in Italy, especially in the northern regions, where couples with greater cultural and economic resources no longer display a lower propensity to have children (Dalla Zuanna and Tanturri 2007).

What about the effect of type of education? We find only partial support for the educational field hypothesis in the Italian context: that is, women's educational field is not a strong predictor of female reproductive behaviour in Italy [*H3_b partly confirmed*]. Indeed, on the one hand, model 2a shows that higher first-birth risks are not found among women trained in fields associated with stereotypical female qualities and relational skills or working with people regardless of their educational level. Upper-secondary women instructed in the category of 'general' subjects are those who have the lowest probability of having the first birth – perhaps due to their reduced employability prospects and to a higher tendency to continue studying by entering tertiary tracks – and likewise women with a tertiary degree in health and welfare, while women with a university degree in teaching are the first to become mothers, together with women with only up to lower-secondary education. Other types of diploma in medium-level education show the same risk of motherhood as upper-secondary education in care and social skills. Nor are college-educated women trained in STEM fields significantly less prone to enter into motherhood.⁶ On the other hand, inspection of fields provides a more complete picture of the transition to first birth in Italy. It emerges that not all highly-educated women display a lower propensity to motherhood.

⁶ These small differences in first-birth propensities across fields of study for women with a university degree may also be due to a selection effect. In Italy, still a relatively small share of women goes further than upper-secondary education and constitutes a selected highly career-oriented group. It seems as though it is attainment, rather than field of study, that matters for Italian women at the medium-education level.

In fact, compared with upper-secondary educated women in care and social skills, highly-educated women trained in teaching training or education science – although not in health and welfare as expected, probably reflecting more constraints to settling down in the labour market at this early stage of their careers – are more likely to become mothers. On controlling for having a partner (2b), the link between field of study and fertility further weakens: being low-educated or highly-educated in health and welfare professions no longer impacts on the timing of first childbirth.

Certainly, general skills have weak ties with future occupations, while teachers have more predictable and reliable career paths in a more family-friendly environment, which affects women's birth risks differently. Yet model 3a shows that the type of education discourse does not change when we add variables concerning the woman's labour market position (occupational class, contract and sector). This suggests that variation according to field of study is not entirely 'instrumental' and implies a possible relation between the choice of a 'softer', more female-dominated (and nurture/family-oriented) educational field and more traditional fertility behaviour. Women in education sciences give high value to having children and to 'caring' and 'social skills' activities, and they may have an occupation with more flexible schedules and conditions which make work a bit more compatible with family responsibilities despite the hostility of the Italian context.

Model 3b shows that, when controlling for partnership status, the impact of the woman's educational field remains, while the effect of her occupational class and sector disappears. Only the type of contract seems to matter, but in the direction opposite from what theories of the effect of deregulation on family formation predict: Italian women

with fixed-term contracts both in the public and private sector accelerate transition to motherhood. This is probably due to the time span of our data and analyses, which focused on women born between 1935 and 1975, and therefore on women building their families and careers from the 1960s to the mid-late 1990s, when the process of labour market deregulation was in its early stage and traditional male breadwinner norms were still powerful. Previous studies on the same time span indeed confirm that work uncertainty affects only men's transition to parenthood, whereas among women the only distinction is employment status: women with a job are less likely to become mothers than jobless women (Bernardi and Nazio 2005). Other studies focusing on more recent cohorts or periods (Vignoli *et al.* 2012; Barbieri *et al.* 2015) instead find that the 'first pillar' (i.e. a male partner with a stable and well-paid job) is still crucial in directing fertility decisions, but in dual-earner couples – which are slowly becoming the norm – both his and her permanent position encourages childbirths, especially if she is highly educated. Evidently the career prospects tied to women's human capital endowment are crucial in perceiving the opportunity cost of having children.

5. Conclusions

Differences in the transition to first motherhood in Italy have been traditionally explained by using women's educational attainment and employment instability. No attention has been paid to the role of a specific field of education for women. Using data from the ILFI and focusing by means of event history models on the effect of three dimensions of education – enrolment, level and field – on first transition to motherhood, this study has started to fill this research gap. In a 'familistic' and 'corporatist' welfare setting, where education pays off not only with higher chances of entering the (good) labour market but also with higher legitimacy to work even in the presence of children

and even in the absence of public support with their cost, we would expect a strong effect of education on first-birth risks. By contrast, we find that the postponement effect of high levels of education is weak and disappears on controlling whether the woman is in a partnership. Moreover, the ‘classic’ distinctions among fields of education found in other countries matter less: college-educated women trained in STEM fields are not the least prone to enter into motherhood, whereas highly-educated women trained in health and welfare are not the most prone together with those trained in teaching or education science. Rather, two distinct groups appear: a) those with an upper general secondary diploma and those with a tertiary degree in health and welfare, who are the least likely to become first-time mothers; and b) those with a low level of education (up to lower secondary) and those with a tertiary degree in teaching, who are the most likely to become mothers. The type of education effects do not change either when we add variables concerning the woman’s labour market position or when we add variables concerning partnership status. When controlling for partnership status, it is not the impact of the woman’s educational field that changes, but the effect of her occupational class and sector, which disappears.

Three mechanisms behind the possible association between field of study and fertility decisions have been pointed out in the literature. Women who have acquired different types of education may have different entry rates into motherhood because of differences in already-existing individual attitudes and values; in more or less family-oriented socialization during the formative years; in cost-benefit calculations concerning their prospective occupations and career paths. Moreover, these mechanisms may be more or less pronounced depending on the institutional and cultural contexts in which women, couples and families make their choices. In Italy, certain fields, such as

teaching and education sciences, seem to attract women with favorable values and attitudes towards family and fertility and provide an environment that reinforces these stereotypically gendered attitudes/roles. The field of teaching also leads to jobs mainly in the public sector with predictable and reliable career paths and with family-friendly working conditions: all factors pushing towards high fertility. However, at the same time, contexts where traditional gender norms are still quite strong, institutional support for care and reconciliation weak and demand for labor low, may impede the preferences behind type of education be revealed simply because in such coercive contexts women (and men) may not be able to follow their preferences.

ILFI, like most retrospective longitudinal data, do not contain information along the life course either on attitudes, intentions and negotiations within couples, or on income and wages or other relevant labor market features. This means that the data available cannot be used to disentangle the weight of ‘preferences’ and ‘constraints’ to test which of the three mechanisms are at work. Not being part of a comparative harmonized cross-country dataset, it is also impossible with ILFI data to test the specificity of the Italian findings to see – through multilevel modeling – whether and why Italy is different from other countries in its interplay between education and fertility. However, some insights can be drawn from our analyses.

First, field of education is an important dimension to consider when studying the relation between education and fertility behavior, since the actual effect of education level does not surface in some models until one controls for fields of study. In addition, field of study remains significant after controlling for women’s position in the labor market. This suggests that something more than wage and employment conditions – i.e.

more than strict instrumental human capital returns – are at play. Women are becoming a more heterogeneous group with different family and career orientations and prospects, and the field of study may contribute to capturing this variation.

Second, the importance of both level and type of education in driving women's transition to motherhood may increase as 'de-traditionalisation' in family and gender patterns increases. The facts that women with an upper-secondary diploma appear to have the same first-childbirth risks as some tertiary-educated women, that the postponement effect of high education disappears on controlling whether the woman is in a partnership, or that controlling for partnership status also makes the effect of the woman's occupational class and sector disappear: all these suggest that cohabitation, but especially marriage, is still the precondition for having children, and that the male breadwinner norm is very influential in Italy. In other words, women with specific values attached to family life may choose fields leading to more female occupations, either for contents or for family-friendly working conditions, and they may more quickly enter a stable partnership with fertility plans. Yet once they are in that relationship, it may be the economic and career condition of the male partner which mainly drives the timing and realisation of such fertility plans. ILFI stops in 2005. Whether this is true also for younger cohorts and more recent years remains an open question. For instance, the effect of the health and welfare field changes across our birth cohorts: it is indeed strongly positive and significant as expected for the oldest group of women (1935-1944) but this positive effect reverses over time for the 1945-1954 and 1955-1974 birth cohorts, and it again becomes positive although not significant for the youngest cohort (1965-1974),⁷ which strengthens the argument that today younger

⁷ Results of Model 3b controlled by birth cohort upon request from authors.

women (even though trained in a field more favorable to higher fertility) face more constraints in the Italian labor market. It also remains to be analyzed whether the choice of educational field is reflected in women's fertility over the life course, i.e. second/third births. Future research should address this issue.

6. References

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