Lowest-Low Fertility.
Signs of a recovery in Italy?

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1. Introduction

Italy is a country characterized by *persistent very low* fertility levels. A country's fertility level is considered to be "very low" if it falls below 1.5 children per woman (Lesthaeghe and Willems, 1999). "Lowest low fertility," on the other hand, was introduced by Kohler et al. (2002), in order to describe those cases in which the total period fertility rate (TFR) drops below 1.3. Lowest low fertility levels were recorded at a national level for the first time in Italy (and Spain) in 1992. Italy has now had a fertility level below 1.5 for over twenty years, and the last 15 years have seen levels near or below 1.3.

More specifically, Italy's TFR dropped dramatically in the early 1990s and since then has not risen above 1.3 children per woman. In fact, the country reached a record low in the mid 1990s, recording a TFR of less than 1.2. Fertility rates since then have gradually increased (for the first time since the baby boom), up to today's current fertility level of 1.33 children per woman (Istat, 2006).

The moderate yet significant increase in fertility in the last 10 years is further specified by diverse regional patterns. In the northern regions of Italy, period fertility has returned to the levels observed in the early 1980s, in large part due to an increasing number of babies born to immigrants, whose fertility is higher than native Italians. Overall, however, there has probably occurred a slight increase in native fertility as well, related to both new forms of family formation among the younger cohorts and to a recovery of postponed births among the older cohorts (today about 15% of births occur outside of wedlock, while about 10% of births are from immigrant parents).

In a number of southern regions, on the other hand, period fertility has continued to decline to very low levels (e.g. in 2005, TFR in Sardinia was at around 1.0). In other southern regions, period fertility levels have recently stabilized, although at levels much lower than those observed in early 1980s.

Even if one considers cohort fertility, rather than looking at period measures, Italian fertility levels still result particularly low. According to the Council of Europe's 2005 Demographic Yearbook, Italy has the lowest total cohort fertility rate (CTFR) in Europe (1.5 for the birth cohort 1965), and there is no indication that the decline in cohort fertility has come to a halt.

Analyses which take into account diverse trends in fertility levels across regions and social groups can reveal more detailed information. For example, recent studies indicate that the negative impact of level of education on fertility levels has begun to decrease. (Rosina 2004; Dalla Zuanna, Tanturri, in press).

In the first part of our paper we present and discuss current developments with regard to fertility in Italy, both at the national and regional levels, using data recently published by the Italian National Institute of Statistics (Istat, 2006).
We apply a cohort approach, showing changes both in CTFR and in the timing of births for the 1950-1980 cohorts.

In the second part of our paper, we focus on "late first-birth fertility" (entry into motherhood after the age of 35), using individual level data from the 2003 Istat multipurpose survey on the family "*Famiglia e soggetti sociali*". We investigate both the determinants of postponement (or the propensity to reach age 35 without having had a child) as well as the determinants of recovery (or the propensity to subsequently have a child for those women who reach age 35 with parity zero).

2. Background

At the turn of the century, we can observe low levels of fertility across all Western countries, and almost everywhere fertility has fallen below replacement level. In fact, while many countries had a TFR above two children per woman in 1980, twenty years later, "lowest low fertility" has become increasingly widespread, especially in Southern and Eastern Europe (Table 1). The most important change in the last few decades, however, concerns the general postponement of fertility within the larger processes of delayed family formation, a trait shared by almost all European countries. Generally, "the TFR was negatively affected to some extent by the postponement of childbearing" (Sobotka, 2004b, 212).

Although there is some variation across countries, generally the postponement of the transition to motherhood is observed both in the rise in average age at first birth, and the decrease in adolescent fertility (age 15-19). In other words, in those countries where childbearing is postponed, a growing proportion of births occur at older ages. In many European countries (with the exception of Eastern Europe), more than 50% of births are from mothers aged 27 and older (Table 1).

Table 1. Some indicators of union formation and reproductive behaviour in European countries.

|		Poland	Hungary	Czech Rep.	Slovak Rep.	Bulgaria	Romania	Sweden	UK	Nether lands	former FDR	France	Spain	Italy	Greece	Portugal
Mean Age at First Marriage (1)	1980	22.7	21.2	21.5	21.9	21.3	21.5	26	23.0	23.2	23.3	23	23.4	23.8	23.3	23.2
	1990	22.6	21.9	21.6	21.9	21.4	22	27.5	25.0	25.9	25.7	25.6	25.3	25.5	24.6	23.9
	2000	23.9	24.6	24.5	24	24.1	23.4	30.2	27.2	27.8	…	27.8	27.8	27.0	26.6	25.3
Mean Age at First Birth (2)	1980	23.4	22.4	22.4	22.7	21.9	22.4	25.3	…	25.7	25.5	25	25	25.0	24.1	24.0
	1990	23.3	23.1	22.5	22.6	22.2	22.7	26.3	27.3	27.6	27.0	27	26.8	26.9	25.5	24.9
	2000	24.5	25.1	24.9	24.2	23.5	23.6	27.9	29.1	28.6	28.0	28.7	29.1	28.7^	27.3	26.5
(2) – (1)	1980	0.7	1.2	0.9	0.8	0.6	0.9	-0.7	…	2.5	2.2	2	1.6	1.2	0.8	0.8
	1990	0.7	1.2	0.9	0.7	0.8	0.7	-1.2	2.3	1.7	1.3	1.4	1.5	1.4	0.9	1.0
	2000	0.6	0.5	0.4	0.2	-0.6	0.2	-2.3	1.9	0.8	…	0.9	1.3	1.7	0.7	1.2
TFR	1980	2.26	1.91	2.1	2.31	2.05	2.43	1.68	1.89	1.60	1.45	1.95	2.20	1.64	2.23	2.25
	1990	2.05	1.87	1.9	2.09	1.82	1.84	2.13	1.83	1.62	1.45	1.78	1.36	1.33	1.39	1.57
	2000	1.34	1.32	1.14	1.29	1.26	1.31	1.54	1.65	1.72	1.38	1.89	1.24	1.24	1.29	1.55
1000 x age 15-19 Specific Fertility Rate	1980	32.9	68	53.1	48.2	81.2	72.3	15.8	29.6*	9.2	19.5	25.4	25.8	20.9	53.1	41.0
	1990	31.5	39.5	44.7	45.5	69.9	51.5	14.1	33.2*	8.3	16.8	13.3	11.9	9.0	21.6	24.1
	1995	21.1	29.5	20.1	32.3	49.6	42	7.7	28.4*	5.8	13.2	10	7.8	6.9	13.0	20.9
% TCFR after age 27	c.1950	…	28.3	26.7	31.0	22.5	30.7	46.7	43.1*	47.5	41.3	41.1	47.4	44.1	39.7	43.1
	c.1960	…	31.8	25.4	28.1	20.2	26.0	60.9	53.0*	66.0	55.0	50.7	53.6	54.3	37.7	42.8
	c.1965	…	33.3	25.9	21.1	18.5	22.3	58.8	55.7*	71.7	61.5	57.9	62.9	55.7	46.0	50.2
Nonmarital Birth %	1980	4.8	7.1	5.6	5.7	10.9	2.8	39.7	11.5	4.1	7.6	11.4	3.9	4.3	1.5	9.2
	1990	6.2	13.1	8.6	7.6	12.4	4.0	47.0	27.9	11.4	10.5	30.1	9.6	6.5	2.2	14.7
	2000	12.1	29.0	21.8	18.3	38.4	25.5	55.3	39.5	24.9	18.6	42.6	17.7	9.7	…	22.2

* England and Wales

^ 29.4 in the North-Centre and 27.5 in the South-Islands

Source: Billari, 2004 and our integration for Italian data from demo.istat.it

In spite of these general common trends, Europe is very heterogeneous. High age at first birth is not always associated to lowest low fertility. For example, the Netherlands and France in 2000 experience the same age at first motherhood as Italy, but higher fertility levels (Table 1, and Figure 1 for a comparison of Italy and France).

Figure 1. Age specific fertility rates in Italy and France. 1995 and 2004-05
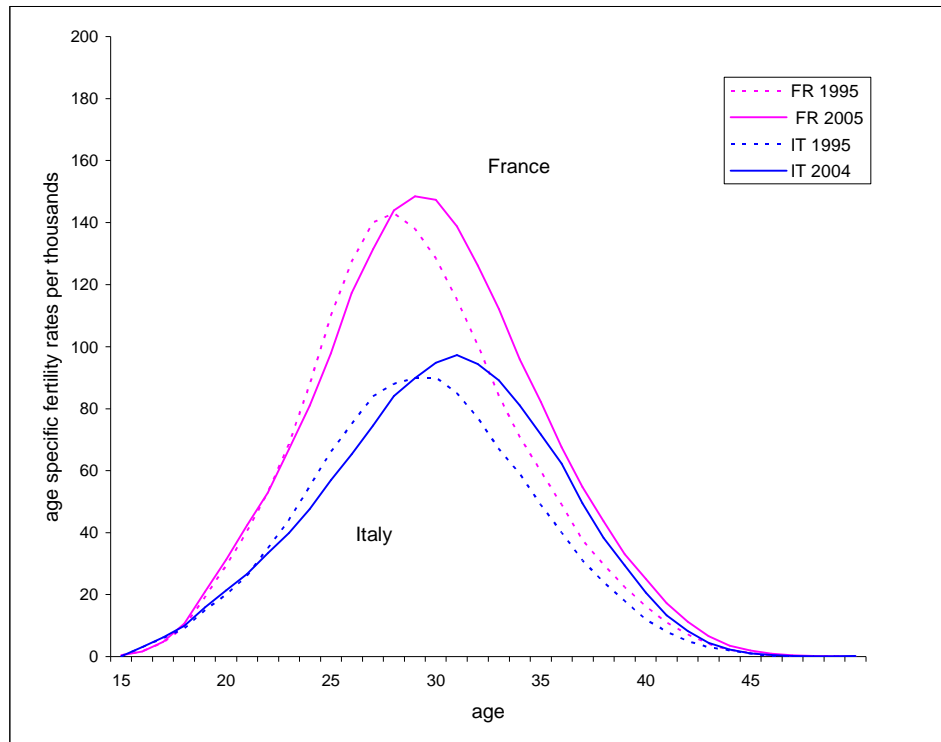
Change in the timing of childbearing is considered to be an important element in second demographic transition theory (Lesthaeghe and Neels 2003). One salient driving force behind this process is the increasing number of women with a high investment in human capital. Gustafsson (2001), for example, show that in Germany, Great Britain and Sweden, women with a university level education were the first to begin postponing their entry into motherhood, and continue to make up the majority of those women who significantly delay having their first child (see also Toulemon, 2005, with regard to France).

In fact, scholars point to increased female education and female economic autonomy as among the principal factors which have shaped new patterns of family formation and postponed parenthood (Lesthaeghe 2001; Sobotka 2004a). When the first birth is delayed, women increase their possibility of obtaining well-paid employment, as a result of their education, accumulation of on-the job skills, and experience (McDonald 2001). "Given the consistency of the various findings in the literature, trends in female education can be seen as a major force shaping the postponement of childbearing in Europe" (Billari et al. 2006, p.5).

In Italy, the postponement to older ages of both marriage and childbearing begins with the birth cohorts of the late 1950s and becomes increasingly significant with the birth cohorts of the 1960s. In comparison to the previous generations, women born in the 1950s in the north-centre of Italy are characterized by a marked renunciation of marriage and of having children. This is particularly true for more educated women, especially those coming from parental

families with poor financial and cultural resources.

For the cohorts of the 1950s, higher personal expectations, developed alongside of greater levels education, contrasted with a more traditional environment (i.e. with regard to family patterns, gender roles, and work time management) and may have ultimately polarized work and family for these women. According to Piazza (1995), this generation is typified by a 'daily synchronicity,' or by the quotidian challenge of equally managing and maintaining the two poles of family and work. Indeed, these women face a reality characterized by hard work, difficulties, lack of social resources, and hostility from the cultural environment. One obvious way out of this situation is to sacrifice one of the two poles. However, it is only with the birth cohorts of the 1960s and their reproductive period in the late 1980s, that a "diachronic strategy" seems to emerge, characterized by a postponement, and then a recovery of childbearing, and by a greater flexibility in the management of time spent working.

Recent empirical data, however, demonstrates that the negative impact of education level on fertility has progressively lessened over time, to the point that it disappears, or even reverses direction (Kravdal 2001). In fact, all other elements being equal, a recent trend has been observed also in Italy in which couples with greater cultural and economic resources have a higher propensity to have children (Dalla Zuanna, Tanturri 2007; Rosina, Testa 2007).

What about the future of Italian fertility?
Frejka and Calot (2001) showed the permanent deficit of total cohort fertility among younger cohorts, unable to recover the decline in earlier ages. Council of Europe's 2005 data confirm the general decline of cohort fertility. On the other hand, Sobotka (2004b) supports that lowest low fertility is a temporary phenomenon, linked to postponement of childbearing, and may be overcome in a relatively short time. An increase in fertility rates in the older age groups of Italian cohorts would be expected.

In the first part of our paper we describe cohort fertility behaviours by the light of recently published data, and show the recovery in Northern regions, even if not all postponed births are recovered. In the second part we investigate individual determinants of change in reproductive behaviour of recent cohorts, and show the important role of cultural and economic resources.

3. Macro level: a descriptive picture of regional Italian fertility

3.1 Sources and methods

Regional level age specific fertility rates analyzed in this short paper come from two different sources: *Stato Civile*, which registers births from the actual (*de facto*) population (Istat, 1997, 1998a, 1998b, 2000, 2007) for the years 1952-1998, and *Anagrafe*, which records births from the resident (*de jure*) population, for the years 1999-2004 (presently available only on line at http://demo.istat.it).
By aggregating cross-section data at a cohort level, the complete age schedule of fertility is available for the 1937-1955 cohorts. For the 1935 and 1936 cohorts, fertility rates at ages 15 and 16 were estimated, assuming them to be the same as the 1937 cohort. For 1956-1967 cohorts, part of the TCFR was estimated, hypothesizing that age specific fertility rates will not

change between younger and older cohorts[1]. Indeed, this part is never more than 10% of the total TCFR.

Finally, due to the intrinsic characteristics of the data sources, the age specific fertility rates here analyzed refer to two overlapping cohorts. Consequently, and for reasons of maintaining simplicity, the birth year of the younger cohort is retained.

3.2 The different patterns of fertility in northern and southern Italy

In the last fifty years, fertility in the north and in the south of Italy has followed two distinct patterns.

In the northern regions, TFR considerably increased in the early 1960s, during the years of the Italian *baby boom* (Terra Abrami and Sorvillo, 1993). This increase, however, was followed by a decline, which accelerated in the late 1970s. TFR reached its minimum in the north in 1995, and then gradually began to rise.

In the regions of southern Italy, no *baby boom* occurred, and TFR slowly declined in the 1960s, accelerating in 1970s. At present, the decline of TFR in southern Italy has not reached a minimum level, but rather has only slowed, or stabilized at low levels in a few regions (Caltabiano, 2006).

The changes in CTFR are less irregular than those seen in the period TFR: there is no *baby boom* and the decrease in cohort fertility is slow but continuous, at least since those cohorts born in late 1930s (Terra Abrami and Sorvillo, 1993).

Moreover, the decrease of CTFR was slower and more regular in the regions of northern Italy, where the cohorts born in the 1930s already had low fertility levels. In these same regions, CTFR decline slows or come to a halt for those cohorts who were born after 1970 (see below).

In the southern regions, on the other hand, the decline occurred later but faster, and does not yet show signs of discontinuity for the cohorts born in late 1970s and early 1980s.

Tables 2 and 3 and Figure 3 show the variations in regional CTFR levels.

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[1] This procedure may underestimate fertility, if the delay of births continues over the following years or the recovery is faster than that of the recent past. However, the underestimation should be negligible.

Table 2. Regional levels of CTFR and mean age at childbirth, 1935-1965 cohorts.

Region	CTFR						Mean age at childbirth					
	1935	1945	1950	1955	1960	1965	1935	1945	1950	1955	1960	1965
NORTHERN ITALY												
Piedmont	1.75	1.80	1.68	1.61	1.48	1.35	28.5	26.6	26.4	26.7	28.1	29.9
Aosta Valley	1.83	1.79	1.61	1.65	1.52	1.42	28.2	26.7	26.1	26.8	27.8	29.6
Lombardy	1.98	1.85	1.71	1.63	1.51	1.38	28.9	27.1	27.1	27.3	28.6	30.2
Trent. A.A.	2.43	2.02	1.84	1.71	1.67	1.64	29.6	27.9	27.8	28.1	28.8	30.0
Veneto	2.26	1.97	1.78	1.66	1.53	1.40	28.7	27.0	27.0	27.3	28.5	30.2
Friuli V.G.	1.90	1.72	1.59	1.50	1.39	1.26	28.0	26.7	26.6	27.2	28.3	30.1
Liguria	1.67	1.68	1.49	1.39	1.30	1.19	28.8	26.8	27.0	27.6	29.1	30.7
Emilia Rom.	1.79	1.73	1.55	1.45	1.37	1.27	27.8	26.4	26.2	26.7	28.2	30.0
Tuscany	1.82	1.79	1.61	1.53	1.41	1.31	28.2	26.8	26.8	27.1	28.3	30.1
Umbria	1.88	1.80	1.71	1.64	1.61	1.44	27.9	26.8	26.9	27.1	28.0	29.4
Marches	1.96	1.88	1.77	1.71	1.59	1.44	28.0	26.9	26.9	27.3	28.1	29.7
SOUTHERN ITALY												
Lazio	2.24	2.08	1.92	1.79	1.68	1.53	28.3	26.9	26.9	27.2	28.2	29.9
Abruzzi	2.20	2.03	1.94	1.91	1.82	1.65	28.3	26.8	26.7	26.8	27.5	28.8
Molise	2.28	2.12	1.95	1.91	1.85	1.62	28.6	27.0	26.7	26.7	27.1	28.5
Campania	3.01	2.66	2.38	2.28	2.14	1.95	29.6	27.8	27.5	27.1	27.3	28.0
Apulia	2.97	2.51	2.30	2.20	2.01	1.79	29.1	27.4	27.1	26.8	27.2	28.2
Basilicata	2.87	2.40	2.20	2.07	1.91	1.76	29.2	27.3	27.1	27.2	27.6	28.6
Calabria	3.05	2.50	2.28	2.16	2.05	1.83	28.8	27.4	27.1	27.0	27.0	27.7
Sicily	2.86	2.49	2.29	2.23	2.10	1.91	28.3	26.9	26.8	26.5	26.9	27.7
Sardinia	2.97	2.36	2.09	1.87	1.68	1.42	29.6	28.3	27.8	27.7	28.0	29.5
Var. Coeff.	0.210	0.149	0.146	0.148	0.149	0.145	0.020	0.017	0.016	0.014	0.022	0.031
Italy	*2.30*	*2.08*	*1.91*	*1.83*	*1.71*	*1.55*	*28.6*	*27.1*	*26.9*	*27.0*	*27.8*	*29.2*

Table 3. Number of Italian regions by level of CTFR: 1935, 1945, 1955 and 1965 cohorts.

CTFR	Legend of Figure 3	cohorts			
		1935	1945	1955	1965
< 1.40		-	-	1	7
1.40-1.60		-	-	3	5
1.60-1.80		3	6	8	5
1.80-2.00		6	4	3	3
> 2.00		11	10	5	-
Italy		2.30	2.08	1.83	1.55

Figure 3. CTFR for Italian regions. 1935-1945-1955-1965 cohorts.
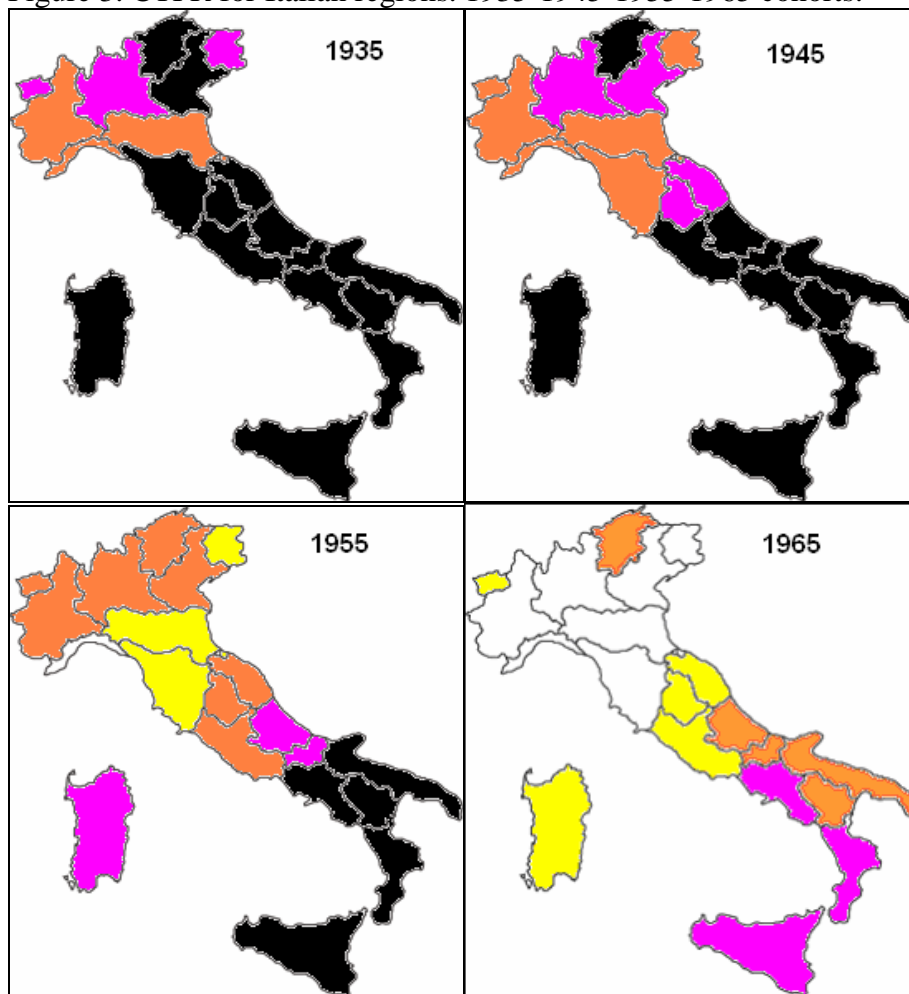
Differences emerge in Figures 4-6, where we compare the period TFR and CTFR in several northern (Lombardy, Emilia Romagna and Trentino Alto Adige) and southern (Apulia, Sicily, Sardinia) Italian regions.

Figure 4. TFR and CTFR (lagged by mean age at childbearing), Emilia Romagna and Sicily.
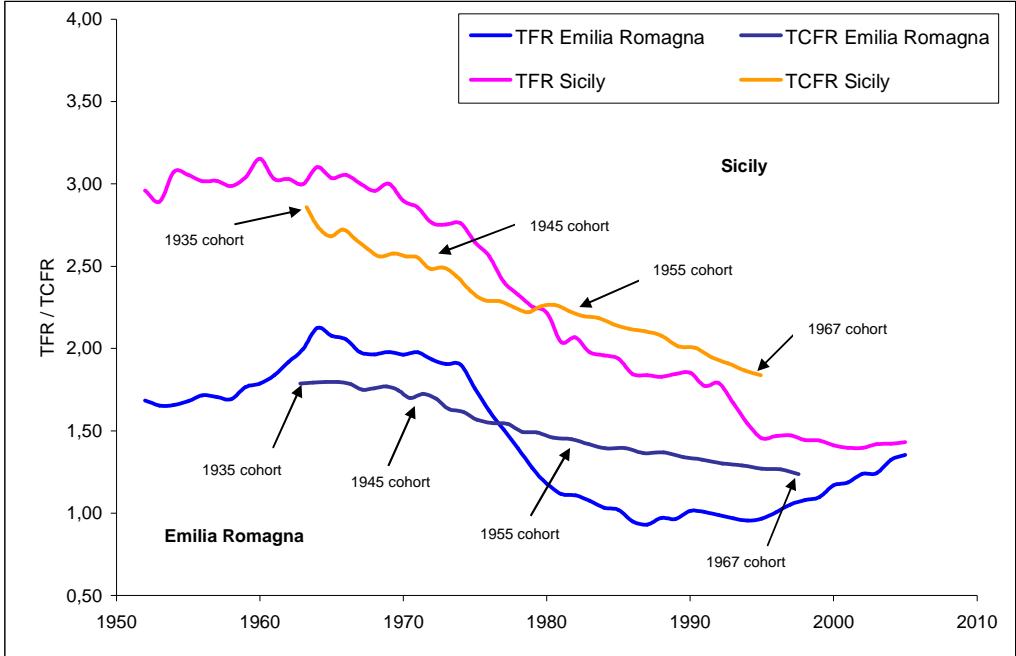
Figure 5. TFR and CTFR (lagged by mean age at childbearing), Lombardy and Apulia.
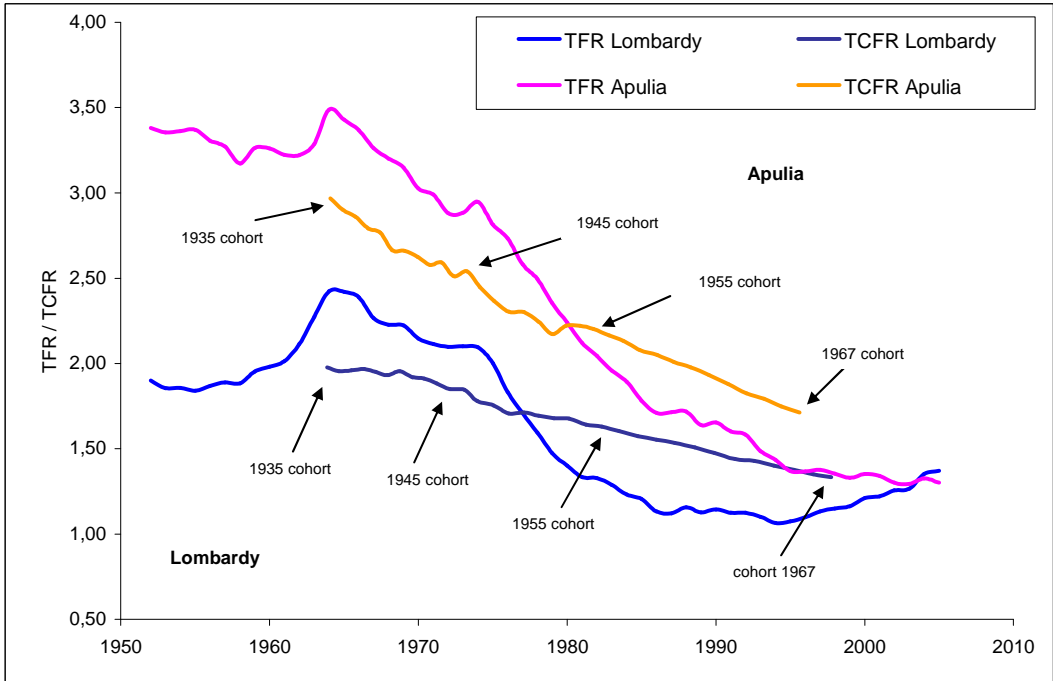
Figure 6. TFR and CTFR (lagged by mean age at childbearing), Trentino Alto Adige and Sardinia.
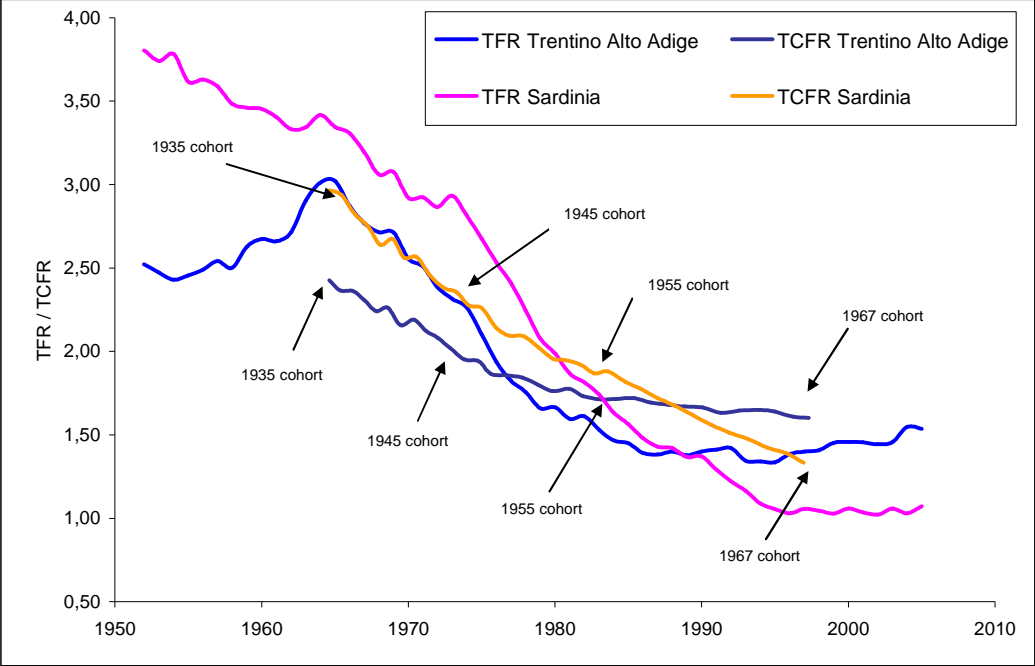
A comparison of the fertility schedules of women living in northern and southern Italy again reveals two distinct patterns.

Women born in 1970, 1975, and 1980 in the northern regions of Italy are similar with regard to the first part of their reproductive life (Figure 7). Women born in 1960, on the other hand, began having children at an earlier age. However, overall CTFR for the different cohorts may be similar, given that the younger cohorts seem to recover fertility levels after the age 30 (beginning childbearing later).

Figure 7. Cohort age specific fertility rates per thousand, Trentino Alto Adige, 1950-1980 cohorts
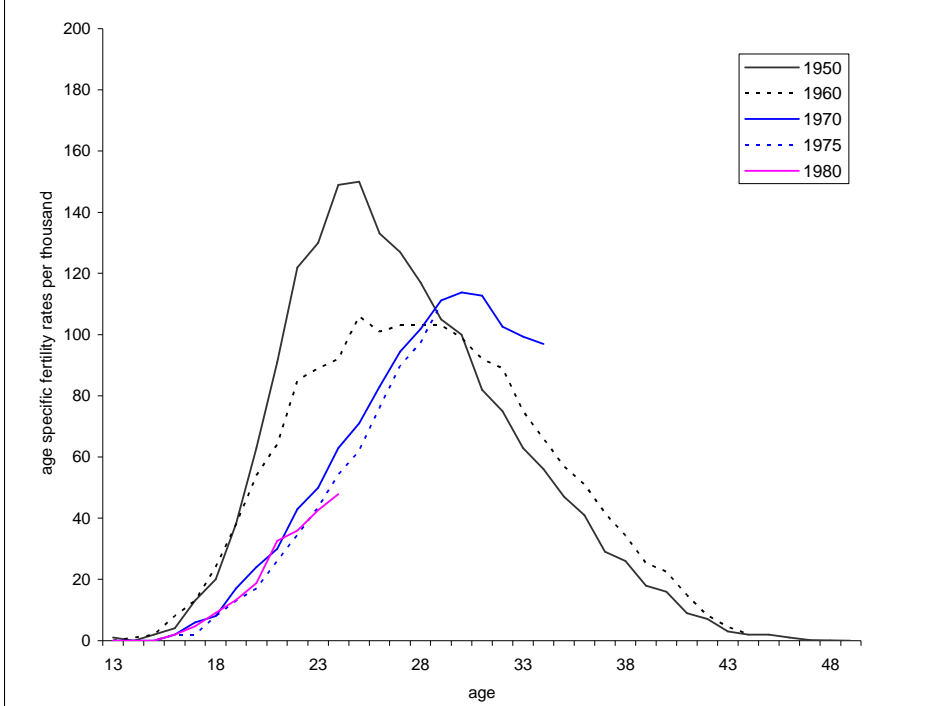
In the southern regions, the fertility of the 1970 cohort is much lower than that of the 1960 cohort. For the 1975 and the 1980 cohorts, this decline continues – even if it is less dramatic – and the timing of fertility begins only slightly later (Figure 8).

Figure 8. Cohort age specific fertility rates per thousand, Apulia, 1950-1980 cohorts.
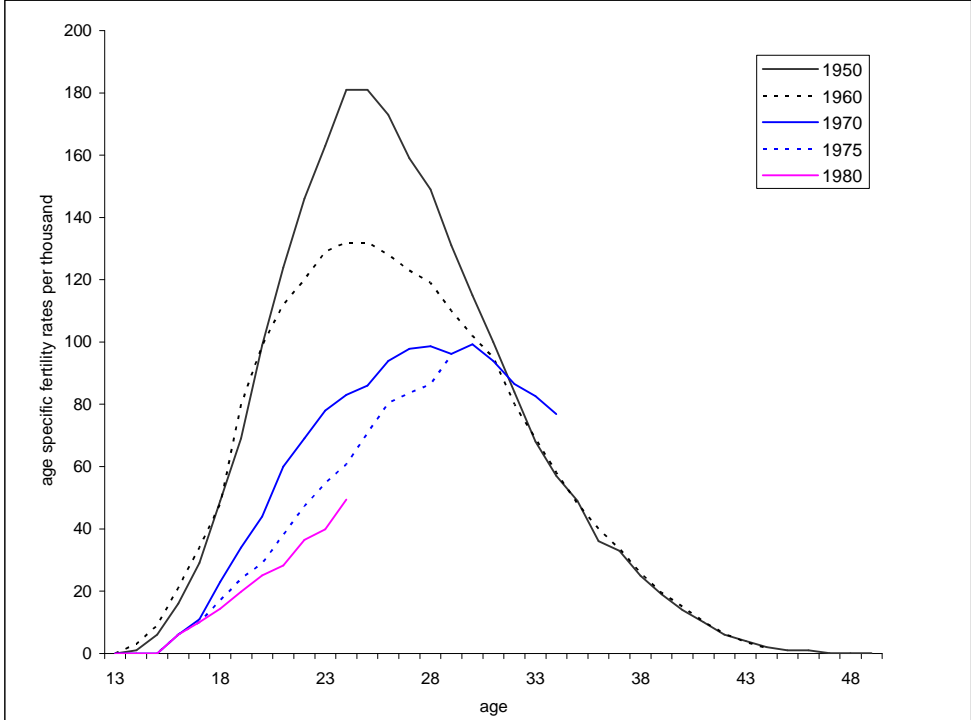
The process of fertility recovery in northern Italy becomes more visible when comparing the cumulated cohort fertility rates (CCFR) up to age x for the 1950-1980 cohorts (Figures 9 and 10). We take the cohort born in 1950 as our base and then compare its cumulated fertility to that of the younger cohorts[2] (Frejka and Calot, 2001; Sardon, 2006).

The analysis of CCFR shows a recovery of fertility in northern Italy by the 1960 and 1965 cohorts compared to the 1950 cohort. For example, in Emilia Romagna (Figure 9) the difference in CCFR between the 1950 and the 1965 cohort decreases from a maximum of -0.59 child per women at age 29 to -0.28 at age 49, and between the 1950 and 1960 cohort from -0.38 child per women at age 29 to -0.18 at age 49.

Furthermore, a comparison within the same northern regions of the 1980 cohort, to the 1970 and 1975 cohorts shows negligible differences.

Figure 9. Differences in CCFR between base and subsequent cohorts: Emilia Romagna, women born in 1950 (base) and 1955-1980.
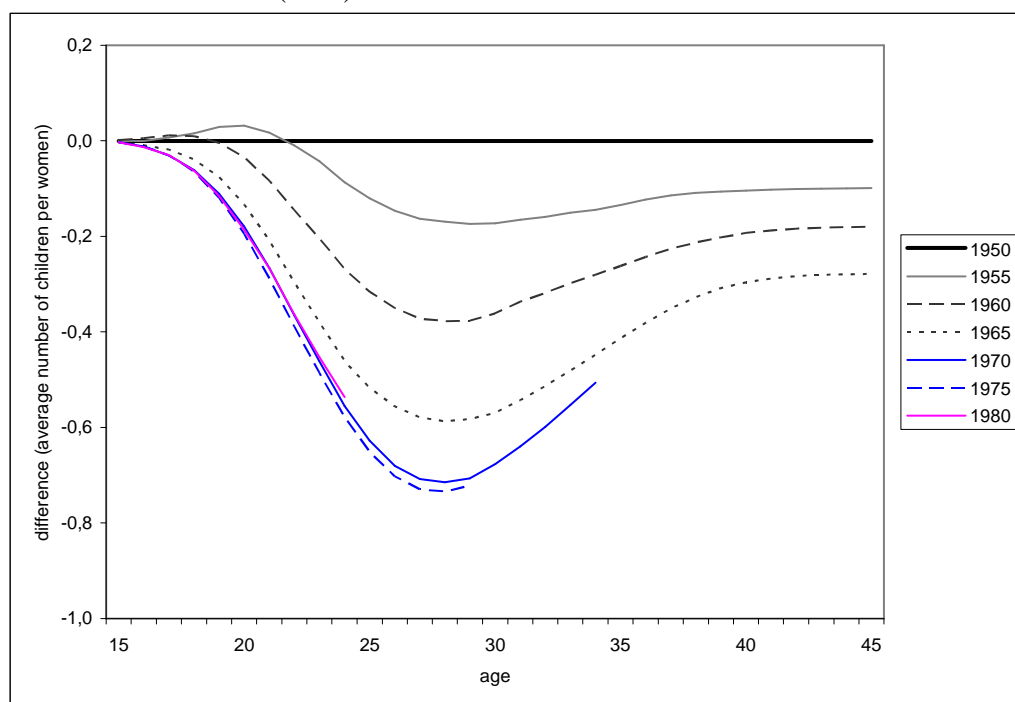
In southern Italy, the recovery of fertility is almost nonexistent for the 1960 and 1965 cohorts when compared to that of the 1950 cohort. Fertility also declines from the 1970 to the 1975 cohort. It is only for the 1980 cohort that the decrease in fertility seems to slow, when compared to the cohort born five years earlier (see Figure 10).

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[2] That is $^{1950}CTFR_x - {}^iCTFR_x$, where i is the cohort and x the age up to which age specific fertility rates are cumulated.

Figure 10. Differences in CCFR between base and subsequent cohorts: Sardinia, women born in 1950 (base) and 1955-1980.
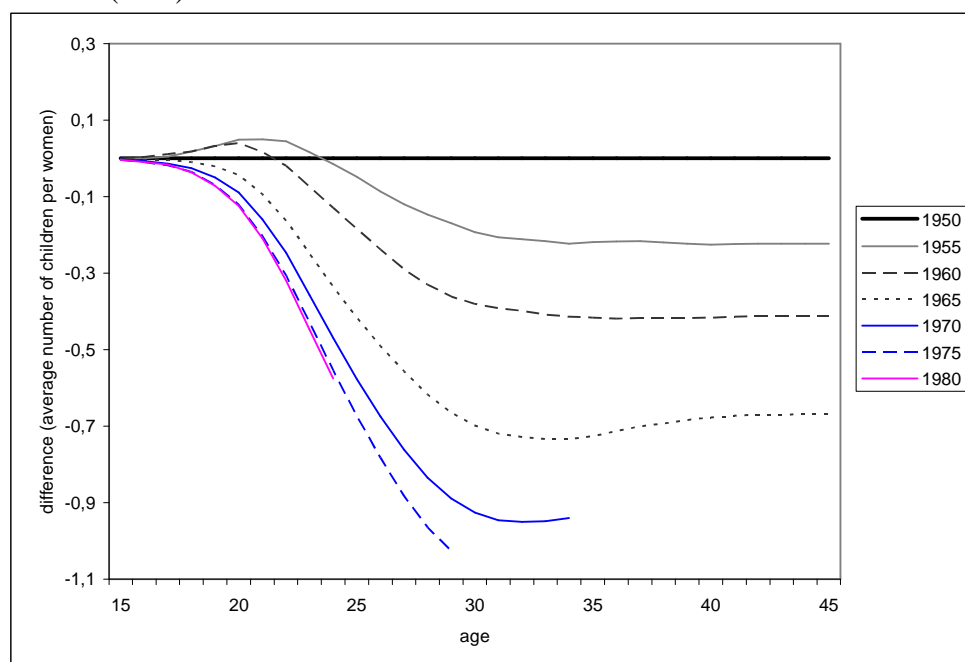
4. Micro level: an analysis of Italian fertility postponement and recovery of the first birth

4.1 Data and methods

In order to study both the individual level determinants of recent fertility recovery and the categories of women involved in this process, we analyzed data from the *Indagine Multiscopo Famiglia e Soggetti Sociali* (Multipurpose Survey of Families and Social Subjects) conducted by Istat in 2003. A representative sample of 49,541 individuals belonging to 19,227 families was interviewed. Among the many questions asked, the survey also collected information with regard to women's leaving parental home, fertility, partnerships and working histories.
For our analysis, we selected 6,899 women born between 1945 and 1963, aged 40 to 58 at the time of the interview. These are women who had almost completed their reproductive life (women born in 1945-1960 had 98-99% of their overall CTFR before age 41).
We estimated two probit models.

The first model aims to analyze individual level determinants of fertility postponement, and includes all of the women in our sample. The dependent variable is the probability of not having children before the age of 35. Explanatory variables are birth cohort, women's level of education (controlling for father's education), geographical area of residence, work history, number of brothers and sisters, and mother's working condition when the interviewee was 14.

As we described in the "background" section above, a number scholars have suggested that increases in female education and economic autonomy are among the most important factors influencing new patterns of family formation and postponed parenthood. Therefore, with respect to the probability of remaining childless at age 35, we expect a positive effect of

cohort and especially of female education. Number of siblings and mother's working condition are employed here as a control for the characteristics of the individual's parental family, and the context in which the woman grew up.

The second model analyzes the individual level factors which shape fertility recovery and was estimated using data from the 1,254 women in the sample who had no children before age 35. The dependent variable is the probability of having a child between the ages of 35 and 40. Explanatory variables are birth cohort, women's level of education (controlling for father's education), geographical area of residence, work history, number of brothers and sisters, mother's working condition when the interviewee was 14.

As documented in the literature (see the "background" section above), a number of indications have been suggested for the positive effect high levels of education seem to have on fertility at later ages. Ever more women hold a university degree, and after having postponed forming a family in order to invest in their personal development and profession careers, they may be likely to 'make up for lost time' (or recover their fertility) once they reach their late 30s. We therefore expect to see a growing association between the propensity to have a first child in one' late 30s, and the university education among the youngest generations of women.

Finally, we also estimated our models separately for women residing in northern and in southern Italy who, as seen above, have very different reproductive behaviours.

4.2 Results

- *The probability of being childless at age 35*

Results from the probit model on the probability of reaching age 35 without having had any child are presented in Table 4.

As expected, the propensity of an individual to remain childless until their late 30s has steadily increased among the recent generations, mainly in North-Centre, and is most apparent among the educated women, without there existing significant differences between women whose fathers have more or less education. Indeed, the highly significant results with regard to the interaction between these two variables is particularly indicative of an ever greater postponement to motherhood at later ages among the youngest generations; especially striking is the delay to motherhood among women who hold a university degree (Figure 11).

Occupation and timing of a woman's entry into the labour market are also important. The women who had never worked (up until 35 years of age) tended to have a first child earlier. When levels of education were equal, women who began to work after 30 years of age were more likely to be childless with respect those who had entered the labour market earlier.

Parental family size, inserted as a control variable, also has an impact on fertility. The more siblings a woman has, the less likely she is to postpone the birth of her first child, congruent with the hypothesis of intergenerational transmission affecting one's reproductive preferences.

Table 4. Model 1: Probit model on the probability to be childless at 35 years old. Women

Covariates	Italy	North-Centre	South-Islands
Area of residence:			
Centre (ref.)	1,00	1,00	-
North-west	1,25 ***	1,27 ***	-
North-est	1,16 **	1,18 ***	-
South-Islands	1,11 *	-	-
Education:			
Low education (ref.)	1,00	1,00	1,00
Medium education, Father low education	1,28 ***	1,32 ***	1,17 **
Medium educ., Father medium-high educ.	1,60 ***	1,76 ***	1,24
High education, Father low education	2,10 ***	2,33 ***	1,80 ***
High educ., Father medium-high educ.	2,16 ***	2,41 ***	1,72 ***
Cohort:			
1960-63 (ref.)	1,00	1,00	1,00
1955-59	0,88 **	0,87 **	0,91
1950-54	0,80 ***	0,74 ***	0,92
1945-49	0,78 ***	0,69 ***	0,94
Occupation:			
Never worked (ref.)	1,00	1,00	1,00
Worked < age 30, dependent, fixed term	1,19 ***	1,20 **	1,24 **
Worked < age 30, dependent, permanent	1,15 ***	1,18 **	1,21 ***
Worked < age 30, freelance	1,05	1,23	0,79
Worked age 30-34	1,26 ***	1,24	1,37 ***
Mother's occupation:			
Housewife or other (ref.)	1,00	1,00	1,00
Mother worked	0,98	1,00	0,93
Effect of one brother/sister more	0,98 ***	0,96 ***	1,00

Figure 11. Interaction between Education and Cohort (reference: Education high, Cohort 1960-63). Model 1: probability to be childless at 35 years old (Table 4), Italy
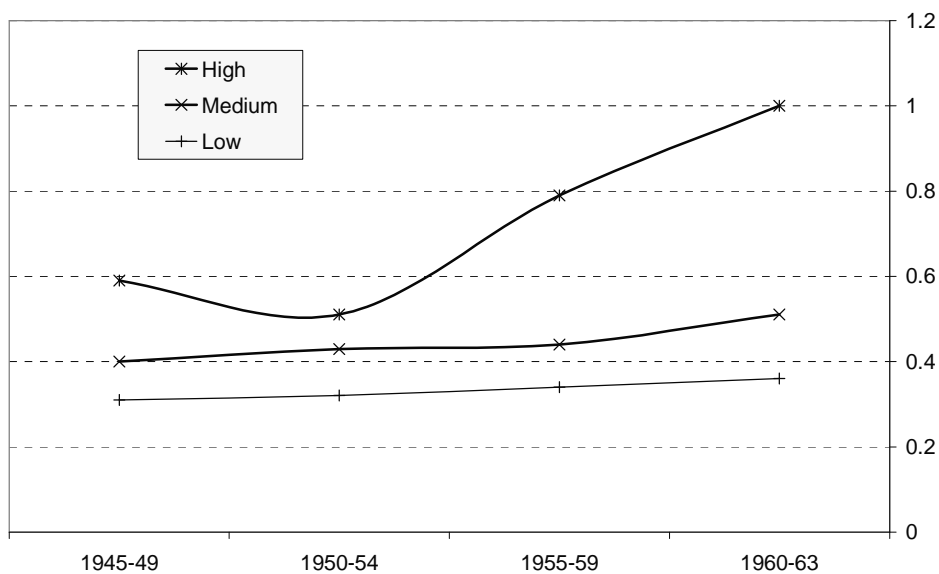
- *Fertility recovery in women's late 30s*

The descriptive analysis of the individual level data (Table 7) reveals an increase among the youngest generations of the quota of women who recover fertility after the age of 35. The analysis also shows the growing number of women who reach the age of 40 without ever having had a child (this group is potentially definitively childless, see Table 5)

If we examine the behaviour of individuals by level of education, the quota of women who have a lower level of education, and reach 40 years of age *with* children, progressively decreases (Figure 12). Among the young women who have a medium level of education, the number of women with children by age 40 also decreases, notwithstanding an increase in fertility recovery during their late 30s (Figure 13). Of note is the greater fertility recovery between the ages of 35 and 40 by women holding a university degree and born in the early 1960s, with respect to earlier generations of women with a high level of education. In fact, their fertility recovery by age 40 allows them to surpass the proportion of women with children born in the late 1950s (Figure 14).

Thus it seems that we may be observing the timid beginnings of reversal in fertility decline, due in large part to fertility recovery by women over 35 years of age, especially those, among the youngest generations, who hold a university degree.

These results are also largely confirmed by the probit model on the probability of having a child between the ages of 35 and 40 (Table 6). The effect of level of education is indeed positive. The cohort effect is not statistically significant, although it is in the expected direction.

The interaction between cohort and education is particularly significant if we consider the north-centre of Italy. As can be seen in Figure 15, the generations of women born in the early 1960s, with respect to those born in the late 1950s, seem more likely to recover fertility after age 35. This is especially true for women who have achieved a medium to high level of education. The effect of this interaction, graphed in Figure 15, is consistent with the picture of fertility recovery depicted in Figures 12-14 (especially with regard to delayed fertility in comparison to women without children at age 35).

Table 5. Women by age at first child. Cohorts 1945-49, 1950-54, 1955-59, 1960-63

	Before 35	35-39	childless by 40	Total	N
1960-63	74.64	6.55	18.81	100.0	1878
1955-59	79.87	3.61	16.53	100.0	2030
1950-54	84.83	3.55	11.62	100.0	1890
1945-49	86.06	2.27	11.67	100.0	1977

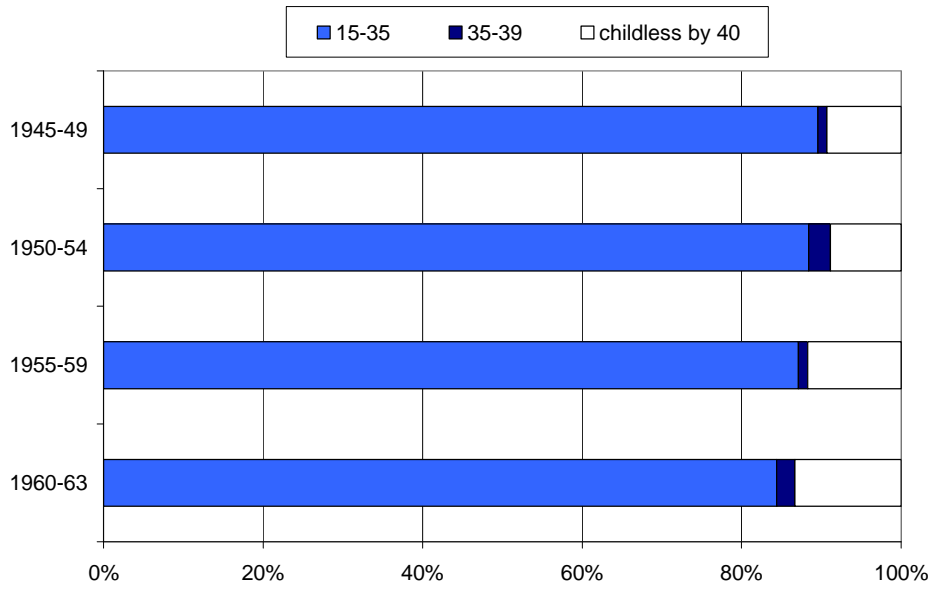Figure 12. % women by cohort and age at first birth. Low education

Figure 13. % women by cohort and age at first birth. Medium education
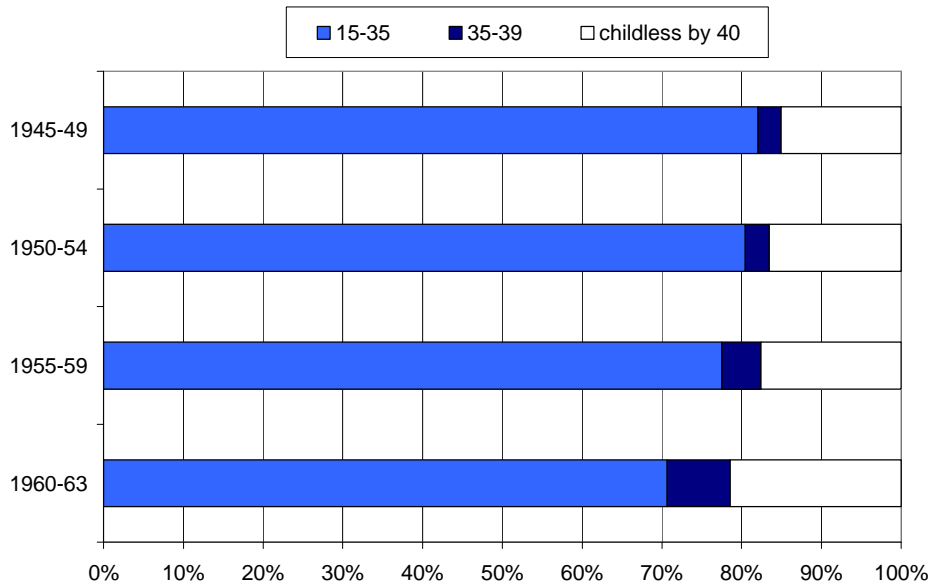
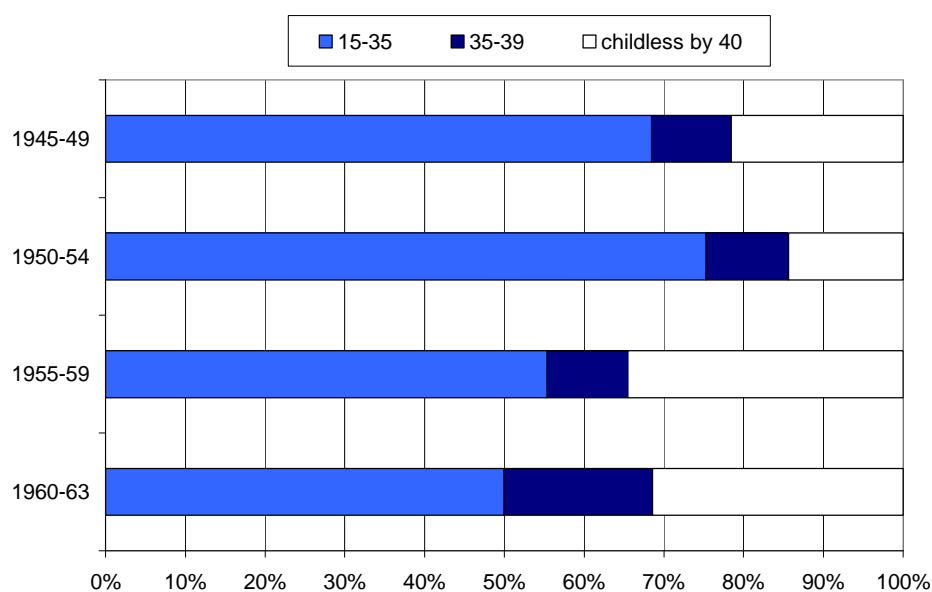Figure 14. % women by cohort and age at first birth. High education (degree)

Table 6. Model 2: Probit model on the probability to have the first child at age 35-40. Women

Covariates	Italy	North-Centre	South-Islands
Area of residence			
Centre (ref.)	1,00	1,00	-
North-west	0,93	0,94	-
North-est	1,05	1,06	-
South-Islands	1,14	-	-
Education			
Low education (ref.)	1,00	1,00	1,00
Medium education, Father low education	1,15	1,13	1,13
Medium educ., Father medium-high educ.	1,13	1,00	1,79 *
High education, Father low education	1,52 ***	1,51 **	1,52 *
High educ., Father medium-high educ.	1,68 ***	1,76 ***	1,36
Cohort			
1960-63 (ref.)	1,00	1,00	1,00
1955-59	0,95	0,88	1,14
1950-54	0,99	0,96	1,06
1945-49	0,85	0,74 *	1,09
Occupation			
Never worked (ref.)	1,01	1,00	1,00
Worked < age 30, dependent, fixed term	1,23	1,17	1,27
Worked < age 30, dependent, permanent	0,99	0,96	1,04
Worked < age 30, freelance	1,19	1,17	1,18
Worked age 30-34	1,08	1,09	1,01
Mother's occupation			
Housewife or other (ref.)	1,00	1,00	1,00
Mother worked	1,03	1,05	0,97
Effect of one brother/sister more	0,99	1,00	0,96

Figure 15. Interaction between Education and Cohort (reference: Education high, Cohort 1960-63). Model 2: probability to have the first child at age 35-40 (Table 6). North-Centre
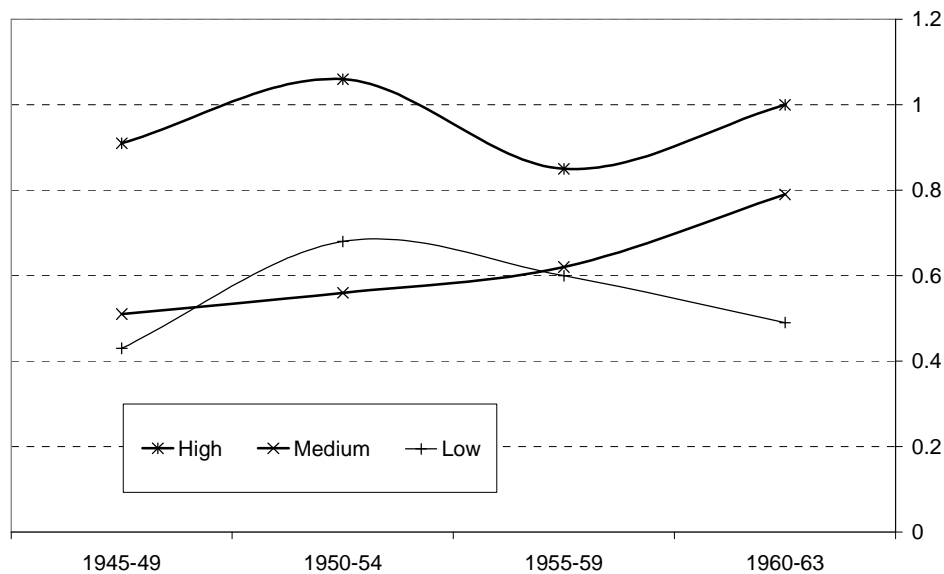
5. Discussion

Italy is a country characterized by *persistent very low* fertility levels. Indeed, the nation has now experienced a TFR of less than 1.5 for over 20 years. A historic low TFR of less than 1.2 children per woman was reached in the mid 1990s. The moderate, yet notable, increase in fertility observed since then is the result of complex regional patterns.

In the first part of our paper we presented and discussed current developments concerning this trend, using recently published regional data from the Italian National Institute of Statistics.
We found that a recovery in cohort fertility is presently in progress in the northern regions of Italy, even if not all postponed births are recovered. Cohort fertility in the southern regions, on the other hand, continues to decline rather significantly. Moreover, the timing of births has changed considerably in the North; in 2004, half of the births from the 1965 cohort were from women age 30 or over. In the South, on the other hand, fertility has a younger age structure; about one third of the 1965 cohort's overall births occurred after age 30.

In the second part of our paper, we focused on "late first-birth fertility" (entry into motherhood after the age of 35) using individual level data. We investigated both the determinants of postponement (or the propensity to reach age 35 without having had a child) as well as the determinants of recovery (or the propensity to subsequently have a child for those women who reach age 35 with parity zero).
We found, as expected, that the propensity to remain childless until one's late 30s has gradually increased among the more recent generations, particularly with regard to the more educated women.

With respect to our analysis of fertility recovery, our results show an increase in the quota of women who have children after age 35. We also see an increase, however, in the number of

women who reach 40 years of age without ever having had a child (and thus are potentially definitively childless).

The differentiation by level of female education draws particular attention to those women who hold a university degree and who are increasingly recovering fertility between the ages of 35 and 40. In fact, women born in the early 1960s with a high level of education are recovering fertility to such a degree that by age 40, they surpass the total quota of women that have had children among women born in the late 1950s.

The results from our applied model seem to confirm the timid beginnings of a reversal in fertility decline. This is in large part due to the increasing likelihood of fertility recovery after the age of 35 by those women among the youngest generations who hold a university degree. This recovery goes through education, not work experience, whose effect is not significant.
Our hypothesis, which is in part empirically supported by the data, is that ever more women who hold a university degree among the youngest generations will postpone forming a family in order to invest in their personal development and professional careers. These women, however, will then have the possibility to recover fertility in their late 30s.

These results are consistent with the growing amount of attention that has been dedicated to enhancing institutions and policies which promote the conciliation of work and family. More specifically, the last 10 years have seen an emphasis on issues such as parental leave, childcare provision, and access to part-time employment (Caltabiano, 2006). Interest has also been expressed in understanding the dynamics which contribute to a gender-symmetric division of domestic labour (an increasingly common characteristic of the more educated couples from the youngest generations[3], Mencarini, Tanturri 2004; Rosina, Sabbadini 2006). Furthermore, women with higher levels of education tend to also have greater resources, needed in order to pay for services in the private sector, such as childcare and assistance for their elderly parents.

Further analyses along these lines could, using a multilevel approach, correlate reproductive behaviours with the territorial distribution of childcare services, and more generally, with the strategies individuals employ in their efforts to balance family and work.

Moreover, it should be taken into account that we separately estimated two models: one on the postponement of fertility until 35 years of age, and the other on fertility recovery after that age. In a further stage of analysis we would like to use a multiprocess model in order to correlate these two equations, which are quite obviously interrelated.

Our models do not take into consideration different types of unions, as currently in Italy almost all births occur within marriage. Preliminary analysis on individual data shows that never married women have a much lower probability of having a first child with respect to those who are married; this probability increases only slightly if they have ever cohabitated.

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[3] "Our results show that in Italy, even in urban contexts, not much change has taken place in the family role-set (…). However, a progressive adaptation towards gender equity of family organization during the life course, including childbearing, is evident among a small proportion of dual-earning couples. Among these couples, belonging to the higher socio-economic level, women have a relatively high education level (…) Moreover, the gender-symmetric role-set of parents increases their likelihood to have one more child" (Mencarini and Tanturri, 2004, 134)

Moreover, introducing partnership experience into our models does not change the other parameters here considered.

However, with the increasingly widespread of cohabitation, divorces and step-families, it will be ever more necessary for future analyses to take into consideration type of family formation.

Finally, our analysis here has been limited to first births. Low fertility in Italy, however, is largely due to the fact the couples have no more than one child. It would therefore be of great interest to further enrich this analysis by analyzing the determinants of the propensity to "recover" a second child in one's late 30s.

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