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*Research Article*

### **Lowest-low fertility: Signs of a recovery in Italy?**

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## Lowest-low fertility: Signs of a recovery in Italy?

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### Abstract

The goal of this study is to describe the process of birth postponement and recovery in Italy, a country with *persistent very low* fertility levels.

The case of Italy is particularly noteworthy given that this country carries great demographic weight in Southern Europe, an area characterized by cultural and institutional specificities which have important implications for the timing of family formation and the final number of children.

We use data recently published by the Italian National Institute of Statistics (Istat), applying a cohort approach to show changes in CTFRs and the timing of births for the 1950-1980 cohorts. In order to further evaluate the evolution of Italian “fertility ageing” across social groups (with a focus on female education), we also use individual-level data from the 2003 Istat multipurpose survey, *Famiglia e soggetti sociali* (Family and Social Subjects).

We find that a recovery is presently underway in the northern regions of Italy, even if not all postponed births are recovered. As expected, signs of recovery are above all evident among the youngest generations and more educated women.

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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). The term "lowest low fertility" was introduced by Kohler, Billari, and Ortega (2002) 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 had a fertility level below 1.5 for over 25 years, and the decade of 1993-2003 saw levels consistently below 1.3. The nation reached a record low fertility rate 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 1.4 children per woman (Istat 2009a).

The moderate yet significant increase in Italian fertility over the last 15 years has been characterized by distinct regional patterns. In the northern regions of Italy, period fertility has returned to the levels observed in the early 1980s, in part due to an increasing number of babies born to immigrants, whose fertility tends to be higher than that of native Italians. Overall, however, there has also been a slight increase in native fertility, coupled with the diffusion of new forms of family arrangements among the younger cohorts. Today in the northern regions, about 30% of births occur outside of wedlock, while about 20% of births have at least one immigrant parent (Istat 2009b).

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

When cohort fertility, rather than period measures, is considered, Italian fertility levels are still found to be exceptionally low. Although the decline in fertility concerns all generations of women (at least beginning with those born in the 1920s), the proportion of women without any children in Italy has long remained relatively stable at less than 15%. Childlessness first began to increase noticeably among the cohorts of women born in the 1960s (De Rose, Racioppi, and Zanatta 2008). Beginning with the generations born at the end of the 1950s, ever more women in the central and northern regions started to forego early maternity, and the process of postponing first births began. With the birth cohorts of the 1960s, this behaviour became increasingly common, and spread throughout the country. The recent increase in fertility among older age groups could help to explain the halt in the decline of period fertility.

According to the Council of Europe's 2005 Demographic Yearbook, Italy and Germany share the lowest total cohort fertility rate (CTFR) in Europe (1.51 for the birth

cohort of 1965<sup>4</sup>). It is worth noting, however, that even after many years of very low and lowest low period fertility, cohort fertility has only recently reached the threshold of 1.5 children per woman. In fact, only those cohorts born in the 1960s find themselves on the doorstep of very low cohort fertility, and are still quite far from having lowest low fertility.

But what can be said about the future of Italian fertility? Frejka and Sardon (2006, 2007) show a permanent deficit in total cohort fertility among younger cohorts, who seem unable to recover the declines seen at earlier ages. Moreover, Frejka (2008) points out that the Italian cohort born in 1965 will have the highest proportion of childless women (about 24%), the lowest proportion of women with two children (37%), and one of the lowest percentages of women with three or more children (16%) in Europe. Finally, the Council of Europe's 2005 data confirm that there is currently no indication that the decline in total cohort fertility has come to a halt.

On the other hand, Golini (1998) and Sobotka (2004b) suggest that lowest low fertility is a temporary phenomenon linked to the postponement of childbearing, and that it may be overcome in a relatively short time if cohort fertility is constant. In this view, an increase in fertility rates among the older age groups of Italian cohorts should be expected. Supporting this proposition is the finding that the discrepancy in Italy between desired and actual fertility is among the highest in Europe (Testa 2006).

This study aims to describe the process of birth postponement south of the Alps, and more specifically, the dynamics behind fertility decline among women under the age of 30, and the recovery of fertility later in their reproductive lives. A recent study has pointed out that "while in Western European countries, the fertility 'lost' before the age of 30 is recovered afterwards, in the other areas this is not the case" (Sánchez-Barricarte and Fernández-Carro 2007:145). In this paper, we endeavour to explore whether it is possible to discern signs of recovery in Italy. We take our analysis to the national level, distinguishing between northern and southern Italy, as these areas have quite different demographic and socioeconomic histories (Livi Bacci 1977; Rallu 1983; Santini 1995; De Sandre 2000; Rosina 2004).

Our analysis is based on data published by the Italian National Institute of Statistics (Istat 2009b). We apply a cohort approach to show changes in CTFRs and the timing of births for the 1950-1980 cohorts. We could not, however, study changes in cohort fertility by parity, as these data are not currently provided by the Italian civil registry system. This limitation allows us to provide only a general picture of Italian reproductive behaviour and dynamics. In order to further evaluate the evolution of Italian fertility ageing across social groups (with a focus on female education), we also

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<sup>4</sup> In calculating CTFR for censored cohorts, each missing age-specific rate is replaced by the rate observed at the same age during the last year for which rates are available.

use individual level data from the 2003 Istat multipurpose survey, *Famiglia e soggetti sociali* (Family and Social Subjects).

We expect to find that, if signs of recovery exist, they will be more evident among younger generations of women with higher levels of education living in northern Italy. In other words, we assume that signals will emerge in contexts and social categories in which childcare services are more readily available, gender asymmetries are less evident, economic conditions are better, and modern and post-modern values are more diffused (Saraceno 1994; Pinnelli 1995; Del Boca, Pasqua, and Pronzato 2004; Van de Kaa 2004; Rosina and Sabbadini 2006; Sánchez-Barricarte and Fernández-Carro 2007).

In an effort to describe the mechanisms behind the widespread postponement of births, in the section which follows we contextualize Italian fertility dynamics within the larger framework of European fertility at the beginning of the 21st century. We focus specifically on the role of female education levels. In Sections 3 and 4, we describe cohort fertility behaviour in Italy, showing evidence for fertility recovery in the northern regions (although not all postponed births are recovered). In Section 5, we use micro-level data to demonstrate the possible early stages of a slowing, if not a reversal, in fertility decline. This phenomenon seems due in large part to fertility recovery by women over the age of 30, especially among the youngest generations who hold a university degree.

## **2. Background**

At the turn of the century, low levels of fertility were observable across all Western countries. In fact, while many nations had a TFR above two children per woman in 1980, over the last 25 years 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 (Billari, Liefbroer, and Philipov 2006).

Although there has been some variation across countries, the postponement of the transition to motherhood is generally characterized by both an increase in average age at first birth, and a decrease in adolescent (ages 15-19) and juvenile (ages 20-26) fertility. In fact, in many European countries (with the exception of Eastern Europe) more than 50% of births are from mothers over the age of 26 (Table 1).

Despite these general trends, Europe remains very heterogeneous. Older ages at first birth are not always associated with lowest low fertility. For example, the Netherlands and France have the same average age at first motherhood as Italy, yet

these countries have higher fertility levels (see Table 1 and Figure 1 for a comparison of Italy and France).

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

		Poland	Hungary	Czech Rep.	Slovak Rep.	Bulgaria	Romania	Sweden
Mean Age at First Marriage (1)	1980	22.7	21.2	21.5	21.9	21.3	21.5	26.0
	1990	22.6	21.9	21.6	21.9	21.4	22.0	27.5
	2000	23.9	24.6	24.5	24.0	24.1	23.4	30.2
Mean Age at First Birth (2)	1980	23.4	22.4	22.4	22.7	21.9	22.4	25.3
	1990	23.3	23.1	22.5	22.6	22.2	22.7	26.3
	2000	24.5	25.1	24.9	24.2	23.5	23.6	27.9
(2) – (1)	1980	0.7	1.2	0.9	0.8	0.6	0.9	-0.7
	1990	0.7	1.2	0.9	0.7	0.8	0.7	-1.2
	2000	0.6	0.5	0.4	0.2	-0.6	0.2	-2.3
TFR	1980	2.26	1.91	2.10	2.31	2.05	2.43	1.68
	1990	2.05	1.87	1.90	2.09	1.82	1.84	2.13
	2000	1.34	1.32	1.14	1.29	1.26	1.31	1.54
1000 x age 15-19 Age Specific Fertility Rate	1980	32.9	68.0	53.1	48.2	81.2	72.3	15.8
	1990	31.5	39.5	44.7	45.5	69.9	51.5	14.1
	1995	21.1	29.5	20.1	32.3	49.6	42.0	7.7
% CTFR after age 27	c.1950	...	28.3	26.7	31.0	22.5	30.7	46.7
	c.1960	...	31.8	25.4	28.1	20.2	26.0	60.9
	c.1965	...	33.3	25.9	21.1	18.5	22.3	58.8
Nonmarital Birth %	1980	4.8	7.1	5.6	5.7	10.9	2.8	39.7
	1990	6.2	13.1	8.6	7.6	12.4	4.0	47.0
	2000	12.1	29.0	21.8	18.3	38.4	25.5	55.3

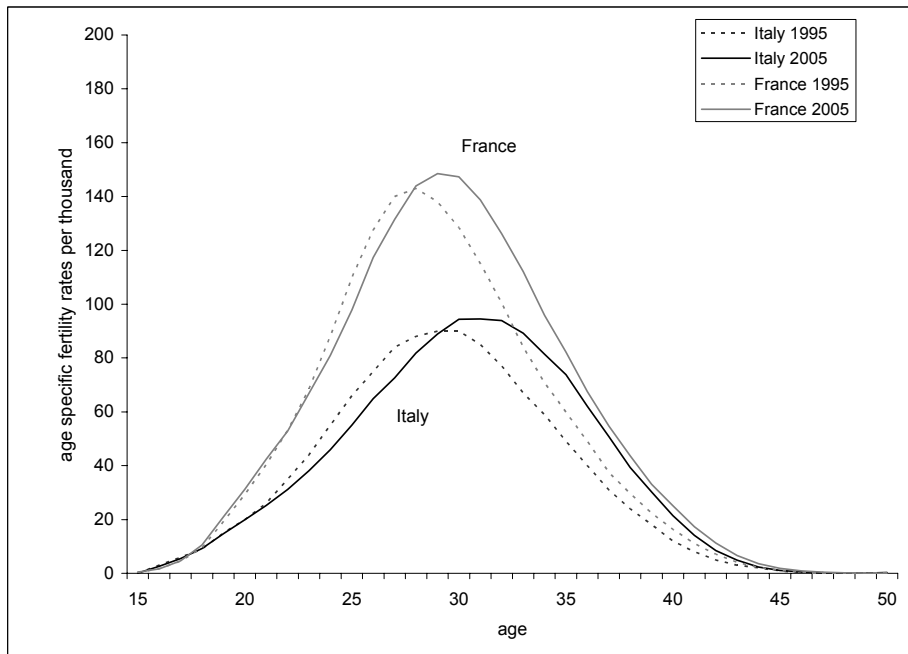
**Table 1: (Continued)**

		UK	Nether-lands	former FDR	France	Spain	Italy	Greece	Portugal
Mean Age at First Marriage (1)	1980	23.0	23.2	23.3	23.0	23.4	23.8	23.3	23.2
	1990	25.0	25.9	25.7	25.6	25.3	25.5	24.6	23.9
	2000	27.2	27.8	...	27.8	27.8	27.0	26.6	25.3
Mean Age at First Birth (2)	1980	...	25.7	25.5	25	25.0	25.0	24.1	24.0
	1990	27.3	27.6	27.0	27	26.8	26.9	25.5	24.9
	2000	29.1	28.6	28.0	28.7	29.1	28.7 <sup>b</sup>	27.3	26.5
(2) – (1)	1980	...	2.5	2.2	2.0	1.6	1.2	0.8	0.8
	1990	2.3	1.7	1.3	1.4	1.5	1.4	0.9	1.0
	2000	1.9	0.8	...	0.9	1.3	1.7	0.7	1.2
TFR	1980	1.89	1.60	1.45	1.95	2.20	1.64	2.23	2.25
	1990	1.83	1.62	1.45	1.78	1.36	1.33	1.39	1.57
	2000	1.65	1.72	1.38	1.89	1.24	1.24	1.29	1.55
1000 x age 15-19 Age Specific Fertility Rate	1980	29.6 <sup>a</sup>	9.2	19.5	25.4	25.8	20.9	53.1	41.0
	1990	33.2 <sup>a</sup>	8.3	16.8	13.3	11.9	9.0	21.6	24.1
	1995	28.4 <sup>a</sup>	5.8	13.2	10.0	7.8	6.9	13.0	20.9
% CTFR after age 27	c.1950	43.1 <sup>a</sup>	47.5	41.3	41.1	47.4	37.2	39.7	43.1
	c.1960	53.0 <sup>a</sup>	66.0	55.0	50.7	53.6	46.5	37.7	42.8
	c.1965	55.7 <sup>a</sup>	71.7	61.5	57.9	62.9	56.0	46.0	50.2
Nonmarital Birth %	1980	11.5	4.1	7.6	11.4	3.9	4.3	1.5	9.2
	1990	27.9	11.4	10.5	30.1	9.6	6.5	2.2	14.7
	2000	39.5	24.9	18.6	42.6	17.7	9.7	...	22.2

<sup>a</sup> England and Wales <sup>b</sup> 29.4 in the Centre-North and 27.5 in the South-Islands  
 Sources: Billari (2005) and our elaboration of Italian data from <http://demo.istat.it>

Change in the timing of childbearing is considered to be an important element in second demographic transition theory (Lesthaeghe and Neels 2002). One salient driving force behind this process is the increasing number of women with a high level of investment in human capital. Gustafsson (2001), for example, shows that, in Germany, Great Britain, and Sweden, women with university-level education were the first to begin postponing 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, Kneale and Joshi 2008, with regard to two British cohorts, and Andersson et al. 2009, with regard to the Nordic countries).



**Figure 1: Age-specific fertility rates in Italy and France, 1995 and 2005**

Sources: <http://demo.istat.it> and <http://www.ined.fr>.

In fact, scholars have suggested that increased female education and economic autonomy are among the principal factors shaping new patterns of family formation and postponed parenthood (Lesthaeghe 2001; Sobotka 2004a). When women delay first births, they increase their chances of securing well-paid employment as a result of their education, their accumulated on-the-job skills, and their experience (McDonald 2000). “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, Liefbroer, and Philipov 2006:5).

In Italy, the postponement of childbearing until older ages and the marked decline in marriage and children in the central and northern regions are trends that are particularly widespread among more educated women. This is especially true among women from parental families with poor financial and cultural resources (Rosina, Fraboni, and Sabbadini 2003).

For the cohorts born in the 1950s, greater personal aspirations, together with

higher levels of education, were in opposition to a more traditional context (i.e., with regard to family patterns, gender roles, and work time management), and may ultimately have polarized work and family for these women. According to Piazza (1994), this generation was typified by a “daily synchronicity,” or by the quotidian challenge of equally managing and maintaining the two poles of family and work. Indeed, many women from these cohorts faced a reality characterized by hard work, lack of social resources, and hostility from the cultural environment. One obvious way out of this situation was to sacrifice one of the two poles. It was not until the birth cohorts of the 1960s that a “diachronic strategy” seems to have emerged, characterized by a postponement, and then a recovery of childbearing, and by greater flexibility in the management of time spent working (Rosina 2004).

The opportunity for a more flexible life course, in which having children becomes one of many possible choices, has been discussed by proponents of the second demographic transition (Van de Kaa 2004). They argue that a modern society that is open to social and cultural changes allows couples and individuals to develop a more individualized lifestyle in which options and choices are multiplied. The decision to have an (additional) child – including at older ages – may be considered to be an enrichment of one’s personal life and that of the couple; i.e., as a means of attaining self-fulfilment and parental satisfaction. Couples with higher levels of education may be more likely to seek such self-realization through individualized choices.

Recent empirical data demonstrate, however, that the negative impact of higher educational levels on fertility has progressively lessened over time, to the point that it disappears, or even reverses direction (Kravdal 2001; Dalla Zuanna and Impicciatore 2007). The absence of a clear relationship (at least in Western countries) between the distribution of women by parity and their level of education also tends to confirm the finding that, given equal levels of education, reproductive decisions can be very different (Shkolnikov et al. 2007). In Italy, a recent trend has been observed in which couples with greater cultural and economic resources do not have a lower propensity to have children (Dalla Zuanna and Tanturri 2007; Rosina and Testa 2007).

### **3. A descriptive picture of regional Italian fertility**

#### **3.1 Sources and methods**

The regional-level, age-specific fertility rates analyzed here come from two different sources: *Stato Civile*, which registers births from the actual (*de facto*) population (Istat 1997, 1998a, 1998b, 2000) for the years 1952-1998, and *Anagrafe*, which records births from the resident (*de jure*) population, for the years 1999-2007 (Istat 2009b; presently

available only online at <http://demo.istat.it/altridati/IscrittiNascita/index.html>). Birth data by parity and mother's age are not available after 1996 (Bonarini 2006).

By aggregating cross-sectional data at a cohort level, the complete age schedule of fertility is available for the 1935-1958 cohorts. For the 1959-1970 cohorts, some of the CTFRs were estimated (ages 49-38) with the assumption that age-specific fertility rates will not change between younger and older cohorts. This procedure may overestimate fertility if the delay in births continues over the following years, or it may underestimate fertility if the recovery is faster than that of the recent past. However, any distortion for the cohorts examined here should be negligible (Caltabiano 2008). Finally, this seemed to be the most "neutral" choice, as it would not overly influence the analysis of a delay or a recovery.

### **3.2 A brief summary of the different patterns of fertility in northern and southern Italy**

Over the last 50 years, fertility in northern and southern Italy has followed two distinct patterns (Livi Bacci 1977; De Sandre 2000).

In the northern and central regions, the TFR increased considerably in the early 1960s, during the years of the Italian *baby boom* (Terra Abrami and Sorvillo 1993). This increase was, however, followed by a decline, which accelerated in the late 1970s. The TFR reached its lowest point in 1995, and then gradually began to rise. In the regions of southern Italy, the end of fertility transition masked the *baby boom* (Rallu 1983), and the TFR slowly declined in the 1960s, accelerating in 1970s. At present, the decline in southern Italy's TFR has not yet reached a minimum level, but has rather only slowed, or stabilized at low levels in a few regions (Caltabiano 2006). Notably, recent data (Istat 2009a) show that, for the first time in Italian history, the TFR in the North (1.45) is higher than that in the South (1.35). This switch may be due in part to a comparatively larger relevant share of young immigrant births in the North, and to a slower pace of postponement and recuperation in the South (see Section 4).

Changes in CTFRs are less irregular than those seen in the period TFRs: there is no *baby boom*, and the decrease in cohort fertility is slow but continuous, at least since those cohorts born in late 1930s (Table 2, Figure 2).

Moreover, the decrease in CTFRs was slower and more regular in the regions of northern and central Italy, where the cohorts born in the early 1930s already had low fertility levels. In these same regions, the decline in CTFRs slows for those cohorts born in the late 1960s. In the southern regions, on the other hand, the decline occurred later but faster, and has not yet shown signs of discontinuity for the cohorts born in the late 1970s and the early 1980s.

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 lives (Figure 3). Women born in 1960, on the other hand, began having children at an earlier age. Overall CTFRs for the different cohorts may not, however, be all that dissimilar, given that the younger cohorts seem to recover fertility levels after age 30 (thereby beginning childbearing later).

**Table 2: Levels of CTFRs and mean age at childbirth in Italy, 1935-1970 cohorts**

	CTFR						
	1935	1945	1950	1955	1960	1965	1970
Northern Italy	1.94	1.83	1.68	1.58	1.47	1.37	1.32
Central Italy	2.04	1.94	1.79	1.69	1.59	1.45	1.36
Southern Italy	2.89	2.49	2.27	2.17	2.03	1.84	1.65
<i>Italy</i>	<i>2.30</i>	<i>2.08</i>	<i>1.91</i>	<i>1.83</i>	<i>1.71</i>	<i>1.56</i>	<i>1.45</i>

	Mean age at childbirth						
	1935	1945	1950	1955	1960	1965	1970
Northern Italy	28.6	26.9	26.8	27.2	28.4	30.2	31.4
Central Italy	28.2	26.9	26.9	27.2	28.3	30.0	31.3
Southern Italy	29.0	27.4	27.1	26.9	27.2	28.2	29.2
<i>Italy</i>	<i>28.6</i>	<i>27.1</i>	<i>26.9</i>	<i>27.0</i>	<i>27.8</i>	<i>29.2</i>	<i>30.4</i>

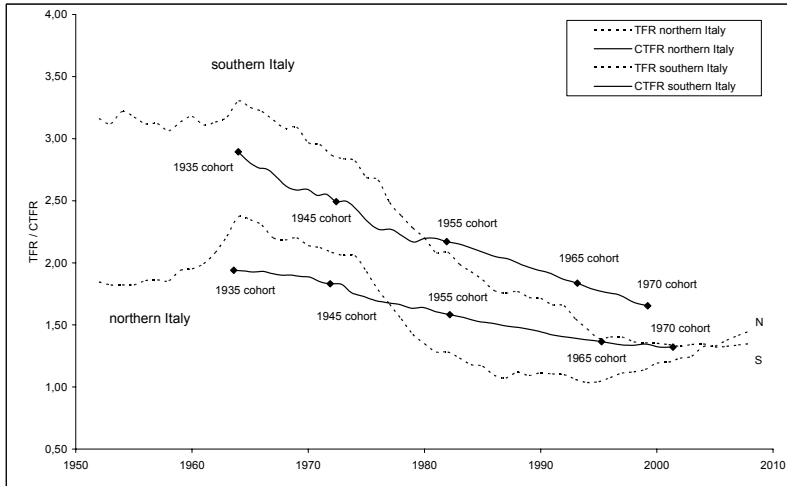
Source: Our elaboration of Italian data from <http://demo.istat.it>

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 less dramatically – and the timing of fertility begins only slightly later (Figure 4).

The process of fertility recovery in northern Italy becomes more visible when we compare cumulated cohort fertility rates (CCFR) up to age  $x$  for the 1950-1980 cohorts (Figure 5). We take the cohort born in 1950 as our base, and then compare its cumulated fertility to that of the younger cohorts<sup>5</sup> (Frejka and Calot 2001).

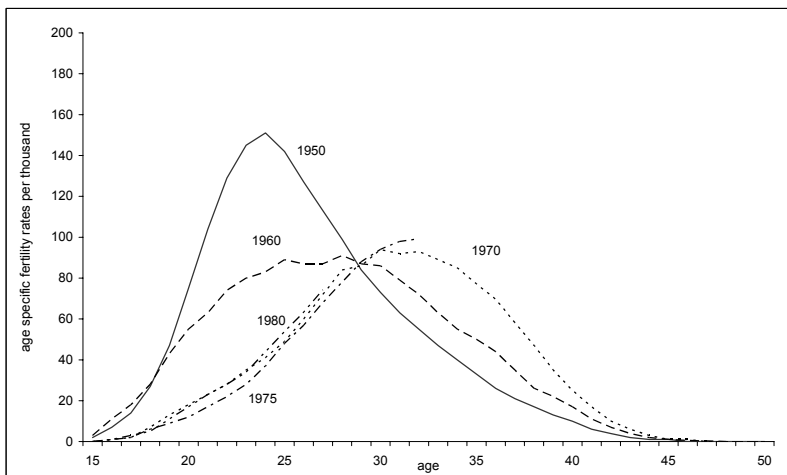
<sup>5</sup> That is  ${}^{1950}CTFR_x - {}^iCTFR_x$ , where  $i$  is the cohort and  $x$  the age up to which age specific fertility rates are cumulated.

**Figure 2: TFR and CTFR (lagged by mean age at childbearing), Northern and Southern Italy**



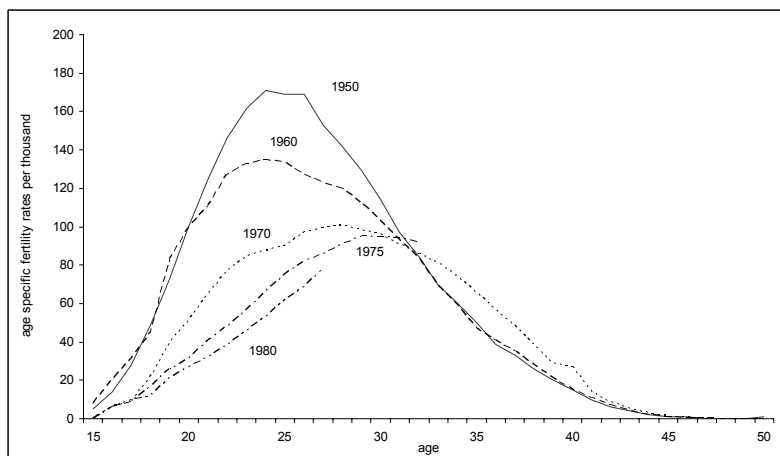
Source: Our elaboration of Italian data from <http://demo.istat.it>

**Figure 3: Cohort age specific fertility rates per thousand, Northern Italy, 1950-1980 cohorts**



Source: Our elaboration of Italian data from <http://demo.istat.it>

**Figure 4: Cohort age specific fertility rates per thousand, Southern Italy, 1950-1980 cohorts**



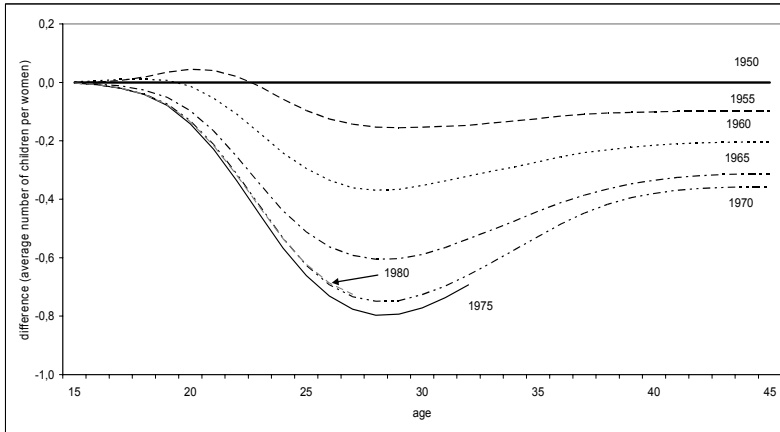
Source: Our elaboration of Italian data from <http://demo.istat.it>

The analysis of CCFRs shows a recovery of fertility in northern Italy among the 1960, 1965, and 1970 cohorts, compared to the 1950 cohort. In northern Italy, the difference in CCFRs decreases from a maximum of -0.35 child per women at age 29 to -0.20 at age 49 between the 1950 and the 1960 cohorts, from -0.59 child per women at age 29 to -0.31 at age 49 between the 1950 and 1965 cohorts, and from -0.73 child per women at age 29 to -0.36 at age 49 between the 1950 and 1970 cohorts.

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

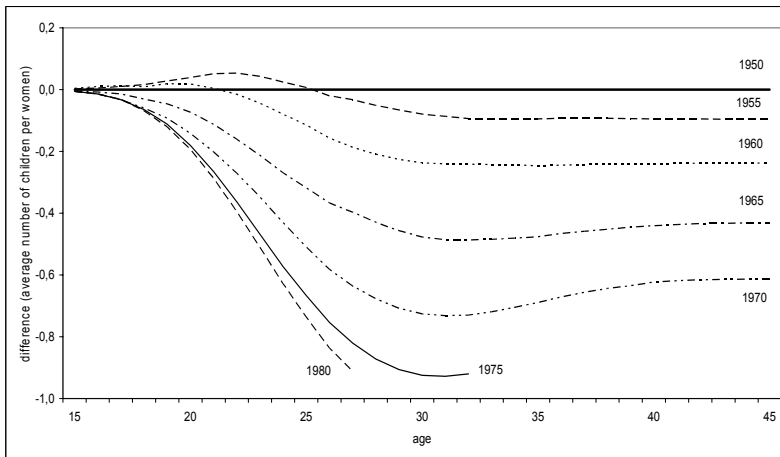
In southern Italy, the recovery of fertility at older ages is almost nonexistent for the 1960 and 1965 cohorts, compared to that of the 1950 cohort. However, for the latter, a large share of overall fertility was achieved through third and higher order births. Thus, this fertility decline reflects the completion of the demographic transition (Rallu 1983). Fertility also declines from the 1970 to the 1975 cohorts, and recovery is limited (about 0.11 for the 1970 cohort). It is only for the 1980 cohort that the decrease in fertility seems to slow, compared to the cohort born five years earlier (see Figure 6).

**Figure 5: Differences in CCFR between base and subsequent cohorts: Northern Italy, women born in 1950 (base) and 1955-1980**



Source: Our elaboration of Italian data from <http://demo.istat.it>

**Figure 6: Differences in CCFR between base and subsequent cohorts: Southern Italy, women born in 1950 (base) and 1955-1980**



Source: Our elaboration of Italian data from <http://demo.istat.it>

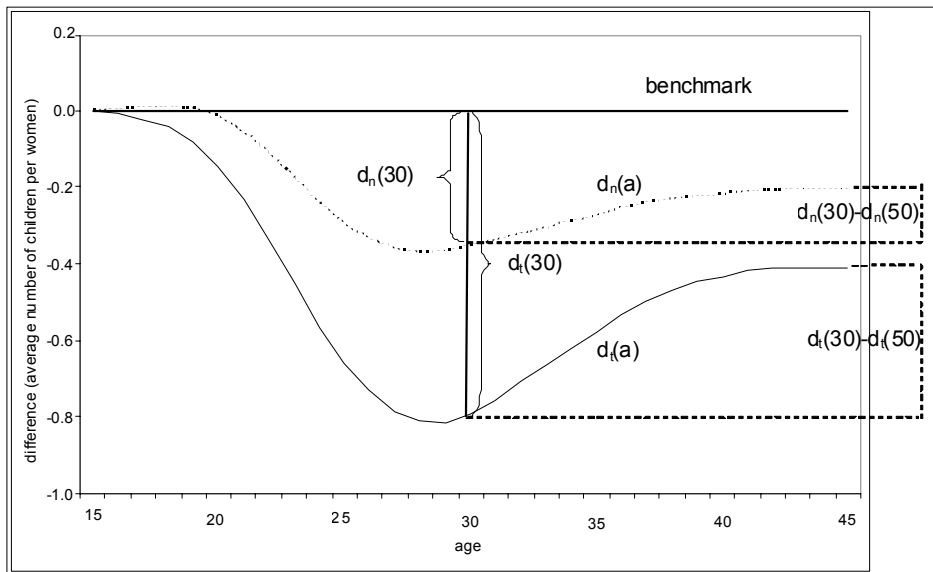
## 4. An analysis of fertility postponement and recovery

### 4.1 The experience of cohorts born after 1940

In this section, we more formally analyze fertility postponement and recuperation among Italian cohorts by applying a model proposed by Ron Lesthaeghe (2001; see his article for further methodological details).

This model provides a means of studying the deficits and surpluses in cumulative fertility by age in succeeding cohorts (grouped by five) in relation to an older cohort chosen as a benchmark, as done in Section 3.

**Figure 7: Lesthaeghe model for cohort patterns of cumulated age-specific fertility deficits  $d_i(a)$  relative to a benchmark cohort, standardized through national standard deficits  $d_n(a)$**





Postponement and recuperation on the part of each cohort, with respect to the benchmark, are measured by means of two series of scalars: the *through scalars*  $k_t$  and the *relative recuperation scalars*  $R_t$  (Lesthaeghe 2001:15-17). The *through scalar*, intended to assess postponement, is measured at age 30 as:

$$k_t = \frac{\text{cumfert}_t(30) - \text{cumfert}_b(30)}{\text{cumfert}_n(30) - \text{cumfert}_b(30)} = \frac{d_t(30)}{d_n(30)} \quad (1)$$

where cumfert is cumulated fertility up to age 30 respectively for each cohort (subscript  $t$ ), in the national standard schedule of deviations (subscript  $n$ )<sup>6</sup>, and in the benchmark schedule (subscript  $b$ ). In such a model, the national standard synthesizes the country's specific age shape of fertility, and the deviations of each cohort are scaled up or down with the *through scalar*  $k_t$  at all ages (Lesthaeghe 2001).

The second scalar,  $R_t$ , intended to assess recuperation, is measured as:

$$R_t = \frac{d_t(30) - d_t(50)}{d_n(30) - d_n(50)} \quad (2)$$

In other words, it is the ratio of the amount of fertility recuperated at age 50 with respect to age 30 in any cohort<sup>7</sup>, over the amount recuperated in the standard national schedule.

Lesthaeghe himself suggests a criterion for choosing the best benchmark cohort: "A good benchmark cohort would be one that has not yet experienced much postponement nor catching up." For this reason, we chose the Italian cohort of 1948-52 as our benchmark. The model is thus "centred" on the 1950 cohort, the last before a significant postponement in fertility schedule (Figure 8). We used this same group in Section 3 as our base cohort. In addition, women in Italy (as in other Southern European countries) began to postpone fertility later than women in Northern and Western European countries (Frejka and Sardon 2007).

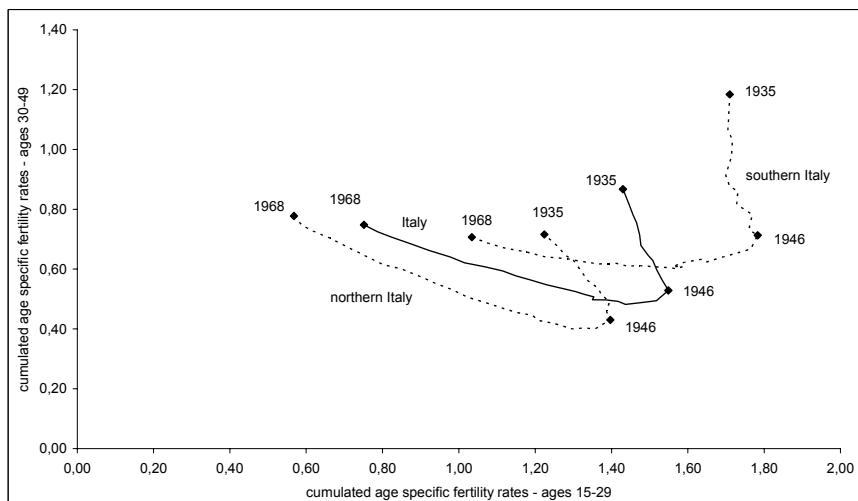
In order to best examine postponement and recuperation in Italy, we thus chose a benchmark cohort born about five years after the cohorts chosen by Lesthaeghe in his paper, in which he compares Austria, Belgium, France, Germany, Netherlands, and Switzerland.

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<sup>6</sup> Computed as the average deviation from the benchmark cohort for the first three cohorts after the benchmark.

<sup>7</sup> Each  $d_t$  value is the deviation in cumulated fertility compared to that of the benchmark cohort, e.g.,  $d_t(30) = \text{cumfert}_t(30) - \text{cumfert}_b(30)$  and  $d_n(30) = \text{cumfert}_n(30) - \text{cumfert}_b(30)$ .

**Figure 8: Relationship between the CCFRs for ages 15-29 and 30-49, for the cohorts born from 1935 to 1965**



Source: Our elaboration of Italian data from <http://demo.istat.it>

Tables 4 and 5 compare the speed of postponement and recuperation in the six countries analyzed by Lesthaeghe, plus Italy. The levels of CCFR for each cohort and country are in Table 3.

The series  $d_n(30)$  and  $d_n(30) - d_n(50)$  synthesize the specificities of fertility in each country. The Netherlands, for example, shows the highest levels of both postponement and recuperation. In Italy, postponement is also high, but recuperation is similar to that of other countries, and does not compensate for the missing births before age 30. Austria and Belgium, on the other hand, show very low levels of recuperation.

The series of  $k_t$  and  $R_t$  scalars provide the time schedule for postponement and recovery. We present two different series of data. (1) Series A gives the values of  $k_t$  and  $R_t$  based on each national standard; these cannot be used for international comparisons, but are useful for observing national time paths. (2) Series B gives the values of  $k_t$  and  $R_t$  based on the average postponement/recuperation in the six countries of Western Europe analyzed by Lesthaeghe. A comparison between Italy and these countries is thus possible, as all of the countries use the same “national” standard schedule.

**Table 3: Levels of CTFR in the seven European countries examined in Tables 4 and 5 and in the Italian macro-regions examined in Tables 6 and 7**

	Bench.	Coh. 1	Coh. 2	Coh. 3	Coh. 4
	<b>1940-44</b>	<b>1945-49</b>	<b>1950-54</b>	<b>1955-59</b>	<b>1960-64</b>
Belgium	2.07	1.87	1.82	1.84	1.82
	<b>1942-46</b>	<b>1947-51</b>	<b>1952-56</b>	<b>1957-61</b>	<b>1962-66</b>
France	2.25	2.12	2.13	2.12	2.04
Germany ex FRG	1.82	1.73	1.67	1.65	1.55
	<b>1943-47</b>	<b>1948-52</b>	<b>1953-57</b>	<b>1958-62</b>	<b>1963-67</b>
Austria	1.96	1.87	1.77	1.69	1.63
Netherlands	2.00	1.89	1.87	1.85	1.78
Switzerland	1.87	1.79	1.75	1.76	1.66
<i>Average</i>	<i>1.99</i>	<i>1.88</i>	<i>1.84</i>	<i>1.82</i>	<i>1.75</i>
	<b>1948-52</b>	<b>1953-57</b>	<b>1958-62</b>	<b>1963-67</b>	-
Italy	1.91	1.83	1.70	1.56	-
Northern Italy	1.68	1.58	1.47	1.37	-
Central Italy	1.77	1.69	1.57	1.45	-
Southern Italy	2.25	2.17	2.02	1.84	-

Sources: Italy: our elaboration of Italian data from <http://demo.istat.it>

All other European countries: our elaboration of Council of Europe data from: [http://www.coe.int/t/e/social\\_cohesion/population/demographic\\_year\\_book/2003\\_edition/04%20Country%20Data/Default.asp#TopOfPage](http://www.coe.int/t/e/social_cohesion/population/demographic_year_book/2003_edition/04%20Country%20Data/Default.asp#TopOfPage) (last retrieved 30/06/2009)

Series A in Table 4 shows that postponement accelerated among the younger cohorts in all of the countries examined. In the beginning, postponement in Italy is slower than the average, but then quickly accelerates, surpassing the levels reached in all of the other countries.

Series B allows for a comparison of the patterns among countries: in Italy postponement started more slowly than in other countries, but soon accelerated and reached the levels found in the Netherlands, the country with the greatest postponement among those analyzed.

In Table 5 we present the recuperation scalars  $R_t$ . The time path of deficit reduction among Italian cohorts is similar to that of other countries, with a sharp acceleration among the younger cohorts (Series A). The intensity of recuperation is also similar for each group of cohorts relative to the average for the other countries.

Series B of Table 5 shows that the time path of recuperation in Italy is in an intermediate position, similar to those of Germany and Switzerland. Differences between these countries increase among the younger cohorts, although recovery after age 29 is much lower than in the Netherlands and higher than in Austria.

**Table 4: Evolution of the speed of postponement  $k_t$  in the cumulated fertility deficits of cohorts in seven European countries (see Lesthaeghe 2001)**  
**Series A: relative to national standards  $d_n(a)$**   
**Series B: relative to six countries' average standard**

	$d_n(30)$	$k_t = \frac{cumfert_t(30) - cumfert_b(30)}{cumfert_n(30) - cumfert_b(30)}$			
		Coh. 1	Coh. 2	Coh. 3	Coh. 4
<b>Series A</b>					
Austria	-265	0.562	0.966	1.468	1.823
Belgium	-284	0.694	1.060	1.250	1.588
France	-238	0.660	0.987	1.357	2.235
Germany ex FRG	-252	0.587	0.996	1.413	2.032
Netherlands	-370	0.500	1.054	1.449	1.876
Switzerland	-266	0.632	1.117	1.252	1.883
<i>mean</i> =	-279	0.606	1.030	1.365	1.906
Italy	-319	0.372	0.952	1.676	2.272
<b>Series B</b>					
Austria	(-279)	0.534	0.918	1.394	1.731
Belgium	(-279)	0.706	1.079	1.272	1.616
France	(-279)	0.563	0.842	1.158	1.906
Germany ex FRG	(-279)	0.530	0.900	1.276	1.835
Netherlands	(-279)	0.663	1.398	1.921	2.487
Switzerland	(-279)	0.602	1.065	1.194	1.796
Italy	(-279)	0.425	1.087	1.913	2.593

*Note:* Benchmark cohort born in 1940-44 (Belgium), 1942-46 (France, Germany ex FRG), 1943-47 (Netherlands, Switzerland, Austria), 1948-52 (Italy). CTRs for all cohorts are in Table 3.

*Source:* Lesthaeghe (2001) and our elaboration of Italian data from <http://demo.istat.it>

**Table 5: Evolution of the relative recuperation scalar  $R_t$  in the cumulated fertility deficits of cohorts in seven Western European countries (see Lesthaeghe 2001)**

**Series A: relative to national standard  $d_n(30)-d_n(50)$**

**Series B: relative to six countries' average standard**

	$d_n(30)-d_n(50)$	$R_t = \frac{d_t(30) - d_t(50)}{d_n(30) - d_n(50)}$		
		Coh. 1	Coh. 2	Coh. 3
<b>Series A</b>				
Austria	+60	0.417	0.917	1.633
Belgium	+51	-0.118	0.647	2.510
France	+151	0.556	1.026	1.430
Germany ex FRG	+103	0.340	1.000	1.641
Netherlands	+277	0.339	1.040	1.632
Switzerland	+111	0.432	1.097	1.471
<i>mean =</i>	<i>+126</i>	<i>0.328</i>	<i>0.955</i>	<i>1.720</i>
Italy	+109	0.351	0.903	1.746
<b>Series B</b>				
Austria	(+126)	0.198	0.437	0.778
Belgium	(+126)	-0.047	0.262	1.016
France	(+126)	0.667	1.230	1.714
Germany ex FRG	(+126)	0.278	0.817	1.341
Netherlands	(+126)	0.746	2.286	3.587
Switzerland	(+126)	0.381	0.966	1.296
Italy	(+126)	0.304	0.783	1.514

Note: Benchmark cohort born in 1940-44 (Belgium), 1942-46 (France, Germany ex FRG), 1943-47 (Netherlands, Switzerland, Austria), 1948-52 (Italy). CTFRs for all cohorts are in Table 3.

Source: Lesthaeghe (2001) and our elaboration of Italian data from <http://demo.istat.it>

To conclude, national trends in recuperation are quite similar among the selected countries, while differences appear in postponement patterns. The slow beginnings of postponement explain the initial stability of the CTFR in Italy, and the acceleration which follows explains its steep decline (Table 3). In the other countries, the slow decline in CTFR (and also sometimes the increase) is due to a weaker postponement, balanced by enough recovery.

Tables 6 and 7 present the differences in postponement and recuperation between Italian macro-regions. The data show that the Italian fertility pattern described above is the product of two different trends, one pertaining to the northern and central regions, and the other to the southern regions (Santini 2006). Postponement and recovery are

higher in the northern and central regions of Italy than in the south, where recovery is very slow (see the series of  $d_n(30)$  and  $d_n(30) - d_n(50)$ ).

Data in Table 6 show that fertility postponement in northern and central Italy has followed a pattern similar to that of the Netherlands; the 1963-67 cohorts already surpass the levels of postponement reached in the countries examined by Lesthaeghe (series B). The southern regions, on the other hand, initially experienced weak postponement among the older cohorts, but then soon caught up, such that postponement on the part of the 1968-72 cohorts reaches almost the same levels as the rest of the country<sup>8</sup>.

**Table 6: Evolution of the speed of postponement  $k_t$  in the cumulated fertility deficits of cohorts in Italian macro-regions**  
**Series A: relative to local standards  $d_n(a)$**   
**Series B: relative to the common average standard for the six Western European countries in Table 4**

		$k_t = \frac{cumfert_t(30) - cumfert_b(30)}{cumfert_n(30) - cumfert_b(30)}$				
	$d_n(30)$	1953-57	1958-62	1963-67	1968-72	1973-77
<b>Series A</b>						
Northern Italy	-369	0.428	0.982	1.590	1.967	2.086
Central Italy	-355	0.399	0.967	1.634	2.168	2.423
Southern Italy	-256	0.291	0.907	1.802	2.771	3.551
Italy	-319	0.372	0.952	1.676	2.272	2.596
<b>Series B</b>						
Northern Italy	(-279)	0.565	1.298	2.102	2.600	2.757
Central Italy	(-279)	0.507	1.229	2.075	2.754	3.077
Southern Italy	(-279)	0.267	0.832	1.655	2.544	3.261
Italy	(-279)	0.425	1.087	1.915	2.595	2.965

Note: Benchmark cohort born in 1948-52. CTFRs for all cohorts are in Table 3.

Source: Our elaboration of Italian data from <http://demo.istat.it>

<sup>8</sup> Measures of postponement and recuperation for southern Italy may be partly biased due to our decision to use as a benchmark a cohort in which fertility of parity 3+ is not yet negligible. On the other hand, it is not possible to use as a benchmark a cohort younger than 1948-52 given that we need the complete time schedule of fertility (observed or estimated) for three cohorts younger than the benchmark in order to compute the  $r_t$  scalars series.

**Table 7: Evolution of the relative recuperation scalar  $R_i$  in the cumulated fertility deficits of cohorts in Italian macro-regions**  
**Series A: relative to local standard  $d_n(30)-d_n(50)$**   
**Series B: relative to the common average standard for the six Western European countries in Table 5**

	$d_n(30)-d_n(50)$	$R_i = \frac{d_i(30)-d_i(50)}{d_n(30)-d_n(50)}$		
		1953-57	1958-62	1963-67
<b>Series A</b>				
Northern Italy	+161	0.375	0.938	1.686
Central Italy	+156	0.410	0.929	1.661
Southern Italy	+13	-0.650	0.088	3.562
Italy	+109	0.351	0.903	1.746
<b>Series B</b>				
Northern Italy	(+126)	0.481	1.203	2.163
Central Italy	(+126)	0.508	1.152	2.059
Southern Italy	(+126)	-0.068	0.009	0.372
Italy	(+126)	0.304	0.783	1.514

Note: Benchmark cohort born in 1948-52. CTFRs for all cohorts are in table 3.

Source: Our elaboration of Italian data from <http://demo.istat.it>

We see differentiated fertility recuperation between macro-regions as well (Table 7). Recovery is almost absent in southern Italy, weakly beginning only with the cohorts born in 1963-67<sup>9</sup>.

On the other hand, recovery is quite strong in the other two macro-regions, reaching levels higher than in France. Only the Netherlands, the “record” performer (Lesthaeghe 2001), presents a greater level of recuperation. However, given that the highest absolute level of CCFRs at age 29 among the Italian cohorts examined here is much lower than in France, the Italian CTFR, even with such a significant level of recovery, will ultimately be lower compared to the corresponding French cohorts.

It would be interesting to analyze cohort recuperation for different parities separately, in order to gain a better understanding of the compositional patterns of Italian low fertility and geographical specificities. Unfortunately, however, fertility rates by birth order are not currently available for Italy.

<sup>9</sup> Of course, in southern Italy a return to the fertility levels reached by the 1950s cohorts, characterized by a relevant quota of third and higher order births (28%), is not possible. However, we can observe signs of change after those cohorts born in 1960s for whom this quota was only 20% (Istat 2000) - a level similar to that of many Northern and Western European countries (Frejka 2008).

Finally, in Table 8 we estimate the quota of fertility after age 30 on overall fertility. This quota increases significantly in succeeding cohorts, demonstrating that fertility after age 30 is a relevant component of fertility in contemporary Italy. This trend will be the subject of Section 5.

**Table 8: (Fertility after age 30) / (CTFR)**

	<b>1953-57</b>	<b>1958-62</b>	<b>1963-67</b>
Northern Italy	29.9%	39.2%	51.2%
Central Italy	29.5%	37.4%	48.4%
Southern Italy	28.0%	30.6%	35.9%
Italy	28.9%	34.9%	43.9%

Source: Our elaboration of Italian data from <http://demo.istat.it>

Thus, changes in fertility in Italy are characterized by different regional trends, which distinguish the North from the South. A similar pattern occurred with the fertility transition, which did not start in southern Italy until about 30 years after it began in the northern regions (Livi Bacci 1977). The determinants of these differences, whether economic, social, or cultural, are today still greatly debated (for an extensive analysis of this issue, see Kertzer et al. 2006; White et al. 2007). In Section 5, we focus our attention on the northern and central regions of Italy, in order to examine fertility recovery in a more homogeneous area of the country.

#### **4.2 A comparison of older cohorts**

In order to compare recent fertility behaviour with the behaviour of older cohorts who experienced a decline and recovery in fertility, we have analyzed changes in the fertility schedules of Italian cohorts born in the 1920s, 1930s, and 1940s using Lesthaeghe's model. As birth data by region and birth order were first collected in 1952 (Istat 1997), it is possible to conduct an in-depth study only of those cohorts born in the 1930s and 1940s.

Consequently, we begin by presenting a general picture of the changes that have occurred since the cohorts born in the 1920s. Second, we conduct a more in-depth analysis of the cohorts born in the 1930s and 1940s, considering both birth order and place of birth.



For women born in 1918-29, we use Santini's (1974) estimations of cohort fertility schedule. For women born in 1930-48, we elaborate official Istat data (see § 3). The benchmark cohort here is the 1918-22 cohort<sup>10</sup>. The benchmark cohort § 4 (1948-52) is now the youngest cohort.

The negative values of the  $k_t$  scalars show that these cohorts were characterized by a remarkable anticipation of the fertility schedule (Table 9), beginning with women born in the late 1920s, in part due to a younger age at marriage. This anticipation intensifies among the cohorts more influenced by the Italian baby boom, and then begins to diminish and fade away.

The negative values of the  $R_t$  scalars (Table 9) indicate that anticipation of the fertility schedule for these cohorts did not result in a higher CTFR: fertility was lost after age 30 as birth rates of order 3+ continued their uninterrupted decline.

**Table 9: Evolution of the speed of postponement  $k_t$  and recuperation  $R_t$  in Italian cohorts born in 1923-52, relative to the common average standard for the six Western European countries in Table 4**

Italy - Series B						
Cohort	1923-27	1928-32	1933-37	1938-42	1943-47	1948-52
CTFR	2.35	2.33	2.29	2.17	2.08	1.91
$k_t$	0.265	-0.021	-0.451	-0.614	-0.725	-0.230
$R_t$	-0.400	-1.164	-2.452	-3.760	-4.738	-5.008

Note: Benchmark cohort born in 1918-22 with a CTFR of 2.47.  $d_n(30)$  is -279,  $d_n(30) - d_n(50)$  is +126.

Source: Our elaboration of Italian data from Santini (1974) and <http://demo.istat.it>

Thus, the experiences of cohorts born in the 1920s and 1930s were the opposite of the experiences of the cohorts born 40 years later. The former are characterized by an anticipation of fertility followed by a decrease at older ages, while among the latter, we see a postponement followed by a recovery.

A more in-depth analysis of the cohorts born in the 1930s and 1940s confirms these general trends.

Anticipation of the fertility schedule was more significant in northern and central Italy, and less apparent in the southern regions. The decline in fertility after age 30 was seen in all areas, but was stronger in southern Italy (Tables A1-A2 in appendix).

Anticipation of the first and second order fertility schedule mainly concerned the northern regions, whereas its decrease at later ages affected all regions. However, the

<sup>10</sup> Note that the results that follow do not change even if we choose a younger cohort as a benchmark, such as the 1923-27, 1928-32 or 1933-37 cohort.

decrease after age 30 was more intense in the northern regions, especially for second order births (Tables A3-A4 in appendix).

Trends in births of third and higher orders varied significantly. Anticipation of the fertility schedule concerned only northern and central regions, ceasing among the 1945-49 cohort. In southern Italy, higher order fertility decreased at all ages (Table A5 in appendix).

## **5. The role of female education**

In order to further explore our hypothesis, we provide in this section a descriptive analysis of the microdata. Our goal is to evaluate whether signs of recovery are confirmed by the data, and if so, whether they emerge more clearly if the level of education, in addition to the territorial dimension, is taken into account.

As we described in the background section above, a number of scholars have suggested that increases in female education and economic autonomy are among the most important factors influencing the new patterns of family formation and the postponement of parenthood. High levels of education seem to have a particularly positive effect on fertility at later ages. Growing numbers of women hold university degrees, and, after having postponed forming a family in order to invest in their personal development and professional careers, they may then decide to “make up for lost time” (i.e., recover their fertility). We therefore expect to see a growing association between the propensity of women to have children in their thirties, and having a university-level education among the youngest generations of females.

We conducted this descriptive analysis using data from the most recent Istat survey on reproductive behaviour, *Famiglia e soggetti sociali* (Family and Social Subjects). A representative sample of 49,541 individuals belonging to 19,227 families were interviewed. Because the survey was conducted in 2003, the most recent cohort for which it is possible to reconstruct fertility completed at age 40 corresponds to those women born in 1957-62.

We adopt a parity-specific approach focusing on the arrival of the first and second children. In fact, the recovery of fertility in Italy is often linked to the possibility of having the first child early enough so that the woman is not forced to forego having a second child (Rosina 2004). In addition, a large proportion of women who hold university degrees are childless (Mencarini and Tanturri 2006; Tanturri and Mencarini 2008). Finally, scholars have observed growing reproductive concentration according to parity as the level of female education increases (Shkolnikov et al. 2007). It is therefore of crucial importance to examine whether change has occurred among the youngest generations relative to first and second order fertility. In the previous sections, we

demonstrated that signs of recovery seem to have emerged predominantly in the northern part of the country. We therefore focus our analysis on the centre-north of Italy.

**Table 10: Percentage of women by age at first and second child. Centre-North. Cohorts 1943-47, 1948-52, 1953-57, 1958-62**

	First child				Second child					N
	Before 30	30-40	Childless by 40	Total	Before 30	30-40	No 2 <sup>nd</sup> child by 40		Total	
							Only one	None		
1943-47	78.3	11.7	10.0	100.0	43.9	21.3	24.8	10.0	100.0	1,149
1948-52	76.0	13.4	10.6	100.0	37.9	23.5	28.0	10.6	100.0	1,289
1953-57	70.1	13.6	16.3	100.0	33.7	20.7	29.2	16.3	100.0	1,275
1958-62	58.4	22.8	18.8	100.0	24.2	27.3	29.6	18.8	100.0	1,453

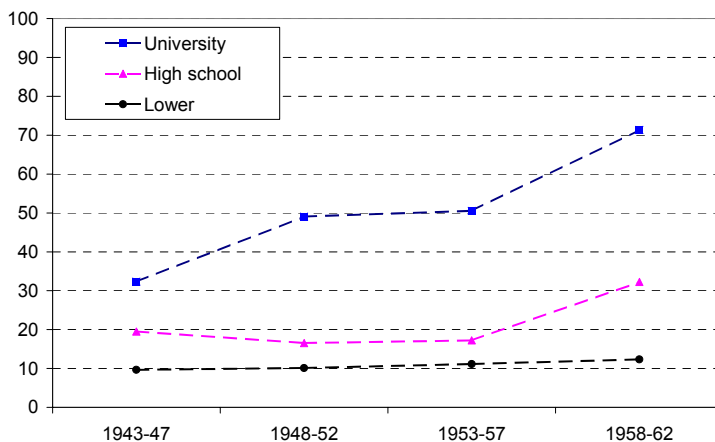
Source: Our elaboration of Istat Multipurpose Survey, 2003.

The data in Table 10 confirm a continual decrease in the arrival of both the first and the second child before the age of 30. On the other hand, an increase in first and second order fertility during a woman's thirties becomes relevant for the most recent generation considered (1958-62). This increase (at least up until the age of 40), is not, however, great enough to compensate for the decrease in fertility before the age of 30. The decrease in second order births is due more to the diffusion of childlessness than to an increase in only children.

An examination of the behaviour of individuals by level of education reveals that the quota of fertility achieved between ages 30 and 40 is, as expected, much higher for more educated women. Indeed, there is a trend towards substantial and continual growth in fertility among women who hold a degree. For women with medium levels of education (and, to a lesser extent, those with low levels), the proportion of fertility (of the first and second orders) achieved between ages 30 and 40 remains roughly stable up until the 1953-57 generation (Figures 9 and 10).

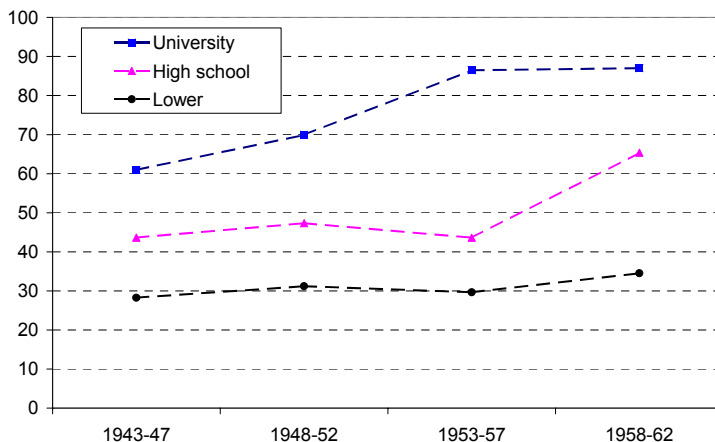
Interestingly, for women who hold a university degree, the quota among the 1958-62 generation who had two children by their 40th birthday is slightly higher than that of the preceding generation (1953-57) (Figure 12), although this difference is not statistically significant. We may thus be observing the timid beginnings of a reversal in fertility decline due in large part to fertility recovery by women over 30 years of age, especially among members of the youngest generations who hold university degrees.

**Figure 9: Percentage of women who had their first child between the ages of 30-40 (on women who had their first child by 40), by cohort and education. Centre-North**



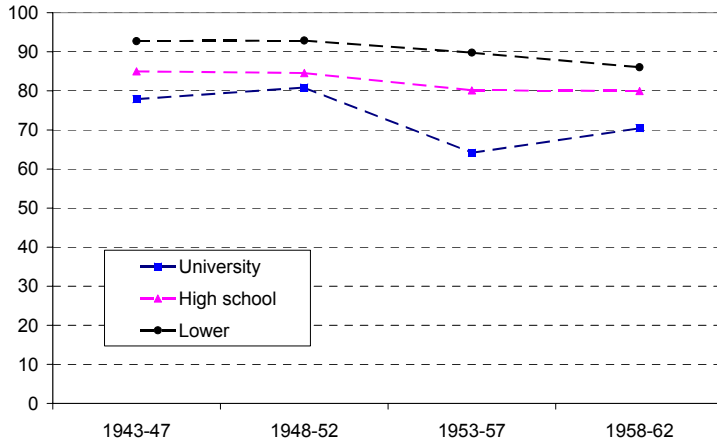
Source: Our elaboration of Istat Multipurpose Survey, 2003

**Figure 10: Percentage of women who had their second child between the ages of 30-40 (among women who had their second child by 40), by cohort and education. Centre-North**



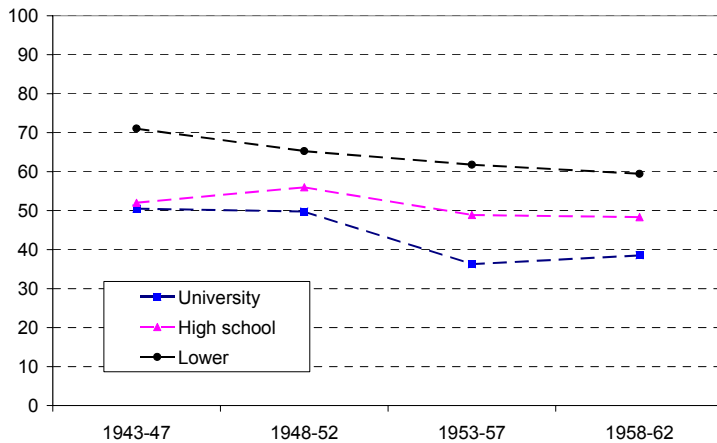
Source: Our elaboration of Istat Multipurpose Survey, 2003

**Figure 11: Percentage of women who had their first child by 40 (among all women), by cohort and education. Centre-North**



Source: Our elaboration of Istat Multipurpose Survey, 2003

**Figure 12: Percentage of women who had their second child by 40 (among all women), by cohort and education. Centre-North**



Source: Our elaboration of Istat Multipurpose Survey, 2003

## 6. Discussion

Italy is a country characterized by *persistent very low* fertility levels. Indeed, despite having recently reached a TFR of about 1.41 (Istat 2009a), the nation experienced a TFR of less than 1.35 for over 15 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 this 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 seems to be 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.

We also measured fertility postponement and recuperation among Italian cohorts born between 1948 and 1972 in a more formal manner, applying a model proposed by R. Lesthaeghe (2001). The results confirm that fertility recuperation after age 29 is almost absent in southern Italy, weakly beginning only with the 1963-67 cohort. Recovery is quite strong, on the other hand, in northern Italy, reaching levels higher than those seen in France (only the Netherlands, the “record” performer, presents a higher level of recuperation). However, because the level of CCFRs reached at age 29 in Italy is quite low, the Italian CTFR will ultimately be lower than in France.

Our analysis is, however, limited due to a lack of information available concerning birth parity in the Italian civil registry (not available since 1997).

In order to describe the evolution of fertility ageing across social groups (focusing on female education), we used individual level data from the 2003 Istat multipurpose survey on the family, *Famiglia e soggetti sociali* (Family and Social Subjects).

Differentiation by level of female education draws particular attention to those women who hold university degrees, and who increasingly recover fertility after the age of 30. In fact, women born around the year 1960 who have achieved a high level of education recover fertility to such a degree that, by the age of 40, they surpass the total quota of women who have had children among women born in the mid-1950s.

Our hypothesis that signs of recovery exist, and that these signs are above all evident among the youngest generations of women in northern Italy who have the highest levels of education, is consistent with our results.

It is likely that ever more women among the youngest generations who hold university degrees will postpone forming a family in order to invest in their personal development and professional careers. For these women, however, the possibility that they will later recover fertility in their late thirties seems to increase.

These results are consistent with the growing amount of attention that has been dedicated to improving institutions and policies which promote the balance between 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. Interest has also been expressed in understanding the dynamics which contribute to a gender-symmetric division of domestic labour (an increasingly common characteristic among the more educated couples from the youngest generations<sup>11</sup>; see Mencarini and Tanturri 2004; Rosina and Sabbadini 2006). Furthermore, women with higher levels of education also tend to have greater resources, which are needed to pay for services in the private sector, such as childcare and assistance for their elderly parents. In light of this last consideration we wonder about the future fertility of less educated women. They still show higher fertility levels, but with a continuous declining trend. Increased efforts on the part of institutions and policies to reduce the direct and indirect costs of childrearing might lessen the constraints that reduce fertility choices among less educated women (Bocuzzo et al. 2008).

Birth data by parity have not been available in Italy since 1997 (Bonarini 2006). However, Istat has recently implemented new surveys and methodologies in order to estimate fertility rates by birth order after 1998<sup>12</sup>. When the results of these estimations are disclosed to the general public of population researchers, efforts to construct a general picture of Italian fertility will be more effective.

In this paper we used a descriptive approach. We believe that our findings are particularly useful for understanding the evolution of Italian fertility, but that they also highlight the need for further research which uses explanatory models for micro-level data. Future work of this nature should aim, above all, to identify the parity-specific impact of explanatory factors behind the postponement and recovery of fertility.

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<sup>11</sup> “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).

<sup>12</sup> Since 2004, the statistical form local authorities send to the Istat concerning each birth recorded in their population registers includes the number of family members aged under 18. Istat considers this variable a reliable proxy for birth order (See <http://demo.istat.it/fecondita/index4.html>). However, the results of this new survey have not yet been published.

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## Appendix

**Table A1: Levels of CTFR in Italian macro-regions by birth order, cohorts 1930-1949**

	Bench.	Coh. 1	Coh. 2	Coh. 3
	1930-34	1935-39	1940-44	1945-49
First order				
Italy	0.87	0.87	0.89	0.90
Northern Italy	0.87	0.88	0.90	0.91
Central Italy	0.89	0.91	0.92	0.93
Southern Italy	0.85	0.83	0.83	0.85
Second order				
Italy	0.68	0.70	0.71	0.69
Northern Italy	0.60	0.64	0.65	0.61
Central Italy	0.68	0.70	0.70	0.68
Southern Italy	0.77	0.78	0.78	0.79
Third order or more				
Italy	0.77	0.67	0.54	0.42
Northern Italy	0.45	0.41	0.33	0.24
Central Italy	0.46	0.41	0.33	0.25
Southern Italy	1.35	1.18	0.97	0.77
All orders				
Italy	2.32	2.24	2.13	2.01
Northern Italy	1.92	1.93	1.89	1.77
Central Italy	2.01	2.01	1.95	1.86
Southern Italy	2.97	2.78	2.58	2.41

Source: our elaboration of Italian data from <http://demo.istat.it> and Istat (2000).

### Tables A2-A5:

**Evolution of the speed of postponement  $k_t$  and recuperation  $R_t$  in the cumulated fertility deficits of cohorts in Italian macro-regions. Different orders**

**Series A: relative to local standards  $d_n(a)$**

**Series B: relative to the common average standard for the six Western European countries in Tables 4 and 5**

**Table A2: All orders**

	$d_n(30)$	$k_i = \frac{cumfert_i(30) - cumfert_b(30)}{cumfert_n(30) - cumfert_b(30)}$			$d_n(30) - d_n(50)$	$R_i = \frac{d_i(30) - d_i(50)}{d_n(30) - d_n(50)}$		
		1935-39	1940-44	1945-49		1935-39	1940-44	1945-49
<i>Series A</i>								
Northern Italy	161	0.754	1.245	1.001	-218	0.504	1.072	1.424
Central Italy	125	0.815	1.156	1.029	-199	0.515	1.053	1.432
Southern Italy	28	1.316	1.224	0.460	-409	0.545	1.043	1.412
Italy	95	0.829	1.207	0.964	-285	0.543	1.062	1.394
<i>Series B</i>								
Northern Italy	(-279)	-0.436	-0.719	-0.578	(+126)	-0.875	-1.861	-2.473
Central Italy	(-279)	-0.364	-0.517	-0.460	(+126)	-0.816	-1.669	-2.270
Southern Italy	(-279)	-0.133	-0.124	-0.047	(+126)	-1.775	-3.401	-4.604
Italy	(-279)	-0.282	-0.410	-0.327	(+126)	-1.233	-2.413	-3.167

Note: Benchmark cohort born in 1930-34. CTFRs for all cohorts are in Table A1.

Source: Our elaboration of Italian data from <http://demo.istat.it> and Istat (2000).

**Table A3: First order**

	$d_n(30)$	$k_i = \frac{cumfert_i(30) - cumfert_b(30)}{cumfert_n(30) - cumfert_b(30)}$			$d_n(30) - d_n(50)$	$R_i = \frac{d_i(30) - d_i(50)}{d_n(30) - d_n(50)}$		
		1935-39	1940-44	1945-49		1935-39	1940-44	1945-49
<i>Series A</i>								
Northern Italy	61	0.482	1.124	1.394	-34	0.650	1.056	1.294
Central Italy	55	0.632	0.968	1.400	-25	0.595	0.946	1.459
Southern Italy	18	0.228	0.468	2.304	-27	0.701	0.948	1.351
Italy	47	0.487	1.030	1.483	-31	0.683	0.996	1.321
<i>Series B</i>								
Northern Italy	(-279)	-0.106	-0.247	-0.307	(+126)	-0.178	-0.290	-0.355
Central Italy	(-279)	-0.124	-0.190	-0.274	(+126)	-0.116	-0.185	-0.285
Southern Italy	(-279)	-0.014	-0.029	-0.145	(+126)	-0.150	-0.202	-0.288
Italy	(-279)	-0.082	-0.174	-0.251	(+126)	-0.167	-0.244	-0.324

Note: Benchmark cohort born in 1930-34. CTFRs for all cohorts are in Table A1.

Source: Our elaboration of Italian data from <http://demo.istat.it> and Istat (2000).

**Table A4: Second order**

Second order	$d_n(30)$	$k_t = \frac{cumfert_t(30) - cumfert_n(30)}{cumfert_n(30) - cumfert_t(30)}$			$d_n(30) - d_n(50)$	$R_t = \frac{d_t(30) - d_t(50)}{d_n(30) - d_n(50)}$		
		1935-39	1940-44	1945-49		1935-39	1940-44	1945-49
<i>Series A</i>								
Northern Italy	89	0.756	1.225	1.020	-54	0.507	1.076	1.417
Central Italy	75	0.757	1.168	1.075	-51	0.526	1.079	1.395
Southern Italy	49	0.567	1.007	1.426	-39	0.589	1.029	1.382
Italy	67	0.701	1.161	1.137	-47	0.532	1.047	1.421
<i>Series B</i>								
Northern Italy	(-279)	-0.240	-0.389	-0.324	(+126)	-0.218	-0.464	-0.610
Central Italy	(-279)	-0.203	-0.313	-0.288	(+126)	-0.212	-0.435	-0.563
Southern Italy	(-279)	-0.099	-0.176	-0.249	(+126)	-0.183	-0.320	-0.430
Italy	(-279)	-0.168	-0.279	-0.273	(+126)	-0.199	-0.392	-0.532

Note: Benchmark cohort born in 1930-34. CTFRs for all cohorts are in table A1.

Source: Our elaboration of Italian data from <http://demo.istat.it> and Istat (2000).

**Table A5: Third order and higher**

Third order and higher	$d_n(30)$	$k_t = \frac{cumfert_t(30) - cumfert_n(30)}{cumfert_n(30) - cumfert_t(30)}$			$d_n(30) - d_n(50)$	$R_t = \frac{d_t(30) - d_t(50)}{d_n(30) - d_n(50)}$		
		1935-39	1940-44	1945-49		1935-39	1940-44	1945-49
<i>Series A</i>								
Northern Italy	12	2.202	2.081	-1.283	-132	0.477	1.067	1.456
Central Italy	-7	-1.200	-0.300	4.500	-123	0.492	1.069	1.439
Southern Italy	-39	-0.132	0.598	2.534	-343	0.523	1.058	1.420
Italy	-21	-0.278	0.537	2.741	-207	0.529	1.071	1.400
<i>Series B</i>								
Northern Italy	(-279)	-0.091	-0.086	0.053	(+126)	-0.500	-1.119	-1.527
Central Italy	(-279)	-0.029	-0.007	0.107	(+126)	-0.483	-1.050	-1.414
Southern Italy	(-279)	-0.019	0.085	0.358	(+126)	-1.428	-2.889	-3.879
Italy	(-279)	-0.021	0.040	0.205	(+126)	-0.875	-1.771	-2.314

Note: Benchmark cohort born in 1930-34. CTFRs for all cohorts are in Table A1.

Source: Our elaboration of Italian data from <http://demo.istat.it> and Istat (2000).