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Research Article

Patterns of reproductive behavior in transitional Italy: The rediscovery of the Italian fertility survey of 1961

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Patterns of reproductive behavior in transitional Italy: The rediscovery of the Italian fertility survey of 1961

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Abstract

BACKGROUND
Few studies have investigated the role of the intermediate variables of fertility at the micro-level in Italy, and, in particular, little is known about the influence of socioeconomic factors. This is the reason that the mechanisms through which women arrived at the control of their own fertility are still largely unexplored.

OBJECTIVE
We wish to analyze the role of education and socioeconomic determinants on the process of fertility transition in four Italian populations, by focusing on the birth cohorts born between the end of the 19th century and the first decade of the 20th century.

METHODS
Data comes from the census returns of 1961, which include a Fertility Survey aimed at gathering information on the reproductive history of ever-married women. A negative binomial regression was then carried out to check the influence of some socioeconomic determinants on the completed family size of such women.

RESULTS
Among socioeconomic factors, women's education proves to be more important than family economic status in shaping fertility levels, with highly educated women showing a smaller completed family size than illiterate ones. In particular, fertility differentials by educational attainment appear to be wider at the beginning of the transition.

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CONCLUSIONS
The use of micro-level data has allowed us to shed some light on the importance of women's education, especially in the first stages of fertility transition, resulting in one of the possible explanations for its different onsets in the various regions of Italy.

1. Introduction

The overall chronology and numbers in the decline in total fertility rates in Italy are well documented on a national and macro-regional level, for the period following national unification (1861). A key text of reference on the subject continues to be the work by Massimo Livi Bacci published in 1977, which forms part of a series of national monographs for the Princeton project on fertility transition in Europe. Equally indispensable, for retracing the national evolution of reproductive behavior, are the period and cohort tables on fertility and marriage rates put forward by various authors between 1968 and 1990 (Livi Bacci et al. 1968; Livi Bacci and Santini 1969; Santini 1974; Breschi 1984; Ventisette 1985, 1986; De Simoni 1989, 1990). This picture is further enhanced by regional fertility tables produced by ISTAT in 1982, and in later years (ISTAT 1997, 2000). In short, a rich and varied arsenal of statistical sources is available on an aggregate level to trace the fertility trends of the Italian population at the height of the transitional period.

If this period is taken as being approximately between the end of the 19th century and the early 1960's (Livi Bacci 1977), the true protagonists of this process, from a longitudinal viewpoint, are the generations born between 1880 and 1925. However, it proves difficult to trace the initial phase of this process with accuracy, given that the earliest fertility table dates to 1930, and the first birth cohort with completed fertility was that born in 1915. Some light can be shed by data gathered on the reproductive histories of women by the census of 1931, which constituted the first complete survey of female fertility in Italy (ISTAT 1936). This provided the first opportunity to examine differentials in fertility (Galvani 1935a, 1935b; ISTAT 1936; De Vergottini 1937; Battara 1939) and thus interpret changes in reproductive behavior underway throughout Italy. However, despite the apparent and propagandistic affirmations on the importance of this innovative survey (ISTAT 1936), its results were only partially utilized, mainly due to the aversion of the fascist regime to the diffusion of information that exposed clear signs of growing levels of birth control (Corsini 1967).

A second, complete fertility survey was proposed some thirty years later with the census of 1961[4]. As in 1931, this census gathered information on all ever-married women, but in more detail. However, the Central Institute of Statistics processed this mass of data only in part and with considerable delay, such that the results were not published until 1974[5]. Given that this date fell shortly before the national fertility survey (INF/1) conducted within the wider context of the World Fertility Survey (De Sandre 1985), which affirmed the superiority of research methods in the field of demography using individual-level data, gathered using sampling procedures as opposed to tabulated data from macro-level surveying[6], it is hardly surprising that results from the 1961 census received little attention, despite its innovative characteristics.[7] While Livi Bacci did make use of this valuable data as part of the Princeton project to highlight the increase in differentials in fertility in women born in the quinquennium 1912-16 (Livi Bacci 1977), the delayed release of these findings also dampened reflections on such ground-breaking studies, taken directly from the census returns. However, as mentioned, few studies have investigated the role of the intermediate variables of fertility at the micro level, meaning that the mechanisms with which women controlled their fertility remain largely unexplored in Italy. In this paper, we use precisely micro-level data to analyze in more depth the role of social and economic determinants of fertility decline in Italy. In particular, our focus is on the role of woman's education attainment on fertility levels in four populations (Turriaco, Novellara, Casalguidi, and Alghero) located in four different regions (respectively, Friuli Venezia-Giulia, Emilia Romagna, Tuscany, and Sardinia). Education is widely claimed to have played a key role in the decline of fertility. It is usually associated to openness and receptivity to innovation and modernization ideas (Cleland 2001; Van de Putte 2007), but it has also been claimed to affect the supply and demand for children as well as the costs of regulation (Easterlin 1983). As for the supply of children, educated women are more likely to participate in the labor force, thereby delaying marriage (United Nations 1995; Chaudhury 1984) and being more likely to have lower infant and child mortality rates compared to non-educated women (Knodel 1968; Reher and Sanz-

[4] A study on specific bio-genetic characteristics of the population (ISTAT 1962), which also revealed useful information for tracing the life histories of the women assessed in the survey, was conducted in 1957 under the direction of L.L. Cavalli Sforza.

[5] Some tables on the link between education and fertility were anticipated in a study carried out by CISP (Italian Committee for the Study of the Population Problems), under the direction of Nora Federici, presented at a UNESCO conference. A part of this report was then published in Genus by Ciucci and De Sarno (1974).

[6] For a good excursus on fertility surveys in Italy, see Bonarini, Ongaro and Rossi 1994.

[7] "[…] for the first time the 1961 census returns provide matrimonial fertility tables that analyse the phenomenon conjointly by marriage generation (1906-61), age at marriage and duration of marriage, while also introducing elements of differentiation linked to socio-economic variables" (Bonarini, Ongaro, and Rossi 1994: 297-298).

Gimeno 2007). The shortening of the reproductive span and the more limited need to replace dead children contribute to the reduction of fertility. On the other hand, higher levels of woman's education might negatively influence the demand for children, mostly through an increase in the opportunity costs of children (Becker 1960; Schultz 1985; Guinnane 2011). Direct and indirect costs of having and rearing children could, in fact, lessen the desire to have further children. Time and money spent directly taking care of children (Bradbury 2008), income loss due to the suspension or loss of working activity, the high cost of giving children higher education, and higher quality standards are all issues educated women might be concerned about (Jejeebhoy 1995). Finally, the costs of regulation involve the greater awareness and use of innovative systems of fertility control among educated women (Cleland and Jejeebhoy 1996). Obviously, all the above-mentioned factors are closely related to and driven by woman's independence and autonomy within the family, an element that is positively associated with woman's education (Dyson and Moore 1983; Basu 2002).

In Italy, the existence of a history of low levels of female labor participation, the widespread diffusion of strong family ties and family values, the deep-rooted presence of Catholic values and principles, along with their marked regional and temporal variations, make "the Italian case an especially fruitful one for theoretical exploration of the impact of economic factors and cultural values on fertility" (Kertzer et al. 2009:93).

This paper is divided into three sections: The first examines the history of this survey, providing a picture of the fertility rates in Italy and its regional variations, in order to contextualize the data of the four communities under study. The second describes the four populations at the time of the 1961 census, notably in the midst of a period of intense transformation from an agricultural to manufacturing economy. The third carries out a micro-level analysis, based on the reproductive histories of the women from the four communities, with the aim of highlighting the role of some socioeconomic factors.

2. The 1961 fertility survey

Our starting point is the "Family sheets of the 10th General Census of the Population – 15 October 1961". This research was largely conditioned by the availability of, and even more so by accessibility to the original documentation from the census of 1961[8].

[8] Starting from the census of 1971, family sheets were collected and processed centrally, which implies that local copies no longer exist. This means that the 1961 census constitutes the last chance to trace the original family sheets at the level of individual municipalities. Also, given that the conservation of previous original documentation was no longer required by law, the availability of material in the more than 8,000

2.1 Characteristics of the survey

For the purposes of this study, the relevant information from the Census of 1961 can be taken from section VI of the family sheet, which has two parts (Figure 1):

"A. Information on marriage" assesses each ever-married woman living in the family, including the date (month and year) of her most recent/current marriage, the possible date (month and year) of widowhood (spouse's date of death) or divorce/separation, the dates of birth of parents, and the (start and end) dates of possible previous marriages;

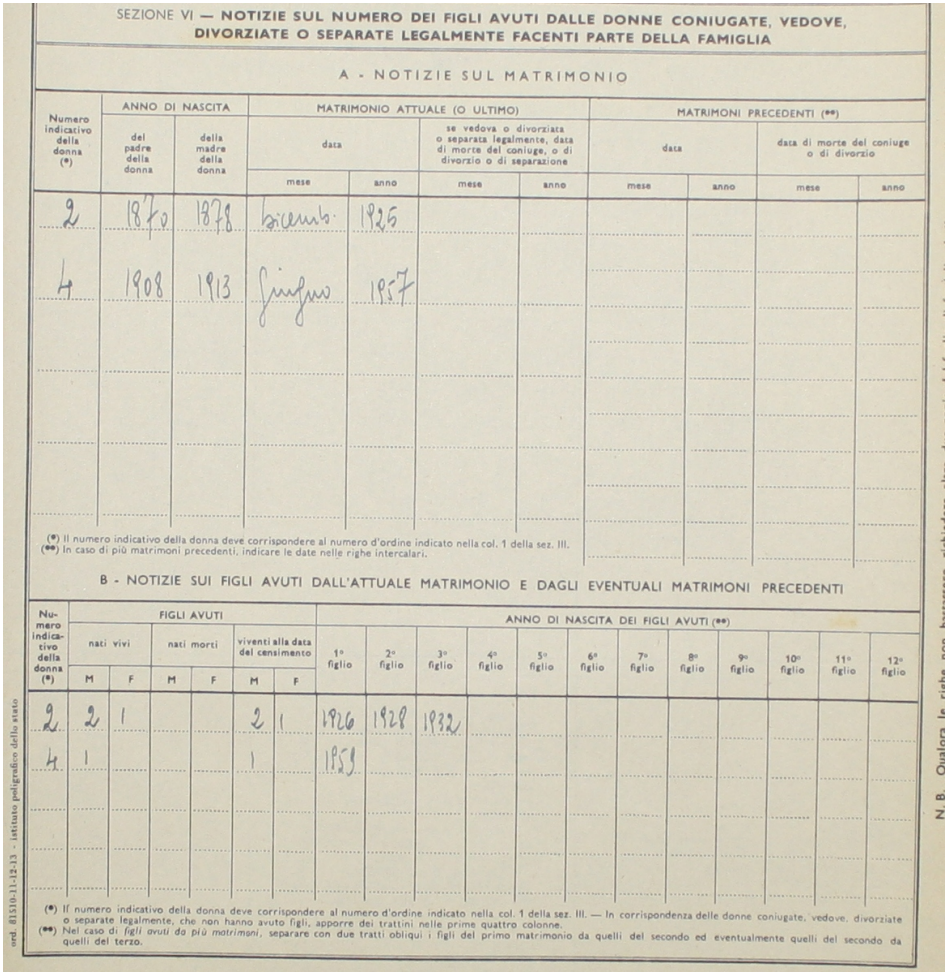
"B. Information on children from current and possible previous marriages" records the total number (with reference to their sex) of children born and the number (still by sex) of those still alive at the time of census (whether they lived with the parental family or not). The year of birth of each child is also recorded (without gender distinction) – which perhaps represents the greatest novelty of this survey compared to that of 1931.

This data can then be combined with information regarding each ever-married woman taken from other sections of the family sheet (such as date and place of birth, education, professional status and field etc.), or put in relation to characteristics of other members of the family group and/or the household's living conditions (possessory title, number of rooms, presence of bathroom, availability of drinking water etc.). Albeit with a certain degree of approximation, it is possible to reconstruct the completed reproductive history (in terms of intensity and frequency) of the women born before 1911, and the incomplete history of those from the subsequent generations.

As is typical of retrospective analysis, the Fertility Survey of 1961 also poses problems of selection bias. The principal factor causing selection bias is mortality, with high-fertility women being more at risk of dying from complications during pregnancy or childbirth than low-fertility ones. This mortality differential would have caused a selection against high-fertility women in the census of 1961, which would also have resulted in an artificially low completed family size for these groups. If we assume that non-educated and low-SES (Socioeconomic status) women were those with the highest fertility, any positive evidence of this differential between educational and/or SES groups can be considered *a fortiori* robust.

municipalities is now severely limited. Even greater difficulties arise in gaining access to the family sheets due to the tight restrictions of laws on information privacy. This study was only made possible thanks to the sensibility and understanding of the administrators, functionaries and staff of the local authorities of Novellara, Serravalle Pistoiese (for Casalguidi), Alghero, and Turriaco to whom we are extremely grateful.

Figure 1: Section VI of the census return. Reconstruction of the reproductive history of all ever-married women living in the family



SEZIONE VI — **NOTIZIE SUL NUMERO DEI FIGLI AVUTI DALLE DONNE CONIUGATE, VEDOVE, DIVORZIATE O SEPARATE LEGALMENTE FACENTI PARTE DELLA FAMIGLIA**

A - NOTIZIE SUL MATRIMONIO

Numero indicativo della donna (*)	Anno di nascita del padre della donna	Anno di nascita della madre della donna	Matrimonio attuale (o ultimo) data mese	Matrimonio attuale (o ultimo) data anno	Matrimonio attuale (o ultimo) se vedova o divorziata o separata legalmente, data di morte del coniuge, o di divorzio o di separazione mese	Matrimonio attuale (o ultimo) se vedova o divorziata o separata legalmente, data di morte del coniuge, o di divorzio o di separazione anno	Matrimoni precedenti (**) data mese	Matrimoni precedenti (**) data anno	Matrimoni precedenti (**) data di morte del coniuge o di divorzio mese	Matrimoni precedenti (**) data di morte del coniuge o di divorzio anno
2	1870	1878	dicemb.	1925						
4	1908	1913	Giugno	1957						

(*) Il numero indicativo della donna deve corrispondere al numero d'ordine indicato nella col. 1 della sez. III.
(**) In caso di più matrimoni precedenti, indicare le date nelle righe intercalari.

B - NOTIZIE SUI FIGLI AVUTI DALL'ATTUALE MATRIMONIO E DAGLI EVENTUALI MATRIMONI PRECEDENTI

Numero indicativo della donna (*)	Figli avuti: nati vivi M	nati vivi F	nati morti M	nati morti F	viventi alla data del censimento M	viventi alla data del censimento F	Anno di nascita dei figli avuti (**): 1° figlio	2° figlio	3° figlio	4° figlio	5° figlio	6° figlio	7° figlio	8° figlio	9° figlio	10° figlio	11° figlio	12° figlio
2	2	1			2	1	1926	1928	1932									
4	1				1		1958											

(*) Il numero indicativo della donna deve corrispondere al numero d'ordine indicato nella col. 1 della sez. III. — In corrispondenza delle donne coniugate, vedove, divorziate o separate legalmente, che non hanno avuto figli, apporre dei trattini nelle prime quattro colonne.
(**) Nel caso di *figli avuti da più matrimoni*, separare con due tratti obliqui i figli del primo matrimonio da quelli del secondo ed eventualmente quelli del secondo da quelli del terzo.

ord. 81510-11-12-13 - istituto poligrafico dello stato

N. B. Qualora le righe non bastassero richiedere altro [illegible]

2.2 Published results of the 1961 fertility survey

The first statistics elaborated from the data of the 1961 Fertility Survey were produced by ISTAT in 1974. This publication referred almost exclusively to "children born alive to women married only once before the age of 45 up to 1961", a criteria that was adopted to simplify the data processing and number of tables (ISTAT 1974:9). It emerged that in the entire country the number of women married only once before the age of 45 exceeded 11 million, amounting to over 80% of the total married, widowed, divorced and legally separated (about 13.7 million). Over 1/3 (3.7 million) of the women selected for analysis were born before 1912 and therefore have a completed reproductive history.

Table 1: Completed (born before 1912) and incomplete (born after 1911) family size of ever-married women (married once and before 45 years of age) recorded at the census of 1961, Italy

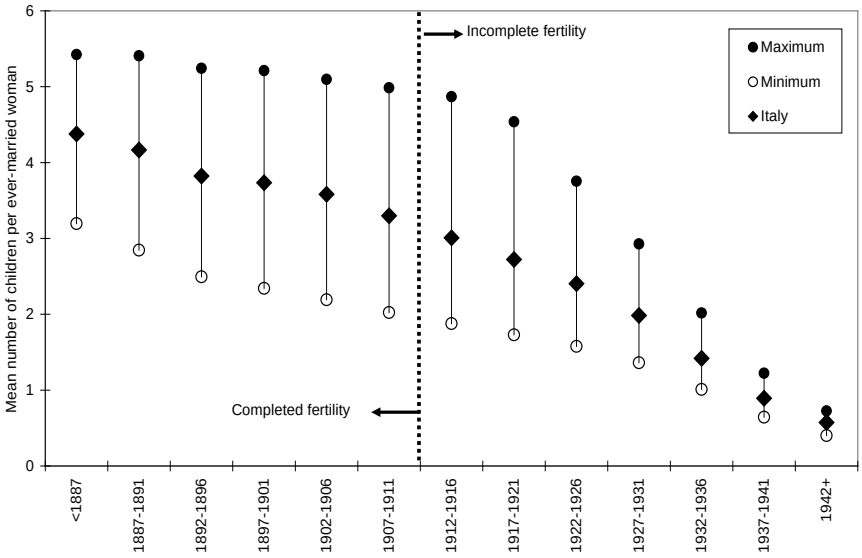
Birth cohort	Italy	North-west	North-east	Centre	South	Islands
Completed fertility						
< 1887	4.38	3.60	4.89	3.97	4.96	4.65
1887-1891	4.17	3.33	4.48	3.73	5.04	4.63
1892-1896	3.82	3.00	3.95	3.39	4.81	4.48
1897-1901	3.73	2.92	3.74	3.31	4.87	4.42
1902-1906	3.58	2.78	3.47	3.14	4.81	4.39
1907-1911	3.30	2.55	3.06	2.86	4.51	4.18
Incomplete fertility						
1912-1916	3.01	2.32	2.72	2.60	4.07	3.93
1917-1921	2.72	2.08	2.39	2.32	3.69	3.66
1922-1926	2.40	1.87	2.11	2.07	3.21	3.18
1927-1931	1.98	1.56	1.76	1.75	2.56	2.59
1932-1936	1.42	1.11	1.27	1.28	1.78	1.89
1937-1941	0.89	0.67	0.82	0.79	1.08	1.20
1942+	0.57	0.47	0.62	0.50	0.57	0.66
Total	2.64	2.08	2.50	2.32	3.42	3.29

Source: Our calculations on data taken from ISTAT 1974.
Note: Regions included in the various districts. North-West: Piedmont, Lombardy, Val d'Aosta, and Liguria; North-East: Veneto, Friuli Venezia-Giulia, Trentino Alto-Adige, and Emilia Romagna; Centre: Tuscany, Umbria, Marche, and Lazio; South: Abruzzi e Molise, Campania, Puglia, Basilicata, and Calabria; Islands: Sicily and Sardinia.

Table 1 reports the number of offspring (total and partial) of the women (married only once before the age of 45) by birth cohort. This data refers to the entire country and its geographical divisions.

Despite the obvious limitations inherent in this type of comparison (figures are undoubtedly affected by variations in age at marriage and selection by mortality and migration, even for generations born before 1912), the fertility rates differ greatly from one macro-region to another. For the generations born between 1907 and 1911, this difference is of more than one child (3.3 children per woman in the North-West compared to 4.5 for those in the South), which reflects the more rapid diffusion of birth control practices in the North (Livi Bacci 1977). These regional differences are even more discernable in the graphical representation below (Figure 2), where we can see the national, the minimum and the maximum regional values for each generational group.

Figure 2: Completed (born before 1912) and incomplete (born after 1911) family size of ever-married women (married once and before 45 years of age) recorded at the census of 1961. National, minimum and maximum regional values

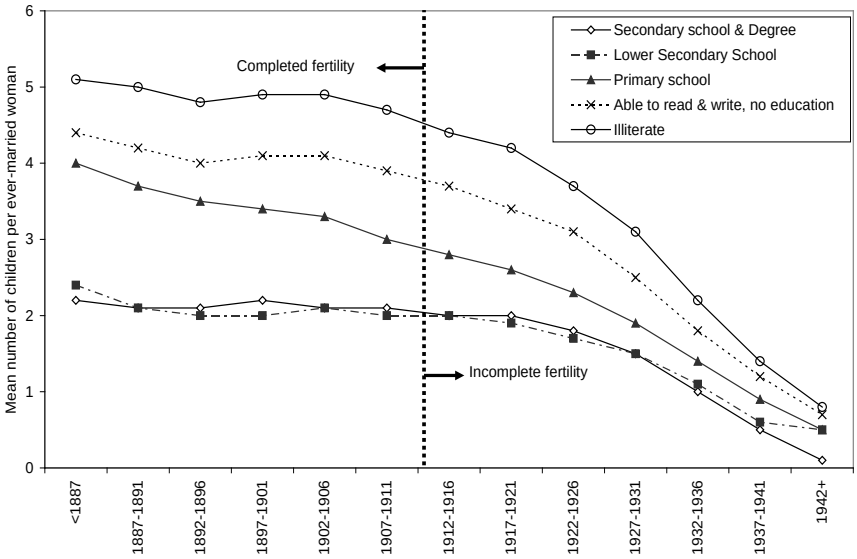


Source: Our calculations on data taken from ISTAT 1974.

Besides a clear tendency towards an overall reduction in the number of offspring for generations with completed fertility (from around 4.4 to 3.3 children at the national level), we can also see an augmentation in differences at a regional level for the birth cohorts born in the first years of the 20th century. The lowest values correspond consistently (with the sole exception of the latest birth cohort) to Liguria, which proves to be the region with the most rapid and permanent decline in fertility rates in Italy. The highest levels are seen in Veneto for the first birth cohort, in Basilicata for the following three and in Sardinia for those after 1901. This is evidence, at least for this early period, of the late arrival in Italy of behaviors deliberately addressed to control fertility. Notably, Sardinia emerges as the region with the slowest demographic transition in the whole country[9]. Significant differences in fertility rates also emerge on a national level in relation to level of education and field of employment. In Italy, compulsory education was firstly introduced in 1877, when 5-year children were obliged to attend primary school for three years, up to 8 years of age. This obligation was then extended to 12 years of age in 1911 and to 14 years in 1923. Notwithstanding that the law provided penalties for parents who failed to observe this obligation towards their children, the vast majority of children, especially from the lower strata of the population, left school after very few years. Figure 3 allows us to grasp the extent of the differentials in fertility between educated and non-educated women. It shows the existence of a fertility gradient by education. Illiterate women show the highest number of children per ever-married woman, while the most educated ones show the lowest figures. However, the importance of minimum literacy skills is proved by the invariable higher rates (of around one child) for women who are illiterate, compared to those who lack qualifications, but are in fact able to read and write (literate in the figure). On the other hand, differentials in fertility between illiterate women and women with primary school attainment increase up to the birth cohort 1917-1921 and then decrease rapidly. A different trend emerges from the comparison of illiterate women with the most educated ones. For the earliest generations, illiterate women have more than double the number of offspring as the most educated ones (5.1 compared to 2.1-2.2 for women with a middle-school-leaving certificate or above), but these differences tend to become progressively less pronounced with the generations born after the early 20th century.

[9] The slow fertility decline in Sardinia (which featured a sharp fall after the end of the 1960's) has been examined by a number of scholars over recent years. For a synthesis of this within the national panorama, see Santini 2008.

Figure 3: Completed (born before 1912) and incomplete (born after 1911) family size of ever-married women (married once and before 45 years of age) recorded at the census of 1961 according to education attainment and literacy



Source: Our calculations on data taken from ISTAT 1974.

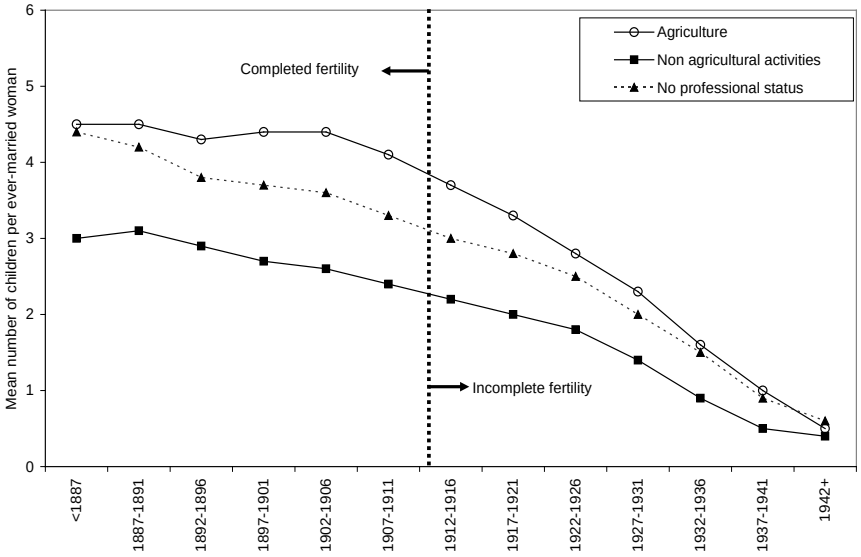
Professional status and field of employment also emerge as being associated with significant differences in fertility rates (Figure 4).[10] The greater fertility of women involved in agriculture stands out in all the generations born before the Great War. This datum, combined with that regarding education, largely explains the higher level of fertility observed, over all generations, in the "minor" municipalities. In these communities the progeny of women, with completed and partial fertility history, was 2.9 children compared to 2.2 among those residing in the chief towns.[11] Bearing in

[10] The way in which the occupation of farmers' wives was reported on the census returns could vary from town to town. They could be reported as housewives, farmers or farm laborers. Thus, the division between women employed in agriculture and housewives in Figure 4 could be not clear-cut.

[11] For differentials in fertility between urban and rural contexts, regarding the women assessed in the census of 1961, see Corsini (1967) on Florence and De Vergottini (1968) on Leghorn.

mind these values regarding Italian women in general, we now take a closer look at four case-studies that represent a small but important cross-section of the country in the early 1960's.

Figure 4: Completed (born before 1912) and incomplete (born after 1911) family size of ever-married women (married once and before 45 years of age) recorded at the census of 1961 according to occupational sector



Source: Our calculations on data taken from ISTAT 1974.
Note: The category No Professional Status gathers both retired women and housewives.

3. The four populations studied

The four populations investigated belong to different Italian geographical districts, and they have been selected with the aim of representing different demographic contexts (see table 1) and socioeconomic structures. Turriaco is a little community of Northeastern Italy, situated in the plain of the Isonzo River, only 15 km from the former Yugoslavian border. This position made Turriaco a battlefield in the two World Wars, to such a point that it became part of the Italian territory only after the First World War.

It counted 2,265 inhabitants on average, the majority of which were involved in shipbuilding after a long history of agriculture. This economic and occupational pattern is confirmed by the residential pattern, which saw the overwhelming majority of the population (97%) living in the centre of the village and only a small minority living in the countryside. In our view, Turriaco should represent the rapid fertility decrease of a northeastern Italian population, a feature here accentuated by the non-agricultural nature of the community studied.

Novellara and Casalguidi are two populations located, respectively, at the heart of the Po plain, less than 20 km North of Reggio Emilia, and in the Tuscan municipality of Serravalle Pistoiese, close to the city of Pistoia. Novellara, over 10,000 inhabitants on average, and Casalguidi, just 4,800, are both communities that reflect the typical pattern of rural sharecropping communities whose economy underwent a dramatic industrial transformation. On the other hand, the two populations represent two different demographic contexts, as Casalguidi is located in the Italian region, Tuscany, in which fertility decline was first noted. The socioeconomic change caused by industrialization, a real economic revolution in the plains of North and Central Italy, caused both a decline in the proportion of population living in the countryside[12] and a drop in agricultural employment,[13] to such a point that in 1961, agriculture, especially in Emilia and Tuscany, no longer formed the backbone of the economy. In particular, local peasant populations more closely associated with the sharecropping system were disappearing (Becattini 1975). Based on a labor-intensive rural economy, the sharecropping family relied on the domestic working force competing for the best contractual conditions and the best farms. In turn, the need of a large domestic work force caused higher fertility, the necessity of following a patrilocal form of living arrangement after marriage, and a family organization based on a joint family system. The dissolution of this world, which had obvious and substantial effects on local fertility levels, was then sanctioned only a few years after the census of 1961, when sharecropping was formally abrogated.

Finally, Alghero, a town of around 27,000 inhabitants situated on the northwestern coast of Sardinia. As a matter of fact, Alghero is not representative of the true isolated and secluded society of Sardinia, typical of the interior of the island. Alghero had many faces: the city centre had the typical urban socioeconomic structure, the harbor was populated by immigrants who worked in sea-related activities, while a rural economy based on farmers and shepherds dominated in the city surroundings. However, we have analyzed only a sample of 3,521 inhabitants, about 13% of total population,

[12] It passed from 75.7% and 69.3% in 1921, respectively in Casalguidi and Novellara, to 52% and 35% in 1961.

[13] In 1961, the proportion of people involved in agriculture was 34.3% in Casalguidi and 46.8% in Novellara.

mostly made up of residents of the town centre, a fact that enhances the urban nature of the population studied.[14] Despite these peculiar and composite features, Alghero has been chosen as representative of the region – Sardinia – with the latest onset of fertility transition and with the highest rates of illiteracy.

Illiteracy is precisely another indicator capable of highlighting the differences between the communities and the profound changes that occurred during the latter part of this period. In 1951, the illiterate population of 6+ years amounts to 18.6% in Alghero and tends to decrease with latitude, 14.6% in Casalguidi, 7.1% in Novellara and only 2% in Turriaco. Thirty years previously (at the census of 1921) the situation was even more pronounced: The illiterate population of 6+ was 21% in Novellara, 14% in Casalguidi and over 35% in Alghero, which provides evidence of the significant educational lag between Sardinia and many areas of Italy at that time.

It is worth stressing that we are describing recent changes, which should be kept in mind when discussing fertility trends and changes. The majority of women interviewed for the census of 1961 came from generations who had grown up in a world with very different social norms and customs, where agriculture was still very much central in the lives of most individuals.

4. The analysis of the reproductive history of ever-married women

4.1 Completed family size and other demographic indicators of fertility

To examine the reproductive patterns of ever-married women within the four populations under study, we have limited our analysis to women with completed fertility at the time of census, namely those born before 1912.[15] According to studies on the demographic transition in Italy, these birth cohorts were the main protagonists in the ultimate drop in fertility. In accordance with how ISTAT devised its tables, the stillborn have been excluded from the analysis.

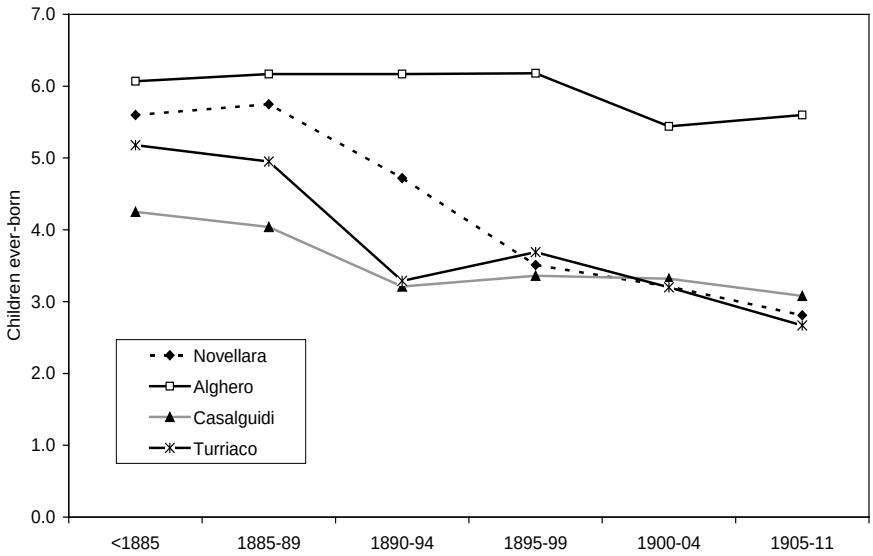
Figure 5 clearly shows that completed family dropped markedly with the birth cohorts of 1890-94 in Turriaco, Novellara, and Casalguidi. While this downward trend then halted in Casalguidi, it continued for subsequent generations in Novellara and Turriaco. In Novellara, the mean number of children per woman rapidly decreased, with a halving of the figure from 5.75 for the 1885-89 generation to 2.81 for the 1905-11

[14] As a comparison, the rural degree of the population sample was 37.8% in 1961.

[15] Although imposed by data availability (the census only reports the reproductive history of ever-married women), the focus on ever-married women precludes any insight into the relationship between marriage and literacy/SES, element that could have itself played a role in the mechanisms of fertility decline.

generation. Although this latter birth cohort presents the same level in Casalguidi, the decline in fertility in this latter population had already gotten underway in generations born prior to 1885.

Figure 5: Completed family size by mother's birth cohort in the four populations



The decline in the number of children per woman in Turriaco is likewise particularly rapid between the birth cohorts 1885-89 and 1890-94 (from 4.95 to 3.29), dropping further for women born at the turn of the century. Conversely, Alghero presents an entirely different trend in completed family size. In accordance with that which emerges at the regional level, fertility transition in Alghero appears still far from being underway. Here, the number of children ever born is already higher at the outset of the period under study, and the trend fails to show any appreciable decline over subsequent generations, such that number of children for the birth cohort 1905-11 is no less than twice that in Novellara. We can therefore conclude that we are dealing with four populations in different phases of their transitional process.

As for the mechanisms contributing to marital fertility decline, stopping and spacing measures were calculated.

According to the nature of the data recorded in the census returns, which report only birth year and not the exact date of birth, age at last birth and mean birth interval across generations were calculated, respectively, as the difference between mother's year of birth and last child's year of birth and two consecutive children's years of birth (Figure 6). In all the three populations characterized by a downward trend in completed family size, namely Turriaco, Novellara and Casalguidi, we found evidence of stopping behavior, testified by a decline in the age at last birth, which passes from about 37-38 to 33 years. This process is also accompanied by a corresponding widening of birth intervals in all three populations. In short, both stopping and spacing behaviors were at work in all the studied populations where fertility was declining. In Alghero, where fertility levels continued to remain high and still showed no sign of decline, this pattern is entirely absent with neither stopping nor spacing behaviors being detectable.

The different stages of the process of fertility decline are also apparent from analysis of the distribution of completed parity by generation (Figure 7).[16] In Casalguidi, some degree of fertility control is already present in the birth cohorts born before 1890, when completed family size of 5+ children involved less than half of total ever-married women against 63%-64% in the other three populations. The following birth cohorts in Casalguidi can be seen to reinforce their fertility control, with high-parity women declining to 17.6% and parity 2 and 3 increasing across generations. The same pattern is also present in Novellara and Turriaco, although the decline of the relative weight of high-parity women is more striking and rapid. Once again, Alghero distinguishes itself for its delay in the transitional process of fertility control: the proportion of women with 5+ children is still around 60% for those born between 1900 and 1911, not denoting yet any significant drop compared to previous generations.

Birth-cohort changes in childlessness are barely comparable on account of the low numbers of observations, especially in Turriaco and Alghero, but the overall proportion of childless women is similar in the four communities, being around 7%-9%. These values fall within the range (5%-20%) considered by Rowland (2007) as the normal proportion of childless ever-married women, and are only slightly above the threshold (3%-5%) that many authors indicate as the expected proportion of couples affected by permanent sterility (Knodel and Wilson 1981; Toulemon 1995). This therefore implies that voluntary childlessness was not yet an option for couples living in our studied communities.

[16] Here we limited the analysis to three birth cohorts to reduce the impact of random variations due to low numbers of observations.

Figure 6: Age at last birth and mean birth interval across generations in the four populations studied

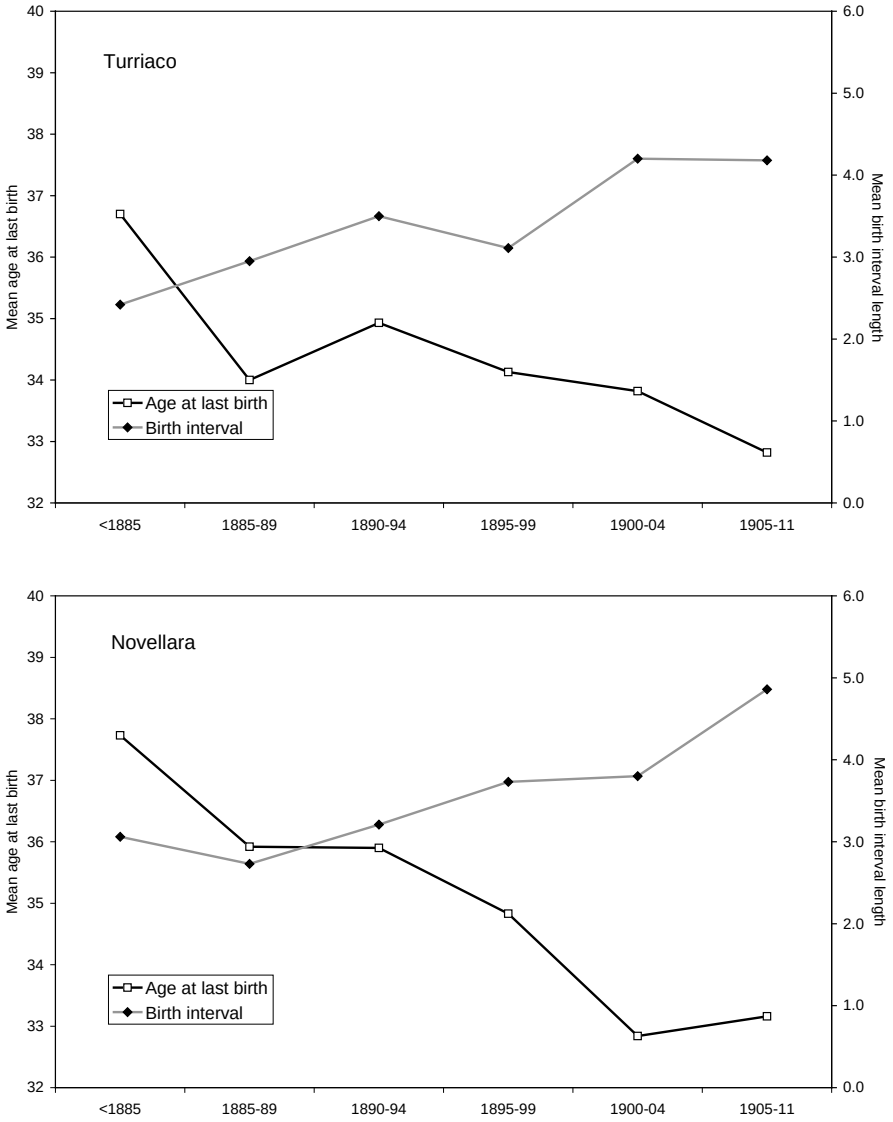


Figure 6: (Continued)

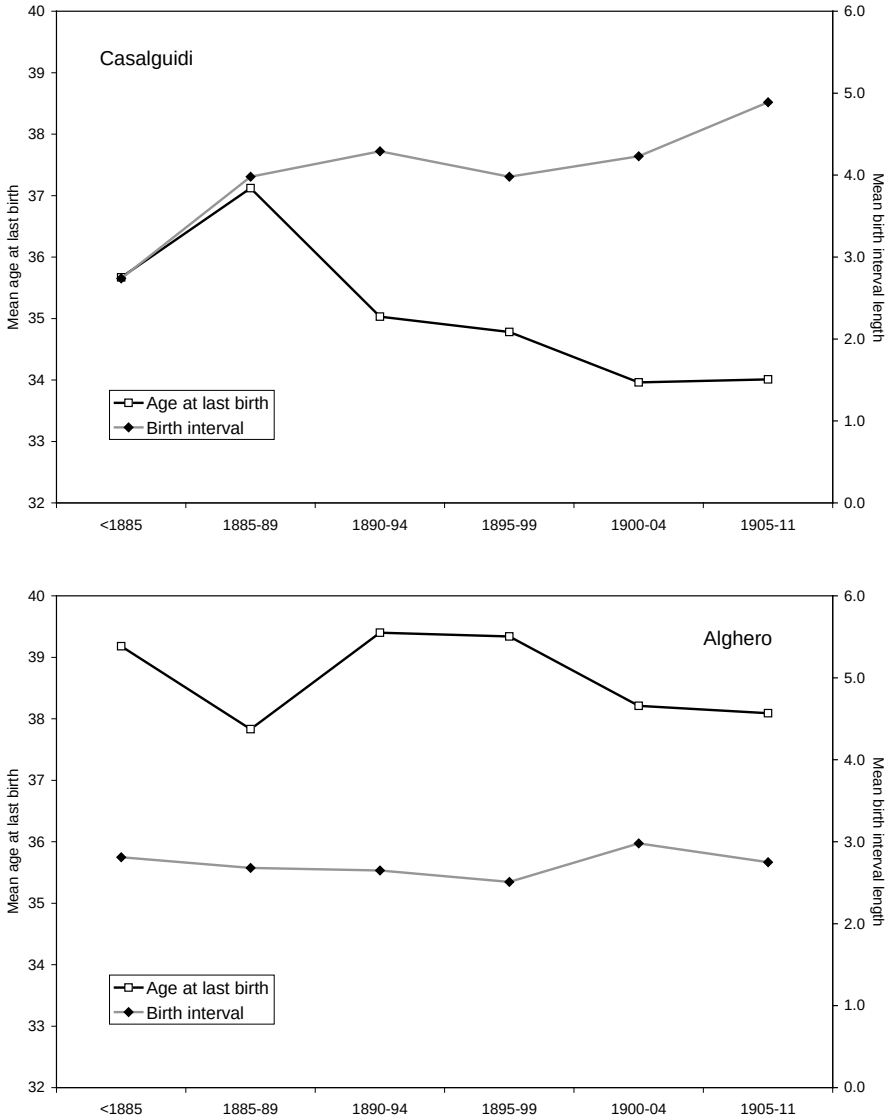


Figure 7: Women distribution by parity across generations in the four populations studied

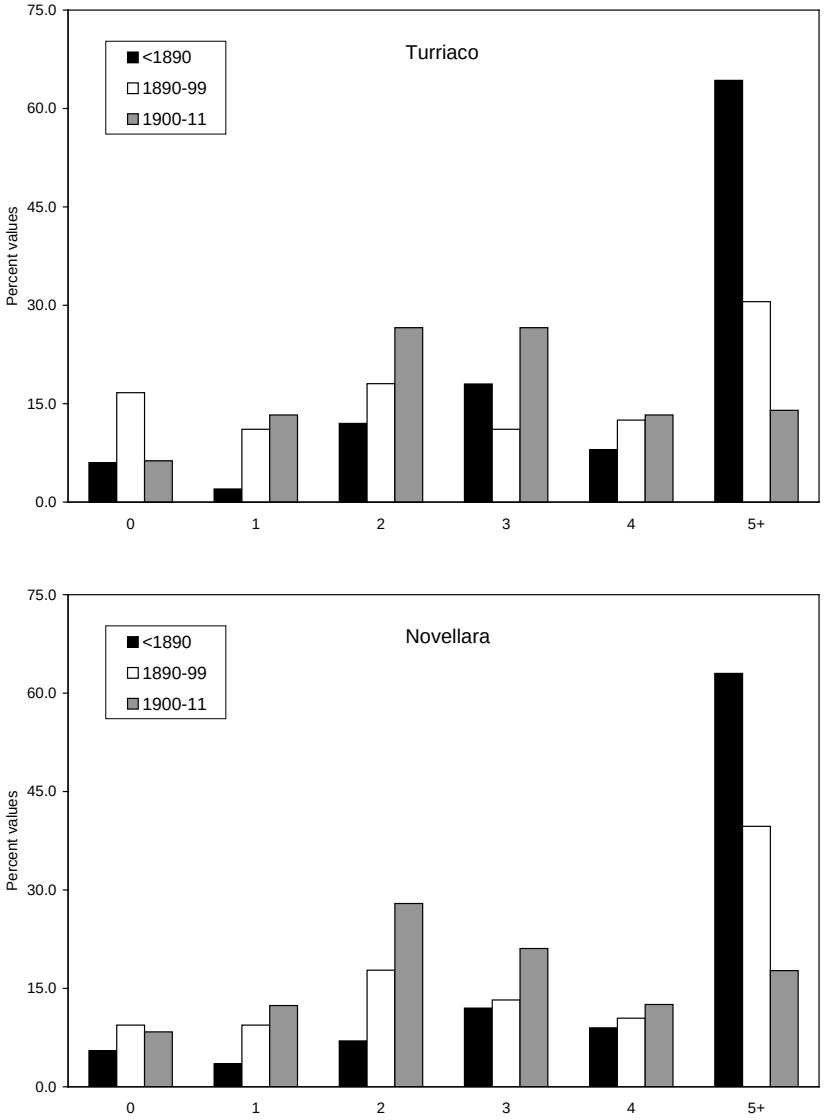
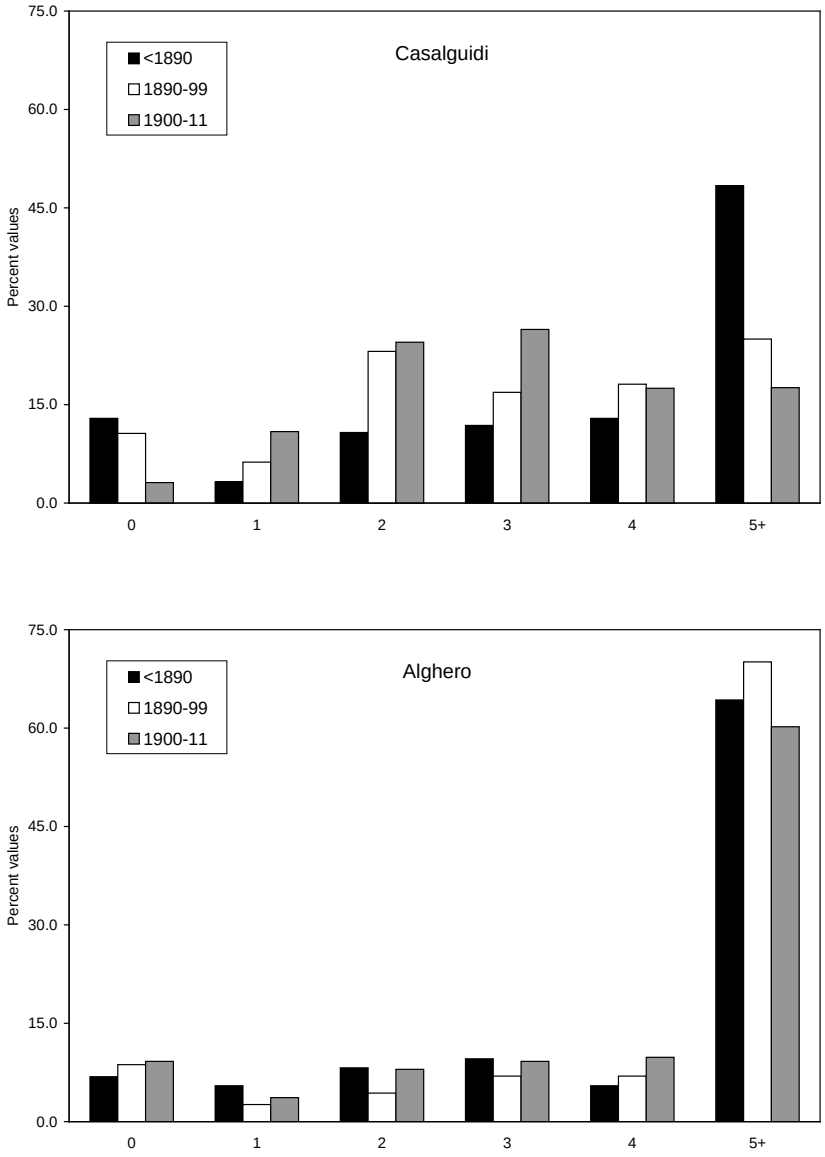


Figure 7: (Continued)



4.2 Towards a micro-analytical approach: Some determinants of completed family size

It is widely accepted – and to a certain extent demonstrated by the results that emerged from the descriptive analysis of the census of 1961 (ISTAT 1974; Livi Bacci 1977) – that many elements play a role in shaping the reproductive pattern of couples. They include strictly biological (such as woman's age, age at marriage, mortality pattern, etc.) and socioeconomic factors (occupation, economic status, home characteristics, level of education, etc.), as well as cultural elements such as spouses' provenience, religion, and household composition. Potential predictors of completed family size of ever-married women were sought using negative binomial regression, whose coefficients have been expressed in relative terms through incidence-rate ratios.[17] The female population analyzed consists of women married once before 45 years of age and still married at the age of 50. Women whose reproductive history was found to be incongruent were discarded, in particular those whose number of children and birth dates did not correspond.[18] The explanatory variables introduced in the models are aimed at capturing the effects of some of the elements indicated above, namely women's individual history and socioeconomic and cultural background. Birth cohort and age at marriage can highlight a possible decline in completed family size across generations, as the descriptive analysis would suggest, as well as gauging whether or not this decrease can be accounted for by an increase in the age at marriage and a consequent shortening of the reproductive span. Birthplace and level of education reveal aspects of women's cultural background that have previously received much attention as key elements in fertility control. Birthplace can give evidence of immigration, demonstrating its associated effects on fertility. The variation in completed family size associated with immigrant women compared to local women is, however, not univocal. For instance, immigrant people from Southern Italy present similar levels of fertility if compared to the Alghero population, but definitely higher ones if compared to the populations living in the plains of Northern Italy. As for education attainment, we have used three categories: No education, Primary school (reference category), Secondary school and degree. This categorization follows from the groups of Figure 3, in which women with no educational attainment (illiterate and literate) where those with the highest fertility; those with a primary school certificate were in the midrange of fertility, and women with secondary school certificate or degree presented the lowest fertility values. Obviously, such a general picture could be

[17] A negative binomial regression was used to handle the presence of over-dispersion in our count data, which makes it impossible to estimate a Poisson model.
[18] These women amounted to 39 in Novellara, 25 in Casalguidi, only 2 in Alghero and none in Turriaco.

affected by many confounding factors. Socioeconomic status (SES) is probably the most important complicating variable because of its strong positive relationship to education. Actually, SES may affect education through many of the same intermediate variables described in the introduction: openness to new ideas and new behaviors, independence from religious principles, age at marriage, infant mortality, impact of direct and indirect costs of children, and access to techniques of fertility control. Information directly retrieved from census returns regarding house characteristics were used as proxies of economic status, such as house ownership, total number of rooms and an indicator of house quality. Homeownership can be the distinguishing factor between wealthy and poor inhabitants, especially in the former sharecropping populations of Casalguidi and Novellara, where many farmers were tenants. The population of Alghero featured a selection of both tenants and homeowners, whereas in Turriaco, the majority lived in their own houses. Lastly, the "house quality" index was constructed using the presence or absence of specific facilities (water, toilet, bathroom, electricity, gas, and heating), based on the idea that the higher the number of facilities, the higher the quality of the house, and the socioeconomic status of the family. The assumption here is that women with completed fertility had experienced the same housing conditions throughout their reproductive history, which is a rather strong hypothesis. However, if we had used information on a woman's occupation, the problem would have been more or less the same, as even this piece of information does not have a time-dependent nature. It also suffers from indeterminacy problems, given that most women with completed fertility are identified as housewives and their husbands as retired.

Three models were run (tab. 2 and 3).[19] The first (M1) concerns only biographical and cultural variables, the second (M2) adds an interaction between education attainment and birth cohort to investigate whether more educated women were forerunners in fertility decline, and the third one (M3) also features house characteristics. As expected, in model 1 (Table 2) the three mainland populations show a significant and progressive decline of fertility across birth cohorts, to a greater degree for Novellara and Turriaco and less so for Casalguidi. Alghero, on the other hand, is characterized by the absence of any significant drop in marital fertility, confirming the later start of fertility transition in Sardinia, already emerged at the descriptive level. Age at marriage presents a general negative relationship with completed family size, lacking statistical significance in Casalguidi alone.

[19] Multi-collinearity among independent variables has been tested for all models using the Variance Inflation Factor (VIF). The results suggest the absence of collinearity in all the models, with VIF values below the critical cutoff (VIF<10).

Table 2: Negative binomial regression models: Completed family size of ever-married women in the four populations; incidence-rate ratios. Models 1 and 2 (M1 and M2)

Variables	Turriaco			Novellara			Casalguidi			Alghero		
	Freq.	M1	M2	Freq.	M1	M2	Freq.	M1	M2	Freq.	M1	M2
Birth cohort (ref. <1890)	18.9	1.000	1.000	18.4	1.000	1.000	18.2	1.000	1.000	20.8	1.000	1.000
1890-1899	27.2	**0.672**	**0.653**	26.5	**0.787**	**0.828**	31.3	**0.786**	0.843	32.8	1.118	1.298
1900-1911	54.0	**0.559**	**0.512**	55.1	**0.569**	**0.595**	50.5	**0.738**	0.802	46.4	0.993	1.205
Age at marriage	25.0	**0.980**	**0.980**	24.5	**0.978**	**0.978**	23.9	0.999	1.001	24.2	**0.988**	**0.988**
Birthplace (ref. Province district)	56.6	1.000	1.000	87.5	1.000	1.000	90.2	1.000	1.000	95.7	1.000	1.000
Elsewhere	43.4	**1.179**	**1.188**	12.5	**1.223**	**1.219**	9.8	**1.347**	**1.355**	4.3	0.781	0.794
Educational qualific. (ref. Primary)	56.6	1.000	1.000	70.5	1.000	1.000	38.3	1.000	1.000	50.4	1.000	1.000
No education	42.3	0.979	0.890	27.9	**1.144**	**1.224**	60.7	**1.179**	**1.282**	46.4	**1.207**	**1.454**
Lower super., Super., University	1.1	1.013	1.504	1.6	**0.698**	**0.729**	1.0	**0.497**	0.605	3.1	0.828	1.349
Birth cohort 1890-99 * None			1.061			0.915			0.920			0.875
Birth cohort 1890-99 * LS, S, U			**0.299**			**0.395**			0.744			**0.433**
Birth cohort 1900-11 * None			1.188			0.896			0.898			0.761
Birth cohort 1900-11* LS, S, U			-			1.065			-			0.699
Women		265			1085			501			351	
Births		897			4067			1763			2059	
Log-likelihood		-543	-541		-2296	-2294		-1006	-1005		-898	-895
LR test (χ^2; p-value)		2.9	0.410		3.3	0.503		0.6	0.899		4.8	0.304

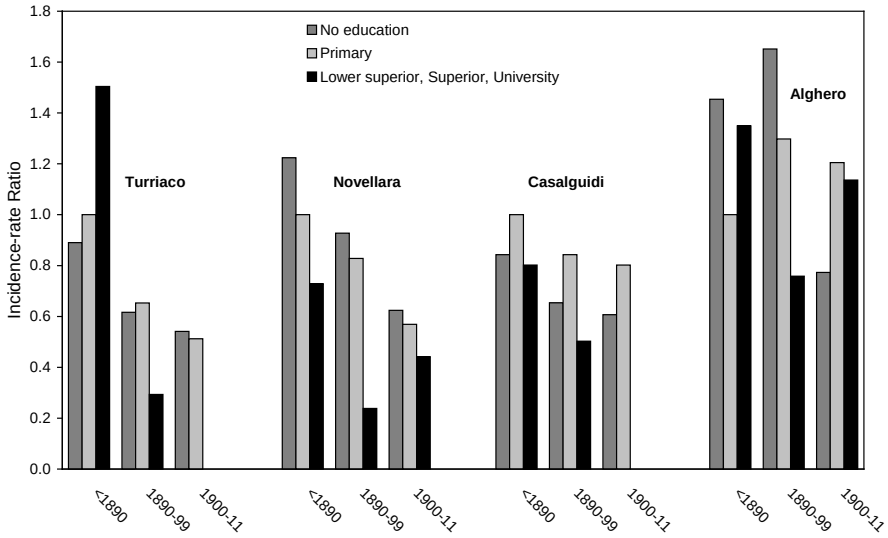
Note: in bold p<0,5. For age at marriage, mean is reported instead of frequency.

Birthplace presents contrasting effects on the total number of children ever born. Whereas it is significantly and positively associated in Novellara, Casalguidi and Turriaco, it is not statistically significant in Alghero. This reflects the different patterns of immigration extant in the various communities: the Tuscan and Emilian populations feature a strong presence of long-distance immigrants coming from high-fertility areas, especially Southern Italy, whilst immigrants in Alghero originated primarily from neighboring regions with no significant fertility differences.

Lastly, results concerning level of instruction unequivocally reaffirm the decisive role of education in the decline of fertility during the transitional process. In all the populations studied, with the exception of Turriaco, women with a complete lack of education display a completed family size around 1.2 times greater than primary school leavers. Women with higher educational qualifications show a lower number of children than the reference category, which is statistically significant in the two sharecropping communities. In Turriaco, however, no significant difference emerges across educational groups, although a common pattern is revealed once interaction between educational attainment and birth cohort is introduced into the model (Figure 8). Although this interaction did not improve the model fit (see LR test), we did find indication of a tendency for smaller completed family size among the most highly educated women of the 1890-99 birth cohorts. This difference was particularly marked in populations in which these generations were responsible for the beginning of a fertility transition, such as Novellara and Turriaco, whereas it was less noteworthy in Casalguidi, where the process of fertility transition was already underway.

This suggests that literate women played a key role in the process of fertility decline, especially in the early phases of transition. The situation is much less clear in Alghero. In the absence of any sign of fertility decline, fertility differentials in education change magnitude and sign across generations, such that even the significant drop in fertility of educated women born in 1890-99 should be considered with caution.

Figure 8: Incidence-rate ratios elaborated from the interaction birth-cohort



*Educational attainment, Model 2 (M2)

Model 3 (Table 3) introduces the two variables concerning the house as proxy of SES. A significant increase in model fit emerges only in those populations with greater SES variability, namely the two former sharecropping communities of Novellara and Casalguidi, where it emerges that the highest number of children ever born were from women living in rented accommodations, and therefore also likely to be poor. Although previous studies (Manfredini and Breschi 2008; Breschi et al. 2010; Kertzer and Hogan 1989) indicate sharecroppers as having been the social group with the highest fertility levels, here their completed family size is no longer significantly higher than homeowners. In addition, although high quality housing, typical of wealthy families, is associated with smaller completed family size, this coefficient is statistically significant only in Novellara. This pattern is echoed in Turriaco, whilst, once again, Alghero presents more differences than similarities. No housing-related variable emerged as statistically significant for the Sardinian population, which is most likely due to the low level of house quality variability, bearing in mind that the sample analyzed lived in the town centre, where houses had very similar characteristics to one another.

Table 3: Negative binomial regression models; completed family size of ever-married women in the four populations; incidence-rate ratios. Model 3 (M3)

Variables	Turriaco		Novellara		Casalguidi		Alghero	
	Freq.	M3	Freq.	M3	Freq.	M3	Freq.	M3
Birth cohort (ref. <1890)	18.8	1.000	18.4	1.000	18.2	1.000	21.0	1.000
1890-1899	27.1	**0.676**	26.5	**0.790**	31.3	**0.779**	32.1	1.122
1900-1911	54.1	**0.557**	55.1	**0.562**	50.5	**0.727**	46.9	1.004
Age at marriage	25.0	**0.979**	24.5	**0.978**	23.9	1.001	24.2	**0.988**
Birth place (ref. Province district)	56.1	1.000	87.5	1.000	90.2	1.000	96.7	1.000
Elsewhere	43.9	1.129	12.5	**1.208**	9.8	**1.315**	3.3	0.782
Educational qualific. (ref. Primary)	56.5	1.000	70.5	1.000	38.3	1.000	51.5	1.000
None	42.4	0.968	27.9	**1.130**	60.7	**1.158**	45.2	**1.210**
Lower super., Super., University	1.2	0.980	1.6	**0.706**	1.0	**0.538**	3.3	0.841
House possession (ref. Own)	77.5	1.000	40.8	1.000	39.9	1.000	43.6	1.000
Rent	16.2	1.198	36.9	**1.172**	27.4	**1.113**	54.0	1.046
Other forms (sharecropping, etc.)	6.3	**1.355**	22.3	1.071	24.6	0.905	2.4	0.844
Unknown	-	-	-	**-**	8.2	0.934	-	-
House quality (ref. Low)	5.1	1.000	18.6	1.000	14.4	1.000	6.1	1.000
Medium	82.8	1.021	65.5	0.961	74.5	1.012	89.5	1.026
High	12.2	0.982	15.9	0.964	11.2	0.896	4.4	0.838
Women	255		1082		501		346	
Births	874		4057		1763		2023	
Log-likelihood	-521		-2285		-999		-882	
LR test (*vs* M1)	6.5	0.167	11.1	0.026	12.7	0.026	3.3	0.508

5. Conclusions

The research presented here is part of a wider project aimed at analyzing Italian fertility transition at the micro-level, with a focus on the interplay between educational attainment and socioeconomic status. Thanks to the understanding and cooperation of the local authorities of the communities here studied, we were given the opportunity to use the data reported in the Fertility Survey included in the 1961 Italian census to shed some light on the fertility behavior of the main actors in the decline of fertility in Italy. The most striking feature of what emerges is the complexity of the Italian case, with some populations beginning this process with the birth cohorts born at the end of the 19th century, whilst for others this transition had already gotten underway with previous generations, and in still other cases, signs of fertility decline were still yet to come. That which does emerge as common to all the populations, however, is the role of education. A woman's education appears to a have a far more important role than does family economic status in shaping the fertility levels of the birth cohorts born just before the turn of the century, although we should also allow for the possibility of an inadequacy of the variable used to measure SES. In all the populations examined, except Turriaco, we found evidence of a gradient in the relationship between education attainment and completed family size. Women without any educational qualification have higher fertility than women with primary school attainment, who in turn show higher completed family size than women with a secondary school certificate or degree. Even in Alghero, where fertility transition was yet to commence, women lacking an education had a significantly higher fertility than educated women. Given that SES is controlled for, and given the very low levels of labor participation of women born before 1912, this gradient might be the expression of different degrees of openness and receptivity to innovative ideas and new behaviors, as well as of different degrees of decisional autonomy of women within the family and the couple. Independence from religious principles is another factor that could explain the fertility gradient associated to education attainment. The process of secularization has been cited to explain a large part of the fertility decline in those countries that, like Italy, were previously so strongly and deeply permeated by the influence of the morals and ethics of the Catholic Church (Salvini 1990; Lesthaeghe and Wilson 1986).

However, the different onset of fertility transition in the other three populations does condition the way in which this association reveals itself. A strict and significant connection between fertility decline and high levels of female education is only evident in Novellara and Turriaco for the generations born in 1890-99. The lower levels of fertility for highly educated women emerge as being especially apparent in the early phases of fertility decline. This could explain the lack of any significant difference in fertility by women's educational level across the generations under analysis in the

Tuscan population of Casalguidi, where fertility transition had gotten underway well before the 1890-99 birth cohorts and fertility differentials had had time to stabilize, even if education does remain a key variable influencing fertility levels.

What stands out in Casalguidi and Novellara is the absence of any fertility differential for women living in sharecropping households, a social group which had previously experienced consistently high levels of fertility. It is difficult to know if this was a reaction to a rural world that was experiencing rapid change or an assimilation of fertility behaviors that were also spreading to the most conservative component of the peasant society. Whatever the case, the peculiarities of the fertility pattern that had formerly characterized sharecroppers were disappearing both in Novellara and Casalguidi.

In conclusion, the Fertility Survey included in the census of 1961, despite its limitations characteristic of census-like sources, is of great value in helping to bridge the gap between pre- and post-transitional Italy; between pre-unitary sources and contemporary demographic statistics. It allows for a shift from aggregate figures to individual biographies of the very women who made the biggest contribution to shaping patterns in reproductive behavior in ways previously unseen. It is precisely these differences in the pace and intensity of fertility decline, the variability between geographical regions and even within groups of the same population – so well demonstrated by the case studies presented here – and the consequent difficulties in developing a single theoretical framework to connect all the intermediate variables of fertility that makes the integration of aggregate analyses with micro-level studies aimed at highlighting specificities and peculiarities of the various populations involved in the process of fertility transition even more pressing (Salvini 1990). The well-known Italian North/South demographic divide emerges here, not only in the assessment of timing of transition, but also in the evidence of the distinct and higher fertility of southern emigrants to northern communities.

Our aim for possible future research is to examine transitional fertility behaviors further by extending our analysis to women with incomplete fertility, notably absent from this study, which would enable us to (almost) complete the investigation of fertility transition in Italy and its main actors. This would first necessitate the launch of a campaign of recognition regarding the availability of this documentation in the Italian municipal archives. In the meantime, we intend to carry out certain *ad hoc* studies to reconstruct the reproductive biographies of specific types of female populations, such as women living in mountain communities, industrial towns, and villages characterized by strong emigration flows. This would enable us to further our understanding of the lives of the protagonists of this dramatic, socio-economic transformation of Italy.

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References

Basu, A.M. (2002). Why education leads to lower fertility? A critical review of some of the possibilities. *World Development* 30(10): 1779–1790. doi: 10.1016/S0305-750X(02)00072-4.

Battara, P. (1939). Considerazioni sulla prolificità dei matrimoni secondo la condizione sociale dei capofamiglia. In: *Atti della IV Riunione scientifica della Società italiana di demografia e statistica*. Milan: Giuffrè: 58–68.

Becattini, G. (1975). *Lo sviluppo economico della Toscana.* Florence: Irpet.

Becker, G. (1960). An economic analysis of fertility. In: National Bureau of Economic Research (ed.). *Demographic and Economic Change in Developed Countries.* Princeton: Princeton University Press: 209–231.

Bonarini, F., Ongaro, F., and Rossi, F. (1994). Riproduttività. In: Livi Bacci, M., Blangiardo, G., and Golini, A. (eds.). *Demografia*. Turin: Edizione della Fondazione Giovanni Agnelli: 281–338.

Bradbury, B. (2008). Time and the cost of children. *Review of Income and Wealth* 54(3): 305–323. doi:10.1111/j.1475-4991.2008.00277.x.

Breschi, M. (1984). Tavole lorde di fecondità dei matrimoni: 1954–1979. Florence: Dipartimento Statistico (Quaderni del Dipartimento statistico 24).

Breschi, M., Derosas, R., Manfredini, M., and Rettaroli, R. (2010). Patterns of reproductive behavior in preindustrial Italy: Casalguidi 1819 to 1859 and Venice 1850 to 1869. In: Tsuya, N., Feng, W., Alter, G., and Lee, J.Z. (eds.). *Prudence and Pressure*: *Reproduction and Human Agency in Europe and Asia*, *1700–1900.* Cambridge: Massachusetts Institute of Technology Press: 217–248.

Chaudhury, R.H. (1984). The influence of female education, labor force participation, and age at marriage on fertility behavior in Bangladesh. *Biodemography and Social Biology* 31(1-2): 59–74. doi:10.1080/19485565.1984.9988562

Ciucci, L. and De Sarno Prignano, A. (1974). L'influence de l'éducation sur la fécondité en Italie. *Genus* 30(1/4): 119–181.

Cleland, J. (2001). The effects of improved survival on fertility: A Reassessment. *Population and Development Review* 27: 60–92. doi:10.2307/3115250

Cleland, J. and Jejeebhoy, S. (1996). Maternal Schooling and Fertility: Evidence from Censuses and Surveys. In: Jeffery, R. and Basu, A.M. (eds.). *Girl's Schooling*,

Women's Autonomy and Fertility Change in South Asia. Thousand Oaks: Sage Publications: 72–106.

Corsini, C.A. (1967). Aspetti della fecondità completa delle fiorentine secondo il censimento demografico del 1961: Riflessioni sulla fecondità dei centri urbani. In: *Atti della XXV Riunione scientifica della Società Italiana di Statistica*. Bologna: Società Italiana di Statistica: 767–797.

De Sandre, P. (1985). The World Fertility Survey in Low Fertility Countries and the Italian Experience: Facts and Suggestions. Padua: Dipartimento di Scienze Statistiche (Working Paper 4).

De Simoni, A. (1989). *Un tentativo di costruzione di tavole di fecondità del momento per ordine di nascita: applicazione all'esperienza italiana del 1980–1982.* Rome: CNR-IRP.

De Simoni, A. (1990). *La recente evoluzione della fecondità in Italia e nelle due grandi ripartizioni. Tavole di fecondità per ordine di nascita 1980–82 e 1985–87.* Rome: CNR-IRP.

De Vergottini, M. (1937). Sulla fecondità della donna italiana. *Annali di statistica* 7(1): 317–364.

De Vergottini, M. (1968). Indagine sulla fecondità della donna livornese al censimento del 1961. Pisa: Istituto di Statistica (Studi di Demografia e di Statistica Economica, Quaderni dell'Istituto di Statistica della Facoltà di Economia e Commercio dell'Università di Pisa; 4).

Dyson, T. and Moore, M. (1983). On kinship structure, female autonomy and demographic behavior in India. *Population and Development Review* 9(1): 35–60. doi:10.2307/1972894.

Easterlin, R.A. (1983). Modernization and Fertility: A Critical Essay. In: Bulatao, R.A. and Lee, R.D. (eds.). *Determinants of Fertility in Developing Countries*. New York, London: Academic Press: 562-586.

Galvani, L. (1935a). Fecondità completa della donna italiana. *Notiziario demografico* VIII(8).

Galvani, L. (1935b). Altri aspetti della fecondità della donna italiana. *Notiziario demografico* VIII(6).

Guinnane, T.W. (2011). The historical fertility transition: A guide for economists. *Journal of Economic Literature* 49(3): 589–614. doi:10.1257/jel.49.3.589.

ISTAT (1936). *Indagine sulla fecondità della donna.* Rome: Istituto Centrale di Statistica del Regno d'Italia.

ISTAT (1962). *Indagine speciale su alcune caratteristiche genetiche della popolazione italiana*. Rome: Istituto Centrale di Statistica del Regno d'Italia (Note e relazioni 17).

ISTAT (1974). *Indagine sulla fecondità della donna*. Rome: Istituto Centrale di Statistica (Note e relazioni 50).

ISTAT (1982). *Misure della fecondità italiana negli ultimi trent'anni.* Rome: Istituto Centrale di Statistica (Collana di informazioni 5).

ISTAT (1997). *La fecondità nelle regioni italiane. Analisi per coorti. Anni 1952–1993*. Rome: Istituto Centrale di Statistica.

ISTAT (2000). *La fecondità regionale nel 1996.* Rome: Istituto Centrale di Statistica (Collana Informazioni 11).

Jejeebhoy, S.J. (1995). *Women's Education, Autonomy, and Reproduction Behaviour: Experience from Developing Countries.* Oxford: Clarendon Press.

Kertzer, D.I. and Hogan, D.P. (1989). *Family, Political Economy, and Demographic Change: The Transformation of Life in Casalecchio, Italy, 1861–1921*. Madison: University of Wisconsin Press.

Kertzer, D.I., White, M.J., Bernardi, L., and Gabrielli, G. (2009). Italy's path to very low fertility: The adequacy of economic and second demographic transition theories. *European Journal of Population* 25(1): 89–115. doi:10.1007/s10680-008-9159-5.

Knodel, J. (1968). Infant Mortality and Fertility in Three Bavarian Villages: An Analysis of Family Histories from the 19th Century. *Population Studies* 22(3): 297–318. doi:10.1080/00324728.1968.10404941.

Knodel, J. and Wilson, C. (1981). The secular increase in fecundity in German village populations: An analysis of reproductive histories of couples married 1750–1899. *Population studies* 35(1): 53–84. doi:10.2307/2174835.

Lesthaeghe, R. and Wilson, C. (1986). Modes of production, secularization and the pace of the fertility decline in Western Europe, 1870-1930. In: Watkins, S. and Coale, A.J. (eds.). *The Decline of Fertility in Europe*. Princeton: Princeton University Press: 231–263.

Livi Bacci, M. (1977). *A History of Italian fertility during the Last Two Centuries*. Princeton: Princeton University Press.

Livi Bacci, M., Corsini, C.A., Santini, A. and Ventisette, M. (1968). *Tavole di fecondità dei matrimoni per l'Italia 1930–1965*. Florence: Scuola di Statistica dell'Università di Firenze.

Livi Bacci, M. and Santini, A. (1969). *Tavole di fecondità della donna italiana secondo le generazioni di appartenenza*. Florence: Dipartimento Statistico-Matematico dell'Università di Firenze.

Manfredini, M. and Breschi, M. (2008). Socioeconomic structure and differential fertility by wealth in a mid-nineteenth century Tuscan community. *Annales de Demographie Historique* 1(115): 15–33.

Reher, D.S. and Sanz-Gimeno, A. (2007). Rethinking historical reproductive change: Insights from longitudinal data for a Spanish town. *Population and Development Review* 33(4): 703–727. doi:10.1111/j.1728-4457.2007.00194.x.

Rowland, D.T. (2007). Historical trends in childlessness. *Journal of Family Issues* 28(10): 1311–1337. doi:10.1177/0192513X07303823.

Salvini, S. (1990). Caratteristiche del declino della fecondità europea nel corso dei secoli XIX e XX. Alcune considerazioni sulla transizione demografica in Italia. In: SIDES, *Popolazione, società, ambiente: Temi di demografia storica italiana (secc. XVII-XIX)*. Bologna: Clueb: 385–402.

Santini, A. (1974). *La fecondità delle coorti. Studio longitudinale della fecondità italiana dall'inizio del secolo XX*. Florence: Dipartimento Statistico-Matematico dell'Università di Firenze.

Santini, A. (2008). Fecondità e nuzialità in Italia nel quadro della transizione. In: Ge Rondi, C., Manfredini, M., and Rettaroli, R. (eds.). *Transizioni di fecondità in Italia tra Ottocento e Novecento*. Udine: Forum: 21–77.

Schultz, T. P. (1985). Changing World Prices, Women's Wages, and the Fertility Transition in Sweden, 1860-1910. *Journal of Political Economy* 93(6): 1126–1154. doi:10.1086/261353.

Toulemon, L. (1996). Very few couples remain voluntary childless. *Population: An English selection* 8: 1–27. doi:10.2307/2949155

United Nations. Department for Economic and Social Information and Policy Analysis, Population Division (1995). *Women's Education and Fertility Behaviour*. New York: United Nations.

Van de Putte, B. (2007). The influence of modern city life on marriage in Ghent at the turn of the twentieth century: Cultural struggle and social differentiation in demographic behavior. *Journal of Family History* 32(4): 433–458. doi:10.1177/0363199007305765.

Ventisette, M. (1985). La fécondité des mariages en Italie, 1930-1980. In: *Contribution of Italian Scholars to the IUSSP XX General Conference (Firenze 5–12 giugno 1985).* Rome: CNR-IRP: 305–320.

Ventisette, M. (1986). *Nuove tavole di fecondità dei matrimoni per l'Italia, 1930–1981*. Florence: Dipartimento Statistico dell'Università di Firenze.