Visualizing Changes in Nuptiality Patterns in Italy. An Application of the Lexis Surface

Francesca Rinesi, Claudia Iaccarino

Italian National Institute of Statistics (ISTAT)

Introduction and aim of the paper

Over the past decades, family formation behaviour has diversified in Europe. Starting from the late 1960s interrelated changes in fertility, union formation and dissolution took place in all European countries, although at a different pace. The main features of these changes are: fertility decline, disconnection between marriage, sex and reproduction, postponement of union formation, rise in union disruption and spread of family forms and living arrangements other than the «married couples with children» (for a broad overview see Sobotka and Toulemon, 2008). Other than traditional living arrangements have become more widespread. Cohabitation unions, living apart together partnership, same-sex partnership, one-parent families, and single living have increased in prominence. The institution of marriage is under pressure. It can be observed a general decline in total first marriage rate, the increase in the mean age at first marriage, the rise of both unmarried cohabitations and marital disruption, the increase in births out of wedlock.

Changes in family formation behaviour first began in the mid-1960s in European Nordic countries and other regions followed. In particular, those changes started a decade later only in Italy and in the other European countries. Although marriage has become less prevalent, it remains a widespread institution especially in Southern European countries.

In Italy changing in family and living arrangements encompass two stages: from mid '70s to mid '90s and from late '90s to present. Following the era of the "golden age of marriage" and the baby boom in the 1950s and 1960s, marriage has declined in importance and its role as the main institution on which family relations are built has declined. During the first stage (mid '70s – mid '90s) several legislative innovations and social changes took place (approval of both the divorce law (1970) and the abortion laws (1978), reform of the family law act (1975)). In those years both the nuptiality and the fertility begin to decline, even if at a slow pace. In fact, it is not possible to see the clear emergence of non-traditional family formation behaviours, as happened, in the same period, in other European countries. Births outside marriage, for example, still constitute a small proportion of the total births in the mid-1990s (8.1% in 1995), while in northern European countries they already reached or exceeded 50%. Marriage still remains the most common form of family formation. The second stage starts from late '90s. In those years innovative family behaviours have spread in Italy. New living arrangement become more common (rise in unipersonal households, in childless/childfree couples, in non-marital cohabitation) and we observe the dramatic drop both in nuptiality and fertility. Marriage postponement is strictly linked with a more general late transition to adulthood.

In a context of important changes both in the timing and in the volume of nuptiality, period measure may differ significantly from cohort measure. The aim of this paper is precisely to analyse nuptiality patterns in Italy across time in order to highlight the interplay between period and cohort indicators. In order to do so, we choose to use a graphical approach by visualising nuptiality patterns in Lexis surfaces. This approach make it possible to summarize a large array of data and to appreciate at a first glace both the period, the cohort and the age effects in nuptiality evolution.

Data and method

Statistics on marriages concerns those marriages registered in Italy between opposite-sex couples regardless of the usual residence of the parties. Up to 1969 data are in table format in the paper publications only; afterwards they are stored in a database (individual records). In the present study, we consider first marriages occurred in Italy from 1965 to 2017 with at least one resident spouse.

The first step of this work is the building of a detailed national and regional first nuptiality database. Likewise the well-known "Human fertility database" and "Human mortality database" [1], we rely on register data that, in our case, are marriages recorded in Italy. In particular, we use first-marriage counts data by single calendar year, single age of the spouse and/or cohort of birth of spouse and region of celebration of the marriage. The male and female mid-year population by single age exposed to risk of first marriage is derived from register data as well. First-nuptiality rates were computed for single age and single year from 1965 to 2017. Data make it possible to consider both male and female first nuptiality patterns.

Lexis surfaces were used to examine the evolution of first nuptiality in Italy. It is a contour lines graph that allow a three-dimensional representation of demographic events accounting simultaneously for age, time and intensity of the phenomenon (e.g. Vaupel *et al.*, 1998; Caselli and Vallin, 2006; Rau *et al*. 2018; Tesárková and Kurtinová, 2018). It plot a matrix of age-specific and period rates. The x-axis represents calendar year, the y-axis age and in the area of the graph there is the intensity of the phenomenon (here first-nuptiality rates). Different colours are used to distinguish different level of rates (that is: same colour, similar first-nuptiality rate). Following the horizontal lines we can observe the evolution over time of age specific first nuptiality rates over the calendar years considered. Along the vertical lines we observe first-nuptiality intensity in a specific calendar year, along the diagonal lines we can distinguish the behaviour of different cohorts.

First results and future development

Figure 1 shows both the decline in the number of marriage and the postponement of marriage at older ages in Italy. Due to a combination of marriage decline and marriage postponement, the period total first marriage rate has drop rapidly to very low levels. Women's mean age at first marriage has shifted from 24.0 years in 1970 to 32.2 in 2017. Whereas men's mean age at marriage was 27.4 in 1970 and 35.2 seventeen years later. As a consequence the age gap between spouses has fallen.

Figure 1 – Age specific first marriage rate by sex in Italy. Yeas 1952, 1970, 1990, 2000 and 2017
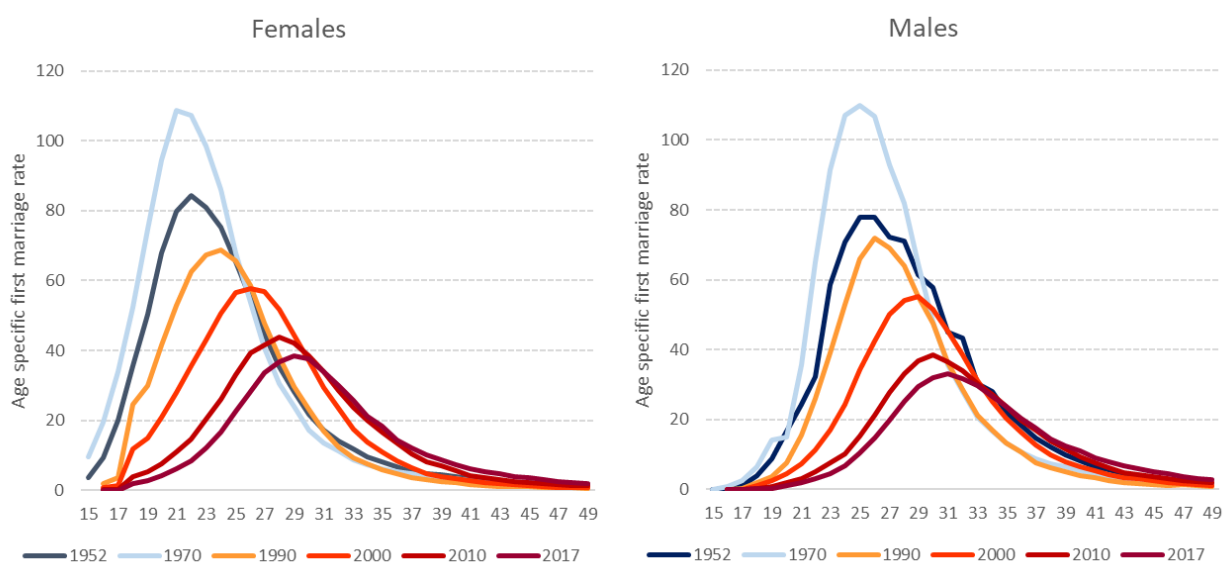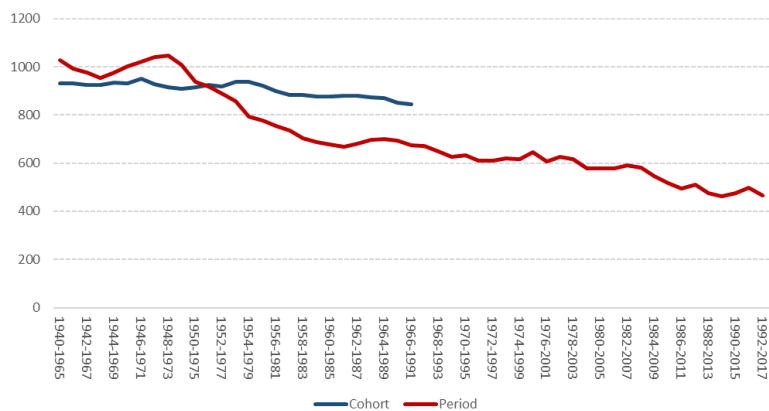

Source: own calculations on Istat data, various years.

As is well known, in context of rapid change in the timing of demographic events, cohort and period indicators can vary significantly. In Italy, first marriage postponement had a consistent downward effect on period total first-marriage rate (Figure 2).

Figure 2 – Female total first-nuptiality rate by cohort (1940-1992) and calendar year (1965-2017)

Figure 3 presents Lexis Surface of Italian female and male first nuptiality rates from 1955 to 2017. The colour scheme we use goes from red to blue: red areas correspond to high age-specific rates, blue areas correspond to low rates. The darker the colour, the higher/lower respectively is the rate. We add contour lines to the plot to highlight areas of equivalent rates. The graph enable us to read the change over time in age-specific first-nuptiality rates.

On the whole it can be seen that males and females surfaces are essentially similar, except that men get married later than women. During the "golden age of marriage" (that is from '50s to mid '70s) we observe the highest age-specific first-nuptiality rate (red area) both for women and for men. During those years we do not observe an important change in the mean age at first marriage: similar age patterns are observed for all calendar years of this stage. Age-specific nuptiality rates are particularly high between 21 and 24 year and between 24 and 28 years respectively for women and men. From mid '70s to mid '90s nuptiality begin to decline: the red areas are lighter and we observe also marriage postponement at later ages. But it is starting from late '90s – in conjunction with the spread of new living arrangements – that we observe the dramatic drop both in nuptiality (no more red areas in the graphs) and the continuous postponement of first marriage to later ages.

Figure 3 – Lexis surface of first nuptiality rates by sex in Italy. Years 1955-2017
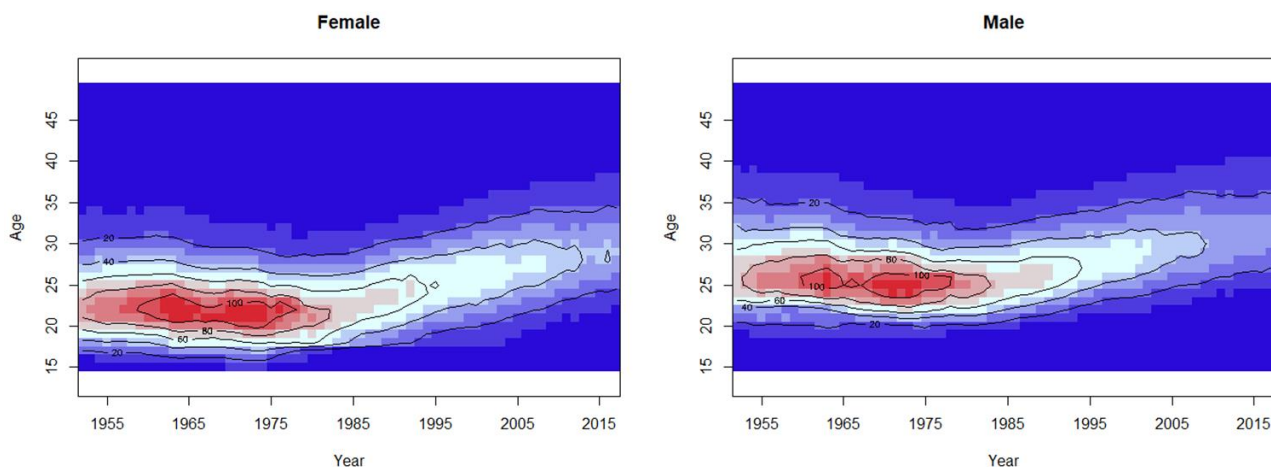
Men and women are marrying later than before and most men marry women younger than they are. However, the age gap tend to narrow over time. Figure 4 represents the ratio of male to female first-nuptiality rates. Males' age-specific rates excess the females' rates for all the ages in all the calendar years considered. However, the distance between rates decreases over time.

Figure 4 – Ratio of male to female first-nuptiality rates in Italy. Years 1955-2017
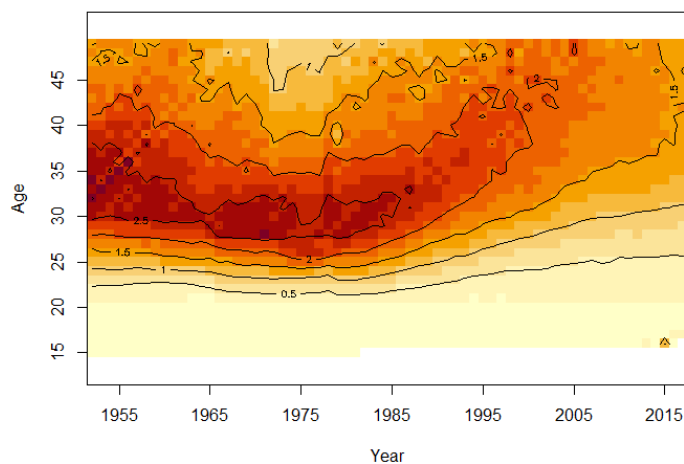
Source: own calculations on Istat data, various years.

Following the inspiring work of Rau and colleagues on mortality data (Rau *et al.* 2018), the next steps of this work will include the plot of "rates of nuptiality improvement". The latters give a clear measure of the change of nuptiality rates over time. Finally, we will compute Lexis surfaces for subnational data in order to highlight geographical differences in nuptiality patterns. Due to possible random fluctuations of data, we will consider to use smooth age-specific rates.

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