

Young Mothers and long intervals between births

Madri giovani e lunghi intervalli tra le nascite

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Riassunto: In questo lavoro analizziamo gli intervalli tra le nascite successive alla prima di un campione rappresentativo di donne italiane nate nel periodo 1948-1958 e intervistate nel 1998 (Indagine Multiscopo 'Famiglie e Soggetti Sociali, Istat). Con tecniche di *cluster analysis* identifichiamo i percorsi riproduttivi delle donne secondo la sequenza temporale con cui le nascite sono distribuite nel corso di vita. Tramite modelli di regressione multinomiale stimiamo quali caratteristiche identificano le donne raggruppate nei diversi clusters. I risultati mostrano che lunghi intervalli tra la penultima e l'ultima nascita dipendono dall'aver sperimentato delle discontinuità nel percorso lavorativo e di unione, dall'aver ricevuto un supporto economico da parte della famiglia di origine in particolare per le donne con due figli e dalla regione di residenza.

Keywords: fertility, birth intervals

1. Variability of birth intervals

Most empirical research on European fertility focuses on the level of fertility and on the determinants of fertility decline after the 1960s, while the interest in the variability of reproductive patterns is limited to the extent to which results highlight the main factors that influence completed fertility. However, there is cumulating evidence for the inter-temporal interdependency of events within the individual life course: Birth sequences apparently follow recognizable patterns (Rodríguez et al. 1984). A recent and explorative study by Houle and Shkolnikov (2005) analyzes completed fertility histories in selected European countries. Their findings show that sequence clusters based on maternal age at birth are mainly driven by age at first birth. However, the authors also show that a separate cluster is constituted by women who started childbearing early, but postponed the birth of the last child more than did the average. This is interpreted as the effect of second marriage and the related desire to intensify the new couple's bond by committing to parenthood with the new partner.

Building on this study, our paper has two main goals, the first of which is to recognize temporal pattern regularities in reproductive histories, by classifying women with completed fertility according to the temporal sequence with which they bore their children. We analyze the probability of women to experience a specific reproductive

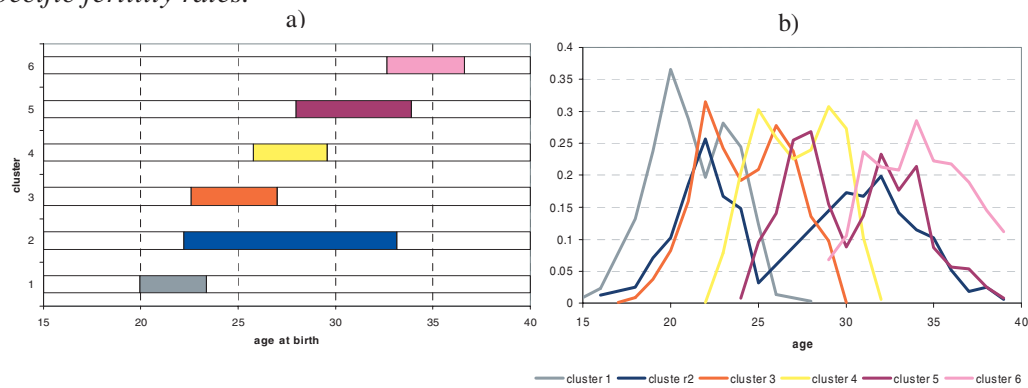
career considered as a whole. Our approach offers a different perspective on birth intervals and postponement than does a focus on each single reproductive event at the time (for an example of the latter approach see, among others, Giorgi, 1999).

The second goal of our paper is to identify plausible correlates of specific reproductive patterns. In particular, we are interested in considering the effect of possible discontinuities in the labor-force participation of women and its possible interruptions, their union history, and the impact of kin economic support. Italy is a particularly interesting case study for such an empirical investigation, for at least three reasons: a) the work-family balance for employed women, which is known to be difficult b) divorce and remarriages are a growing but still relatively small phenomenon, c) the fact that family support plays an important role in the transition to adulthood and in family formation. The growing literature points to the role of the long term effect of local family cultures on fertility behavior; however, hypotheses about the effect of family relationships on fertility timing and reproductive histories have not been thoroughly tested yet.

2. The clustering of reproductive patterns

We analyze the reproductive behavior of generations of Italian women born between 1948 and 1958, women who first postponed entry into union and subsequent fertility. Our analytical approach is a cluster analysis on age at birth, applied separately to women with 2 and with 3 children¹. Given our interest in the effect of age at first birth on the timing of subsequent births, we exclude women of parity one. For the women of parity 2, the K-means cluster analysis² identifies six reproductive patterns, ordered by the mean age at first birth, see Fig. 1a.

Figure 1: *Reproductive patterns of women of parity 2: a) Cluster representation b) Age-specific fertility rates.*



¹ We exclude parities higher than 4 because of a small number problems in the analysis.

² Our clustering procedure is as follows: We use the K-means algorithm with Euclidean distances (SAS 8.2.). The selection of the optimal number of clusters was based on the value assumed by two statistics, the Cubic Clustering Criteria and the pseudo-F, for each k from 2 to 12. The local peaks for both indicated k=6 as the best data grouping. To account for the K-mean clustering sensitivity to the choice of the initial seeds, we adopted one of the equivalent clustering solutions indicated by the simulation of random initial seeds repeated 100 times (results not shown).

In most clusters, second births occur shortly after the first (3-4 years interval). However, in Cluster 2 (the “long cluster”, 7.3% of women), the inter-birth interval is considerably longer (11 years on average), although - as with Cluster 3 - it is characterized by relatively low age at first birth (between 22 and 23). Fig 1b represents the age-specific fertility rates of women by cluster. Women belonging to the “long cluster” show a long camel-like shape, that is two clearly separated curves identifying the timing at first and second birth. Similar analyses for women with three children (not shown) select two clusters with relatively longer intervals between second and third birth and the corresponding ‘camel-shaped’ age-specific fertility rates).

3. Family relationships and reproductive patterns

We use a multinomial logit regression model to test whether and, if so, the extent to which women’s employment, union history, and family support influence the shape of their reproductive “pattern”. Consequently, our variables of interest distinguish: a) women who never worked or experienced job irregularities from women with a stronger attachment to the labor market (in order to test whether longer intervals depend on labor force attachment)³; b) women whose children were all born in first marriage from all the others (in order to test whether multiple partnerships have a spacing effect); c) women who received financial support from relatives to meet housing costs at the time of marriage. The form of financial support varies from support given by relatives in the form of financial means to buy/build a house/flat of one’s own, of being given the dwelling as a present or reside in a dwelling free of rent, or the offer of co-residential arrangements at least until the new couple finds an alternative solution (17% of the cases). We additionally control for the woman’s highest level of education and for the macro-region of residence, since norms and practices related to women’s employment (and related work-family balance), family support, and childbearing timing may vary according to the specific local culture of reproduction. The reference cluster in Table 1 is Cluster 3 in Fig 1a, since we want to focus our analysis on the determinants of the ‘long cluster’. What, if not age at first birth, determines such a long interval to second birth for these women? The results show that the ‘long camel-shaped’ cluster groups especially women who had a discontinuous working life, who had a child born outside the first marriage (women in informal and/or posterior unions). Not surprisingly, continuity in employment and higher education are related to a progressively higher probability of belonging to Clusters 2 to 6 (ordered by increasing age at first birth) but not to Cluster 1. Kin support negatively affects the probability of belonging to the clusters, characterized by either a later first birth or a long interval between first and second birth for women of parity 2⁴. Our controls show that long intervals are unlikely to shape the reproductive patterns in the southern regions compared to the northern ones, even when taking into account population composition by education, employment, and union discontinuities. Similar analyses of parity 3 women show that the effect of kin support at the moment of establishing a household does not continue until shaping the long intervals between

³ The variable is calculated on the basis of the working status twelve months before the birth of each child.

⁴ For this reason the indicator “kin helped” is a weak proxy of the strength of family ties and not of the economic well-being of the family of origin.

second and third birth, whereas regional differences in reproductive patterns remarkably persist (results not shown).

Table 1: *Multinomial logistic analysis on the probability to belong to any other cluster with respect to Cluster 3, women parity 2*

Covariate	Value	Cluster number					
		1	2	3	4	5	6
Region	South	-0.047	-0.498 **	ref.	0.019	-0.173	0.328
	Center	0.241	-0.104	ref.	-0.118	0.076	0.211
	(ref. North)	0	0	0	0	0	0
Education	At least secondary	-0.737 ***	0.185	ref.	0.750 ***	1.135 ***	1.694 ***
	(ref. Basic)	0	0	0	0	0	0
Employment status	Ever changed status between births	0.208	1.109 ***	ref.	0.289	0.200	0.286
	Always employed between births	-0.560 ***	-0.006	ref.	0.336 **	0.700 ***	1.336 ***
	(ref. Never employed)	0	0	0	0	0	0
Births in/out first marriage	At least one child out of first marriage	0.175	1.350 ***	ref.	-0.532	-0.248	0.426
	(ref. Both children in first marriage)	0	0	0	0	0	0
Kin helped with housing costs	Yes	-0.013	-0.430 **	ref.	-0.289 **	-0.398 ***	-0.172
	(ref. No)	0	0	0	0	0	0

Significance: *** 1%, ** 5%, * 10%

In conclusion, this paper provided a picture of the reproductive pattern of Italian women born between 1948 and 1958. We identified particular clusters that group women who had the last birth after a longer time than average. The results of the multinomial logistic regression possibly implies that women belonging to that group are more subject to economic difficulties due to job interruptions, they experience more union discontinuities (confirming the hypothesis that remarriage is the cause for long spaced higher parity births) and at the same time received less support from their relatives in establishing a new household. All in all, our results suggest that support from relatives plays some role in shortening the intervals between the first two births, possibly by contributing to the provision of more adequate housing for family enlargement or more in general reducing the financial strain that a mortgage or rent would impose on the new couple. Interestingly, all things equal, southern women have a lower probability to belong to the ‘long cluster’. This result calls for further investigation, since it suggests that in these regions different social norms on birth spacing may be at work, i.e. a different culture of reproduction or a different modalities of family support.

References

- Giorgi, P. (1999) Intervalli fra parti, in: *Nuzialità e fecondità in trasformazione: percorsi e fattori del cambiamento*, De Sandre P., Pinnelli A., Santini A., (cur), il Mulino, Bologna.
- Rodríguez, G., Hobcraft, J., McDonald, J., Meneen, J., Trussel, J. (1984) A Comparative Analysis of Determinants of Births Intervals, *WFS Comparative Studies*, International Statistical Institute, World Fertility Survey.
- Shkolnikov, V. M., Houle, J. W. (2005) *Types of Birth Schedules in Cohorts with Completed Fertility in Industrialized Countries*, Paper presented at the IUSSP General Conference, Tours, July.