

Journal Contents[SEARCH](#)[Current Volume](#)[Volumes](#)[Articles](#)[Special Collections](#)**General Information**[About the Journal](#)[Information for Authors](#)[Copyright Information](#)[Register for e-mail alerts](#)[Submit a Paper](#)

Bayesian spatial analysis of demographic survey data An application to contraceptive use at first sexual intercourse

Riccardo Borgoni
Francesco C. Billari

VOLUME 8 - ARTICLE 3

Date Received: 14 Jan 2002

PAGES 61 - 92

Date Published: 11 Feb 2003

<http://www.demographic-research.org/volumes/vol8/3/>

doi:10.4054/DemRes.2003.8.3



Click the icon to view and/or download the PDF file. Once you are in the PDF file, use your browser back button to return to this page.

Abstract

In this paper we analyze the spatial patterns of the risk of unprotected sexual intercourse for Italian women during their initial experience with sexual intercourse. We rely on geo-referenced survey data from the Italian Fertility and Family Survey, and we use a Bayesian approach relying on weakly informative prior distributions. Our analyses are based on a logistic regression model with a multilevel structure. The spatial pattern uses an intrinsic Gaussian conditional autoregressive (CAR) error component. The complexity of such a model is best handled within a Bayesian framework, and statistical inference is carried out using Markov Chain Monte Carlo simulation. In contrast with previous analyses based on multilevel model, our approach avoids the restrictive assumption of independence between area effects. This model allows us to borrow strength from neighbors in order to obtain estimates for areas that may, on their own, have inadequate sample sizes. We show that substantial geographical variation exists within Italy (Southern Italy has higher risks of unprotected first-time sexual intercourse). The findings are robust with respect to the specification of the prior distribution. We argue that spatial analysis can give useful insights on unmet reproductive health needs.

Author's affiliation

[Riccardo Borgoni](#)
University of Southampton, United Kingdom
[Francesco C. Billari](#)
University of Milan, Italy

Keywords





[contraceptive use](#), [FFS](#), [hierarchical Bayesian modeling](#), [Italy](#), [Monte Carlo Markov Chain](#), [multilevel statistical models](#), [spatial statistical demography](#)

Word count (Main text)
5983

Services

- ▶ [Bookmark this page](#)
- ▶ [Send this article to a friend](#)

Download to Citation Manager

-  [Refman format \(RIS\)](#)
-  [ProCite format \(RIS\)](#)
-  [EndNote format](#)
-  [BibTeX format](#)





Citations and Similar Articles**PubMed**

- ▶ [Articles by Riccardo Borgoni](#)
- ▶ [Articles by Francesco C. Billari](#)

Google Scholar

- ▶ [Articles by Riccardo Borgoni](#)
- ▶ [Articles by Francesco C. Billari](#)
- ▶ [Article and its Citations](#)

Other articles by the same author/authors (in *Demographic Research*)

-  [17-14] Generations and Gender Survey (GGS): Towards a Better Understanding of Relationships and Processes in the Life Course
-  [17-3] The "Wedding-Ring": An agent-based marriage model based on social interaction
-  [6-8] Political Economy and Life Course Patterns: The Heterogeneity of Occupational, Family and Household Trajectories of Young Spaniards
-  [S3-2] Becoming an Adult in Europe: A Macro(/Micro)-Demographic Perspective

Most recent similar articles in *Demographic Research*

-  [20-4] Rising marital disruption in Italy and its correlates (Italy)
-  [19-57] Repartnering after marital dissolution: Does context play a role? (Italy)
-  [19-48] The influence of parents on cohabitation in Italy - Insights from two regional contexts (Italy)
-  [19-19] Italy: Delayed adaptation of social institutions to changes in family behaviour (Italy)
-  [18-4] How fertility and union stability interact in shaping new family patterns in Italy and Spain (Italy)

[[Back to previous page](#)]