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A Bayesian semiparametric multilevel survival modelling of age at first birth in Nigeria

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Abstract

Background: The age at which childbearing begins influences the total number of children a woman bears throughout her reproductive period, in the absence of any active fertility control. For countries in sub-Saharan Africa where contraceptive prevalence rate is still low, younger ages at first birth tend to increase the number of children a woman will have thereby hindering the process of fertility decline. Research has also shown that early childbearing can endanger the health of the mother and her offspring, which can in turn lead to high child and maternal mortality.

Objective: In this paper, an attempt was made to explore possible trends, geographical variation and determinants of timing of first birth in Nigeria, using the 1999 - 2008 Nigeria Demographic and Health Survey data sets.

Methods: A structured additive survival model for continuous time data, an approach that simultaneously estimates the nonlinear effect of metrical covariates, fixed effects, spatial effects and smoothing parameters within a Bayesian context in one step is employed for all estimations. All analyses were carried out using BayesX - a software package for Bayesian modelling techniques.

Results: Results from this paper reveal that variation in age at first birth in Nigeria is determined more by individual household than by community, and that substantial geographical variations in timing of first birth also exist.

Comments: These findings can guide policymakers in identifying states or districts that are associated with significant risk of early childbirth, which can in turn be used in designing effective strategies and in decision making.

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