



## **Geo- Additive Modelling of Family Size in Nigeria**

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The household and family are the most fundamental socioeconomic institutions in human society. However, factors that affect the family size are affected by interrelated factors which vary across geo-political zones. The 2013 Nigerian Demographic Health Survey (NDHS) data was used to investigate the determinants of family size in Nigeria using the geo-additive model. The fixed effect of categorical covariates were modelled using the diffuse prior, P-spline with second-order random walk for the nonlinear effect of continuous variable, spatial effects followed Markov random field priors while the exchangeable normal priors were used for the random effects of the community and household. The Negative Binomial distribution was used to handle overdispersion of the dependent variable. Inference was fully Bayesian approach. Results showed a declining effect of secondary and higher education of mother, Yoruba tribe, Christianity, family planning, mother giving birth by caesarean section and having a partner who has secondary education on family size. Big family size is positively associated with age at first birth, number of daughters in a household, being gainfully employed, married and living with partner, community and household effects.

**Keywords:** Bayesian analysis; Negative binomial; posterior and prior distributions.