PULSUS
WWW.PULSUSCONFERENCE.COM
39 YEARS IN ASSESSING THE IMPACT OF HEALTHCARE RESEARCH

5th World Congress on

DENTISTRY AND MAXILLOFACIAL SURGERY

September 18-19, 2023 | Rome, Italy

Received Date: 07-09-2023 | Accepted Date: 07-11-2023 | Published Date: 10-20-2023

Bayesian zero-inflated regression model with application to under-five child mortality

Mekuanint Simeneh Workie
Bahir Dar University, Ethiopia

Under-five mortality is defined as the likelihood of a child born alive to die between birth and fifth birthday. Mortality of under the age of five has been the most targets of public health policies and may be a common indicator of mortality levels. Thus, this study aimed to assess the under-five child mortality and modeling Bayesian zero inflated regression model of the determinants of under-five child mortality. A community-based cross-sectional study was conducted using the 2016 Ethiopia Demographic and Health Survey data. The sample was stratified and selected in a two-stage cluster sampling design. The Bayesian analytic approach was applied to model the mixture arrangement inherent in zero-inflated count data by using the negative Binomial–logit hurdle model. About 71.09% of the mothers had not faced any under-five deaths in their lifetime while 28.91% of the women experienced the death of their under-five children and the data were found to have excess zeros. From Bayesian Negative Binomial— logit hurdle model it was found that twin (OR=1.56; HPD CrI 1.23, 1.94), Primary and Secondary education (OR=0.68; HPD CrI 0.59, 0.79), mother's age at the frst birth: 16–25 (OR=0.83; HPD CrI 0.75, 0.92) and≥26 (OR=0.71; HPD CrI 0.52, 0.95), using contraceptive method (OR=0.73; HPD CrI 0.64, 0.84) and antenatal visits during pregnancy (OR=0.83; HPD CrI 0.75, 0.92) were statistically associated with the number of non-zero under-five deaths in Ethiopia. The finding from the Bayesian Negative Binomial–logit hurdle model is getting popular in data analysis than the Negative Binomial–logit hurdle model because the technique is more robust and precise. Furthermore, Using the Bayesian Negative Binomial–logit hurdle model helps in selecting the most significant factor: mother's education, Mothers age, Birth order, type of birth, mother's age at the first birth, using a contraceptive method, and antenatal visits during pregnancy were the most important determinants of under-five child mortality.

Recent publications

1. Workie, M.S. and Lakew, A.M., 2018. Bayesian count regression analysis for determinants of antenatal care service visits among pregnant women in Amhara regional state, Ethiopia. Journal of Big Data, 5(1), p.7.
2. Workie, M.S. and Denekew, B.B, 2019. Bayesian Model with Application to a Study of dental caries, Ethiopia Journal BMC Oral health
3. Workie, Mekuanint Simeneh, and Abebaw Gedef Azene. Bayesian zero inflated regression model with application to under-five child mortality. Journal of Big Data 8.1 (2021): 1-23.

Biography

Mekuanint Simeneh was specialized in Mathematical and Statistical modeling (Statistics). He has 8 years of experience in Statistical modeling and machine learning techniques of health data research. My specific research focuses on Bayesian methods, Count modelling, Generalized Linear Mixed Model and machine learning. He have 6 publications in peer-reviewed journals. He is member of the Ethiopian Statistical associations. His apply statistical methods and machine learning techniques to a varied range of applications in improving public health problem.

E: mekuanintsimeneh@gmail.com