

An Investigation of Spatial Variation of Childhood Disease in India: A Bayesian Semi Parametric Approach

Awdhesh Yadav

Doctoral Candidate, International Institute for Population Sciences (IIPS), Mumbai, India

Email: awdhesh.stat@gmail.com

Abstract

Although diarrhoea and malaria are the leading causes of child mortality and morbidity in developing countries, few studies have examined the pattern and determinant of these ailments. The purpose of this paper is to examine the relative contribution of a wide range of factors more specifically spatial effects to the prevalence of child morbidity (diarrhoea, fever & ARI) using individual data for five year children from the third round of National Family Health Survey (NFHS-3). We highlighted the inequalities in child health by mapping the residual state spatial effect using geo-additive logit model that simultaneously controlled for spatial dependence in the data, potential nonlinear effects and other categorical factors. A high prevalence of diarrhoea, fever and acute respiratory is observed in the Eastern, Central and Northern states, while lower disease prevalence is observed in Southern states followed by Western states. In addition, children who are underweight and those from poorest quintile have significantly higher association with diarrhoea, fever and ARI. The results show that disease like, diarrhoea, fever, and ARI appears to be higher in children who are smaller in size at the time of birth compare to those children who are normal size at birth. Diarrhoea, fever, and ARI were observed to show an interesting association with child's age, the risk of three ailments increased in the first 8-10 months after birth, with a gradual improvement thereafter. The effects of socioeconomic factors vary according to the disease. The residual spatial map could help governments to improve health care interventions and achieve Millennium Development Goals (MDG4).

Keywords: Diarrhoea, fever, acute respiratory infection, geoaddative regression, Bayesian semi parametric, India.