Title: Lindley binomial model: A flexible approach for modelling the proportions with sparseness and excessive zeros

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Abstract: In this paper, we present a new modelling approach for the proportions with sparseness and excessive zeros. The distribution of proportional data typically exhibits overdispersion, zero-inflation and sparseness and heavy tails. We propose a new Lindley binomial distribution, by compounding the two-parameter Lindley family of distributions with the binomial distribution. This distribution can flexibly handle each of the aforementioned features of proportional data. We study the probabilistic properties of this distribution such as moment, moment generating function and develop a computational approach to accurately evaluate the likelihood of proposed model and to perform the penalized maximum likelihood estimation via EM algorithm. We assess the performance of our developed algorithm for the estimation of parameters in the proposed model with/without covariates and demonstrate the application to Incidence of Hepatitis A and Yellow Fever data.

Biography of Dr. Deng