GRADUATE SEMINAR

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Multivariate Zero-Inflated Beta-Binomial Distribution and its Application

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Math and Stat Lounge

Abstract: The multivariate zero-inflated beta-binomial model are significantly important for modelling and analysing multivariate proportional data with extra zeros. Meanwhile, comparing with binomial model, the beta-binomial model is a better choice for explicitly account for overdispersion, and zero inflated beta-binomial had the better performance on analysing the data with excess zeroes. Likelihood-based inferences procedures including the induction of estimating parameters of MZIBB model via Newton-Raphson algorithm, Fisher scoring algorithm, and EM algorithm. The score test and likelihood ratio test are derived for testing the significance of zero-inflation parameter ω. The performance of EM algorithm is evaluated by giving different group setting of parameters in simulation study. At last, a real data about the effect of pesticide using for kill whiteflies are studying and analysing using MZIBB model.

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Mathematics and Statistics