ZERO-INFLATED POWER SERIES DISTRIBUTION FOR MODELING RURUAL OUT-MIGRATION AT THE HOUSEHOLD LEVEL

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ABSTRACT

Shama (1985) applied the zero inflated geometric distribution in studying the pattern of rural out migration, with the parameters estimated using the mean-zero frequency method. In this paper, the class of zero-inflated power series distributions (the binomial, the Poisson, the geometric, the negative binomial and the log-series) are applied in studying the same phenomenon. The parameters of the distributions are estimated using the mean-zero (one) frequencies method and expressions for their variances and covariances and derived using the first order expansion method. The performance of the different distributions are compared empirically with that of the zero inflated geometric distribution using the same data used by Shama (1985). It was found that the zero inflated negative binomial distribution performed as good as the sero-inflated geometric distribution proposed by Shama (1985). But the former is theoretically superior, giving the realities of out migration process.

Keywords: Estimation, zero-inflated, power series, models, fit, migration.