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THE MODIFIED NEGATIVE BINOMIAL AND THE MODIFIED POSSON-INVERSE GAUSSIAN MODELS FOR CONSUMER PURCHASING BEHAVIOUR

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ABSTRACT

In many studies of repeat-buying processes, the number of households reported not buying the product in a specified time period is disproportionately high. Under this situation, the negative binomial and the Poisson-inverse Gaussian distributions used to model the number of purchases become inappropriate. This paper therefore attempts to study the relative performance of the modified (zero-inflated) negative binomial and the modified Posson-inverse Gaussian distributions in modeling consumer purchasing behaviour. Modified moments estimators of their parameters as well as variances of and covariances between the estimators are derived. The data on the number of units of a lightly bought product (Sichel 1982a) is used for purpose of illustration. It was found that the Poisson-inverse Gaussian distribution provided a better fit to the data than the modified negative binomial distribution.

Keywords: Estimation, modified, negative binomial, poisson-inverse gaussaian, models, purchasing behaviour.