Estimation in the generalized half-logistic distribution under different loss functions

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The generalized half-logistic distribution is of interest in survival analysis and reliability studies. Special attention deserves the problem of estimation of the shape parameter in this model, since it can be considered as a factor of proportionality in the expression relating the hazard function of a generalized half-logistic model to the hazard function of a half-logistic distribution. On the other hand, in survival analysis and reliability studies, it is not common to have the complete sample, instead we will usually have censored data. One of the most important censoring mechanisms is progressive type-II censoring, since this method is useful to save time and money. In this context we propose classical and Bayesian methods to estimate the shape parameter. The quadratic loss function usually used in Bayesian Statistic cannot be realistic in the reliability studies. For this reason, we focus on those results obtained under asymmetric loss functions such as the LINEX loss. To obtain the Bayes estimator several possibilities for the prior distribution are considered.

Keywords: asymmetric loss functions, generalized half-logistic distribution, progressive type-II censoring.