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Inference for the Generalized Exponential Distributions with Covariate and Right-Censored Data

Alharbi, N. M*[1,2], Arasan, J.[1,3], Abd.Rahman, N. H.[1], and Ling, W. S. Y.[1]

[1]*Department of Mathematics & Statistics, Faculty of Science, Universiti Putra Malaysia, Malaysia*
[2]*Department of Mathematics, Faculty of Science, Taibah University, Saudi Arabia*
[3]*Institute for Mathematical Research, Universiti Putra Malaysia, Malaysia*

E-mail: Gs53412@student.upm.edu.my
**Corresponding author*

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Abstract

The purpose of this paper is to extend the generalized exponential model (GEM) to include covariates in the presence of right-censored data. We obtained the maximum likelihood estimator (MLE) for the parameters of this model. Following that a thorough simulation study was carried out to evaluate the performance of the estimator based on the values of bias, standard error (SE) and root mean square error (RMSE). The results indicated that the SE and RMSE decrease with the increase in sample size and decrease in censoring proportion. Finally, we illustrate the performance of the Wald confidence interval estimation technique for the GE model with right-censored data and covariate by a coverage probability study at several censoring proportions and different sample sizes.

Keywords: generalized exponential distribution; maximum likelihood estimator; fixed covariate; right-censoring; converge probabilit.