

Parameter Estimation of log-logistic distribution using Markov Chain Monte Carlo Method with Open BUGS

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Abstract

The log-logistic distribution is very useful in survival analysis since it has a no monotonic hazard function (Bennett, 1983). The shape of this distribution is very similar to that of the log-normal, but has a more tractable form than that of the log-normal which makes it more convenient than the log-normal distribution

In this Paper, the Markov chain Monte Carlo (MCMC) method is used to estimate the parameters of log-logistic distribution based on a complete sample. A procedure is developed to obtain Bayes estimates of the parameters of the log-logistic distribution using Markov Chain Monte Carlo (MCMC) simulation method in Open BUGS. A module `dlog.logistic()` and `plog.logistic()` is written in component Pascal, enables to perform full Bayesian analysis of `dlog.logistic()` and `plog.logistic()` model into Open BUGS and Softrelia R package in the R for study the statistical properties of the model and to estimates the parameters of model for used data set.

Keywords : log-logistic distribution, MCMC method, parameter estimation, informative set of priors, maximum likelihood estimation, Bayes estimation, etc.

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