



## Bayesian Inference and Prediction of Burr Type XII Distribution for Progressive First Failure Censored Sampling

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### ABSTRACT

This paper deals with Bayesian inference and prediction problems of the Burr type XII distribution based on progressive first failure censored data. We consider the Bayesian inference under a squared error loss function. We propose to apply Gibbs sampling procedure to draw Markov Chain Monte Carlo (MCMC) samples, and they have in turn, been used to compute the Bayes estimates with the help of importance sampling technique. We have performed a simulation study in order to compare the proposed Bayes estimators with the maximum likelihood estimators. We further consider two sample Bayes prediction to predicting future order statistics and upper record values from Burr type XII distribution based on progressive first failure censored data. The predictive densities are obtained and used to determine prediction intervals for unobserved order statistics and upper record values. A real life data set is used to illustrate the results derived.

### KEYWORDS

Burr Type XII Distribution, Progressive First-Failure Censored Sample, Bayesian Estimations, Gibbs Sampling, Markov Chain Monte Carlo, Posterior Predictive Density

### Cite this paper

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