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On sample size estimation for Lomax distribution.

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For life testing when the life times of items are continuous random variables, it is important to know the total number of individuals in the sample which is drawn from an assumed failure model, the total number of individuals maybe unknown for many causes, either due to the omission in the records or perhaps because of physical conditions of the experiment, and then the sample size should be estimated. The Lomax distribution (Pareto distribution of the second kind) has, in recent years, assumed a position of importance in the field of life testing because of its uses to fit business failure data. In this paper we consider the Lomax distribution as an important model of lifetime models and will derive the non-Bayesian and Bayesian estimators of sample size in the case of type I censored samples according to Marcus and Blumenthal approach. Numerical results for these estimators are presented in the last section of this work. An iterative procedure is used to obtain the estimators numerically. (Authors' abstract)

Classification: K75
Keywords: conditional and unconditional maximum likelihood estimators; Bayesian estimator; sample size; censored samples; Pareto distribution