A CLASS OF LOC-SCALE DISTRIBUTIONS WITH SHAPE PARAMETER

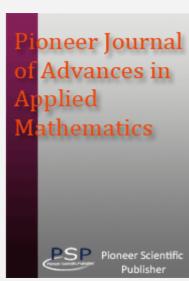Eduardo Gutierrez Gonzalez and Olga Vladimirovna Panteleeva

Abstract

This article shows the generalized log-gamma distribution whereas a fixed value of the shape parameter is a loc-scale distribution. Therefore, it is sufficient to study the distribution in its standard form, location parameter zero and scale 1. The article presents two estimators for the shape parameter, moments and maximum likelihood and both cases show the existence and uniqueness of the estimators. The Delta method yields the asymptotic distribution for the moments estimator, whereas in the case of the maximum likelihood, the asymptotic distribution estimator is obtained based on the Fisher information matrix. In both cases, we conclude that estimators are asymptotically unbiased and consistent in the mean square error of the shape parameter.