

سمینار ہفتگی گروہ آمار

Expressions for moments of order statistics and records from the skew-normal distribution and their applications

سفران:

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خلاصہ:

In designs of experiments and reliability analyze, order statistics (OS) are used for various purposes including model checking, estimations of parameters and prediction. Most of these procedures are defined on the basis of expectations of OS problems. In this paper, explicit expressions for central moments of OS coming from the skew-normal (SN) distribution are derived. The SN model enjoys interesting properties from the normal distribution while captures asymmetric behavior in the parent population. Another important topic which is related to OS is record statistics. These data arise in some practical situations including shock models, sports and epoch times of a non-homogeneous Poisson processes. Here, we derive moments of the upper and the lower record values arising from the skew normal distribution. The obtained results may be used for prediction purposes such as predictive maintenance in a repairable system and prediction of performance of a transmission oil pipeline. Some real data sets are analyzed using the results obtained for illustration purposes.