

Some results on information measures in weighted distributions

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ABSTRACT

The concept of weighted distributions is widely used for studies in reliability, biometry, survival analysis, forestry, ecology and several other fields. Weighted distributions arise when the observations generated from a stochastic process are recorded with some weighted function. The basic uncertainty (information) measure is the differential (Shannon) entropy. Ebrahimi (1996) defined the uncertainty of residual lifetime distributions. In this paper we study these measures for weighted distributions. The cases of length biased distributions and equilibrium distributions in a renewal processes are considered. We give general conditions under which the weighted distribution has greater uncertainty than the original distribution. We also study the decreasing (increasing) uncertainty of residual life class of distributions, this is DURL (IURL) class, for weighted distributions.

References

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