

On Length-Biased Shift-Dependent Generalized Uncertainty Measure for Lifetime Distributions

Bilal Ahmad Bhat^{1*}, Bilal Ahmad Para² and M.A.K.Baig³

^{1,3}*Department of Statistics, University of Kashmir, Srinagar, J & K (India)*

²*Department of Statistics, Govt. Degree College Anantnag, J&K (India)*

Email: ¹bilal3819md@gmail.com, ²parabilal@gmail.com,

³baigmak@gmail.com

Abstract—Recently, in the field of information theory, length-biased uncertainty (weighted) measures have attracted the attention of researchers to use them in different sciences. In the present article, we develop a new length-biased shift-dependent generalized uncertainty measure and also its dynamic (residual) version. It is shown why to use length-biased uncertainty measures whenever general (i.e non-weighted) uncertainty measures have already been existed. Some important characterization results of the proposed dynamic uncertainty measure are discussed. We also study the various significant properties of this dynamic measure. Some upper and lower bounds of the measure are presented. Finally, for Pareto distribution, the general expressions of all the uncertainty measures that are mentioned in this particular article are explored.

Keywords: Length-biased generalized entropy, Lifetime distributions, Length-biased generalized residual entropy, Characterization results.