IIM> Vol.2 No.11, November 2010

OPEN ACCESS

Record Values from the Inverse Weibull Lifetime Model: Different Methods of Estimation

PDF (Size:140KB) PP. 631-636 DOI: 10.4236/iim.2010.211072

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ABSTRACT

In this paper, we use the lower record values from the inverse Weibull distribution (IWD) to develop and discuss different methods of estimation in two different cases, 1) when the shape parameter is known and 2) when both of the shape and scale parameters are unknown. First, we derive the best linear unbiased estimate (BLUE) of the scale parameter of the IWD. To compare the different methods of estimation, we present the results of Sultan (2007) for calculating the best linear unbiased estimates (BLUEs) of the location and scale parameters of IWD. Second, we derive the maximum likelihood estimates (MLEs) of the location and scale parameters. Further, we discuss some properties of the MLEs of the location and scale parameters. To compare the different estimates we calculate the relative efficiency between the obtained estimates. Finally, we propose some numerical illustrations by using Monte Carlo simulations and apply the findings of the paper to some simulated data.

KEYWORDS

Scale Parameter, Location Parameter, Best Linear Unbiased Estimates (BLUEs), Maximum Likelihood Estimates, Relative Efficiency and Monte Carlo Simulations

Cite this paper

K. Sultan, "Record Values from the Inverse Weibull Lifetime Model: Different Methods of Estimation," *Intelligent Information Management*, Vol. 2 No. 11, 2010, pp. 631-636. doi: 10.4236/iim.2010.211072.

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