

LEAST SQUARES ESTIMATION BASED ON ORDER STATISTICS IN LOCATION–SCALE FAMILIES OF DISTRIBUTIONS

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In location-scale families of distributions, the estimation of location and scale parameters is required. General estimation methods like maximum likelihood estimation for location-scale families of distributions works well, but may require advanced programming, especially for censored samples. We propose a general framework for least squares estimation in a wide class of location-scale families, and compare the precision of various estimation methods using order statistics. Specifically, results for the Weibull distribution are being presented. Our simulation study suggests that the use of the exact covariance structure of the order statistics increases the performance of estimators and resulted in better, more stable estimates. In all cases, the best least squares estimators are competitive with maximum likelihood estimators (MLEs).

Key Words: censored samples, covariance, Weibull