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A Comparison of Maximum Likelihood and Median Rank Regression for Weibull Estimation

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Abstract

The Weibull distribution is frequently used in reliability applications. Many different methods of estimating the parameters and important functions of the parameters (e.g. quantiles and failure probabilities) have been suggested. Maximum likelihood and median rank regression methods are most commonly used today. Largely because of conflicting results from different studies that have been conducted to investigate the properties of these estimators, there are sharp differences of opinion on which method should be used. The purpose of this paper is to report on the results of our simulation study, to provide insight into the differences between the competing methods, and to resolve the differences among the previous studies

Keywords

censored data, least squares, ML, MRR, reliability

Disciplines

Statistics and Probability

Comments

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**A COMPARISON OF MAXIMUM LIKELIHOOD AND MEDIAN RANK
REGRESSION FOR WEIBULL ESTIMATION**

by

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May 2009

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The Weibull distribution is frequently used in reliability applications. Many different methods of estimating the parameters and important functions of the parameters (e.g. quantiles and failure probabilities) have been suggested. Maximum likelihood and median rank regression methods are most commonly used today. Largely because of conflicting results from different studies that have been conducted to investigate the properties of these estimators, there are sharp differences of opinion on which method should be used. The purpose of this paper is to report on the results of our simulation study, to provide insight into the differences between the competing methods, and to resolve the differences among the previous studies