

MIXED ESTIMATORS FOR ORDERED SCALE PARAMETERS OF TWO WEIBULL DISTRIBUTIONS

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Abstract

The problem of the estimation of ordered scale parameters in two Weibull populations is considered when their shape parameters are assumed to be known and unequal. Mixed estimators for ordered scale parameters are obtained and their risks and biases are compared with the maximum likelihood estimators with the help of a simulation, and shown to improve upon them.

Keywords: Mixed Estimators, Maximum Likelihood Estimators, Ordered Scale Parameters, Weibull Distribution.

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1. Introduction

The Weibull distribution has been named after the Swedish scientist, Weibull, who proposed it for the first time in 1939 in connection with his studies on the strength of materials. Weibull [7] showed that the distribution was also useful in describing “wear-out” or fatigue failures. Kao [2] used it as a model for ball bearing failures. Mann [4] gave a variety of situations in which the distribution can be used for other types of failure data.

In this study we are interested in the estimation of the scale parameters when it is assumed *a priori* that the scale parameter of one population is smaller than that of the other.

Vijayasree and Singh [6] carried out some work on a negative exponential distribution. Srivastava [5] has obtained maximum likelihood estimators of ordered scale parameter in two Weibull populations.

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