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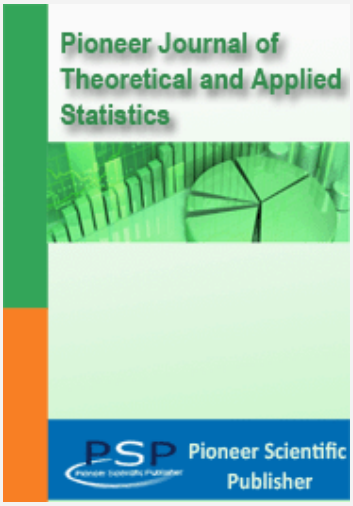

ASYMPTOTIC PROPERTIES OF A TWO-STAGE PROCEDURE FOR TWO NEGATIVE EXPONENTIAL DISTRIBUTIONS

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Abstract

This paper deals with the problem of fixed-width confidence interval estimation for the difference of location parameters of two negative exponential distributions with the common unknown scale parameter σ. Assume that $\sigma > \sigma_L$ where $\sigma_L(> 0)$ is known to the experimenter. We consider the two-stage procedure proposed by Mukhopadhyay and Duggan [N. Mukhopadhyay and W. Duggan, On a two-stage procedure having second-order properties with applications, Ann. Inst. Statist. Math. 51(4) (1999), 621-636] and provide third-order asymptotic expansions of the expected sample size and the coverage probability. The third-order expansion of the coverage probability turns out to be more accurate than the second-order one through simulation results.

Keywords and phrases: fixed-width interval, location parameter, negative exponential, consistency, coverage probability, third-order expansions.