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On Pitman's Measure of Closeness of k -records

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September 17, 2009

Abstract

Pitman closeness of both upper and lower k -record statistics to the population quantiles of a location-scale family of distributions is studied. For the population median, the Pitman-closest k -record is also determined. In the case of symmetric distributions, the Pitman closeness probabilities of k -record statistics are shown to be distribution-free and explicit expressions are also derived for these probabilities. Exact expressions are derived for the required probabilities for uniform and exponential distributions. Numerical results are given for these families and also the Pitman-closest k -record is determined.

Keywords and Phrases: Location-scale family, Pitman closeness, Pitman-closest estimator, Median, Quantiles, Records, k -record statistics.

AMS 2000 Subject Classifications: Primary 62G30; Secondary 62G05.

1 Introduction

Let $\{X_i, i \geq 1\}$ be a sequence of independent and identically distributed (iid) random variables with an absolutely continuous cumulative distribution function (cdf) $F(x)$ and probability

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