

Balakrishnan, Narayanaswamy; Davies, Katherine F.; Keating, Jerome P.; Mason, Robert Lee

Computation of optimal plotting points based on Pitman closeness with an application to goodness-of-fit for location-scale families. (English) [Zbl 1255.62144](#)
Comput. Stat. Data Anal. 56, No. 9, 2637-2649 (2012).

Summary: Plotting points of order statistics are often used in the determination of goodness-of-fit of observed data to theoretical percentiles. Plotting points are usually determined by using nonparametric methods which produce, for example, the mean- and median-ranks. Here, we use a distribution-based approach which selects plotting points (quantiles) based on the simultaneous-closeness of order statistics to population quantiles. We show that the plotting points so determined are robust over a multitude of symmetric distributions and then demonstrate their usefulness by examining the power properties of a correlation goodness-of-fit test for normality.

MSC:

[62G30](#) Order statistics; empirical distribution functions
[62A09](#) Graphical methods in statistics

Cited in **2** Reviews
Cited in **2** Documents

Keywords:

[order statistics](#); [robustness](#); [simultaneous closeness](#); [mean-ranks](#); [median-ranks](#)

Full Text: [DOI](#)

References:

- [1] Arnold, B.C.; Balakrishnan, N.; Nagaraja, H.N., A first course in order statistics, (2008), Society for Industrial and Applied Mathematics Philadelphia · [Zbl 1172.62017](#)
- [2] Balakrishnan, N.; Davies, K.; Keating, J.P., Pitman closeness of order statistics to population quantiles, *Communications in statistics — theory & methods*, 38, 802-820, (2009) · [Zbl 1290.62025](#)
- [3] Balakrishnan, N.; Iliopoulos, G.; Keating, J.P.; Mason, R.L., Pitman closeness of sample median to population Median, *Statistics & probability letters*, 79, 1759-1766, (2009) · [Zbl 1169.62324](#)
- [4] Balakrishnan, N.; Davies, K.F.; Keating, J.P.; Mason, R.L., Simultaneous closeness among order statistics to population quantiles, *Journal of statistical planning and inference*, 140, 2408-2415, (2010) · [Zbl 1188.62164](#)
- [5] Balakrishnan, N.; Keating, J.P., On simultaneous closeness probabilities of order statistics from odd sample sizes to the population Median, *Statistical methodology*, 8, 462-467, (2011) · [Zbl 1219.62082](#)
- [6] Blyth, C.R., Some probability paradoxes in choice from among random alternatives, *Journal of the American statistical association*, 67, 366-381, (1972) · [Zbl 0245.62009](#)
- [7] Castillo, E.; Hadi, A.S.; Balakrishnan, N.; Sarabia, J.M., Extreme value and related models with applications in engineering and science, (2005), John Wiley & Sons Hoboken, New Jersey · [Zbl 1072.62045](#)
- [8] ()
- [9] Fountain, R.L.; Keating, J.P.; Maynard, H.B., The simultaneous comparison of estimators, *Mathematical methods of statistics*, 5, 187-198, (1996) · [Zbl 0860.62024](#)
- [10] Keating, J.P.; Mason, R.L.; Sen, P.K., Pitman's measure of closeness: A comparison of statistical estimators, (1993), Society for Industrial and Applied Mathematics Philadelphia · [Zbl 0779.62019](#)
- [11] Mudholkar, G.S.; George, E.O., A remark on the shape of the logistic distribution, *Biometrika*, 65, 667-668, (1978) · [Zbl 0389.62009](#)
- [12] Nelson, W., *Applied life data analysis*, (1982), John Wiley & Sons New York · [Zbl 0579.62089](#)

This reference list is based on information provided by the publisher or from digital mathematics libraries. Its items are heuristically matched to zbMATH identifiers and may contain data conversion errors. It attempts to reflect the references listed in the original paper as accurately as possible without claiming the completeness or perfect precision of the matching.