



Comparison and equality of generalized ψ -estimators

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Abstract

We solve the comparison problem for generalized ψ -estimators introduced by Barczy and Páles (*arXiv*: 2211.06026, 2022). Namely, we derive several necessary and sufficient conditions under which a generalized ψ -estimator less than or equal to another ψ -estimator for any sample. We also solve the corresponding equality problem for generalized ψ -estimators. We also apply our results for some known statistical estimators such as for empirical expectiles and Mathieu-type estimators and for solutions of likelihood equations in case of normal, a Beta-type, Gamma, Lomax (Pareto type II), lognormal and Laplace distributions.

Keywords ψ -estimator · Z-estimator · Comparison of estimators · Equality of estimators · Likelihood equation

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