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Minimaxity in Estimation of Restricted Parameters

Tatsuya Kubokawa[1)]

1) Faculty of Economics, University of Tokyo

Abstract: This paper is concerned with estimation of the restricted parameters in location and/or scale families from a decision-theoretic point of view. A simple method is provided to show the minimaxity of the best equivariant and unrestricted estimators. This is based on a modification of the known method of Girshick and Savage (1951) and can be applied to more complicated cases of restriction in the location-scale family. Classes of minimax estimators are also constructed by using the IERD method of Kubokawa (1994a, b): Especially, the paper succeeds in constructing such a class for estimating a restricted mean in a normal distribution with an unknown variance.

Key words: Decision theory, generalized Bayes estimator, location family, maximum likelihood estimator, minimaxity, restricted parameter, scale family