On weakly equivariant estimators. (English) Zbl 07453629

Summary: In this paper, we shall generalize the concept of equivariance in statistics to “weak equivariance”. Then, we summarize the properties of weakly equivariant estimators and their applications in statistics. At first we characterize the class of all weakly equivariant estimators. Then, we shall consider the concept of cocycles and isovariance, and so we find their connection with weakly equivariant functions. It is natural to restrict attention to the class of weakly equivariant estimator to find minimum risk weakly equivariant estimators. If the group acts in two different ways, we shall find a relation between the minimum risk equivariant and minimum risk weakly equivariant estimator under the old and new group actions. Also we shall introduce a necessary and sufficient condition for the invariance of the loss function under the new action.

MSC:
62F10 Point estimation
54H11 Topological groups (topological aspects)
62H12 Estimation in multivariate analysis

Keywords:
topological group; Hausdorff space; locally compact group; orbit type; transitivity; homogeneous space; invariance; isovariance; weakly equivariance; cocycles

Full Text: DOI

References: