

ROBUST ESTIMATION IN THE MULTIVARIATE NORMAL MODEL

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Abstract

Robust estimation presented in the following paper is based on Fisher consistent and Fréchet differentiable statistical functionals. The method has been used in the multivariate normal model with variance components [5]. To transfer the method to estimate vector of expectations and positive definite covariance matrix of the multivariate normal model it is required to express the covariance matrix as a linear combination of basic elements of the vector space of real, square and symmetric matrices. The theoretical results have been completed with computer simulation studies. The robust estimator has been investigated both for model and contaminated data. Comparison with the maximum likelihood estimator has also been included.

Keywords: asymptotic normality, Fisher consistency, Fréchet differentiability, multivariate normal model, statistical functional.

2010 Mathematics Subject Classification: 62H10, 62H12.

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Received 3 February 2016

Revised 18 July 2016