On the relationship between the estimators under the multivariate and matrix-variate t distribution

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Abstract

One of the most common distributional assumptions of many statistical models is the normal distribution. However, in many applied fields such as, for example, macro- and financial economics, heavy tailed distribution are more appropriate to consider. In this talk one of the most popular heavy-tailed distributions, the multivariate t distribution, is considered. Additionally, in this talk we relax the assumption about independence to uncorrelated observations, which is indistinguishable under normality assumption.

The aim of this talk is to present the maximum likelihood estimators of location and scale parameters of multivariate t distribution, however, since the observations are uncorrelated (not independent), for this purpose the matrix t distribution will be used. Observe, that the definition of matrix t distribution depends on the stochastic representation of matrix-variate t distribution random variable and thus two alternative forms of distribution will be considered.

Finally, basic statistical properties of maximum likelihood estimators of location and scale parameters, such as biasedness and sufficiency, will be shown.

Keywords

Multivariate t distribution, Matrix-variate t distribution, Maximum likelihood estimators.

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