

INFERENCES ON THE LOCATION PARAMETER UNDER MULTIVARIATE SKEW NORMAL SETTINGS

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ABSTRACT. For the multivariate skew normal random matrix Y with location parameter $\mathbf{1}_n \otimes \boldsymbol{\mu}'$, scale parameter $V \otimes \Sigma$, and skewness parameter $\mathbf{1}_n \otimes \boldsymbol{\alpha}'$, $Y \sim SN_{n \times p}(\mathbf{1}_n \otimes \boldsymbol{\mu}', V \otimes \Sigma, \mathbf{1}_n \otimes \boldsymbol{\alpha}')$. The distribution of sample covariance matrix is derived, and the generalized Hotelling and its properties T^2 are discussed. Based on these results, the inferences on location parameter $\boldsymbol{\mu}$ with unknown Σ are studied. Examples on real data set and simulated data sets are given for illustration of our results.

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