



ON N/P -ASYMPTOTIC DISTRIBUTION OF VECTOR OF WEIGHTED TRACES OF POWERS OF WISHART MATRICES*

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Abstract. The joint distribution of standardized traces of $\frac{1}{n}XX'$ and of $\left(\frac{1}{n}XX'\right)^2$, where the matrix $X : p \times n$ follows a matrix normal distribution is proved asymptotically to be multivariate normal under condition $\frac{n}{p} \xrightarrow{n,p \rightarrow \infty} c > 0$. Proof relies on calculations of asymptotic moments and cumulants obtained using a recursive formula derived in Pielaszkiwicz et al. (2015). The covariance matrix of the underlying vector is explicitly given as a function of n and p .

Key words. Wishart matrix, Multivariate normal distribution, Spectral distribution, Spectral moments, Covariance matrix.

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