

**BEST UNBIASED ESTIMATES FOR PARAMETERS OF
THREE-LEVEL MULTIVARIATE DATA WITH DOUBLY
EXCHANGEABLE COVARIANCE STRUCTURE AND
STRUCTURED MEAN VECTOR**

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Abstract

In this article author obtain the best unbiased estimators of doubly exchangeable covariance structure. For this purpose the coordinate free-coordinate approach is used. Considered covariance structure consist of three unstructured covariance matrices for three-level m -variate observations with equal mean vector over v points in time and u sites under the assumption of multivariate normality. To prove, that the estimators are best unbiased, complete statistics are used. Additionally, strong consistency is proven. Under the proposed model the variances of the estimators of covariance components are compared with the ones in the model in [11].

Keywords: best unbiased estimator, doubly exchangeable covariance structure, three-level multivariate data, coordinate free approach, structured mean vector.

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