

ABSTRACT

TESTING HYPOTHESIS AND CONFIDENCE INTERVAL RATIO OF LINEAR FUNCTION OF PARAMETERS NESTED DESIGN THREE LEVEL

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Three level of nested design is an experimental design which has more than one size of experimental unit, and consist of at three factors. In general linear model three level of nested design can be written as $Y = X\theta + \varepsilon$, and the model is non full column rank. This type of condition in some model create a problem of estimation, namely the estimation parameter is not unique. Model Reduction Methods (MRM) is used to the transform non full rank model with constraint into full rank model and unconstraint. The aim of this research is (1) to transform non full rank model with constraint into full rank model and unconstraint, (2) to estimation parameter, (3) to testing hypotheses, (4) to determine confidence interval ratio of linear function of parameters, and (5) to do simulation using R programe. Based on the results, it can be concluded that (1) MRM is suitable being used to tranform non full rank model into full rank model, (2) the result of the simulation shows characteristic parameter is unbiased and has minimum variance, (3) in the testing hypotheses, the power is good and (4) Filler's theorem can be used to determine confidence interval ratio of linear function of parameters.

Keyword : Model reduction methods, parameter estimation, testing hypotheses, ratio of linear function of parameters