

##C040537 : MAJOR STATISTIC IN EDUCATION

KEY WORD : SIMULATION/RANDOM NUMBER/FORWARD/BACKWARD/STEPWISE/
MULTICOLLINEARITY/ R^2 /VARIANCE

SOMNIT JIUMTERANART: A COMPARISION OF MULTIPLE REGRESSION ANALYSIS RESULTS WHEN PREDICTORS ARE SELECTED TO THE EQUATION BY FORWARD, BACKWARD AND STEPWISE METHODS WITH DIFFERENT INTERCORRELATIONS AMONG PREDICTORS. THESIS ADVISOR: ASST. PROF. TAWEEWAT PITAYANON, Ph.D.
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The objectives of this study were:

1. To compare the means and variance of Multiple Correlation Coefficient square (R^2) obtained from using the three methods; Forward Selection, Backward Elimination and Stepwise Regression when intercorrelation among predictor variables were at the same level.
2. To compare the means and variances of R^2 obtained from applying the same method when intercorrelation among predictor variables were at different level.
3. To compare percentage of orders of predictor variables entered in Forward Selection and Stepwise Regression when intercorrelation among predictor variables were at the same level.

The intercorrelation among predictor variables were (0.00-0.30) (0.30-0.70) and (0.70-1.00) the intercorrelation between predictor variables and criterion variable was (0.30-1.00) the number of predictor variables was 5, the sample size was 10 times of predictor variables, Monte Carlo simulation technique was applied, the experiment were repeated 200 times in each case.

The results of the experiments were as follows:

1. When intercorrelation among predictor variables were at the same level the means of R^2 obtained from the three methods were almost the same they were not different at significant level at $\alpha = 0.05$. The variance of R^2 were low and close.
2. When intercorrelation among predictor variables were at different level the means of R^2 obtained from the same method were different at significant level $\alpha = 0.05$. The variances of R^2 were low and close.
3. The predictor variables entered into equations; Forward Selection and Stepwise Regression at different order when intercorrelation among predictor variables were at the same level were similar and the percentage of orders they entered into equation were close.