

C223105 : MAJOR STATISTICS

KEY WORD : AUTOCORRELATED DISTURBANCE TERMS

FON TAPWATTNA : A COMPARISON OF PARAMETERS ESTIMATION METHOD FOR FORECASTING IN SIMPLE LINEAR REGRESSION WITH AUTOCORRELATED DISTURBANCE TERMS. THESIS ADVISOR : ASSR.CAPT. MANOP VARAPHAKDI. 174 PP. ISBN 974-581-432-6

The objective of this study is to compare parameters estimation methods for forecasting in simple linear regression having autocorrelated disturbance terms by comparing the mean square errors of the methods. The methods are Ordinary Least Squares Method, Generalized Least Squares Method, and Cochrane-Orcutt Transformation Method. The comparison was done under conditions of severity of autocorrelation, sample sizes, and four forms of independent variable.

The data for this experiment were generated through the Monte Carlo Simulation technique. The experiment was repeated 1000 times under each condition.

Results of the study are as follow :

1. In the case of low autocorrelations (0.3 and 0.4).

In the case of small sample sizes and middle sample sizes (10,15, 30 and 50), all of parameters estimation methods have equivalent mean square error for every form of independent variable. In the case of large sample size (70), Generalized Least Squares Method has minimum mean square error, and Cochrane-Orcutt Transformation Method and Ordinary Least Squares Method have equivalent mean square error in every form of independent variable.

2. In the case of middle and high autocorrelations (0.5,0.6,0.7,0.8 and 0.9).

Cochrane-Orcutt Transformation Method has minimum mean square error. Of the two lower levels, they are Generalized Least Squares Method and Ordinary Least Squares Method chronologically in every sample size and every form of independent variable.