

KEY WORD : AUTOCORRELATED ERROR TERMS

SIRIPAN CHALERMNGAM : A COMPARISON ON PARAMETER ESTIMATION METHODS IN MULTIPLE LINEAR REGRESSION WITH AUTOCORRELATED ERROR TERMS. THESIS ADVISOR : ASST. PROF. CAPT. MANOP VARAPHAKDI, M.S. 178 PP. ISBN 974-582-635-9.

The objective of this study is to compare parameter estimation methods for forecasting in multiple linear regression having autocorrelated disturbance terms. The methods are Ordinary Least Squares Method, Prais-Winsten Transformation Method, and Hildreth-Lu Method. They are compared by using the square root of the mean squared forecast error. The comparison was done under conditions of correlation coefficients, sample sizes, and three forms of independent variable. The data for this experiment were generated through the Monte Carlo Simulation technique. The experiment was repeated 500 times under each condition to calculate the square root of the mean squared forecast error (RMSE).

The results of the study are summarized as follows :

1. In case of low autocorrelations (0.2, 0.3, and 0.4), the RMSE of the Hildreth-Lu Method and Prais-Winsten Transformation Method are at the same level, and the Ordinary Least Squares Method has the maximum RMSE for all sample sizes and all forms of the independent variable.
2. In case of medium, high, and very high autocorrelations (0.5, 0.6, 0.7, 0.8, 0.9, 0.95 and 0.99), the Hildreth-Lu Method has the minimum RMSE, and the Prais-Winsten Transformation Method has the maximum RMSE for all sample sizes and all forms of the independent variable.
3. For any sample sizes, the RMSE of each method increases as the level of autocorrelation increases for all forms of the independent variable. For any level of autocorrelation, the RMSE of each method does not increase as the sample size increases for all forms of the independent variable.