

## **On the robust parameter estimation for linear model with autocorrelated errors**

### **ABSTRACT**

The Ordinary Least Squares (OLS) estimates become inefficient in the presence of autocorrelation problems. The Cochrane-Orcutt Prais-Winsten iterative method (COPW) is the most commonly used remedial measure to remedy this problem. However, this procedure is based on the OLS estimates, which is not robust and therefore easily affected by high leverage points (outliers in the x-direction). In this paper, we propose a robust Cochrane-Orcutt Prais-Winsten iterative method (RCOPW) based on MM estimator for the estimation of linear regression parameters in the situation where autocorrelated errors come together with the existence of outliers. The performance of this RCOPW is investigated extensively by real example and Monte Carlo simulation. The results of the study indicate that the RCOPW is more consistent and efficient as compared to COPW. It also provides a better one step ahead forecast than the OLS and COPW regression models.

**Keyword:** Autocorrelation; High leverage points; Outliers.