

## **Robust parameter estimation for fixed effect panel data model in the presence of heteroscedasticity and high leverage points**

### **ABSTRACT**

In the presence of unknown heteroscedasticity structure and anomalous observations such as High Leverage Points (HLPs), the variance-covariance matrix of the ordinary least squares (OLS) estimator become bias and inconsistent in linear as well as in fixed effect (FE) panel data model. As a remedial measure, we propose Robust Heteroscedasticity Consistent Covariance Matrix (RHCCM) estimator based on Weighted Least Square in panel data model. In the proposed methods, weights are determined from HLPs detection methods so that the effect of HLPs can be minimized by assigning lower weights to HLPs. The numerical examples and simulation results indicate that the proposed RHCCM based on Fast Modified generalized Residuals (FMGt) offers substantial improvement over some existing estimators.

**Keyword:** HCCM; Heteroscedasticity; High leverage point; Ordinary least squares; Weighted least squares