**On the performance of fast robust variance inflation factor based on index set equality**

ABSTRACT

The detection of multicollinearity is very crucial, so that, proper remedial measures can be taken up in their presence. The widely used diagnostic method to detect multicollinearity in multiple linear regressions is by using Classical Variance Inflation Factor (CVIF). It is now evident that the CVIF failed to correctly detect multicollinearity when high leverage points are present in a set of data. Robust Variance Inflation Factor (RVIF) has been introduced to remedy this problem. Nonetheless, the computation of RVIF takes longer time because it is based on robust GM (DRGP) estimator which depends on Minimum Volume Ellipsoid (MVE) estimator that involves a lot of computer times. In this study, we propose a fast RVIF (FRVIF) which take less computing time. The results of the simulation study and numerical examples indicate that our proposed FRVIF successfully detect multicollinearity problem with faster rate compared to other methods.