**A robust rescaled moment test for normality in regression**

ABSTRACT

Problem statement: Most of the statistical procedures heavily depend on normality assumption of observations. In regression, we assumed that the random disturbances were normally distributed. Since the disturbances were unobserved, normality tests were done on regression residuals. But it is now evident that normality tests on residuals suffer from superimposed normality and often possess very poor power. Approach: This study showed that normality tests suffer huge set back in the presence of outliers. We proposed a new robust omnibus test based on rescaled moments and coefficients of skewness and kurtosis of residuals that we call robust rescaled moment test. Results: Numericalexamples and Monte Carlo simulations showed that this proposed test performs better than the existingtests for normality in the presence of outliers. Conclusion/Recommendation: We recommend using ourproposed omnibus test instead of the existing tests for checking the normality of the regressionresiduals.

**Keyword:** Regression residual; Outliers; Rescaled moments; Skewness; Kurtosis; Jarque-bera test; Robust rescaled moment test