

The objective of this study is to investigate the method of outlier detection and adjustment in stationary time series denoted by $\Phi(B)Z_t = \theta(B)a_t$ with 2 statistical methods. They are the M.method and the V.method. Proportion of type I error, the power of a test, percentage of outlier adjustment and mean absolute percentage error of forecasting for the next 5 periods are compared between these two methods. The data were obtained through simulation using the Monte Carlo technique. The distribution of errors considered in this study was the scale-contaminated normal distribution. The scale factors for scale-contaminated normal distribution are 3 4 5 and 6. The time series models used in the study are AR(1) MA(1) and ARMA(1,1). The sample size are 50 80 100 and 120. The numbers of outlier observations simulated are 1 and 2 value, except in the case of the comparison on mean absolute percentage error by forecasting for the next 5 periods which have 5 15 and 25 percentage. The four conclusions can be draw from the simulation results :

1. The proportion of type I error : the M.method can be better controlled proportion of type I error than the V.method for all significance levels.

2. The power of a test for detecting outliers : the M.method has both small sample size and large sample size for all significance levels and distribution of error.

3. The per centage of outlier adjustment : the M.method is closer regular observations than the V.method, in the situation that have one and two outliers. When $\alpha = 0.05$ the adjustment percentage of the M.method is between 0.06 and 17.75 for AR(1), 0.16 and 18.66 for MA(1), 0.06 and 27.89 for ARMA(1,1), and while $\alpha = 0.01$ the adjustment percentage is between 0.06 and 16.47 for AR(1), 0.13 and 17.41 for MA(1), 0.02 and 26.18 for ARMA(1,1) which is lower than the V.method in almost all situations.

4. The mean absolute percentage error by forecasting the next 5 periods : the M.method has a lower mean absolute percentage of forecasting error the next 5 periods than the V.method for all significance levels.