ROBUST CONFIDENCE INTERVALS IN LINEAR REGRESSION ANALYSIS WITH M-ESTIMATES

Derya Caliskan and Meral Candan Cetin

Statistics Department
Hacettepe University
Ankara / TURKEY

ABSTRACT

In this study, it was aimed the robust confidence intervals of the regression parameters to be calculated in the presence of deviation from normality and outlier in the linear regression analysis, using robust versions of parameter estimations; and these intervals to be compared to the classical confidence intervals which are based on the least squares method (LSM).

In this study, a simulation study was carried out in order to constitute robust confidence intervals. By using the program written in the S-Plus package program and M-estimation methods, the confidence intervals of linear regression parameters were constituted, and the cases with and without outlier, the lengths of confidence interval obtained by considering different levels of error variance and their coverage probabilities were compared.