

SOMCHAI RATTANALOETNUSORN : A COMPARATIVE STUDY ON SOME PROCEDURES
FOR DETECTING OUTLIERS IN LINEAR REGRESSION ANALYSIS : THESIS ADVISOR ASSIST.
PROF. THEERAPORN VERATHAWORN, Ph.D., 272 PP. ISBN 974-578-447-8

This research has an objective to compare power of the test among three procedures of test statistics; that is, Tietjen, Moore and Beckman's procedure (TMB) ; Mervyn G. Marasinghe's procedure(M) and G. Barrie's procedure(GB). These are used to detect outliers in simple linear regression analysis with a view to study of two cases of residual distributions; i.e., heavy-tailed distribution and a right-handed skew distribution. Each of the cases will be studied in case of outlier numbers of one, two and three values, respectively.

The result of the research can be concluded as follow :

a) In case of residual arising from heavy-tailed distribution

This research is used to distribute in the type of scale contaminated normal, location contaminated normal and t distribution. All of heavy-tailed distribution types studied are generally found that M's and GB's test statistics are able to control probability of type I error equivalently well. Another test statistics, TMB is able to control probability of type I error little except where type t distribution will be able to control probability of type-I error well equivalent to M's and GB's test statistics. The consequence of comparison power of the test values indicate that in case of outlier number (k) of 1, GB's test statistics has a power of the test absolutely. Of the two lower levels, they are TMB's and M's test statistics chronologically. In case of outlier number (k) of 2 and 3, M's test statistics has a power of the test absolutely. The two lower levels are GB's and TMB's test statistics, respectively.

b) In case of residual arising from right-handed skew distribution

This research is used to distribute in the type of lognormal gamma and weibull distribution. All of right-handed skew distribution types studied generally signify that M's and GB's test statistics are able to control probability of type I error equivalently well. Another test statistics, TMB is able to control probability at least. The consequence of comparison of power of the test values show that it induces the same result as the clause a)

The factors influential to a power of the test from more to less are contamination percentage value (p), variance value (σ^2) and shape parameter value succeedingly.