

## Comparison between Some of Robust Regression Methods with OLS Method with Application

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**Abstract :** The use of the classic method, least squares (OLS) to estimate the linear regression parameters, when they are available assumptions, and capabilities that have good characteristics, such as impartiality, minimum variance, consistency, and so on. The development of alternative statistical techniques to estimate the parameters, when the data are contaminated with outliers. These are powerful methods (or resistance). In this paper, three of robust methods are studied, which are: Maximum likelihood type estimate M-estimator, Modified Maximum likelihood type estimate MM-estimator and Least Trimmed Squares LTS-estimator, and their results are compared with OLS method. These methods applied to real data taken from Duhok company for manufacturing furniture, the obtained results compared by using the criteria: Mean Squared Error (MSE), Mean Absolute Percentage Error (MAPE) and Mean Sum of Absolute Error (MSAE). Important conclusions that this study came up with are: a number of typical values detected by using four methods in the furniture line and very close to the data. This refers to the fact that close to the normal distribution of standard errors, but typical values in the doors line data, using OLS less than that detected by the powerful ways. This means that the standard errors of the distribution are far from normal departure. Another important conclusion is that the estimated values of the parameters by using the lifeline is very far from the estimated values using powerful methods for line doors, gave LTS- destined better results using standard MSE, and gave the M- estimator better results using standard MAPE. Moreover, we noticed that using standard MSAE, and MM- estimator is better. The programs S-plus (version 8.0, professional 2007), Minitab (version 13.2) and SPSS (version 17) are used to analyze the data.

**Keywords :** Robest, LTS, M estimate, MSE

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