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# Non-Parametric Regression over Its Parametric Couterparts with Large Sample Size

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**Abstract :** This paper is on non-parametric linear regression over its parametric counterparts with large sample size. Data set on anthropometric measurement of primary school pupils was taken for the analysis. The study used 50 randomly selected pupils for the study. The set of data was subjected to normality test, and it was discovered that the residuals are not normally distributed (i.e. they do not follow a Gaussian distribution) for the commonly used least squares regression method for fitting an equation into a set of (x,y)-data points using the Anderson-Darling technique. The algorithms for the nonparametric Theil's regression are stated in this paper as well as its parametric OLS counterpart. The use of a programming language software known as "R Development" was used in this paper. From the analysis, the result showed that there exists a significant relationship between the response and the explanatory variable for both the parametric and non-parametric regression. To know the efficiency of one method over the other, the Akaike Information Criterion (AIC), Bayesian Information Criterion (BIC) are used, and it is discovered that the nonparametric regression performs better than its parametric regression counterparts due to their lower values in both the AIC and BIC. The study however recommends that future researchers should study a similar work by examining the presence of outliers in the data set, and probably expunge it if detected and re-analyze to compare results.

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