

Amitriptyline Data Regression Analysis

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- (i) The linear model we try to fit is given by

$$y_1 = \mathbf{Z}\beta + \epsilon,$$

where

$$\mathbf{Z} = \begin{bmatrix} \mathbf{1} & \text{GEN} & \text{AMT} & \text{PR} & \text{DIAP} & \text{QRS} \end{bmatrix},$$

is the data matrix.

After fitting the data with the suggest model, we got

$$\beta = [675.65 \quad 0.2849 \quad 10.27 \quad 7.25 \quad 7.60]^T.$$

- (ii) We perform two types of analysis for residuals, the first is normality analysis. We give the QQ-plot in Figure 1. As we can see that the QQ-plot is approximate a line and thus we can confirm that the residuals are normally distributed.

The second type of analysis is for autocorrelation detection. We plot the residuals against predicted values, predictors and sample numbers in Figure 2 - Figure 4. The plots suggests that there are no evidences that autocorrelation exists in the residuals.

- (iii) The confidence intervals for the new data is $[41.35, 1417, 70]$

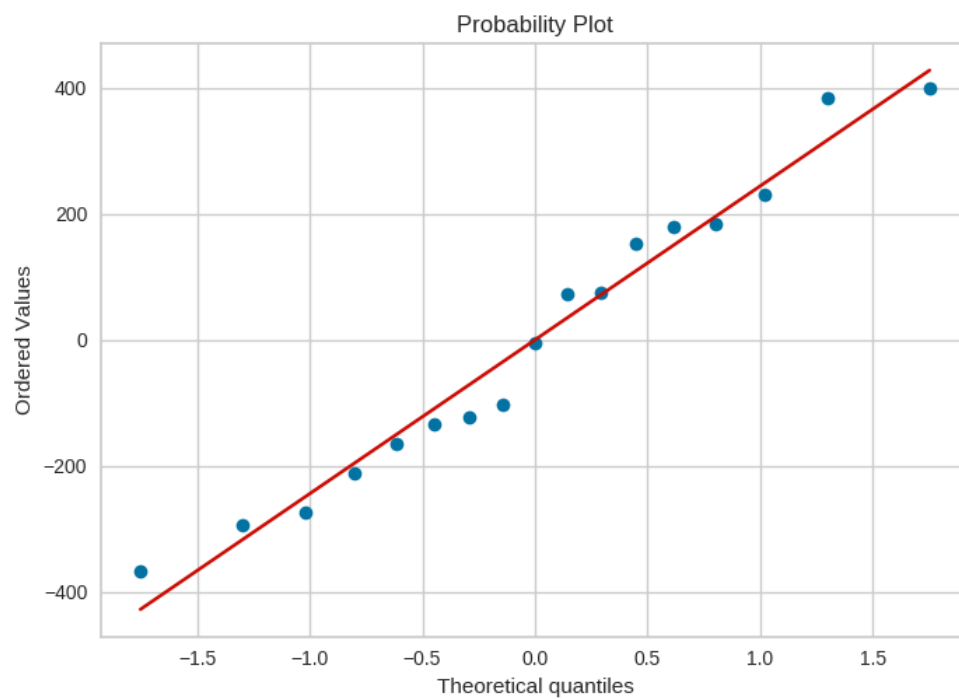


Figure 1: QQ-plot of residuals

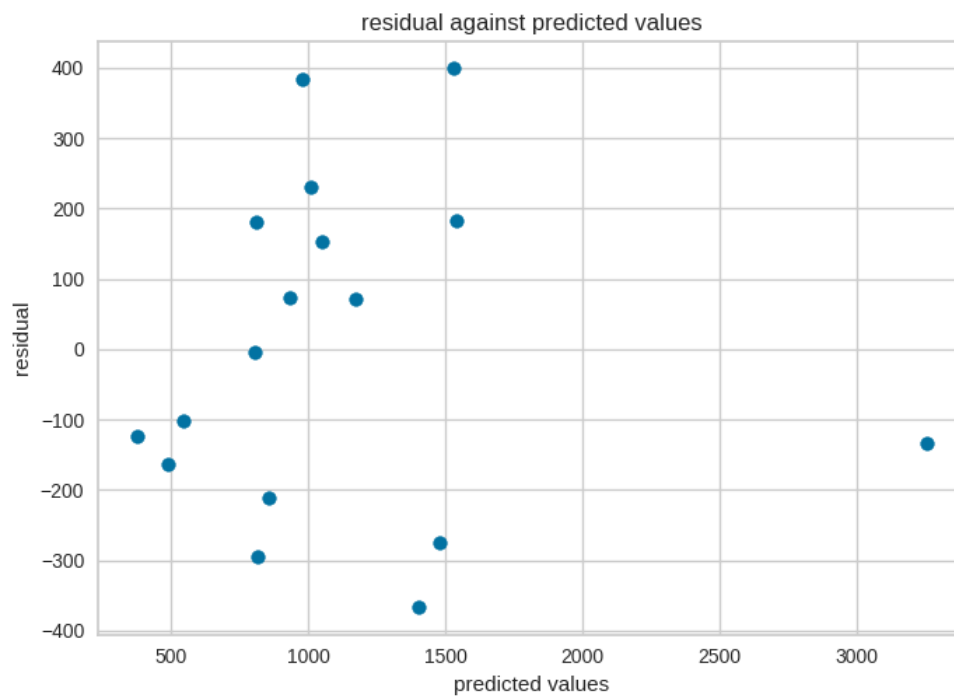


Figure 2: Residuals vs predicted values

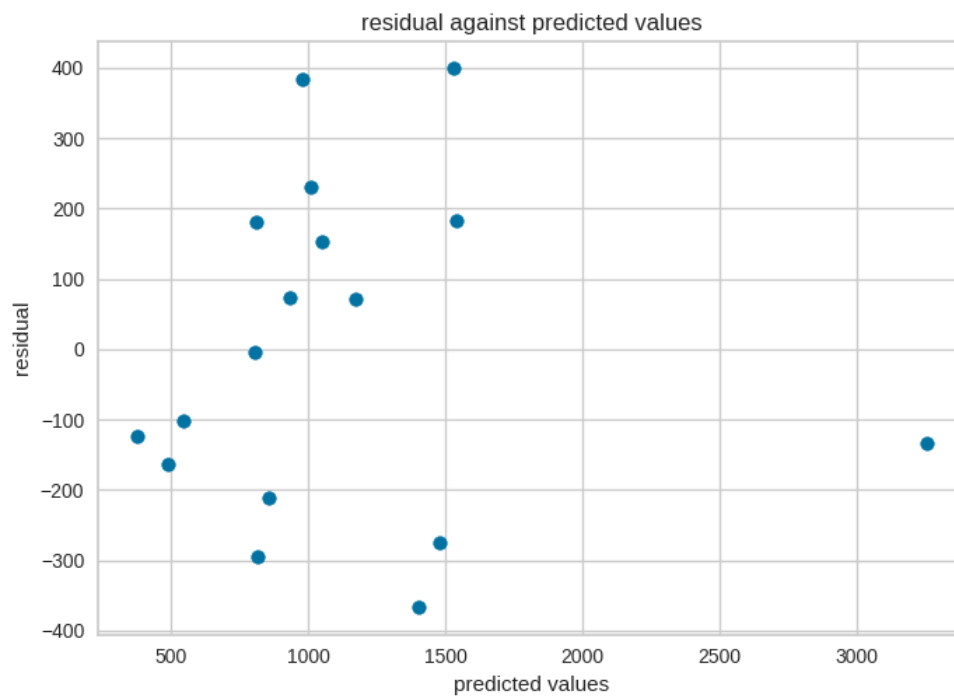


Figure 3: Residuals vs products of predictor values

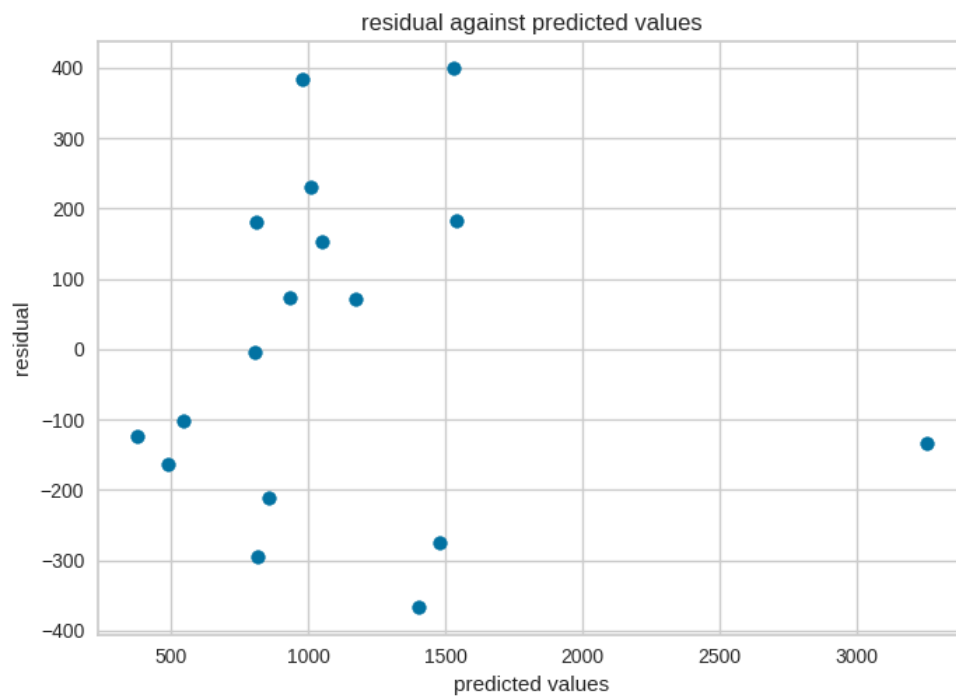


Figure 4: Residuals vs sample numbers