

Box-Cox Transformation for positive values

$$y(\lambda) = \begin{cases} \frac{y^\lambda - 1}{\lambda}, & \text{if } \lambda \neq 0; \\ \log y, & \text{if } \lambda = 0. \end{cases}$$

Box-Cox Transformation for negative values

$$y(\lambda) = \begin{cases} \frac{(y + \lambda_2)^{\lambda_1} - 1}{\lambda_1}, & \text{if } \lambda_1 \neq 0; \\ \log(y + \lambda_2), & \text{if } \lambda_1 = 0. \end{cases}$$

What is a Box Cox Transformation?

A Box Cox transformation is a [transformation](#) of non-normal [dependent variables](#) into a [normal shape](#). [Normality](#) is an important assumption for many statistical techniques; if your data isn't normal, applying a Box-Cox means that you are able to run a broader number of tests.

From <<https://www.statisticshowto.com/probability-and-statistics/normal-distributions/box-cox-transformation/>>