

## Anderson-Darling Statistic in Estimating the Box-Cox Transformation Parameter

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### Abstract

The Box-Cox transformation is a well known family of power transformations that brings a set of data into agreement with the normality assumption of the residuals and, hence, the response variable of a postulated model in regression analysis. This paper uses the Anderson-Darling normality test statistic in estimating the Box-Cox transformation parameter. The comparison of the estimate is made with the maximum likelihood estimate and with the Shapiro-Wilk statistic estimate using simulation.

**Keywords:** Expected values and covariances for the ordered standard normal variates, Newton-Raphson root finding method, goodness-of-fit for a normal distribution, quantiles for the normal variates, Shapiro-Wilk  $W$  statistic.

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