

Package ‘AID’

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Type Package

Title An R Package to Estimate Box-Cox Power Transformation Parameter

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Description Includes a function to estimate the power transformation parameter and some datasets

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AID

An R Package to Estimate Box-Cox Power Transformation Parameter

Description

Includes a function to estimate the power transformation parameter and some datasets

Details

Package: AID
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boxcoxnc *A Function to Estimate Box-Cox Power Transformation Parameter via Normality Tests and Artificial Covariate Method*

Description

boxcoxnc utilizes seven different normality tests and artificial covariate method to estimate Box-Cox power transformation parameter and provides graphical analysis

Usage

```
boxcoxnc(data, method="all", lam=seq(-2,2,0.01), plotit=TRUE, rep=30, p.method="BY")
```

Arguments

data	is a vector, matrix for univariate dataset
method	expects a character string to select the desired method to be used to estimate Box-Cox transformation parameter. To use Shapiro-Wilk test method should be set to "sw". For method = "ad", boxcoxnc function uses Anderson-Darling test to estimate Box-Cox transformation parameter. Similarly, method should be set to "cvm", "pt", "sf", "lt", "jb", "ac" to use Cramer-von Mises, Pearson Chi-square, Shapiro-Francia, Lilliefors, Jarque-Bera tests and artificial covariate method, respectively. To use all the methods at the same time, default is set to method = "all".
lam	is a vector which includes the sequence of candidate lambda values. Default is set to (-2,2) with increment 0.01
plotit	plots normality test statistic vs lambda for methods utilizing normality tests. It also plots log-likelihood vs lambda for artificial covariate method. Defaults plotit = TRUE
rep	is an integer which denotes the replication number for artificial covariate method. Default is set to 30
p.method	expects a character string which defines the method to adjust the p-values. Default is set to "BY". p.method is same with the "method" in p.adjust documentation. See the documentation of p.adjust for other possible choices of methods and details.

Value

Returns a matrix of output with the results of seven different normality tests and artificial covariate method. The first row of the matrix corresponds to the related estimates of lambda. The subsequent rows correspond to the p-values of different normality tests for each estimates of lambda.

Note

This is the version 1.4 of this user documentation file.

Author(s)

Osman Dag, Ozgur Asar, Ozlem Ilk

References

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- Thode, H. C. (2002). *Testing for Normality*. New York: Marcel Dekker.
- Trapletti, A., Hornik, K. (2012). tseries: Time Series Analysis and Computational Finance. R package version. 0.10-28.
- Venables, W. N., Ripley, B. D. (2002). *Modern Applied Statistics with S 4th ed.*. New York: Springer.

Examples

```
data(textile)
boxcoxnc(textile[,1])
boxcoxnc(textile[,1])$result[1,1]
```

grades

Student Grades Data

Description

Overall student grades for a class taught by Dr. Ozlem Ilk

Usage

```
data(grades)
```

Format

A data frame with 42 observations on the following variable.

grades a numeric vector for the student grades

Examples

```
data(grades)
hist(grades[,1])
boxcoxnc(grades[,1])
```

textile

Textile Data

Description

Number of Cycles to Failure of Worsted Yarn

Usage

```
data(textile)
```

Format

A data frame with 27 observations on the following variable.

textile a numeric vector for the number of cycles

References

Box, G. E. P., Cox, D. R. (1964). An Analysis of Transformations (with discussion). *Journal of the Royal Statistical Society, Series B (Methodological)*, **26**, 211–252.

Examples

```
data(textile)
hist(textile[,1])
boxcoxnc(textile[,1])
```

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