Package 'PSGoft'

September 6, 2023

Title Modified Lilliefors Goodness-of-Fit Normality Test

Version 0.0.1

Description
Presentation of a new goodness-of-fit normality test based on the Lilliefors method. For details on this method see: Sulewski (2019) <doi:10.1080/03610918.2019.1664580>.

Depends R (>= 3.5.0)

Imports moments

License GPL-3

Language en-US

Encoding UTF-8

RoxygenNote 7.2.3

Suggests testthat, knitr, rmarkdown

VignetteBuilder knitr

LazyData true

NeedsCompilation no

Author Piotr Sulewski [aut, cre] (<https://orcid.org/0000-0002-0788-6567>)

Maintainer Piotr Sulewski <piotr.sulewski@apsl.edu.pl>

Repository CRAN

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R topics documented:

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data1	*A real data set on Dozer Cycle Times*

Description

The data set from AbouRizk, S.M., Halpin, D.W., Wilson, J. R. (1994). *Fitting beta distributions based on sample data.* Journal of Construction Engineering and Management 120(2), 288–305. consist of 72 observations for Dozer Cycle Times

Usage

```
data1
```

Format

A data frame with 72 observations

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data2	*A real data set on the height of five-year-old British boys*

Description

The data set presents the height of 99 five-year-old British boys in cm downloaded from http://www.mas.ncl.ac.uk/njnsm/med

Usage

```
data2
```

Format

A data frame with 99 observations

MLF.pvalue	*Modified Lilliefors Goodness-of-Fit Normality Test*

Description

Calculates the p-value of the modified Lilliefors goodness-of-fit normality test.

Usage

```
MLF.pvalue(x)
```

Arguments

x   a numeric vector of data values, the number of which must be greater than 4.

Details

The modified Lilliefors goodness-of-fit p-value.

Value

The function returns the p-value of the modified Lilliefors goodness-of-fit normality test.

Author(s)

Piotr Sulewski, <piotr.sulewski@apsl.edu.pl>, Pomeranian University in Slupsk.

References

Sulewski, P. (2019). *Modified Lilliefors Goodness-of-fit Test for Normality.* Communications in Statistics - Simulation and Computation 51(3), 1199-1219.

Examples

```
MLF.pvalue(rnorm(33, mean = 0, sd = 2))
MLF.pvalue(data1)
```

MLF.stat   *Modified Lilliefors Goodness-of-Fit Normality Test*

Description

Calculates the value of the modified Lilliefors goodness-of-fit normality test statistic.

Usage

```
MLF.stat(x)
```

Arguments

x   a numeric vector of data values, the number of which must be greater than 4.

Details

The modified Lilliefors goodness-of-fit normality test statistic, see formula (5) in the article.

Value

The function returns the value of the modified Lilliefors goodness-of-fit normality test statistic.

Author(s)

Piotr Sulewski, <piotr.sulewski@apsl.edu.pl>, Pomeranian University in Slupsk.

References

Sulewski, P. (2019). *Modified Lilliefors Goodness-of-fit Test for Normality.* Communications in Statistics - Simulation and Computation 51(3), 1199-1219.

Examples

```
MLF.stat(rnorm(33, mean = 0, sd = 2))
MLF.stat(data1)
```

MLF.test   *Modified Lilliefors Goodness-of-Fit Normality Test*

Description

Performs the modified Lilliefors goodness-of-fit normality test.

Usage

```
MLF.test(x)
```

Arguments

x   a numeric vector of data values, the number of which must be greater than 4.

Details

The modified Lilliefors goodness-of-fit normality test statistic, see formula (5) in the article.

Value

A list with class "htest" containing the following components:

statistic - the value of the modified Lilliefors statistic.

p.value - the p-value for the test.

method - the character string "Modified Lilliefors goodness-of-fit normality test".

data.name - a character string giving the name(s) of the data.

Author(s)

Piotr Sulewski, <piotr.sulewski@apsl.edu.pl>, Pomeranian University in Slupsk.

References

Sulewski, P. (2019). *Modified Lilliefors Goodness-of-fit Test for Normality.* Communications in Statistics - Simulation and Computation 51(3), 1199-1219.

Examples

```
MLF.test(rnorm(33, mean = 0, sd = 2))
MLF.test(data1)
```

PSGoft *The list of package functions and their demonstration*

Description

The **PSGoft** package puts into practice the modified Lilliefors goodness-of-fit normality test. This modification consists in varying a formula of calculating the empirical distribution function. Values of constants a, b in the formula depend on values of sample skewness and excess kurtosis, which is recommended in order to increase the power of the LF test.

Data sets in the package

data1

data2

Functions for the modified Lilliefors goodness-of-fit normality test

MLF.stat

MLF.pvalue

MLF.test

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