Package 'normwn.test'

April 17, 2009

Title Normality and White Noise Testing

Version 1.2

Date 2008-08-31

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Description Includes Omnibus Univariate and Multivariate Normality Tests (See Doornik and Hansen (1994)). One variation allows for the possiblity of weak dependence rather than independence in the variable(s). Also included is an univariate white noise test where the null hypothesis is for "white noise" rather than "strict white noise". The package deals with similar approaches to testing as the "nortest","moments",and "mvnormtest" packages in R.

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Repository CRAN

Date/Publication 2008-09-01 07:00:24

R topics documented:

`normality.test1` *Omnibus Normality Test under Independence*

Description

Performs the Doornik-Hansen (1994) omnibus test for normality

Usage

```
normality.test1(x)
```

Arguments

`x`	input matrix by row n (observations) and column p (variables)

Details

In the univariate case, the input matrix is row n (observations) by 1

Value

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

`sk`	skewness statistics
`k`	kurtosis statistics
`rtb1`	skewness of standardized variables
`b2`	kurtosis of standardized variables
`z1`	skewness of transformed variables
`z2`	kurtosis of transformed variables
`pvalsk`	p-values under null of no skewness
`pskneg`	p-values under null of no negative skewness
`ppskpos`	p-values under null of no positive skewness
`pvalk`	p-values under null of no kurtosis
`pkneg`	p-values under null of no negative kurtosis
`pkpos`	p-values under null of no positive kurtosis
`Ep`	value of normality test statistic
`dof`	degrees of freedom
`Sig.Ep`	significance of normality test statistic

Note

The test is designed to deal with small samples rather than the asymptotic version commonly-known as the Jarque-Bera test.

Author(s)

Peter Wickham

References

Doornik, J.A, and H. Hansen (1994). "An Omnibus Test for Univariate and Multivariate Normality. Working Paper, Nuffield College, Oxford, U.K.

See Also

normality.test2

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normality.test2 *Omnibus Normality Test under Weak Dependance*

Description

Performs the Doornik-Hansen omnibus test for normality with allowance for the variable(s) being weakly dependent rather than independent. The test was implicitly suggested by an article by Lobato and Velasco (2004)

Usage

```
normality.test2(x)
```

Arguments

x	input matrix by row n (observations) and column p (variables)

Details

In the univariate case, the input matrix is row n (observations) by 1

Value

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

sk	skewness statistics
k	kurtosis statistics
rtb1	skewness of standardized variables
b2	kurtosis of standardized variables
z1	skewness of transformed variables
z2	kurtosis of transformed variables
pvalsk	p-values under null of no skewness
pskneg	p-values under null of no negative skewness

ppskpos	p-values under null of no positive skewness
pvalk	p-values under null of no kurtosis
pkneg	p-values under null of no negative kurtosis
pkpos	p-values under null of no positive kurtosis
Ep	value of normality test statistic
dof	degrees of freedom
Sig.Ep	significance of normality test statistic

Author(s)

Peter Wickham

References

Doornik, J.A, and H. Hansen (1994). "An Omnibus Test for Univariate and Multivariate Normality. Working Paper, Nuffield College, Oxford, U.K. Lobato, I., and C. Velasco (2004). "A Simple Test of Normality of Time Series". Econometric Theory, 20, 671-689, Cambridge University Press.

See Also

normality.test1

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whitenoise.test *Univariate Test for White Noise*

Description

Performs an univariate test for white noise. The null is "white noise" rather than "strict white noise" which permits weak dependence in the higher moments of a variable

Usage

```
whitenoise.test(x)
```

Arguments

x	the input is a vector of length n (observations) or an n by 1 matrix

Details

A von Mises-type statistic is computed to be valued against a N(0,4) distribution. Finite sample test statistics are thus easily generated.

Value

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

`n`	no. of observations
`T`	length of periodogram used
`MN`	von Mises statistic
`tMN`	test statistic
`test value`	p-value for the test

Author(s)

Peter Wickham

References

I. Lobato and C. Velasco (2004). "A Simple and General Test for White Noise". Econometric Society, Latin-American Meetings, paper No. 112

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