

Package: jlst (via r-universe)

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Title Joint location-and-scale tests

Version 0.0.2

Date 04-01-2024

Description Joint location-and-scale tests for joint testing of mean
(location) and variance (scale).

License GPL-3

URL <https://jrs95.github.io/jlst/>, <https://github.com/jrs95/jlst>

BugReports <https://github.com/jrs95/jlst/issues>

Depends R (>= 3.4.0)

Imports quantreg

Encoding UTF-8

ByteCompile true

LazyData true

RoxygenNote 7.2.3

Repository <https://mrcieu.r-universe.dev>

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jlsp*Joint location-and-scale test using Fisher's method*

Description

jlsp performs the joint location-and-scale test using Fisher's method.

Usage

```
jlsp(y, x, covar = NULL, covar.var = FALSE, var.type = 1, x.sq = FALSE)
```

Arguments

y	vector of outcome values
x	vector of exposure values
covar	data.frame of covariates
covar.var	adjust the second stage (variance component) of the approach by the covariates
x.sq	include x-squared in the variance part of the model
type	type of test, where 1 = Breusch-Pagan variance test, and 2 = Brown-Forsythe variance test (default: 1)

Value

jlsp returns a list of results:

Q / F	the test statistic
DF	the degrees of freedom
P	the p-value

Author(s)

James Staley jrstaley95@gmail.com

Examples

```
x <- rbinom(1000, 1, 0.5)
y <- 0.5 + 0.025 * x + rnorm(1000, 0, sqrt(0.005 * x)) + rnorm(1000, 0, 0.1)
jlsp(y, x, var.type = 2)
```

jlssc	<i>Joint location-and-scale test</i>
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Description

jlssc performs the joint location-and-scale score test.

Usage

```
jlssc(y, x, covar = NULL, type = 1, x.sq = FALSE, x.reg = TRUE)
```

Arguments

y	vector of outcome values
x	vector of exposure values
covar	data.frame of covariates
type	type of test, where 1 = Breusch-Pagan variance test, 2 = Brown-Forsythe variance test, 3 = Method of moments version of test 1, and 4 = Method of moments version of test 2] (default: 1)
x.sq	include x-squared in the model
x.reg	regress out the covariates from the exposure terms

Value

jlst returns a data.frame of results:

Q	the test statistic
DF	the degrees of freedom
P	the p-value

Author(s)

James Staley jrstaley95@gmail.com

Examples

```
x <- rbinom(1000, 1, 0.5)
y <- 0.5 + 0.025 * x + rnorm(1000, 0, sqrt(0.005 * x)) + rnorm(1000, 0, 0.1)
jlssc(y, x)
```

vartest	<i>Variability tests</i>
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Description

vartest performs variability tests by either the Breusch-Pagan or Brown-Forsythe methods.

Usage

```
vartest(y, x, covar = NULL, covar.var = FALSE, type = 1, x.sq = FALSE)
```

Arguments

y	vector of outcome values
x	vector of exposure values
covar	data.frame of covariates
covar.var	adjust the second stage (variance component) of the approach by the covariates
type	type of test, where 1 = Breusch-Pagan variance test, and 2 = Brown-Forsythe variance test (default: 1)
x.sq	include x-squared in the variance part of the model

Value

vartest returns a list of results:

coef	model coefficients from variance part of the model
test	data.frame of test results

- F: the test statistic
- DF: the degrees of freedom
- P: the p-value

Author(s)

James Staley jrstaley95@gmail.com

Examples

```
x <- rbinom(1000, 1, 0.5)
y <- 0.5 + 0.025 * x + rnorm(1000, 0, sqrt(0.005 * x)) + rnorm(1000, 0, 0.1)
vartest(y, x, type = 2)
```

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