Package 'MEtest'

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Type Package

Title A Homogeneity Test under the Presence of Measurement Errors

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Depends R (>= 3.2)

Imports statmod

Description Provides a function me.test() to test equality of distributions when observations are subject to measurement errors.

License GPL-3

NeedsCompilation yes

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R topics documented:

`me.test` *A homogeneity Test under the Presence of Measurement Error*

Description

This function provides the test statistic and p-value of a homogeneity test of distributions when the observations are measured with error.

Usage

```
me.test(W, V, B = 1000, wt = c("Uniform", "Normal"), wt.bd = NULL,
wt.prob = 0.99, nGL = 32)
```

Arguments

W	an m_x (>= 2) by n_x matrix of observations.
V	an m_y (>= 2) by n_y matrix of observations.
B	the number of bootstrap samples. Default is 1000.
wt	type of the weight function. Uniform and standard normal distributions are available.
wt.bd	lower and upper bound of the weight function. If wt.bd is not specified, bounds are computed based on the deconvoluted distribution function.
wt.prob	probability used to compute lower and upper bound. Will be ignored if wt.bd is provided.
nGL	the number of nodes for Gaussian quadrature

Details

Based on our extensive simulations, we recommend to use uniform weight function with 0.99 probability.

Value

The output is an object of the class htest like in t.test.

statistic	the value of the test statistic.
p.value	the p-value for the test.
method	the character string indicating the weight function.
alternative	a character string describing the alternative hypothesis.
boundary	lower and upper bound for the weight function.

Author(s)

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References

Lee, D., Lahiri, S. N. and Sinha, S. A Test of Homegeneity of Distributions when Observations are Subject to Measurement Errors. *Submitted*.

Examples

```
library(statmod)
set.seed(1234)
n <- 200
mx <- my <- 2
X <- rnorm(n, mean = 0, sd = 1)
Y <- rnorm(n, mean = 0.2, sd = 1)
Ux <- matrix(rnorm(n*mx, mean = 0, sd = 0.5), ncol = mx)
Uy <- matrix(rnorm(n*my, mean = 0, sd = 0.5), ncol = my)

W <- X + Ux
V <- Y + Uy
me.test(W, V, wt = "Uniform")
```

Index