Package: TLIC (via r-universe)

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Type Package

Title The LIC for T Distribution Regression Analysis

Version 0.2

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Description This comprehensive toolkit for T-distribution regression, known as the analysis of ``TLIC'' (T-distribution Linear regression Integrated Corrector), adopts ordinary least squares method and assumes that errors follow a T-distribution. This approach gives it an advantage when dealing with small samples or non-normal error distributions, and can provide more robust parameter estimation and hypothesis testing results.The philosophy of the package is described in Guo G. (2020) <doi:10.1080/02664763.2022.2053949>.

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Encoding UTF-8

RoxygenNote 7.3.2

Imports stats, LaplacesDemon, fBasics

NeedsCompilation no

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Repository https://guangbaog.r-universe.dev

RemoteUrl https://github.com/cran/TLIC

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RemoteSha 5fa3119ef56b67d501b92c351a1144963aa067f5

Contents

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terr   *Generate Data with T-distributed Errors*

Description

Generate Data with T-distributed Errors

Usage

```
terr(n, nr, p, dist_type, ...)
```

Arguments

n	Number of observations.
nr	Number of observations with different error distribution.
p	Number of predictors.
dist_type	Type of distribution for the error terms.
...	Additional parameters for specific distributions.

Value

A list containing the design matrix X, the response vector Y, and the error vector e.

Examples

```
set.seed(12)
n <- 1200
nr <- 200
p <- 5
data <- terr(n, nr, p, dist_type = "student_t")
print(data$X)
print(data$Y)
print(data$e)
```

TLIC   *TLIC function based on LIC with T-distributed errors*

Description

TLIC function based on LIC with T-distributed errors

Usage

```
TLIC(X, Y, alpha = 0.05, K = 10, nk = NULL, dist_type = "student_t")
```

Arguments

X	is a design matrix
Y	is a random response vector of observed values
alpha	is the significance level
K	is the number of subsets
nk	is the sample size of subsets
dist_type	Type of distribution for the error terms.

Value

MUopt, Bopt, MAEMUopt, MSEMUopt, opt, Yopt

Examples

```
set.seed(12)
n <- 1200
nr <- 200
p <- 5
data <- terr(n, nr, p, dist_type = "student_t")
TLIC(data$X, data$Y, alpha = 0.05, K = 10, nk = n / 10, dist_type = "student_t")
```

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