Package 'Stype.est'

August 29, 2025

Type Package

Title S-Type Estimators

Version 0.1.0

Description Implements the S-type estimators, novel robust estimators for general linear regression models, addressing challenges such as outlier contamination and leverage points. This package introduces robust regression techniques to provide a robust alternative to classical methods and includes diagnostic tools for assessing model fit and performance. The methodology is based on the study, ``Comparison of the Robust Methods in the General Linear Regression Model" by Sazak and Mutlu (2023). This package is designed for statisticians and applied researchers seeking advanced tools for robust regression analysis.

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Encoding UTF-8

Depends R (>= 4.0.0)

Imports datasets, stats

Suggests knitr, rmarkdown

URL https://github.com/filizkrdg/S-type.est

BugReports https://github.com/filizkrdg/S-type.est/issues

RoxygenNote 7.3.2

NeedsCompilation no

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`regstype` *Fit a regression model using the S-type estimators.*

Description

This function fits a regression model using the S-type estimators.

Usage

```
regstype(y, x)
```

Arguments

y	Dependent variables (Dataframe, vector).
x	Explanatory variables (Dataframe, matrix).

Value

A list containing the model coefficients and diagnostics.

Examples

```
library(datasets)
data(airquality)
str(airquality)
cleanairquality=na.omit(airquality)
Y1=cleanairquality$Ozone
X1=cleanairquality$Temp
X2=cleanairquality$Wind
X3=cleanairquality$Solar.R
x=data.frame("X1"=X1,"X2"=X2,"X3"=X3)
y=data.frame("Y"=Y1)
regstype(y,x)
```

`regweighteds` *Weighted regression analysis.*

Description

This function performs weighted regression analysis.

Usage

```
regweighteds(y, x, W)
```

Arguments

y	Dependent variables (Dataframe, vector)
x	Explanatory variables (Dataframe, matrix)
W	A numeric vector of weights.

Value

A list containing the regression model results.

Examples

```
library(datasets)
data(airquality)
str(airquality)
cleanairquality=na.omit(airquality)
Y1=cleanairquality$Ozone
X1=cleanairquality$Temp
X2=cleanairquality$Wind
X3=cleanairquality$Solar.R
 x=data.frame("X1"=X1,"X2"=X2,"X3"=X3)
 y=data.frame("Y"=Y1)
 W=runif(111, min = 0, max = 1)
regweighteds(y,x,W)
```

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