Package ‘BetterReg’

March 30, 2022

Type Package
Title Better Statistics for OLS and Binomial Logistic Regression
Version 0.2.0
Author Chris Aberson
Maintainer Chris Aberson <cla18@humboldt.edu>
License GNU General Public License version 3
Encoding UTF-8
LazyData true
Imports car (>= 3.0-0), stats (>= 3.5.0), dplyr (>= 0.8.0)
Depends R (>= 3.5.0)
RoxygenNote 7.1.2
NeedsCompilation no
Repository CRAN
Date/Publication 2022-03-30 17:00:01 UTC

R topics documented:

  depbcomp ......................................................... 2
  indbcomp ....................................................... 3
  LRchi .......................................................... 3
  Mahal .......................................................... 5
  parts ........................................................... 5
  pseudo ......................................................... 6
  R2change ....................................................... 6
  testlog ......................................................... 7
  testreg ......................................................... 8
  tolerance ..................................................... 8

Index 9
depbcomp

Power for Comparing Dependent Coefficients in Multiple Regression with Two or Three Predictors Requires correlations between all variables as sample size. Means, sds, and alpha are option. Also computes Power(All)

Description
Power for Comparing Dependent Coefficients in Multiple Regression with Two or Three Predictors Requires correlations between all variables as sample size. Means, sds, and alpha are option. Also computes Power(All)

Usage

depbcomp(
  data = NULL,
  y = NULL,
  x1 = NULL,
  x2 = NULL,
  x3 = NULL,
  x4 = NULL,
  x5 = NULL,
  numpred = NULL,
  comps = "abs"
)

Arguments

data name of data file
y dependent variable name
x1 first predictor variable name
x2 second predictor variable name
x3 third predictor variable name
x4 fourth predictor variable name
x5 fifth predictor variable name
numpred number of predictors
comps Type of comparison, "abs" for absolute values or "raw" for raw coefficients

Value
Comparing Dependent Coefficients in Multiple Regression

Examples

depbcomp(data=testreg,y=y,x1=x1,x2=x2,x3=x3,x4=x4,x5=x5, numpred=5,comps="abs")
Comparing Independent Coefficients in Multiple Regression

Usage

indbcomp(model1 = NULL, model2 = NULL, comps = "abs")

Arguments

model1  Summary of first model (see example for how to summarize)
model2  Summary of second model (see example for how to summarize)
comps   Type of comparison. "abs" - absolute value of coefficient (recommended). "raw" raw values of coefficient

Value

Comparing Independent Coefficients in Multiple Regression

Examples

```r
y_1<-rnorm(200); x1_1<-rnorm(200); x2_1<-rnorm(200)
y_2<-rnorm(200); x1_2<-rnorm(200); x2_2<-rnorm(200)
df1<-as.data.frame(cbind(y_1, x1_1,x2_1))
df2<-as.data.frame(cbind(y_2, x1_2,x2_2))
model1_2<-summary(lm(y_1~x1_1+x2_1, data=df1))
model2_2<-summary(lm(y_2~x1_2+x2_2, data=df2))
indbcomp(model1 = model1_2, model2 = model2_2, comps="abs")
```

LRchi

Compute Likelihood Ratio Chi-square for Binomial Logistic Regression with up to 10 predictors

Description

Compute Likelihood Ratio Chi-square for Binomial Logistic Regression with up to 10 predictors
Usage

LRchi(
  data = NULL,
  y = NULL,
  x1 = NULL,
  x2 = NULL,
  x3 = NULL,
  x4 = NULL,
  x5 = NULL,
  x6 = NULL,
  x7 = NULL,
  x8 = NULL,
  x9 = NULL,
  x10 = NULL,
  numpred = NULL
)

Arguments

data       name of your datafile, loaded
y          dependent variable name
x1         first predictor variable name
x2         second predictor variable name
x3         third predictor variable name
x4         fourth predictor variable name
x5         fifth predictor variable name
x6         sixth predictor variable name
x7         seventh predictor variable name
x8         eighth predictor variable name
x9         ninth predictor variable name
x10        tenth predictor variable name
numpred    number of predictors

Examples

LRchi(data=testlog, y="dv", x1="iv1", x2="iv2", numpred=2)
### Mahal

**Compute Mahalanobis Distance for Multiple Regression**

**Description**

Compute Mahalanobis Distance for Multiple Regression

**Usage**

```r
Mahal(model = NULL, pred = NULL, values = 5)
```

**Arguments**

- `model`: name of model
- `pred`: number of predictors
- `values`: number of Mahal values to print (highest values). Default is 10

**Value**

Mahalanobis Distance to detect MV outliers

**Examples**

```r
mymodel<-lm(y~x1+x2+x3+x4, testreg)
Mahal(model=mymodel, pred=5, values = 10)
```

### parts

**Compute squared semi partial correlations for Multiple Regression**

**Description**

Compute squared semi partial correlations for Multiple Regression

**Usage**

```r
parts(model = NULL, pred = NULL)
```

**Arguments**

- `model`: name of model
- `pred`: number of predictors

**Value**

Squared semipartial correlations for MRC with up to 10 predictors
Examples

mymodel<-lm(y~x1+x2+x3+x4+x5, data=testreg)
parts(model=mymodel, pred=5)

---

pseudo

Pseudo R-square Values for Binomial Logistic Regression

Description

Pseudo R-square Values for Binomial Logistic Regression

Usage

pseudo(model = NULL)

Arguments

model name of model

Value

Pseudo R-square Values for Logistic Regression

Examples

mymodel<-glm(dv~iv1+iv2+iv3+iv4, testlog,family = binomial())
pseudo(model=mymodel)

---

R2change

R-square change for Hierarchical Multiple Regression

Description

R-square change for Hierarchical Multiple Regression

Usage

R2change(model1 = NULL, model2 = NULL)

Arguments

model1 first regression model
model2 second regression model
Examples

```
mymodel1<-lm(y~x1+x2, data=testreg)
mymodel2<-lm(y~x1+x2+x3+x4, data=testreg)
R2change(model1=mymodel1, model2=mymodel2)
```

Description

A dataset to test logistic regression functions

Usage

```
testlog
```

Format

A data frame with 164 rows and 11 variables:

- **dv** DV
- **iv1** 1st predictor
- **iv2** 2nd predictor
- **iv3** 3rd predictor
- **iv4** 4th predictor
- **iv5** 5th predictor
- **iv6** 6th predictor
- **iv7** 7th predictor
- **iv8** 8th predictor
- **iv9** 9th predictor
- **iv10** 10th predictor
Description

A dataset to test regression functions

Usage

testreg

Format

A data frame with 1000 rows and 6 variables:

- y  DV
- x1  1st predictor
- x2  2nd predictor
- x3  3rd predictor
- x4  4th predictor
- x5  5th predictor

Description

Compute tolerance for Multiple Regression

Usage

tolerance(model = NULL)

Arguments

model  name of model

Value

Tolerance for MR

Examples

mymodel<-lm(y~x1+x2+x3+x4+x5, data=testreg)
tolerance(model=mymodel)
Index

* datasets
  testlog, 7
  testreg, 8

depbcomp, 2
indbcomp, 3
LRchi, 3
Mahal, 5
parts, 5
pseudo, 6
R2change, 6

testlog, 7
testreg, 8
tolerance, 8