Package 'BetterReg'

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Type Package

Title Better Statistics for OLS and Binomial Logistic Regression

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Description Provides squared semi partial correlations, tolerance, Mahalanobis, Likelihood Ratio Chi Square, and Pseudo R Square. Aberson, C. L. (2022) <doi:10.31234/osf.io/s2yqn>.

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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

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Contents

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")
```

indbcomp *Comparing Independent Coefficients in Multiple Regression*

Description

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

```
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

```
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

```
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

```
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)
```

`testlog` *testlog*

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

testreg *testreg*

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

tolerance *Compute tolerance for Multiple Regression*

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)
```

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