

Package: lmrse (via r-universe)

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Title Linear regression with clustered robust standard errors

Version 0.0.7

Date 04-01-2023

Description Longitudinal analysis of high-dimensional data using linear regression with clustered robust standard errors across markers.

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URL <https://jrs95.github.io/lmrse/>, <https://github.com/jrs95/lmrse>

BugReports <https://github.com/jrs95/lmrse/issues>

Depends R (>= 3.4.0)

Imports Rcpp, RcppEigen, sandwich

LinkingTo Rcpp, RcppEigen

Encoding UTF-8

ByteCompile true

LazyData true

RoxygenNote 7.2.3

Repository <https://mrcieu.r-universe.dev>

RemoteUrl <https://github.com/jrs95/lmrse>

RemoteRef HEAD

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<code>coerce.lmrse</code>	<i>Combine lmrse object into a results data.frame</i>
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Description

`coerce.lmrse` constructs a results data.frame from an "lmrse" object, where coefficients, standard errors and p-values for each covariable are placed in consecutive columns.

Usage

```
coerce.lmrse(x)
```

Arguments

`x` an object of class "lmrse"

Value

`coerce.lmrse` returns a results data.frame with coefficients, standard errors and p-values for the covariables.

Author(s)

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<code>lmrse</code>	<i>Linear regression model with cluster robust standard errors</i>
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Description

`lmrse` fits a linear regression model with cluster robust standard errors for all markers.

Usage

```
lmrse(formula, cluster, data = NULL)
```

Arguments

<code>formula</code>	containing the marker matrix as the response and the exposure and covariates as the dependent terms
<code>cluster</code>	clustering variable
<code>data</code>	an optional data.frame which contains the covariates specified in the formula

Value

lmrse returns a list of coefficients, standard errors and p-values matrices:

coef	a matrix of regression coefficients
se	a matrix of standard errors
p	a matrix of p-values

Author(s)

James Staley jrstaley95@gmail.com

Examples

```
# Data
y <- rnorm(5000000)
y <- matrix(y, ncol = 1000)
colnames(y) <- paste0("var", 1:1000)
x <- rnorm(5000)
cluster <- rep(1:1000, 5)
c1 <- rbinom(5000, 1, 0.5)
c2 <- rnorm(5000)

# Analyses
res <- lmrse(y ~ x + c1 + c2, cluster = cluster)
```

print.lmrse

Print lmrse

Description

print method for class "lmrse".

Usage

```
## S3 method for class 'lmrse'
print(x, ...)
```

Arguments

x an object of class "lmrse"

Author(s)

James Staley jrstaley95@gmail.com

```
print.summary.lmrse    Print summary lmrse
```

Description

print.summary method for class "lmrse".

Usage

```
## S3 method for class 'summary.lmrse'  
print(x, ...)
```

Arguments

x an object of class "lmrse"

Author(s)

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```
sandwich.se           Sandwich SE
```

Description

sandwich.se fits cluster robust standard errors using a sandwich estimator.

Usage

```
sandwich.se(model, cluster)
```

Arguments

model output from linear model
cluster clustering variable

Value

sandwich.se returns a vector of robust standard errors for the covariables including the intercept.

Author(s)

James Staley jrstaley95@gmail.com

Examples

```
# Data
y <- rnorm(5000)
x <- rnorm(5000)
cluster <- rep(1:1000, 5)
c1 <- rbinom(5000, 1, 0.5)
c2 <- rnorm(5000)

# Analyses
model <- lm(y ~ x + c1 + c2)
se <- sandwich.se(model = model, cluster = cluster)
```

summary.lmrse

Summary of lmrse

Description

summary method for class "lmrse".

Usage

```
## S3 method for class 'lmrse'
summary(x, ...)
```

Arguments

x an object of class "lmrse"

Author(s)

James Staley jrstaley95@gmail.com

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