Package 'betaSandwich'

September 17, 2022

Title Robust Confidence Intervals for Standardized Regression Coefficients

Version 1.0.0

Description Generates robust confidence intervals for standardized regression coefficients using heteroskedasticity-consistent standard errors for models fitted by lm() as described in Dudgeon (2017) <doi:10.1007/s11336-017-9563-z>.

URL https://github.com/jeksterslab/betaSandwich

BugReports https://github.com/jeksterslab/betaSandwich/issues

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Encoding UTF-8

Roxygen list(markdown = TRUE)

Depends R (>= 3.0.0), methods

Suggests knitr, rmarkdown, testthat

RoxygenNote 7.2.1

NeedsCompilation no

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R topics documented:

BetaHC *Estimate Standardized Regression Coefficients and Robust Sampling Covariance Matrix*

Description

Estimate Standardized Regression Coefficients and Robust Sampling Covariance Matrix

Usage

```
BetaHC(object, type = "hc3", g1 = 1, g2 = 1.5, k = 0.7)
```

Arguments

`object`	Object of class `lm`.
`type`	Character string. Correction type. Possible values are `"hc0"`, `"hc1"`, `"hc2"`, `"hc3"`, `"hc4"`, `"hc4m"`, and `"hc5"`.
`g1`	Numeric. `g1` value for `type = "hc4m"` or `type = "hc5"`.
`g2`	Numeric. `g2` value for `type = "hc4m"`.
`k`	Numeric. Constant for `type = "hc5"`

Value

Returns an object of class `betaSandwich` which is a list with the following elements:

call Function call.

type Standard error type.

beta Vector of standardized slopes.

vcov Sampling covariance matrix of the standardized slopes.

n Sample size.

p Number of regressors.

df $n - p - 1$ degrees of freedom

Author(s)

Ivan Jacob Agaloos Pesigan

References

Dudgeon, P. (2017). Some improvements in confidence intervals for standardized regression coefficients. *Psychometrika*, *82*(4), 928–951. doi:10.1007/s113360179563z

See Also

Other Beta Sandwich Functions: `BetaN()`

Examples

```
object <- lm(rating ~ ., data = attitude)
std <- BetaHC(object)
# Methods -------------------------------------------------------
print(std)
summary(std)
coef(std)
vcov(std)
confint(std, level = 0.95)
```

BetaN *Estimate Standardized Regression Coefficients and Sampling Covariance Matrix Assuming Multivariate Normality*

Description

Estimate Standardized Regression Coefficients and Sampling Covariance Matrix Assuming Multivariate Normality

Usage

```
BetaN(object)
```

Arguments

object	Object of class lm.

Value

Returns an object of class betaSandwich which is a list with the following elements:

call Function call.

type Standard error type.

beta Vector of standardized slopes.

vcov Sampling covariance matrix of the standardized slopes.

n Sample size.

p Number of regressors.

df $n - p - 1$ degrees of freedom

Author(s)

Ivan Jacob Agaloos Pesigan

See Also

Other Beta Sandwich Functions: BetaHC()

Examples

```
object <- lm(rating ~ ., data = attitude)
std <- BetaN(object)
# Methods -----------------------------------------------------
print(std)
summary(std)
coef(std)
vcov(std)
confint(std, level = 0.95)
```

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coef.betaSandwich *Standardized Regression Slopes*

Description

Standardized Regression Slopes

Usage

```
## S3 method for class 'betaSandwich'
coef(object, ...)
```

Arguments

`object`	Object of class `betaSandwich`.
`...`	additional arguments.

Value

Returns a vector of standardized regression slopes.

Author(s)

Ivan Jacob Agaloos Pesigan

Examples

```
object <- lm(rating ~ ., data = attitude)
std <- BetaHC(object)
coef(std)
```

confint.betaSandwich *Robust Confidence Intervals for Standardized Regression Slopes*

Description

Robust Confidence Intervals for Standardized Regression Slopes

Usage

```
## S3 method for class 'betaSandwich'
confint(object, parm = NULL, level = 0.95, ...)
```

Arguments

`object`	Object of class `betaSandwich`.
`parm`	a specification of which parameters are to be given confidence intervals, either a vector of numbers or a vector of names. If missing, all parameters are considered.
`level`	the confidence level required.
`...`	additional arguments.

Value

Returns a matrix of confidence intervals.

Author(s)

Ivan Jacob Agaloos Pesigan

Examples

```
object <- lm(rating ~ ., data = attitude)
std <- BetaHC(object)
confint(std, level = 0.95)
```

print.betaSandwich *Print Method for an Object of Class betaSandwich*

Description

Print Method for an Object of Class betaSandwich

Usage

```
## S3 method for class 'betaSandwich'
print(x, alpha = c(0.05, 0.01, 0.001), digits = 4, ...)
```

Arguments

`x`	Object of class `betaSandwich`.
`alpha`	Significance level.
`digits`	Digits to print.
`...`	additional arguments.

Value

Returns a matrix of standardized regression slopes, standard errors, test statistics, p-values, and confidence intervals.

Author(s)

Ivan Jacob Agaloos Pesigan

Examples

```
object <- lm(rating ~ ., data = attitude)
std <- BetaHC(object)
print(std)
```

`summary.betaSandwich` *Summary of the Results of BetaHC*

Description

Summary of the Results of BetaHC

Usage

```
## S3 method for class 'betaSandwich'
summary(object, alpha = c(0.05, 0.01, 0.001), digits = 4, ...)
```

Arguments

`object`	Object of class `betaSandwich`.
`alpha`	Significance level.
`digits`	Digits to print.
`...`	additional arguments.

Value

Returns a matrix of standardized regression slopes, standard errors, test statistics, p-values, and confidence intervals.

Author(s)

Ivan Jacob Agaloos Pesigan

Examples

```
object <- lm(rating ~ ., data = attitude)
std <- BetaHC(object)
summary(std)
```

`vcov.betaSandwich` *Robust Sampling Covariance Matrix of the Standardized Regression Slopes*

Description

Robust Sampling Covariance Matrix of the Standardized Regression Slopes

Usage

```
## S3 method for class 'betaSandwich'
vcov(object, ...)
```

Arguments

`object`	Object of class `betaSandwich`.
`...`	additional arguments.

Value

Returns a matrix of variance-covariance matrix of standardized slopes.

Author(s)

Ivan Jacob Agaloos Pesigan

Examples

```
object <- lm(rating ~ ., data = attitude)
std <- BetaHC(object)
vcov(std)
```

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