

Package ‘betaSandwich’

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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](https://doi.org/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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| | |
|--------|--|
| BetaHC | <i>Estimate Standardized Regression Coefficients and Robust Sampling Covariance Matrix</i> |
|--------|--|

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 <code>lm</code> . |
| 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 | <i>Estimate Standardized Regression Coefficients and Sampling Covariance Matrix Assuming Multivariate Normality</i> |
|-------|---|

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)

```

| | |
|-------------------|---------------------------------------|
| coef.betaSandwich | <i>Standardized Regression Slopes</i> |
|-------------------|---------------------------------------|

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 | <i>Summary of the Results of BetaHC</i> |
|----------------------|---|

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 | <i>Robust Sampling Covariance Matrix of the Standardized Regression Slopes</i> |
|-------------------|--|

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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