Package 'lm.beta'

February 20, 2015

Type Package

Title Add Standardized Regression Coefficients to lm-Objects

Version 1.5-1

Date 2014-12-28

Maintainer Stefan Behrendt <r@behrendt-stefan.de>

Description Adds standardized regression coefficients to objects created by lm. Also extends the S3 methods print, summary and coef with additional boolean argument standardized.

License GPL (>= 2)

Author Stefan Behrendt [aut, cre]

NeedsCompilation no

Repository CRAN

Date/Publication 2014-12-28 17:53:14

R topics documented:

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lm.beta-package   *Add Standardized Regression Coefficients to* lm-*Objects*

Description

Adds standardized regression coefficients to objects created by lm.

Also extends the S3 methods print, summary and coef with additional boolean argument standardized.

Please regard:

Package lm.beta works in the way of common statistical softwares like SPSS by standardizing the coefficients after estimating them using the standard deviations or similar measures of the used variables. So there are unstandardized and standardized coefficients available simultaneously.

Standardizing before estimating is not (yet) available in this package, but by using the command scale you can do this by using basic commands. Hereby please regard that the option center influences the way of interpretation of the intercept.

Package lm.beta standardizes all coefficients disregarding the use in interpretation. In this version, all types of scales of the variables (metrical, categorical, ...), all types of contrasts, interaction effects and additional terms on both sides of the formula can be handled if lm can handle them. The sensitive use in interpretation has to be regarded by the user.

Details

Package:	lm.beta
Type:	Package
Version:	1.5-1
Date:	2014-12-28
License:	GPL(>=2)

Author(s)

Stefan Behrendt <r@behrendt-stefan.de>

References

Urban, D., Mayerl, J., Sackmann, R. (Hrsg.) *Regressionsanalyse : Theorie, Technik und Anwendung*, VS-Verlag, 4. Aufl.

Vittinghoff, E. et al (2005) *Regression methods in biostatistics: Linear, logistic, survival, and repeated measures models*, Springer, p 75

See Also

lm.beta, lm

Examples

```
## Taken from lm help
##
```

```
## Annette Dobson (1990) "An Introduction to Generalized Linear Models".
## Page 9: Plant Weight Data.
ctl <- c(4.17,5.58,5.18,6.11,4.50,4.61,5.17,4.53,5.33,5.14)
trt <- c(4.81,4.17,4.41,3.59,5.87,3.83,6.03,4.89,4.32,4.69)
group <- gl(2, 10, 20, labels = c("Ctl","Trt"))
weight <- c(ctl, trt)
lm.D9 <- lm(weight ~ group)

# standardize
lm.D9.beta <- lm.beta(lm.D9)
print(lm.D9.beta)
summary(lm.D9.beta)
coef(lm.D9.beta)
```

---

coef.lm.beta	*Print coefficients of* lm.beta-*object*

Description

S3-method coef for object lm.beta.

Usage

```
## S3 method for class 'lm.beta'
coef(object, standardized = TRUE, ...)
```

Arguments

object	object of class lm.beta
standardized	logical. Should the standardized values be returned?
...	additional arguments. Not used.

Details

If standardized=FALSE, the unstandardized regression coefficients are printed like if calling standard coef.lm-method, else (the standard value) the standardized regression coefficients are printed.

Value

named numeric Vector of (un)standardized regression coefficients.

Author(s)

Stefan Behrendt, <r@behrendt-stefan.de>

See Also

lm for creating the lm-object, lm.beta for creating the demanded object and print.lm.beta, summary.lm.beta for other overwritten S3-methods.

Examples

```
## Taken from lm help
##
## Annette Dobson (1990) "An Introduction to Generalized Linear Models".
## Page 9: Plant Weight Data.
ctl <- c(4.17,5.58,5.18,6.11,4.50,4.61,5.17,4.53,5.33,5.14)
trt <- c(4.81,4.17,4.41,3.59,5.87,3.83,6.03,4.89,4.32,4.69)
group <- gl(2, 10, 20, labels = c("Ctl","Trt"))
weight <- c(ctl, trt)
lm.D9 <- lm(weight ~ group)

# standardize
lm.D9.beta <- lm.beta(lm.D9)
coef(lm.D9.beta)
coef(lm.D9.beta,standardized=FALSE)
```

---

lm.beta   *Add standardized regression coefficients to* lm-*objects*

Description

Adds standardized regression coefficients to objects created by lm.

Usage

```
lm.beta(object)
```

Arguments

object   object of type lm

Details

Calculates the standardized regression coefficients by common method used for example in SPSS. For translating the formula, functions model.matrix (for the right-hand side) and model.frame (for the left-hand side) are used, so all options saved in the lm-object are supported.

Please regard:

Package lm.beta standardizes the coefficients after estimating them using the standard deviations or similar measures of the used variables. So there are unstandardized and standardized coefficients available simultaneously.

Standardizing before estimating is not (yet) available in this package, but by using the command scale you can do this by using basic commands. Hereby please regard that the option center influences the way of interpretation of the intercept.

Package lm.beta standardizes all coefficients disregarding the use in interpretation. In this version, all types of scales of the variables (metrical, categorical, ...), all types of contrasts, interaction effects and additional terms on both sides of the formula can be handled if lm can handle them. The sensitive use in interpretation has to be regarded by the user.

Value

A list of class lm.beta like a lm-object extended by

- **standardized.coefficients** named vector of the standardized coefficients.

Note

Some S3 methods, where standardized coefficients mind, are extended, the others work unchanged.

Author(s)

Stefan Behrendt, <r@behrendt-stefan.de>

References

Urban, D., Mayerl, J., Sackmann, R. (Hrsg.) *Regressionsanalyse : Theorie, Technik und Anwendung*, VS-Verlag, 4. Aufl.

Vittinghoff, E. et al (2005) *Regression methods in biostatistics: Linear, logistic, survival, and repeated measures models*, Springer, p 75

See Also

lm for creating the demanded object and print.lm.beta, summary.lm.beta, coef.lm.beta for extended S3-methods.

Examples

```
## Taken from lm help
##
## Annette Dobson (1990) "An Introduction to Generalized Linear Models".
## Page 9: Plant Weight Data.
ctl <- c(4.17,5.58,5.18,6.11,4.50,4.61,5.17,4.53,5.33,5.14)
trt <- c(4.81,4.17,4.41,3.59,5.87,3.83,6.03,4.89,4.32,4.69)
group <- gl(2, 10, 20, labels = c("Ctl","Trt"))
weight <- c(ctl, trt)
lm.D9 <- lm(weight ~ group)

# standardize
lm.D9.beta <- lm.beta(lm.D9)
print(lm.D9.beta)
summary(lm.D9.beta)
coef(lm.D9.beta)
```

---

print.lm.beta   *Print* lm.beta-*object*

Description

S3-method `print` for object `lm.beta`.

Usage

```
## S3 method for class 'lm.beta'
print(x, standardized = TRUE, ...)
```

Arguments

x	object of class `lm.beta`
standardized	logical. Should the standardized values be printed?
...	additional arguments to pass to `print.lm`

Details

If `standardized=FALSE`, the standard `print.lm`-method is called, else (the standard value) the regression coefficients are replaced by the standardized ones.

The additional arguments are in case of `standardized=FALSE` passed to `print.lm`, else they are passed to `print` for classes `call` and `vector`.

Value

Original object.

Author(s)

Stefan Behrendt, <r@behrendt-stefan.de>

See Also

`lm` for creating the lm-object, `lm.beta` for creating the demanded object and `summary.lm.beta`, `coef.lm.beta` for other overwritten S3-methods.

Examples

```
## Taken from lm help
##
## Annette Dobson (1990) "An Introduction to Generalized Linear Models".
## Page 9: Plant Weight Data.
ctl <- c(4.17,5.58,5.18,6.11,4.50,4.61,5.17,4.53,5.33,5.14)
trt <- c(4.81,4.17,4.41,3.59,5.87,3.83,6.03,4.89,4.32,4.69)
group <- gl(2, 10, 20, labels = c("Ctl","Trt"))
weight <- c(ctl, trt)
```

```
lm.D9 <- lm(weight ~ group)

# standardize
lm.D9.beta <- lm.beta(lm.D9)
print(lm.D9.beta)
print(lm.D9.beta,standardized=FALSE)
```

---

summary.lm.beta   *Summarize* lm.beta-*object*

Description

S3-method summary for object lm.beta.

Usage

```
## S3 method for class 'lm.beta'
summary(object, standardized = TRUE, ...)
```

Arguments

object	object of class lm.beta
standardized	logical. Should the standardized values be integrated?
...	additional arguments to pass to summary.lm

Details

If standardized=FALSE, the standard summary.lm-method is called, else (the standard value) the standardized regression coefficients are added into the coefficient table.

The additional arguments are passed to summary.lm.

Value

Adapted summary.lm-object, in case of standardized=TRUE with additional class summary.lm.beta.

Author(s)

Stefan Behrendt, <r@behrendt-stefan.de>

See Also

lm for creating the lm-object, summary.lm for basic summary-function, lm.beta for creating the demanded object and print.lm.beta, coef.lm.beta for other overwritten S3-methods.

Examples

```
## Taken from lm help
##
## Annette Dobson (1990) "An Introduction to Generalized Linear Models".
## Page 9: Plant Weight Data.
ctl <- c(4.17,5.58,5.18,6.11,4.50,4.61,5.17,4.53,5.33,5.14)
trt <- c(4.81,4.17,4.41,3.59,5.87,3.83,6.03,4.89,4.32,4.69)
group <- gl(2, 10, 20, labels = c("Ctl","Trt"))
weight <- c(ctl, trt)
lm.D9 <- lm(weight ~ group)

# standardize
lm.D9.beta <- lm.beta(lm.D9)
summary(lm.D9.beta)
summary(lm.D9.beta,standardized=FALSE)
```

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