Package ‘lm.beta’

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

lm.beta-package .................................................. 1
coeff.lm.beta .................................................. 3
lm.beta ......................................................... 4
print.lm.beta .................................................. 6
summary.lm.beta ............................................... 7

Index 9

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

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**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**

<table>
<thead>
<tr>
<th>Package</th>
<th>lm.beta</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>Package</td>
</tr>
<tr>
<td>Version</td>
<td>1.5-1</td>
</tr>
<tr>
<td>Date</td>
<td>2014-12-28</td>
</tr>
<tr>
<td>License</td>
<td>GPL(&gt;=2)</td>
</tr>
</tbody>
</table>

**Author(s)**

Stefan Behrendt <r@behrendt-stefan.de>

**References**


**See Also**

`lm.beta`, `lm`

**Examples**

```
# Taken from lm help
##
```
## coef.lm.beta

### Description

S3-method coef for object lm.beta.

### Usage

```r
## 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

```r
## 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, 4.58, 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


See Also

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

Examples

```r
## Take 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)
D9 <- lm(weight ~ group)

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

*Print lm.beta-object*

**Description**

S3-method print for object lm.beta.

**Usage**

```r
## 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**

```r
## 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)
```
```r
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**

```r
## 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.
```r
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)
summary(lm.D9.beta)
summary(lm.D9.beta, standardized=FALSE)
```
**Index**

*Topic beta
  lm.beta, 4
*Topic lm
  lm.beta, 4
*Topic package
  lm.beta-package, 1
*Topic standardized
  lm.beta, 4

coef.lm.beta, 3, 5–7

lm, 2–7
lm.beta, 2, 3, 4, 6, 7
lm.beta-package, 1

model.frame, 4
model.matrix, 4

print.lm.beta, 3, 5, 6, 7

summary.lm, 7
summary.lm.beta, 3, 5, 6, 7