

Package ‘ggrcs’

February 12, 2025

Type Package

Title Draw Histograms and Restricted Cubic Splines (RCS)

Version 0.4.3

Maintainer Qiang LIU <dege857@163.com>

Description You can use this function to easily draw a combined histogram and restricted cubic spline. The function draws the graph through 'ggplot2'. RCS fitting requires the use of the `racs()` function of the 'rms' package. Can fit cox regression, logistic regression. This method was described by Per Kragh (2003) <[doi:10.1002/sim.1497](https://doi.org/10.1002/sim.1497)>.

License GPL-3

Depends R (>= 4.2.0)

Imports rms, ggplot2, scales, cowplot

Encoding UTF-8

LazyData true

RoxygenNote 7.2.1

Suggests knitr, rmarkdown

VignetteBuilder knitr

NeedsCompilation no

Author Qiang LIU [aut, cre]

Repository CRAN

Date/Publication 2025-02-12 12:00:11 UTC

Contents

| | |
|--------------------------------------|---|
| <code>ggrcs</code> | 2 |
| <code>ggrcs2</code> | 3 |
| <code>predata</code> | 3 |
| <code>predata.coxph</code> | 4 |
| <code>predata.lrm</code> | 4 |
| <code>predata.ols</code> | 5 |
| <code>singlercs</code> | 5 |
| <code>smoke</code> | 6 |

 ggrcs

 ggrcs

Description

A Function to Draw Histograms and Restricted Cubic Splines (RCS)

Arguments

| | |
|------|---|
| data | need a dataframe |
| fit | You need the fitted model. Must be lrm or coxph. |
| x | The target variable you wish to fit. It is displayed on the X-axis when plotting. |

Details

You can use this function to easily draw a combined histogram and restricted cubic spline. The function draws the graph through ggplot2. RCS fitting requires the use of the rcs function of the RMS package. Can fit cox regression, logistic regression and linear regression models.

Value

a picture

Examples

```
library(rms)
library(ggplot2)
library(scales)
library(cowplot)
dt<-smoke
dd<-datadist(dt)
options(datadist='dd')
fit<- cph(Surv(time,status==1) ~ rcs(age,4)+gender, x=TRUE, y=TRUE,data=dt)
###single group
ggrcs(data=dt,fit=fit,x="age")
##two groups
ggrcs(data=dt,fit=fit,x="age",group="gender")
```

 ggrcs2

 ggrcs2

Description

A Function to Draw Histograms and Restricted Cubic Splines (RCS)

Arguments

| | |
|------|---|
| data | need a dataframe |
| fit | You need the fitted model. Must be lrm or coxph. |
| x | The target variable you wish to fit. It is displayed on the X-axis when plotting. |

Details

You can use this function to easily draw a combined histogram and restricted cubic spline. The function draws the graph through ggplot2. RCS fitting requires the use of the rcs function of the RMS package. Can fit cox regression, logistic regression and linear regression models.

Value

a picture

 predata

 predata

Description

Generate the predicted data for the function. This is needed for drawing.

Usage

```
predata(fit, variables, y, group = NULL)
```

Arguments

| | |
|-----------|---|
| fit | Model function required for prediction. |
| variables | variable name. |
| y | the value of the variable. |
| group | Variables that need to be grouped. |

Value

Data required for plotting.

```
predata.coxph          predata.coxph
```

Description

Generate the predicted data for the function. This is needed for drawing.

Usage

```
## S3 method for class 'coxph'
predata(fit, variables, y, group = NULL)
```

Arguments

| | |
|------------------------|---|
| <code>fit</code> | Model function required for prediction. |
| <code>variables</code> | variable name. |
| <code>y</code> | the value of the variable. |
| <code>group</code> | Variables that need to be grouped. |

Value

Data required for plotting.

```
predata.lrm           predata.lrm
```

Description

Generate the predicted data for the function. This is needed for drawing.

Usage

```
## S3 method for class 'lrm'
predata(fit, variables, y, group = NULL)
```

Arguments

| | |
|------------------------|---|
| <code>fit</code> | Model function required for prediction. |
| <code>variables</code> | variable name. |
| <code>y</code> | the value of the variable. |
| <code>group</code> | Variables that need to be grouped. |

Value

Data required for plotting.

```
predata.ols      predata.ols
```

Description

Generate the predicted data for the function. This is needed for drawing.

Usage

```
## S3 method for class 'ols'
predata(fit, variables, y, group = NULL)
```

Arguments

| | |
|------------------------|---|
| <code>fit</code> | Model function required for prediction. |
| <code>variables</code> | variable name. |
| <code>y</code> | the value of the variable. |
| <code>group</code> | Variables that need to be grouped. |

Value

Data required for plotting.

```
singlercs      singlercs
```

Description

A Function to Draw Restricted Cubic Splines (RCS)

Arguments

| | |
|-------------------|---|
| <code>data</code> | need a dataframe |
| <code>fit</code> | You need the fitted model. Must be lrm, ols or coxph. |
| <code>x</code> | The target variable you wish to fit. It is displayed on the X-axis when plotting. |

Details

You can use this function to easily draw a restricted cubic spline. The function draws the graph through ggplot2. RCS fitting requires the use of the rcs function of the RMS package. Can fit cox regression, logistic regression and linear regression models.

Value

a picture

Examples

```
library(rms)
library(ggplot2)
library(scales)
dt<-smoke
dd<-datadist(dt)
options(datadist='dd')
fit<- cph(Surv(time,status==1) ~ rcs(age,4)+gender, x=TRUE, y=TRUE,data=dt)
###one group
singlercs(data=dt,fit=fit,x="age")
###two groups
singlercs(data=dt,fit=fit,x="age",group="gender")
```

smoke

A data on age and smoking rates.

Description

A data on age and smoking rates.

Usage

```
data(smoke)
```

Format

An object of class `data.frame` with 995 rows and 5 columns.

Examples

```
data(smoke)
```

Index

* datasets

smoke, 6

ggrcs, 2

ggrcs2, 3

predata, 3

predata.coxph, 4

predata.lrm, 4

predata.ols, 5

singlercs, 5

smoke, 6