Package ‘plotMElm’

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Type Package

Title Plot Marginal Effects from Linear Models

Description Plot marginal effects for interactions estimated
from linear models.

Version 0.1.5

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BugReports https://github.com/christophergandrud/plotMElm/issues

License GPL (>= 3)

Imports ggplot2, interactionTest

LazyData TRUE

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R topics documented:

`plot_me` *Plot marginal effects from two-way interactions in linear regressions*

Description

Plot marginal effects from two-way interactions in linear regressions

Usage

```
plot_me(obj, term1, term2, fitted2, ci = 95, ci_type = "standard",
  t_statistic, plot = TRUE)
```

Arguments

`obj` fitted model object from `lm`.

`term1` character string of the first constitutive term of the interaction's variable name.

`term2` character string of the second constitutive term of the interaction's variable name.

`fitted2` numeric vector of fitted values of `term2` to plot for. If unspecified, then all unique observed values are used.

`ci` numeric. confidence interval level, expressed on the]0, 100[interval. The default is `95`.

`ci_type` character string specifying the type of confidence interval to find and plot. If `'standard'` then standard confidence intervals (e.g. those suggested by Brambor, Clark, and Golder 2006) are found. If `fdr` then confidence intervals are found using critical t-statistics to limit the false discovery rate (limit over confidence).

`t_statistic` numeric. Custom t-statistic for finding the confidence interval. May be useful if the user want to use a funciton like `findMultiLims` to find the t-statistic.

`plot` boolean. return plot if `TRUE`; return `data.frame` of marginal effects estimates if `FALSE`.

Value

a gg class ggplot2 object

Source

Inspired by: http://www.statsblogs.com/2013/08/27/creating-marginal-effect-plots-for-linear-regressio

Benjamini, Yoav, and Yosef Hochberg. 1995. "Controlling the False Discovery Rate: A Practical and Powerful Approach to Multiple Testing". Journal of the Royal Statistical Society, Series B 57(1): 289–300.

Brambor, Thomas, William Roberts Clark, and Matt Golder. "Understanding interaction models: Improving empirical analyses". Political Analysis 14.1 (2006): 63-82.

Esarey, Justin, and Jane Lawrence Sumner. 2015. "Marginal Effects in Interaction Models: Determining and Controlling the False Positive Rate". URL: http://jee3.web.rice.edu/interaction-overconfidence.pdf.

Examples

```
## Continuous Term1 and Term2
# Estimate model
states <- as.data.frame(state.x77)
m1 <- lm(Murder ~ Income * Population, data = states)

# Plot marginal effect of Income across the observed range of Population
# on the Murder rate
plot_me(m1, 'Income', 'Population', ci = 95)

# CI created using false discovery rate limiting t-statistic
plot_me(m1, 'Income', 'Population', ci_type = 'fdr')

# Return marginal effects as a data frame
plot_me(m1, 'Income', 'Population', plot = FALSE)

## Term 2 with <= 5 unique values
# Estimate model
m2 <- lm(mpg ~ wt * cyl, data = mtcars)

# Plot marginal effect of Weight across the Number of Cylinders (continuous)
plot_me(m2, 'wt', 'cyl')

## Categorical (factor) Term2
# Set Term 2 as a factor variable
mtcars$cyl <- factor(mtcars$cyl,
                 labels = c('4 Cyl', '6 Cyl', '8 Cyl'))

# Estimate model
m3 <- lm(mpg ~ wt * cyl, data = mtcars)

# Plot marginal effect of Weight across the Number of Cylinders (factor)
plot_me(m3, 'wt', 'cyl')
```

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