Package ‘MarginalMediation’

October 12, 2022

Title Marginal Mediation

Version 0.7.2

The style of the average marginal effects stems from Thomas Leeper's work on the "margins" package. This framework allows the use of categorical mediators and outcomes with little change in interpretation from the continuous mediators/outcomes. See <doi:10.13140/RG.2.2.18465.92001> for more details on the method.

Imports stats, magrittr, boot, cli, crayon, rstudioapi, purrr, tibble, furniture, stringr

Suggests testthat, knitr, rmarkdown, margins, betareg

VignetteBuilder knitr

Encoding UTF-8

License GPL-2

RoxygenNote 7.1.1

NeedsCompilation no


Maintainer Tyson S Barrett <t.barrett88@gmail.com>

Repository CRAN

Date/Publication 2022-04-15 08:42:36 UTC
R topics documented:

amed ................................................................. 2
frames .............................................................. 2
mma ................................................................. 3
mma_check .......................................................... 5
mma_dir_effects ................................................... 5
mma_formulas ...................................................... 6
mma_ind_effects ................................................... 6
mma_std_dir_effects .............................................. 6
mma_std_ind_effects ............................................. 7
perc_med ........................................................... 7
%>% ................................................................. 7

Index 8

amed Average Marginal Effects

Description
Internal function for mma(). Based on the same strategy as margins by T. Leeper.

Usage
amed(model)

Arguments
model the model object

Author(s)
Tyson S. Barrett

frames Average Marginal Effects

Description
Provides the average marginal effects of a GLM model with bootstrapped confidence intervals. Similar results would be obtained from using margins::margins().

Usage
frames(model, ci_type = "perc", boot = 100, ci = 0.95)
**Arguments**

- **model**: the model object
- **ci_type**: the type of boostrapped confidence interval; options are "perc", "basic", "bca"
- **boot**: the number of bootstrapped samples; default is 100
- **ci**: the confidence interval; the default is .975 which is the 95% confidence interval.

**Details**

Using the average marginal effects as discussed by Tamas Bartus (2005), the coefficients are transformed into probabilities (for binary outcomes) or remain in their original units (continuous outcomes).

**Author(s)**

Tyson S. Barrett

**References**


**Examples**

```r
library(furniture)
data(nhanes_2010)
fit = glm(marijuana ~ home_meals + gender + age + asthma,
data = nhanes_2010,
family = "binomial")
frames(fit)
```

---

**mma**

**Marginal Mediation**

**Description**

Provides the ability to perform marginal mediation. Marginal mediation is particularly useful for situations where the mediator or outcome is categorical, a count, or some other non-normally distributed variable. The results provide the average marginal effects of the models, providing simple interpretation of the indirect effects.

**Usage**

```r
mma(..., ind_effects, ci_type = "perc", boot = 500, ci = 0.95)
```
Arguments

the glm model objects; the first is the model with the outcome while the others are the mediated effects ("a" paths)

ind_effects a vector of the desired indirect effects. Has the form "var1~var2".

ci_type a string indicating the type of bootstrap method to use (currently "perc" and "basic" are available; "perc" is recommended). Further development will allow the Bias-Corrected bootstrap soon.

boot the number of bootstrapped samples; default is 500.

ci the confidence interval; the default is .95 which is the 95% confidence interval.

Details

Using the average marginal effects as discussed by Tamas Bartus (2005), the coefficients are transformed into probabilities (for binary outcomes) or remain in their original units (continuous outcomes).

Value

A list of class mma containing:

ind_effects the indirect effects reported in the average marginal effect

dir_effects the direct effects reported in the average marginal effect

ci_level the confidence level

data the original data frame

reported_ind the indirect effects the user requested (in the ...)

boot the number of bootstrap samples

model the formulas of the individual sub-models

call the original function call

Author(s)

Tyson S. Barrett

References


Examples

```r
## A minimal example:

library(furniture)
data(nhanes_2010)
bcpath = glm(marijuana ~ home_meals + gender + age + asthma,
```
mma_check

\begin{verbatim}
data = nhanes_2010, family = "binomial")
apath = glm(home_meals ~ gender + age + asthma,
data = nhanes_2010,
family = "gaussian")
(fit = mma(bcpath, apath,
  ind_effects = c("genderfemale-home_meals",
               "age-home_meals",
               "asthmaNo-home_meals"),
  boot = 10))
\end{verbatim}

mma_check

**Uncorrelated Residual Assumption Check**

**Description**

Provides the correlations of the residual terms of the model

**Usage**

mma_check(model)

**Arguments**

- **model**: The mma model object

mma_dir_effects

**Direct Effects Extraction for MMA**

**Description**

Extracts the formulas from a mma object

**Usage**

mma_dir_effects(model)

**Arguments**

- **model**: mma fit object
**mma_formulas**  
*Formula Extraction for MMA*

**Description**
Extracts the formulas from a mma object

**Usage**
mma_formulas(model)

**Arguments**
- model  
  mma fit object

**mma_ind_effects**  
*Indirect Effects Extraction for MMA*

**Description**
Extracts the formulas from a mma object

**Usage**
mma_ind_effects(model)

**Arguments**
- model  
  mma fit object

**mma_std_dir_effects**  
*Standardized Direct Effects Extraction for MMA*

**Description**
Extracts the formulas from a mma object

**Usage**
mma_std_dir_effects(model)

**Arguments**
- model  
  mma fit object
mma_std_ind_effects  

**Standardized Indirect Effects Extraction for MMA**

**Description**

Extracts the formulas from a mma object

**Usage**

```r
mma_std_ind_effects(model)
```

**Arguments**

- `model`: mma fit object

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perc_med  

**Percent Mediation**

**Description**

To obtain the percent of the total effect that is mediated through the specified indirect path: \( \frac{\text{indirect}}{\text{total}} \times 100 \).

**Usage**

```r
perc_med(model, effect)
```

**Arguments**

- `model`: mma fit object
- `effect`: the indirect effect to be compared to its direct path

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%>%  

**re-export magrittr pipe operator**

**Description**

re-export magrittr pipe operator
Index

\%
 amed, 2

frames, 2

mma, 3
mma_check, 5
mma_dir_effects, 5
mma_formulas, 6
mma_ind_effects, 6
mma_std_dir_effects, 6
mma_std_ind_effects, 7

perc_med, 7