

# Package ‘regrrr’

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**Type** Package

**Title** Toolkit for Compiling, (Post-Hoc) Testing, and Plotting  
Regression Results

**Version** 0.1.3

**Description** Compiling regression results into a publishable format, conducting post-hoc hypothesis testing, and plotting moderating effects (the effect of X on Y becomes stronger/weaker as Z increases).

**Depends** R (>= 3.5.0)

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**License** GPL-3

**Encoding** UTF-8

**Suggests** testthat

**RoxygenNote** 7.0.2

**Imports** stats, purrr, dplyr, magrittr, tidyr, usdm, scales,  
robustbase, stringr, MuMIn, ggplot2, lspline

**BugReports** <https://github.com/RkzYang/regrrr/issues>

**NeedsCompilation** no

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**Repository** CRAN

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add.n.r	<i>Add row numbers to regression result data.frame</i>
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---

### Description

Add row numbers to regression result data.frame

### Usage

```
add.n.r(df)
```

### Arguments

df	a data.frame of regression result
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add.pr	<i>Add approximate p-value based on t score or z score, when sample size is large</i>
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---

### Description

Add approximate p-value based on t score or z score, when sample size is large

### Usage

```
add.pr(df, z.col = 3, p.already = FALSE)
```

### Arguments

df	a data.frame of regression result
z.col	the column number of t score or z score
p.already	whether the regression result already contains p.value

---

add.sig	<i>Add significance level marks to the regression result</i>
---------	--

---

**Description**

Add significance level marks to the regression result

**Usage**

```
add.sig(df, Pr.col = 5)
```

**Arguments**

df	a data.frame of regression result, e.g. <code>summary(a_lm_model)\$coefficients</code>
Pr.col	the column number of p.value

---

check_cor	<i>quickly check correlation matrix, or the correlation between a particular X and all other vars could be useful for looking for relevant instrument</i>
-----------	---

---

**Description**

quickly check correlation matrix, or the correlation between a particular X and all other vars could be useful for looking for relevant instrument

**Usage**

```
check_cor(data, var_name_select = NULL, d = 3)
```

**Arguments**

data	a data.frame used in regression model
var_name_select	to specify the variable names to be included in the table, default is NULL--all variables are included
d	number of digits retained after the decimal point

**Examples**

```
data(mtcars)
check_cor(mtcars)
```

---

check_na_in	<i>quickly check the proportion of NAs in each columns of a dataframe</i>
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---

**Description**

quickly check the proportion of NAs in each columns of a dataframe

**Usage**

```
check_na_in(data, true_total = FALSE)
```

**Arguments**

data	a data.frame
true_total	FALSE to show the percentage, TRUE to show the true number of missing values

**Examples**

```
data(mtcars)
check_na_in(mtcars)
```

---

check_vif	<i>quickly check the vifs in a regression model; for checking multi-collinearity</i>
-----------	--

---

**Description**

quickly check the vifs in a regression model; for checking multi-collinearity

**Usage**

```
check_vif(data)
```

**Arguments**

data	a data.frame used in regression model
------	---------------------------------------

**Examples**

```
data(mtcars)
model <- lm(mpg ~ vs + carb + hp + wt + wt * hp , data = mtcars)
check_vif(data = model$model)
```

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combine_long_tab	<i>Combine regression results from different models by columns</i>
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---

### Description

Combine regression results from different models by columns

### Usage

```
combine_long_tab(  
  tbl_1,  
  tbl_2,  
  tbl_3 = NULL,  
  tbl_4 = NULL,  
  tbl_5 = NULL,  
  tbl_6 = NULL,  
  tbl_7 = NULL,  
  tbl_8 = NULL,  
  tbl_9 = NULL,  
  tbl_10 = NULL,  
  tbl_11 = NULL,  
  tbl_12 = NULL,  
  tbl_13 = NULL,  
  tbl_14 = NULL,  
  tbl_15 = NULL,  
  tbl_16 = NULL,  
  tbl_17 = NULL,  
  tbl_18 = NULL,  
  tbl_19 = NULL,  
  tbl_20 = NULL  
)
```

### Arguments

tbl_1	the 1st data.frame of regression result
tbl_2	the 2nd data.frame of regression result
tbl_3	the 3rd data.frame of regression result
tbl_4	the 4th data.frame of regression result
tbl_5	the 5th data.frame of regression result
tbl_6	the 6th data.frame of regression result
tbl_7	the 7th data.frame of regression result
tbl_8	the 8th data.frame of regression result
tbl_9	the 9th data.frame of regression result
tbl_10	the 10th data.frame of regression result

tbl_11	the 11th data.frame of regression result
tbl_12	the 12th data.frame of regression result
tbl_13	the 13th data.frame of regression result
tbl_14	the 14th data.frame of regression result
tbl_15	the 15th data.frame of regression result
tbl_16	the 16th data.frame of regression result
tbl_17	the 17th data.frame of regression result
tbl_18	the 18th data.frame of regression result
tbl_19	the 19th data.frame of regression result
tbl_20	the 20th data.frame of regression result

### Examples

```
data(mtcars)
m1 <- lm(mpg ~ vs + carb + hp + wt + wt * hp , data = mtcars)
m2 <- update(m1, . ~ .+ wt * vs)
summary(m1)
summary(m2)
combine_long_tab(to_long_tab(summary(m1)$coef),
                 to_long_tab(summary(m2)$coef))
```

---

compare_models	<i>Compare regression models, which is compatible with the reg.table output # updated 9/13/2018 #</i>
----------------	---

---

### Description

Compare regression models, which is compatible with the reg.table output # updated 9/13/2018 #

### Usage

```
compare_models(
  model1,
  model2,
  model3 = NULL,
  model4 = NULL,
  model5 = NULL,
  model6 = NULL,
  model7 = NULL,
  model8 = NULL,
  model9 = NULL,
  model10 = NULL,
  model11 = NULL,
  model12 = NULL,
```

```

model13 = NULL,
model14 = NULL,
model15 = NULL,
model16 = NULL,
model17 = NULL,
model18 = NULL,
model19 = NULL,
model20 = NULL,
likelihood.only = FALSE,
round.digit = 3,
main.effect.only = NULL,
intn.effect.only = NULL
)

```

### Arguments

model1	the 1st regression model
model2	the 2nd regression model
model3	the 3rd regression model
model4	the 4th regression model
model5	the 5th regression model
model6	the 6th regression model
model7	the 7th regression model
model8	the 8th regression model
model9	the 9th regression model
model10	the 10th regression model
model11	the 11th regression model
model12	the 12th regression model
model13	the 13th regression model
model14	the 14th regression model
model15	the 15th regression model
model16	the 16th regression model
model17	the 17th regression model
model18	the 18th regression model
model19	the 19th regression model
model20	the 20th regression model
likelihood.only	whether or not to output the likelihood
round.digit	number of decimal places to retain
main.effect.only	specify col number of alternative main-effect models, if any
intn.effect.only	specify col number of alternative moderator models, if any

**Examples**

```
data(mtcars)
m1 <- lm(mpg ~ vs + carb + hp + wt + wt * hp , data = mtcars)
m2 <- update(m1, . ~ .+ wt * vs)
compare_models(m1, m2)
```

---

cor.table

*make the correlation matrix from the data.frame used in regression*


---

**Description**

make the correlation matrix from the data.frame used in regression

**Usage**

```
cor.table(
  data,
  data_to_combine = NULL,
  var_name_select = NULL,
  all.var.names = NULL,
  d = 2
)
```

**Arguments**

`data` a data.frame used in regression model, e.g. `model$model`

`data_to_combine` another data.frame used for regression model, e.g. when you have similar set of X's but different Y's

`var_name_select` optional: to specify the variable names used in regression to be included in the correlation matrix

`all.var.names` optional: to rename all variable names, a string vector

`d` number of decimal places to retain

**Examples**

```
data(mtcars)
model <- lm(mpg ~ vs + carb + hp + wt + wt * hp , data = mtcars)
cor.table(data = model$model)
```



---

load.pkgs	<i>load multiple packages</i>
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---

**Description**

load multiple packages

**Usage**

```
load.pkgs(pkg_name_vec)
```

**Arguments**

pkg\_name\_vec    a string vector of package names

**Examples**

```
## Not run:  
load.pkgs(c("dplyr", "car", "purrr"))  
  
## End(Not run)
```

---

plot_effect	<i>plotting the marginal effect of X on Y, with or without one or multiple interaction terms</i>
-------------	--

---

**Description**

plotting the marginal effect of X on Y, with or without one or multiple interaction terms

**Usage**

```
plot_effect(  
  reg.coef,  
  data,  
  model,  
  by_color = FALSE,  
  x_var.name = NULL,  
  y_var.name = NULL,  
  moderator.name = NULL,  
  min_x = 0.001,  
  max_x = 0.999,  
  mdrt_quantile_05 = NULL,  
  mdrt_quantile_50 = NULL,  
  mdrt_quantile_95 = NULL,
```

```

mod.n.sd = 1,
confidence_interval = FALSE,
v = NULL,
CI_Ribbon = FALSE,
title = NULL,
xlab = "X_Var.name",
ylab = "Y_Var.name",
moderator.lab = "Moderator_name",
mdrt.low.name = "Low",
mdrt.mid.name = NULL,
mdrt.high.name = "High",
y.high.lim = NULL,
y.low.lim = NULL,
spline_labels = c("LHS", "RHS")
)

```

### Arguments

reg.coef	a coefficient matrix of regression result, e.g. <code>summary(lm_model)\$coef</code>
data	the data used in regression, a data frame
model	the model object, such as a "lm" object
by_color	plot interactions by colors, otherwise by line types
x_var.name	x name in the regression model, a string
y_var.name	y name in the regression model, a string
moderator.name	moderating variable name in the regression model, a string
min_x	the min of x scale, in percentile of x
max_x	the max of x scale, in percentile of x
mdrt_quantile_05	set the low level of moderator, in percentile
mdrt_quantile_50	set the middle level of moderator, in percentile
mdrt_quantile_95	set the high level of moderator, in percentile
mod.n.sd	set the moderating strength, in the number of s.d. units, which can take negative values
confidence_interval	if TRUE, plot confidence intervals
v	a customized variance-covariance matrix
CI_Ribbon	if TRUE, plot confidence interval ribbons, if FALSE, plot error bars
title	the title of the plot
xlab	label of X
ylab	label of Y
moderator.lab	label of moderator

mdrt.low.name the label of low-level moderator  
 mdrt.mid.name the label of mid-level moderator  
 mdrt.high.name the label of high-level moderator  
 y.high.lim specify the upper limit of y  
 y.low.lim specify the lower limit of y  
 spline\_labels label of the spline variable; when the main variable is a linear spline and spline labels are supplied, the moderation effect will be presented by facets.

## Examples

```
## Not run:
data(mtcars)
m1 <- lm(mpg ~ vs + carb + hp + wt + wt * hp , data = mtcars)
plot_effect(reg.coef = summary(m1)$coefficients,
            data = mtcars, model = m1,
            x_var.name = "wt", y_var.name = "mpg", moderator.name = "hp",
            confidence_interval = TRUE, CI_Ribbon = TRUE,
            xlab = "Weight", ylab = "MPG", moderator.lab = "Horsepower")

## End(Not run)

#' @examples
## Not run:
data(mtcars)
m2 <- lm(mpg ~ vs + carb + hp + wt + wt * hp + wt * vs, data = mtcars)
plot_effect(reg.coef = summary(m2)$coefficients,
            data = mtcars, model = m2,
            x_var.name = "wt", y_var.name = "mpg", moderator.name = "hp",
            confidence_interval = TRUE, CI_Ribbon = FALSE,
            xlab = "Weight", ylab = "MPG", moderator.lab = "Horsepower")

## End(Not run)

#' @examples
## Not run:
data(mtcars)
m3 <- lm(mpg ~ vs + carb + hp + lspline(wt, knots = 4, marginal = FALSE) * hp, data = mtcars)
plot_effect(reg.coef=summary(m3)$coefficients,
            data = mtcars, model = m3, x_var.name = "wt", y_var.name = "mpg", moderator.name = "hp",
            xlab="Weight", ylab="MPG", moderator.lab="Horsepower")

## End(Not run)

## Not run:
# this shows the function is compatible with ggplot2 customization
library(extrafont)
m1 <- lm(mpg ~ vs + carb + hp + wt + wt * hp , data = mtcars)
plot_effect(reg.coef = summary(m1)$coefficients,
            data = mtcars, model = m1,
            x_var.name = "wt", y_var.name = "mpg", moderator.name = "hp",
            confidence_interval = TRUE, CI_Ribbon = TRUE,
```

```
      xlab = "Weight", ylab = "MPG", moderator.lab = "Horsepower") +
ggplot2::theme(text=ggplot2::element_text(family="Times New Roman", size = 16))

## End(Not run)
```

---

regrrr

*regrrr: a toolkit for compiling regression results*

---

### Description

Compiling, Testing, Plotting Regression Results

### Author(s)

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Luyao Peng <luyaopeng.cn@gmail.com>

### See Also

Useful links:

- Report bugs at <https://github.com/RkzYang/regrrr/issues>

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scale\_01

*Scale a vector into the 0-1 scale*

---

### Description

Scale a vector into the 0-1 scale

### Usage

```
scale_01(x)
```

### Arguments

x                    a vector

---

test_coef_equality	<i>testing equality of two coefficients (difference between coefficients of regressors), a Wald test note: if v is not alternatively specified, use car::linearHypothesis(lm_model, "X1 = X2")</i>
--------------------	--

---

**Description**

testing equality of two coefficients (difference between coefficients of regressors), a Wald test note: if v is not alternatively specified, use car::linearHypothesis(lm\_model, "X1 = X2")

**Usage**

```
test_coef_equality(model, var1.name, var2.name, v = NULL)
```

**Arguments**

model	the model object, such as a "lm" object
var1.name	X1 name in model, a string
var2.name	X2 name in model, a string
v	a customized variance-covariance matrix

```
data(mtcars) m1 <- lm(mpg ~ vs + carb + hp + wt + wt * hp , data = mtcars)
summary(m1) test_coef_equality(model = m1, var1.name = "carb", var2.name = "hp")
```

---

test_tilted_slopes	<i>significance of regression slope (the marginal effect) under moderation testing restriction: the sig. of beta_x under the moderation of z1, with or without additional interaction terms (z2, z3, etc.)</i>
--------------------	--

---

**Description**

significance of regression slope (the marginal effect) under moderation testing restriction: the sig. of beta\_x under the moderation of z1, with or without additional interaction terms (z2, z3, etc.)

**Usage**

```
test_tilted_slopes(
  reg.coef,
  v = NULL,
  model,
  x_var.name,
  moderator.name,
  mod.n.sd = 1,
  data,
  t.value.col = 3,
  Pr.col = 4
)
```

**Arguments**

reg.coef	a data.frame (or matrix) of regression result or a coeftest object, e.g. summary(lm_model)\$coef, coeftest(lm_model, cluster.vcov(lm_model, cbind(data\$group1, data\$group2)))
v	a customized variance-covariance matrix
model	the model object, such as a "lm" object
x_var.name	main independent variable name in model, a string
moderator.name	moderator name in model, a string
mod.n.sd	specify the strength of the moderating effects, in the unit of s.d.s of the moderator, which can take negative values
data	data used for regression
t.value.col	col number of the t-score in reg.coef
Pr.col	col number of the Prob.(> t ) in reg.coef

**Examples**

```
data(mtcars)
m1 <- lm(mpg ~ vs + carb + hp + wt + wt * hp , data = mtcars)
test_tilted_slopes(reg.coef = summary(m1)$coef, model = m1,
                  x_var.name = "wt", moderator.name = "hp", data = mtcars)
```

---

to_long_tab	<i>Convert the regression result to the long format: the standard errors are in parentheses and beneath the betas</i>
-------------	---

---

**Description**

Convert the regression result to the long format: the standard errors are in parentheses and beneath the betas

**Usage**

```
to_long_tab(reg.coef, d = 3, t.value.col = 3, Pr.col = 4)
```

**Arguments**

reg.coef	a data.frame (or matrix) of regression result or a coeftest object, e.g. summary(lm_model)\$coef, coeftest(lm_model, cluster.vcov(lm_model, cbind(data\$group1, data\$group2)))
d	number of decimal places to retain
t.value.col	col number of the t-score in the reg.coef data.frame
Pr.col	col number of the Prob.(> t ) in the reg.coef data.frame

**Examples**

```
data(mtcars)
m1 <- lm(mpg ~ vs + carb + hp + wt + wt * hp , data = mtcars)
to_long_tab(reg.coef = summary(m1)$coef)
```

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