Package 'joinpointR'

May 19, 2026

Type Package

Title Tidy Tools for Joinpoint Regression Models

Version 0.6.0

Description Provides tools to fit joinpoint regression models with a log-linear specification by levels of a categorical variable. The package acts as a wrapper around the 'segmented' package, facilitating model fitting, selection, and interpretation. It includes functions to estimate the Annual Percent Change (APC) and the Average Annual Percent Change (AAPC), along with their 95% confidence intervals, and to generate formatted summary tables and plots of results.

License MIT + file LICENSE

Encoding UTF-8

Imports dplyr, purrr, tidyr, tibble, ggplot2, segmented, scales, flextable, rlang, stringr, stats, officer

URL https://github.com/datos-ine/joinpointR

BugReports https://github.com/datos-ine/joinpointR/issues

Suggests testthat (>= 3.0.0)

Config/testthat/edition 3

Config/roxygen2/version 8.0.0

NeedsCompilation no

Author Tamara Ricardo [aut, cre] (ORCID: <https://orcid.org/0000-0002-0921-2611>)

Maintainer Tamara Ricardo <tamararicardo83@gmail.com>

Depends R (>= 4.1.0)

Repository CRAN

Date/Publication 2026-05-19 13:10:02 UTC

Contents

`get_aapc` *Average Annual Percent Change (AAPC)*

Description

Estimates the Average Annual Percent Change (AAPC) and its 95% confidence interval. Optionally displays statistical significance using significance stars.

Usage

```
get_aapc(mod, digits = 1, show_ci = TRUE, dec = ".")
```

Arguments

`mod`	Joinpoint regression model (segmented object) or linear regression model (lm object).
`digits`	Number of decimal places to display (integer).
`show_ci`	Logical; if TRUE, displays the 95% confidence interval. If FALSE, displays significance stars.
`dec`	Character. Decimal separator to use (e.g., "." or ",").

Value

A character string with the AAPC and either its 95% confidence interval or significance stars.

Author(s)

Tamara Ricardo

Examples

```
# Load example data
data("plant", package = "segmented")

names(plant)

# Fit the joinpoint models
mods <- model_jp(data = plant, value = "y", time = "time", group = "group", k = 2, test = TRUE)
```

```
# AAPC of the first model
get_aapc(mods$RKW, digits = 1, show_ci = TRUE, dec = ".")
```

---

get_apc *Annual Percent Change by Segment (APC)*

Description

Calculates the Annual Percent Change (APC) for each segment and its 95% confidence interval.

Usage

```
get_apc(mod, digits = 1, time = "time", dec = ".")
```

Arguments

mod	Joinpoint regression model (segmented object).
digits	Number of decimal places to display (integer).
time	Time variable used in the model (character).
dec	Character. Decimal separator to use (e.g., "." or ",").

Value

A character vector with APC and 95% CI for each segment.

Author(s)

Tamara Ricardo

Examples

```
# Load example data
data("plant", package = "segmented")

names(plant)

# Fit the joinpoint models
mods <- model_jp(data = plant, value = "y", time = "time", group = "group", k = 2, test = TRUE)

# Obtain APC (95% CI)
get_apc(mods$RKW, digits = 1, time = "time", dec = ".")
```

gg_jpoint *Plot Joinpoint Regression Models*

Description

Creates a ggplot showing observed values, fitted joinpoint regression lines, and optional joinpoints.

Usage

```
gg_jpoint(mods, obs = TRUE, jp = TRUE, facets = FALSE)
```

Arguments

mods	List of joinpoint regression models (output of model_jp()).
obs	Logical. If TRUE, displays observed data points.
jp	Logical. If TRUE, displays joinpoints as vertical dashed lines.
facets	Logical. If TRUE, displays one panel per group using facets.

Value

A ggplot object.

Examples

```
library(dplyr)
# Load example data
data("plant", package = "segmented")

names(plant)

# Fit the joinpoint models
mods <- model_jp(data = plant, value = "y", time = "time", group = "group", k = 2, test = TRUE)

# Plot results
gg_jpoint(mods, obs = TRUE, jp = TRUE, facets = FALSE)

# Facets by group
gg_jpoint(mods, obs = TRUE, jp = TRUE, facets = TRUE)
```

`model_jp` *Joinpoint Regression Models by Groups*

Description

Fits segmented linear regression models by groups for age-standardized rates using joinpoint regression. Models can be fitted using either a stepwise selection procedure based on the Bayesian Information Criterion (BIC) or a fixed number of joinpoints. Internally calls `segmented::selgmented()` or `segmented::segmented()` and applies a log transformation to the response variable.

Usage

```
model_jp(data, value, time, group, k = 2, step = TRUE, test = TRUE)
```

Arguments

`data`	Data frame containing age-standardized rates.
`value`	Name of the response variable (character).
`time`	Name of the time variable (character).
`group`	Name of one or more grouping variables (character vector).
`k`	Maximum number of joinpoints to be estimated (integer).
`step`	Use stepwise procedure to select the number of joinpoints (logical).
`test`	whether to test for differences in slope t-values during the stepwise selection procedure. Only used when `step = TRUE`.

Value

A list of models by group.

Author(s)

Tamara Ricardo

Examples

```
# Generate example data
library(dplyr)
df <- mtcars |>
mutate(
  year = seq(2000, length.out = n(), by = 1),
  group = factor(paste("cyl", cyl, sep = "_")),
  rate = mpg
) |>
select(year, group, rate)

# Check group levels
levels(df$group)
```

```
# Fit models
mods <- model_jp(data = df, value = "rate", time = "year", group = "group",
 k = 2, step = TRUE, test = TRUE)

# Show the output of the first model
mods$cyl_6
summary(mods$cyl_6)
```

---

summary_jp *Summary Table For Joinpoint Regression Models*

Description

Generates a table displaying the number of joinpoints, time breaks, APC and its 95% confidence interval, and AAPC and its statistical significance from a list of joinpoint models.

Usage

```
summary_jp(
  mods,
  digits = 1,
  var1 = "group",
  var2 = "subgroup",
  ft = FALSE,
  lan = c("en", "es")
)
```

Arguments

mods	List of joinpoint regression models (model_jp() output).
digits	Number of decimal places to display (integer).
var1	Character. Name of the grouping variable.
var2	Character. Name of the subgrouping variable (optional).
ft	Logical. If TRUE returns a flextable object, if FALSE returns a tibble.
lan	Language of output: "en" (English) or "es" (Spanish).

Value

A tibble or a flextable object.

Author(s)

Tamara Ricardo

Examples

```
library(dplyr)
# Load example data
data("plant", package = "segmented")

names(plant)

# Fit the joinpoint models
mods <- model_jp(data = plant, value = "y", time = "time", group = "group", k = 2, test = TRUE)

summary_jp(mods, digits = 1, var1 = "group", ft = FALSE, lan = "en")
```

Index