Package 'retreat'

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Type Package

Title Econometric Treatment Effect Models

Version 0.1.0

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Description Functions used for estimating treatment effects in R.
Models include the Synthetic Control method.

Imports dplyr,
ggplot2,
kernlab,
tidyr

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Encoding UTF-8

LazyData true

RoxygenNote 7.0.2

R topics documented:

`ecuador` *Ecuador Dollarization*

Description

A `data.frame` containing data across 41 countries. including Ecuador.

Usage

```
data(ecuador)
```

Format

data.frame

synth *Synthetic Control Method*

Description

Applies the synthetic control method to a variable within a data.frame. The user must specify which variable receives the treatment, a dummy variable taking a value of '0' before treatment and '1' after the treatment, a variable specifying groups, and the co-variates used to determine weights.

Usage

```
synth(data, y, treat, time, group, ..., op = mean, method = "Nelder-Mead")
```

Arguments

data	data.frame
y	character, symbol, or number denoting the column containing the dependent variable
treat	character, symbol, or number denoting the column containing the treatment dummy
time	character, symbol, or number denoting the column containing the time variable
group	character, symbol, or number denoting the column containing the grouping variable
...	characters, symbols, or numbers denoting the columns containing co-variates
op	operation used on X0 for determining weights. Default is 'mean'
method	optimization method accepted by optim. Default is "Nelder-Mead"

Value

list of tables containing y, the estimated counterfactual, weights, plots, the regression results

Examples

```
data(ecuador)
results <- synth(
  pwt_mod,                                          # data
  GDPpc, Treat, year, country,                      # y, treat, time, group
  pop, PR, KL, xr, delta, ex, im, s, Pex, Pim, Pk   # co-variates
)

# Plot Results
results$plot_path
results$plot_gap
results$plot_jitter

# Show Weights
results$w_group
results$w_pred

# Show Differences before and after
results$difference
```

```
# Regression summary of Treatment on the Gap
summary(results$lm)

# Data.frame with Treated and Synthetic Series
results$results
```

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synth_many *Apply the Synthetic Control Method to Multiple Treated Groups*

Description

Applies the synthetic control method to multiple treatment groups within a data.frame. See synth for the case with only one group receiving treatment.

Usage

```
synth_many(data, y, treat, time, group, ..., op = mean, method = "Nelder-Mead")
```

Arguments

data	data.frame
y	character, symbol, or number denoting the column containing the dependent variable
treat	character, symbol, or number denoting the column containing the treatment dummy
time	character, symbol, or number denoting the column containing the time variable
group	character, symbol, or number denoting the column containing the grouping variable
...	characters, symbols, or numbers denoting the columns containing co-variates
op	operation used on X0 for determining weights. Default is 'mean'
method	optimization method accepted by optim. Default is "Nelder-Mead"

Value

list of tables containing y, the estimated counterfactual, weights, plots, the regression results

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