Package ‘clusEvol’

February 26, 2024

Type Package
Title A Procedure for Cluster Evolution Analytics
Version 1.0.0
Date 2024-02-19
Maintainer Víctor Morales-Oñate <victor.morales@uv.cl>
Description Cluster Evolution Analytics allows us to use exploratory what if questions in the sense that the present information of an object is plugged-in a dataset in a previous time frame so that we can explore its evolution (and of its neighbors) to the present. See the URL for the papers associated with this package, as for instance, Morales-Oñate and Morales-Oñate (2024) <https://mpra.ub.uni-muenchen.de/120220>.
Depends R (>= 4.1.0)
License GPL (>= 3)
Encoding UTF-8
Imports ggplot2,plotly,cluster,fpc,viridis,clusterSim,dplyr
Repository CRAN
URL https://github.com/vmoprojs/clusEvol
BugReports https://github.com/vmoprojs/clusEvol/issues
LazyData true
NeedsCompilation no
Author Víctor Morales-Oñate [aut, cre]
          (<https://orcid.org/0000-0003-1922-6571>),
          Bolívar Morales-Oñate [aut] (<https://orcid.org/0000-0003-4980-8759>)
Date/Publication 2024-02-26 18:50:02 UTC

R topics documented:

  actpas ................................................................. 2
  clusEvol ........................................................... 2
  plot.clusEvol ....................................................... 4
  pwt1001 ......................................................... 5
Description

Ecuador’s amount of Assets and Liabilities Operations of the National Financial System: https://contenido.bce.fin.ec/home1/economia/tasas/IndiceSFN.htm

Usage

actpas

Format

A dataframe containing 358 observations and 25 columns.

References


Description

clusEvol is a function that allows us to use exploratory what if questions in the sense that the present information of an object is plugged-in a dataset in a previous time frame so that we can explore its evolution (and of its neighbours) to the present.

Usage

clusEvol(x=NULL, objects=NULL, time = NULL, target.vars = NULL, time.base=NULL, sel.obj=NULL, init = NULL, logscale = FALSE, ng = NULL, clm = "pam", scale=TRUE, clstats = FALSE,...)

Arguments

x          Dataframe. panel data input.
objects    Character; variable name of objects.
time       Character; variable name of time.
target.vars Character; selected variables for Cluster Evolution Analytics (CEA).
time.base  Numeric; selected time for CEA.
sel.obj    Character; selected object for CEA.
clusEvol can be synthetized as the following steps:

- Identify clusters to which sel.obj is similar in time.base.
- The data of sel.obj in time.base is plugged-in in each time period.
- Clusters are generated in each time period with data from sel.obj in time.base.

Value

Returns an object of class clusEvol. An object of class clusEvol is a list containing at most the following components:

- datos: clean input data;
- target.vars: selected variables;
- results: data frame of neighbours of sel.obj;
- ECk: clusters that sel.obj belongs to;
- ECkTot: all clusters that sel.obj belongs to;
- Clus: data frame objects, cluster and time.
- sumdat: summary statistics of datos.
- kmodelSol: output of clustering algorithm in each iteration.
- clusterStats: cluster statistics in each clustering.
- sl: evolution in time with target.vars included (subset of Clus but only for sel.obj).
- sel: input variable names of objects in time.
- sel.obj: input character of selected object.

Author(s)

Víctor Morales Oñate, <victor.morales@uv.cl>, https://sites.google.com/site/moralesonatevictor, https://www.linkedin.com/in/vmoralesonate/ Bolívar Morales Oñate, <bmoralesonate@gmail.com>, https://sites.google.com/site/moralesonatevictor/

References

Examples

library(clusEvol)
data(actpas)

solclusEvol <- clusEvol(x=actpas,object="razon_social", time = "fecha", target.vars = c("montoAct","operAct"),
                        time.base=max(actpas$fecha),
                        sel.obj="BANCO SOLIDARIO S.A.",init = min(actpas$fecha),
                        logscale = TRUE,ng = 5,clm = "pam")

print(solclusEvol)

plot.clusEvol

Plot output results from clusEvol

Description

Plot density or empirical cumulative distribution from Bvals in clusEvol output.

Usage

## S3 method for class 'clusEvol'
plot(x,target,type = "heat",plotly=FALSE,...)

Arguments

x an object of the class "clusEvol"
target Numeric; 1 if density, 2 if ecdf plot is returned
type Character; heat (default), line, boxplot are the options
plotly Logical; if FALSE, a ggplotly plot is returned
... other arguments to be passed to the function ggplot

Details

This function plots outputs from clusEvol taking into account its panel data structure.

Value

Produces a plot. No values are returned.

See Also

clusEvol for procedure and examples.
**Description**

Relative levels of income, output, input, and productivity for 183 countries between 1950 and 2019 (base year: 2017).

**Usage**

pwt1001

**Format**

A data frame with 12,810 observations of 52 variables.

**Details**

The Penn World Table 10.01 (<https://www.rug.nl/ggdc/productivity/pwt/>) provides information on relative levels of income, output, input, and productivity for 183 countries between 1950 and 2019.

**References**

Index

* Cluster Evolution Analytics
  clusEvol, 2
* clusEvol
  plot.clusEvol, 4
* datasets
  actpas, 2
  pwt1001, 5

actpas, 2
clusEvol, 2, 4
ggplot, 4
plot.clusEvol, 4
pwt1001, 5