Package 'oec'

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Type Package

Title Use the Observatory of Economic Complexity's API in R

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URL http://atlas.media.mit.edu/en/, https://github.com/pachamaltese/oec/

Description Access The Observatory of Economic Complexity's API from R to download international trade data and create and D3Plus visualizations.

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LazyData TRUE

Depends curl,
data.table,
jsonlite,
plyr,
servr

RoxygenNote 5.0.1

R topics documented:

oec-package   *The Observatory of Economic Complexity*

Description

Package's details.

Details

This package was created to simplify user interaction with the OEC's API. It will download trade data from MIT Media Lab servers and it will save that both in CSV and JSON formats.

You can use this package just to download information but it also creates D3Plus visualizations that are suitable for presentations or a context where you need to show data. These visualizations do not need internet connection after you obtain the data.

All of the datasets provided within this package provide data that cannot be obtained from the API and do help creating better visualizations.

The functions provided within this package are:

install_d3plus Installs D3 and D3Plus.

demos Copies the demo file.

getdata Downloads and processes the data from the API for a certain year.

getdata_interval Downloads and processes the data from the API for an interval of years.

network Creates a network for a given year.

network_interval Creates a network for an interval of years.

treemap Creates a treemap for a given year.

treemap_interval Creates a treemap for an interval of years.

The datasets provided within this package are:

countries_list A list of all the countries in the world and its respective country code.

hs92_2char HS92 groups.

hs92_4char HS92 products (4 characters codes).

hs92_6char HS92 products (6 characters codes).

hs92_colors HS92 colors.

sitc_rev2_2char SITC (rev. 2) groups.

sitc_rev2_4char SITC (rev. 2) products (4 characters codes).

sitc_rev2_colors SITC (rev. 2) colors.

The additional files provided within this package are:

treemap_template.html A template to display a treemap of the imports, exports or trade balance of a country for a certain year using HS92 or SITC (rev.2) product classification.

network_template.html A template to display a network of exports of a country for a certain year using HS92 or SITC (rev.2) product classification.

nodes_hs92_4char.json A part of a pre-drawn network to create network visualizations using HS92 product classification.

edges_hs92_4char.json A with a part of a pre-drawn network to create network visualizations using HS92 product classification.

nodes_sitc_rev2_4char.json A file with a part of a pre-drawn network to create network visualizations using SITC (rev.2) product classification.

edges_sitc_rev2_4char.json A file with a part of a pre-drawn network to create network visualizations using SITC (rev.2) product classification.

d3plus-1.9.8.zip Contains D3Plus and D3 to display the visualization.

---

countries_list *A list of all the countries*

Description

A list of all the countries in the world and its country code. You need the country code (e.g. chl) to obtain data for a country (e.g Chile)

Usage

```
countries_list
```

Format

A data frame with 263 observations on the following 2 variables.

country the full names of the countries

country_code the ids of the countries

Examples

```
# see the list of countries
# countries_list
```

d3plus-1.9.8.zip	*D3Plus visualization library*

Description

D3Plus is an extension to the D3 library that allows fast and easy creation of data visualizations.

This zip will be decompressed in your working directory when you use treemap, treemap_interval, network or network_interval for the first time in your working directory. It contains both the javascript and the icons required to display the visualizations in the browser.

D3Plus was created by Alexander Simoes and Dave Landry and D3 was created by Mike Bostock.

demos	*Copies the demo file*

Description

Copies the demo file

Usage

```
demos()
```

Value

Copies a file named demo_examples.R to the working directory.

Examples

```
# demos()
```

edges_hs92_4char.json	*A part of a pre-drawn network to create network visualizations using HS92 product classification.*

Description

The network visualization is a bit different from the rest of D3Plus in that it requires extra files besides the data and attribute lookups. It is important to note that D3Plus network visualizations code does not attempt to create a dynamic layout based on a nodes and edges list.

This package provides a curated network provided in two JSON files of (X,Y) coordinates divided between elements positioning (nodes) and elements connections (edges). The Product Space described in the OEC website is a network of around 800 nodes and roughly 2000 edges, and this file is a part of a precomputed layout of the network that allows the user to display this large network without pushing all of the resources on the client's machine.

edges_sitc_rev2_4char.json
> *A part of a pre-drawn network to create network visualizations using SITC (rev.2) product classification.*

Description

The network visualization is a bit different from the rest of D3Plus in that it requires extra files besides the data and attribute lookups. It is important to note that D3Plus network visualizations code does not attempt to create a dynamic layout based on a nodes and edges list.

This package provides a curated network provided in two JSON files of (X,Y) coordinates divided between elements positioning (nodes) and elements connections (edges). The Product Space described in the OEC website is a network of around 800 nodes and roughly 2000 edges, and this file is a part of a precomputed layout of the network that allows the user to display this large network without pushing all of the resources on the client's machine.

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getdata
> *Downloads and processes the data from the API*

Description

Downloads and processes the data from the API

Usage

```
getdata(origin, destination, year, classification)
```

Arguments

origin	Country code of origin (e.g. "chl" for Chile)
destination	Country code of destination (e.g. "chn" for China)
year	The OEC's API ranges from 1962 to 2014
classification	Trade classification that can be "1" (HS92 4 characters since year 1995), "2" (SITC rev.2 4 characters since year 1962) or "3" (HS92 6 characters since year 1995)

Examples

```
# Run countries_list() to display the full list of countries
# Chile is "chl" and China is "chn"

# Download trade data from OEC's API (HS92 4 characters product list)
# for Chile and China in the year 2014
# getdata("chl", "chn", 2014)
# is the same as
# getdata("chl", "chn", 2014, 1)

# Download trade data from OEC's API (SITC rev.2 4 characters product list)
# for Chile and China in the year 2014
```

```
# getdata("chl", "chn", 2014, 2)

# Download trade data from OEC's API (HS92 6 characters product list)
# for Chile and China in the year 2014
# getdata("chl", "chn", 2014, 3)
```

---

getdata_interval   *Downloads and processes the data from the API*

Description

Downloads and processes the data from the API

Usage

```
getdata_interval(origin, destination, initial_year, final_year, classification,
  interval)
```

Arguments

origin	Country code of origin (e.g. "chl" for Chile)
destination	Country code of destination (e.g. "chn" for China)
initial_year	The OEC's API ranges from 1942 to 2014. This needs to be lower than 'final_year'
final_year	The OEC's API ranges from 1942 to 2014. This needs to be greater than 'initial_year'
classification	Trade classification that can be "1" (HS92 4 characters since year 1995), "2" (SITC rev.2 4 characters since year 1962) or "3" (HS92 6 characters since year 1995)
interval	is an optional parameter to define the distance between years (by default set to 1)

Examples

```
# Run countries_list() to display the full list of countries
# Chile is "chl" and China is "chn"

# Download trade data from OEC's API (HS92 4 characters product list)
# for Chile and China in the years 2010 to 2014
# getdata_interval("chl", "chn", 2011, 2014)
# is the same as
# getdata_interval("chl", "chn", 2011, 2014, 1, 1)

# Download trade data from OEC's API (HS92 4 characters product list)
# for Chile and China in the years 2010, 2012 and 2014
# getdata_interval("chl", "chn", 2011, 2014, 1, 2)

# Download trade data from OEC's API (SITC rev.2 4 characters product list)
# for Chile and China in the years 2010, 2012 and 2014
# getdata_interval("chl", "chn", 2011, 2014, 2, 2)

# Download trade data from OEC's API (HS92 6 characters product list)
```

```
# for Chile and China in the years 2010, 2012 and 2014
# getdata_interval("chl", "chn", 2011, 2014, 3, 2)
```

---

hs92_2char   *HS92 groups*

Description

HS92 groups. This file is used to create the visualizations.

Usage

```
hs92_2char
```

Format

A data frame with 22 observations on the following 2 variables.

hs92_group_name Contains the H292 groups (e.g. animal products, vegetable products, etc)

hs92_group_id Contains the associated codes of every group (e.g. animal products is 01)

Examples

```
# see the group codes for HS92 (6 and 8 characters)
# hs92_2char
```

---

hs92_4char   *HS92 products (4 characters)*

Description

HS92 products (4 characters). This file is used to create the visualizations.

Usage

```
hs92_4char
```

Format

A data frame with 1242 observations on the following 4 variables.

hs92_product_name Contains the H292 products' names (e.g. horses, bovine, pigs, etc)

hs92_group_name Contains the H292 groups (e.g. animal products, vegetable products, etc)

hs92_product_id Contains the associated codes of every product (e.g. horses is 0101)

hs92_group_id Contains the associated codes of every group (e.g. animal products is 01)

Examples

```
# see the group codes and product codes for HS92 (4 characters)
# hs92_4char
```

---

hs92_6char   *HS92 products (6 characters)*

Description

HS92 products (6 characters). This file is used to create the visualizations.

Usage

```
hs92_6char
```

Format

A data frame with 5040 observations on the following 4 variables.

hs92_product_name Contains the H292 products' names (e.g. horses, bovine, pigs, etc)

hs92_group_name Contains the H292 groups (e.g. animal products, vegetable products, etc)

hs92_product_id Contains the associated codes of every product (e.g. horses is 010101)

hs92_group_id Contains the associated codes of every group (e.g. animal products is 01)

Examples

```
# see the group codes and product codes for HS92 (6 characters)
# hs92_6char
```

---

hs92_colors   *HS92 colors*

Description

HS92 colors. This file is used to create the visualizations.

Usage

```
hs_colors
```

Format

A data frame with 21 observations on the following 2 variables.

hs92_group_name Contains the H292 groups (e.g. animal products, vegetable products, etc)

hs92_color Contains the associated colors of every group (e.g. mineral products is #330000)

Examples

```
# see the group codes and group colors for HS92 (6 and 8 characters)
# hs92_colors
```

install_d3plus	*Installs D3 and D3Plus*

Description

Installs D3 and D3Plus

Usage

```
install_d3plus()
```

Value

Copies a folder named d3plus to the working directory and it contains the js files and icons to
make the visualizations

Examples

```
# install_d3plus()
```

network	*Creates a network of exports for a given year*

Description

Creates a network of exports for a given year

Usage

```
network(origin, destination, year, classification)
```

Arguments

origin	is the country code of origin (e.g. "chl" for Chile)
destination	is the country code of origin (e.g. "chn" for China)
year	is the year and the OEC's API ranges from 1962 to 2014
classification	Trade classification that can be "1" (HS92 4 characters since year 1995) or "2" (SITC rev.2 4 characters since year 1962)

Value

Creates an HTML file with a network visualization for a given year.

Examples

```
# Run countries_list() to display the full list of countries
# Chile is "chl" and China is "chn"
# Visualize trade data from OEC's API (HS92 4 characters product list)
# for exports from Chile to China in the year 2014
# network("chl", "chn", 2014, 1)
# is the same as
# network("chl", "chn", 2014)
```

---

network_interval   *Creates a network of exports for a given year*

Description

Creates a network of exports for a given year

Usage

```
network_interval(origin, destination, initial_year, final_year, interval,
  classification)
```

Arguments

origin	is the country code of origin (e.g. "chl" for Chile)
destination	is the country code of origin (e.g. "chn" for China)
initial_year	The OEC's API ranges from 1962 to 2014. This needs to be lower than 'final_year'
final_year	The OEC's API ranges from 1962 to 2014. This needs to be greater than 'initial_year'
interval	is an optional parameter to define the distance between years (by default set to 1)
classification	Trade classification that can be "1" (HS92 4 characters since year 1995) or "2" (SITC rev.2 4 characters since year 1962)

Value

Creates an HTML file with a network visualization for a given year.

Examples

```
# Run countries_list() to display the full list of countries
# Chile is "chl" and China is "chn"
# Visualize trade data from OEC's API (HS92 4 characters product list)
# for exports from Chile to China in the years 2011-2014
# network_interval("chl", "chn", 2011, 2014, 1, 1)
# is the same as
# network_interval("chl", "chn", 2011, 2014)
```

---

network_template.html *A template to display a network of the exports of a country for a certain year using HS92 or SITC (rev.2) product classification.*

Description

Contains a formatted template with fields that [network](#) or [network_interval](#) functions will find and replace accordingly to the data you want to display and the final visualization will be saved in an HTML file to your working directory.

nodes_hs92_4char.json *A part of a pre-drawn network to create network visualizations using HS92 product classification.*

Description

The network visualization is a bit different from the rest of D3Plus in that it requires extra files besides the data and attribute lookups. It is important to note that D3Plus network visualizations code does not attempt to create a dynamic layout based on a nodes and edges list.

This package provides a curated network provided in two JSON files of (X,Y) coordinates divided between elements positioning (nodes) and elements connections (edges). The Product Space described in the OEC website is a network of around 800 nodes and roughly 2000 edges, and this file is a part of a precomputed layout of the network that allows the user to display this large network without pushing all of the resources on the client's machine.

nodes_sitc_rev2_4char.json

        A part of a pre-drawn network to create network visualizations using SITC (rev.2) product classification.

Description

The network visualization is a bit different from the rest of D3Plus in that it requires extra files besides the data and attribute lookups. It is important to note that D3Plus network visualizations code does not attempt to create a dynamic layout based on a nodes and edges list.

This package provides a curated network provided in two JSON files of (X,Y) coordinates divided between elements positioning (nodes) and elements connections (edges). The Product Space described in the OEC website is a network of around 800 nodes and roughly 2000 edges, and this file is a part of a precomputed layout of the network that allows the user to display this large network without pushing all of the resources on the client's machine.

sitc_rev2_2char *SITC (rev. 2) groups*

Description

SITC (rev. 2) groups. This file is used to create the visualizations.

Usage

```
hs92_2char
```

Format

A data frame with 36 observations on the following 2 variables.

sitc_rev2_group_name Contains the SITC (rev.2) groups (e.g. machinery, electronics, etc)

sitc_rev2_group_id Contains the associated codes of every group (e.g. machinery is 10)

Examples

```
# see the group codes for SITC rev.2 (4 characters)
# sitc_rev2_2char
```

---

sitc_rev2_4char	*SITC (rev.2) products (4 characters)*

Description

SITC (rev. 2) products (4 characters). This file is used to create the visualizations.

Usage

```
sitc_rev2_4char
```

Format

A data frame with 988 observations on the following 5 variables.

sitc_rev2_product_name Contains the SITC rev.2 products' names (e.g. initiating devices, polymerization ion exchangers, etc)

sitc_rev2_group_name Contains the SITC rev.2 groups (e.g. machinery, electronics products, etc)

sitc_rev2_product_id Contains the associated codes of every product (e.g. initiating devices is 5722)

sitc_rev2_group_id Contains the associated codes of every group (e.g. machinery is 10)

Examples

```
# see the group codes and product codes for SITC rev.2 (4 characters)
# sitc_rev2_4char
```

---

sitc_rev2_colors	*SITC (rev. 2) colors*

Description

SITC (rev. 2) colors. This file is used to create the visualizations.

Usage

```
hs_colors
```

Format

A data frame with 36 observations on the following 2 variables.

sitc_rev2_group_name Contains the SITC (rev.2) groups (e.g. machinery, electronics, etc)

sitc_rev2_color Contains the associated colors of every group (e.g. machinery is #17bcef)

Examples

```
# see the group codes and group colors for SITC rev.2 (4 characters)
# sitc_rev2_colors
```

---

treemap   *Creates a treemap for a given year*

Description

Creates a treemap for a given year

Usage

```
treemap(origin, destination, variable, year, classification, depth)
```

Arguments

origin	is the country code of origin (e.g. "chl" for Chile)
destination	is the country code of origin (e.g. "chn" for China)
variable	is the variable to visualize and it can be "imports", "exports" or "exchange" (trade exchange)
year	is the year and the OEC's API ranges from 1962 to 2014
classification	Trade classification that can be "1" (HS92 4 characters since year 1995), "2" (SITC rev.3 4 characters since year 1962) or "3" (HS92 6 characters since year 1995)
depth	is an optional parameter that can take values "0" (group's detail) or "1" (product's detail)

Value

Creates an HTML file with a treemap visualization for a given year.

Examples

```
# Run countries_list() to display the full list of countries
# Chile is "chl" and China is "chn"
# Visualize trade data from OEC's API (HS92 4 characters product list)
# for Chile and China in the year 2014
# treemap("chl", "chn", "exports", 2014, 1)
# is the same as
# treemap("chl", "chn", "exports", 2014)
```

---

treemap_interval	*Creates a treemap for a given given period of years*

Description

Creates a treemap for a given given period of years

Usage

```
treemap_interval(origin, destination, variable, initial_year, final_year,
  interval, classification, depth)
```

Arguments

origin	is the country code of origin (e.g. "chl" for Chile)
destination	is the country code of origin (e.g. "chn" for China)
variable	is the variable to visualize and it can be "imports", "exports" or "exchange" (trade exchange)
initial_year	is the initial year and the OEC's API ranges from 1942 to 2014
final_year	is the final year and the OEC's API ranges from 1942 to 2014
interval	is an optional parameter to define the distance between years (by default set to 1)
classification	Trade classification that can be "1" (HS92 4 characters since year 1995), "2" (SITC rev.3 4 characters since year 1962) or "3" (HS92 6 characters since year 1995)
depth	is an optional parameter that can take values "0" (group's detail) or "1" (product's detail), by defaults its set to 1

Value

Creates an HTML file with a treemap visualization for a given period of years.

Examples

```
# Run countries_list() to display the full list of countries
# Chile is "chl" and China is "chn"
# Visualize trade data from OEC's API (HS92 4 characters product list)
# for Chile and China in the years 2011 to 2014
# treemap_interval("chl", "chn", "exports", 2011, 2014, 1, 1 ,1)
# is the same as
# treemap_interval("chl", "chn", "exports", 2011, 2014)
```

treemap_template.html	*A template to display a treemap of the imports, exports or trade balance of a country for a certain year using HS92 or SITC (rev.2) product classification.*

Description

Contains a formatted template with fields that `treemap` or `treemap_interval` functions will find and replace accordingly to the data you want to display and the final visualization will be saved in an HTML file to your working directory.

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