

Package ‘blscrapeR’

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Type Package

Title An API Wrapper for the Bureau of Labor Statistics (BLS)

Version 3.1.6

Description Scrapes various data from <<https://www.bls.gov/>>. The U.S. Bureau of Labor Statistics is the statistical branch of the United States Department of Labor. The package has additional functions to help parse, analyze and visualize the data.

Depends R (>= 3.3.0)

Imports httr, jsonlite, ggplot2, magrittr, utils, stats, grDevices,
dplyr, purrr, tibble, stringr

Suggests testthat, knitr, rmarkdown

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URL <https://github.com/keberwein/blscrapeR>

BugReports <https://github.com/keberwein/blscrapeR/issues>

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bls_api	<i>Basic Request Mechanism for BLS Tables</i>
---------	---

Description

Return data frame from one or more requests via the US Bureau of Labor Statistics API. Provided arguments are in the form of BLS series ids.

Usage

```
bls_api(seriesid, startyear = NULL, endyear = NULL,
        registrationKey = NULL, catalog = FALSE, calculations = FALSE,
        annualaverage = FALSE, ...)
```

Arguments

seriesid	The BLS id of the series your trying to load. A common format would be 'LAUCN040010000000005'. WARNING: All seriesIDs must contain the same time resolution. For example, monthly data sets can not be combined with annual or semi-annual data. If you need help finding seriesIDs, check the BLS website or the BLS Data Finder—links below.
startyear	The first year in your data set.
endyear	The last year in your data set.
registrationKey	The API key issued to you from the BLS website.
catalog	Series description information available only for certain data sets.
calculations	Returns year-over-year calculations if set to TRUE.
annualaverage	Returns an annual average if set to TRUE.
...	additional arguments

See Also

<https://www.bls.gov/data/>
<https://beta.bls.gov/dataQuery/search>

Examples

```
## API Version 1.0 R Script Sample Code
## Single Series request
df <- bls_api("LAUCN04001000000005")

## Not run:
## API Version 1.0 R Script Sample Code
## Multiple Series request with date params.
df <- bls_api(c("LAUCN04001000000005", "LAUCN04001000000006"),
  startyear = "2010", endyear = "2012")

## API Version 1.0 R Script Sample Code
## Multiple Series request with date params.
df <- bls_api(c("LAUCN04001000000005", "LAUCN04001000000006"),
  startyear = "2010", endyear = "2012")

## API Version 2.0 R Script Sample Code
## Multiple Series request with full params allowed by v2.
df <- bls_api(c("LAUCN04001000000005", "LAUCN04001000000006"),
  startyear = "2010", endyear = "2012",
  registrationKey = "BLS_KEY",
  calculations = TRUE, annualaverage = TRUE, catalog = TRUE)

## End(Not run)
```

bls_map_county *choropleth mapping of BLS data*

Description

Return a ggplot object to render a choropleth map with county outlines. The map files contain 2015 FIPS codes and can be used with any data set containing county and state FIPS codes. They can not be used with the leaflet package but the shape files can be downloaded from the Census website or with the tigris package. See the "Mapping BLS Data" vignette for this package.

Usage

```
bls_map_county(map_data, fill_rate = NULL, labtitle = NULL,
  stateName = NULL, projection = NULL, lowFill = "green",
  highFill = "red")
```

Arguments

map_data	Dataframe to be used as the map's measures. Usually a result of calls to the <code>get_bls_county()</code> or <code>get_bls_state()</code> functions, but other dataframes, which include FIPS codes may be used as well.
fill_rate	Column name from the dataframe that you want to use as a fill value, in quotes. NOTE: This argument is mandatory!
labtitle	The main title label for your map passed as a string. The default is no title.
stateName	Optional argument if you only want to map a single state or a group of selected states. The argument accepts state full state names in quotes.
projection	Choices of map projection are "lambert" or "mercator". By default, the function selects Mercator for single states and Lambert for nationwide views.
lowFill	The fill color of the lower values being mapped. The default color is green, but can be changed to any color accepted by <code>ggplot2::scale_fill_gradient</code> .
highFill	The fill color of the higher values being mapped. The default color is green, but can be changed to any color accepted by <code>ggplot2::scale_fill_gradient</code> .

See Also

<https://cran.r-project.org/package=tigris>

Examples

```
## Not run:
# Download the most current month unemployment statistics on a county level.
df <- get_bls_county()

# Map the unemployment rate by county.
bls_gg <- bls_map_county(map_data = df, fill_rate = "unemployed_rate",
                        labtitle = "Unemployment Rate")
bls_gg

# Map the unemployment rate for Florida and Alabama.

df <- get_bls_county(stateName = c("Florida", "Alabama"))

bls_gg <- bls_map_county(map_data=df, fill_rate = "unemployed_rate",
                        stateName = c("Florida", "Alabama"))

bls_gg

## End(Not run)
```

bls_map_state	<i>choropleth mapping of BLS data</i>
---------------	---------------------------------------

Description

Return a ggplot object to render a choropleth map with state outlines. The map files contain 2015 FIPS codes and can be used with any data set containing state FIPS codes. They can not be used with the leaflet package but the shape files can be downloaded from the Census website or with the tigris package. See the "Mapping BLS Data" vignette for this package.

Usage

```
bls_map_state(map_data, fill_rate = NULL, labtitle = NULL,  
             lowFill = "green", highFill = "red")
```

Arguments

map_data	Dataframe to be used as the map's measures. Usually a result of calls to the <code>get_bls_state()</code> function but other dataframes, which include FIPS codes may be used as well.
fill_rate	Column name from the dataframe that you want to use as a fill value.
labtitle	The main title label for your map passed as a string. The default is no title.
lowFill	The fill color of the lower values being mapped. The default color is green, but can be changed to any color accepted by <code>ggplot2::scale_fill_gradient</code> .
highFill	The fill color of the higher values being mapped. The default color is green, but can be changed to any color accepted by <code>ggplot2::scale_fill_gradient</code> .

See Also

<https://cran.r-project.org/package=tigris>

Examples

```
## Not run:  
# Downlaod employment statistics for April 2016.  
df <- get_bls_state("April 2016", seasonality = TRUE)  
  
# Map the unemployment rate from data set.  
bls_gg <- bls_map_state(map_data = df, fill_rate = "unemployed_rate",  
                      labtitle = "Unemployment Rate")  
bls_gg  
  
## End(Not run)
```

`county_map_data`*Dataset for mapping U.S. counties with a Mercator projection*

Description

A fortified data set that includes U.S. counties and is suitable for making maps with `ggplot2`. The county FIPS codes and boundary lines from the most recent TIGER release from the U.S. Census Bureau.

- `long`: County longitude
- `lat`: County latitude
- `order`: Polygon order
- `hole`: hole
- `piece`: Polygon piece
- `id`: FIPS Code
- `group`: group

A fortified data set that includes U.S. counties and is suitable for making maps with `ggplot2`. The county FIPS codes and boundary lines from the most recent TIGER release from the U.S. Census Bureau.

- `long`: County longitude
- `lat`: County latitude
- `order`: Polygon order
- `hole`: hole
- `piece`: Polygon piece
- `id`: FIPS Code
- `group`: group

Usage

```
data(county_map_merc)
```

```
data(county_map_data)
```

Format

A data frame with 55,413 rows and 7 variables

Details

Dataset with the lat. / long. of county FIPS codes used for mapping.

Built-in dataset for use with the `bls_map_county()` function. To access the data directly, issue the command `data(county_map_merc)`.

Dataset with the lat. / long. of county FIPS codes used for mapping.

Built-in dataset for use with the `bls_map_county()` function. To access the data directly, issue the command `data(county_map_data)`.

Note

Last updated 2017-01-26

Last updated 2017-01-26

dateCast	<i>Cast a date column to data frame returned by the <code>bls_api()</code> function</i>
----------	---

Description

A helper function to create a continuous date from Year and Period columns.

Usage

```
dateCast(api_df = NULL, dt_format = NULL)
```

Arguments

<code>api_df</code>	The data frame you wish to cast a date column to. Be sure the data frame contains 'year' and 'period' columns as returned by the <code>bls_api()</code> function.
<code>dt_format</code>	A character string containing a valid date format. The default will return the ISO 8601 date format.

Examples

```
## Cast a date column to data frame returned by the bls_api() function.
df <- bls_api("LAUCN04001000000005") %>%
dateCast()
```

`get_bls_county`*A function that returns county-level labor statistics*

Description

A function to download and format state employment data. Due to limitations in the data source, the function can only return data from the last 12 months. NOTE: Unlike many other BLS data sets, these data are never estimated, meaning the most current data may be as much as 60 days behind the current data. The county data are also never seasonally adjusted.

Usage

```
get_bls_county(date_mth = NULL, stateName = NULL, ...)
```

Arguments

<code>date_mth</code>	The month you would like data for. Accepts full month names and four-digit year. If NULL, it will return the most recent month in the database.
<code>stateName</code>	is an optional argument if you only want data for certain state(s). The argument is NULL by default and will return data for all 50 states.
<code>...</code>	additional arguments

Examples

```
## Not run:
# Most recent month in the data set.
get_bls_county()

# A specific month
df <- get_bls_county("May 2017")

# Multiple months
df <- get_bls_county(c("April 2017", "May 2017"))

# A specific state
df <- get_bls_county(stateName = "Florida")

# Multiple states, multiple months
df <- get_bls_county(date_mth = "April 2017",
                    stateName = c("Florida", "Alabama"))

## End(Not run)
```

get_bls_state	<i>A function that returns county-level labor statistics</i>
---------------	--

Description

A function to download and format state employment data. These data begin on January 1976 to current. NOTE: The most current data will always be at least 30 days behind the current date, and depending on the day of your query, those numbers may be estimates.

Usage

```
get_bls_state(date_mth = NULL, seasonality = TRUE, ...)
```

Arguments

date_mth	The month or months you would like data for. Accepts full month names and four-digit year.
seasonality	TRUE or FALSE. The default value is TRUE.
...	additional arguments

Examples

```
## Not run:  
# Single series  
get_bls_state(date_mth = "May 2016", seasonality = TRUE)  
  
# Multiple series  
get_bls_state(date_mth = c("April 2016", "May 2016"), seasonality = FALSE)  
  
## End(Not run)
```

inflation_adjust	<i>Convert the Value of a US Dollar to a Given Year</i>
------------------	---

Description

Returns a data frame that uses data from the Consumer Price Index (All Goods) to convert the value of a US Dollar [\$1.00 USD] over time.

Usage

```
inflation_adjust(base_year = NA, ...)
```

Arguments

base_year = A string or integer argument to represent the base year that you would like dollar values converted to. For example, if you want to see the value of a 2007 dollar in 2015, you would select 2015 as a base year and find 2007 in the table.

... additional arguments

Examples

```
## Get historical USD values based on a 2010 dollar.
values <- inflation_adjust(base_year = 2015)
```

map_bls *choropleth mapping of BLS data*

Description

Return a ggplot object to render a choropleth map with state and/or county outlines. The map files contain 2016 FIPS codes and can be used with any data set containing county and state FIPS codes. They can not be used with the leaflet package but the shape files can be downloaded from the Census website or with the tigris package. See the "Mapping BLS Data" vignette for this package.

Usage

```
map_bls(map_data, fill_rate = NULL, labtitle = NULL,
        stateName = NULL, projection = NULL, lowFill = "green",
        highFill = "red", ...)
```

Arguments

map_data Dataframe to be used as the map's measures. Usually a result of calls to the get_bls_county() or get_bls_state() functions, but other dataframes, which include FIPS codes may be used as well.

fill_rate Column name from the dataframe that you want to use as a fill value, in quotes. NOTE: This argument is mandatory!

labtitle The main title label for your map passed as a string. The default is no title.

stateName Optional argument if you only want to map a single state or a group of selected states. The argument accepts state full state names in quotes.

projection Choices of map projection are "lambert" or "mercator". By default, the function selects Lambert for county data and Mercator for single states. and Lambert for nationwide views.

lowFill The fill color of the lower values being mapped. The default color is green, but can be changed to any color accepted by ggplot2::scale_fill_gradient.

highFill The fill color of the higher values being mapped. The default color is green, but can be changed to any color accepted by `ggplot2::scale_fill_gradient`.

... additional arguments

See Also

<https://cran.r-project.org/package=tigris>

Examples

```
## Not run:
# Download the most current month unemployment statistics on a county level.
df <- get_bls_county()

# Map the unemployment rate by county.
bls_gg <- map_bls(map_data = df, fill_rate = "unemployed_rate",
                 labtitle = "Unemployment Rate")
bls_gg

# Map the unemployment rate for Florida and Alabama.

df <- get_bls_county(stateName = c("Florida", "Alabama"))

bls_gg <- map_bls(map_data=df, fill_rate = "unemployed_rate",
                 stateName = c("Florida", "Alabama"))

bls_gg

# Downlaod state employment statistics for April 2016.
df <- get_bls_state("April 2016", seasonality = TRUE)

# Map the unemployment rate from data set.
bls_gg <- map_bls(map_data = df, fill_rate = "unemployed_rate",
                 labtitle = "Unemployment Rate")
bls_gg

## End(Not run)
```

Description

Return data from the QCEW API. This is separate from the main BLS API and returns quarterly data sliced by industry, area or size. Industry is identified by NIACS code and area is identified by FIPS code. A key is not required for the QCEW API.

Usage

```
qcew_api(year = 2018, qtr = "a", slice = NULL, sliceCode = NULL,
  ...)
```

Arguments

year	These data begin in 2012 and go to the most recent complete quarter. The argument can be entered as an integer or a character. The default is 2012.
qtr	Quarter: This can be any integer between 1 and 4, or "A" for annual. The argument can be entered as an integer or a character. The default is 1, which returns the first quarter.
slice	The slice should be one of the three data slices offered by the API; "industry", "area", or "size."
sliceCode	The slice codes depend on what slice you select. For example, if you select the "area" slice, your sliceCode should be a FIPS code. If you select "industry," your sliceCode should be a NIACS code. There are three internal data sets containing acceptable slice codes to help with selections; <code>blscrapeR::niacs</code> contains industry codes and descriptions, <code>blscrapeR::area_titles</code> contains FIPS codes and area descriptions, and <code>blscrapeR::size_titles</code> contains industry size codes. These codes can be used for the sliceCode argument.
...	additional arguments

See Also

https://data.bls.gov/cew/doc/access/csv_data_slices.htm

Examples

```
# A request for the employment levels and wages for NIACS 5112: Software Publishers.
dat <- qcew_api(year=2017, qtr="a", slice="industry", sliceCode=5112)
```

quick_employed_level *Quick employed level*

Description

Returns the employment level. SeriesID: LNS12000000 If you installed a BLS_KEY with the `set_bls_key()` function, it will detect it and use your key. This counts against your daily query limit.

Usage

```
quick_employed_level()
```

Examples

```
## Not run:  
df <- quick_employed_level()  
  
## End(Not run)
```

quick_employed_rate *Quick employed rate*

Description

Returns the "employment to population ratio." SeriesID: LNS12300000 If you installed a BLS_KEY with the set_bls_key() function, it will detect it and use your key. This counts against your daily query limit.

Usage

```
quick_employed_rate()
```

Examples

```
## Not run:  
df <- quick_employed_rate()  
  
## End(Not run)
```

quick_laborForce_level
Quick Civilian Labor Force Level

Description

Returns the civilian labor force level. SeriesID: LNS11000000. If you installed a BLS_KEY with the set_bls_key() function, it will detect it and use your key. This counts against your daily query limit.

Usage

```
quick_laborForce_level()
```

Examples

```
## Not run:  
df <- quick_laborForce_level()  
  
## End(Not run)
```

quick_laborForce_rate *Quick Civilian Labor Force Rate*

Description

Returns the civilian labor force participation rate. SeriesID: LNS11300000. If you installed a BLS_KEY with the set_bls_key() function, it will detect it and use your key. This counts against your daily query limit.

Usage

```
quick_laborForce_rate()
```

Examples

```
## Not run:  
df <- quick_laborForce_rate()  
  
## End(Not run)
```

quick_nonfarm_employed
Quick total nonfarm employment

Description

Returns the Total Nonfarm Payroll Employment, seasonally adjusted. BLS id CES0000000001. If you installed a BLS_KEY with the set_bls_key() function, it will detect it and use your key. This counts against your daily query limit.

Usage

```
quick_nonfarm_employed()
```

Examples

```
## Not run:  
df <- quick_nonfarm_employed()  
  
## End(Not run)
```

quick_unemp_level	<i>Quick unemployment level function</i>
-------------------	--

Description

Returns the unemployment level. SeriesID: LNS13000000. If you installed a BLS_KEY with the set_bls_key() function, it will detect it and use your key. This counts against your daily query limit.

Usage

```
quick_unemp_level()
```

Examples

```
## Not run:  
df <- quick_unemp_level()  
  
## End(Not run)
```

quick_unemp_rate	<i>Quick unemployment rate function</i>
------------------	---

Description

Returns the "official" unemployment rate. That is, seasonally adjusted, 16 year and over, or the "U-3" rate. SeriesID: LNS14000000. If you installed a BLS_KEY with the set_bls_key() function, it will detect it and use your key. This counts against your daily query limit.

Usage

```
quick_unemp_rate()
```

Examples

```
## Not run:  
df <- quick_unemp_rate()  
  
## End(Not run)
```

search_ids	<i>Search the internal series_id data set.</i>
------------	--

Description

Search the internal series_id data set.

Usage

```
search_ids(keyword = NULL, periodicity_code = NULL, ...)
```

Arguments

keyword	The keyword you want to search. This can be a fuzzy search of multiple keywords. For example "unemployment women".
periodicity_code	The period of time of the surveys you are interested in. This is usually monthly, quarterly or annually. You can type full words or beginning letters. For example, periodicity_code = "m" or periodicity_code = "monthly".
...	additional arguments

Examples

```
# Search for monthly Unemployment Rates for Women
ids <- search_ids(keyword = c("Unemployment Rate", "Women"), periodicity_code = "M")
```

set_bls_key	<i>Install a BLS API Key in Your .Renvirom File for Repeated Use</i>
-------------	--

Description

This function will add your BLS API key to your .Renvirom file so it can be called securely without being stored in your code. After you have installed your key, it can be called any time by typing Sys.getenv("BLS_KEY") and can be used in package functions by simply typing BLS_KEY. If you do not have an .Renvirom file, the function will create one for you. If you already have an .Renvirom file, the function will append the key to your existing file, while making a backup of your original file for disaster recovery purposes.

Usage

```
set_bls_key(key = NA, overwrite = NA)
```


Arguments

key	The API key provided to you from the BLS formatted in quotes. A key can be acquired at https://data.bls.gov/registrationEngine/
overwrite	If this is set to TRUE, it will overwrite an existing BLS_KEY that you already have in your .Renvirom file.

Examples

```
## Not run:
set_bls_key("111111abc")
# First time, relead your enviornment so you can use the key without restarting R.
readRenvirom("~/Renvirom")
# You can check it with:
Sys.getenv("BLS_KEY")

## End(Not run)

## Not run:
# If you need to overwrite an existing key:
set_bls_key("111111abc", overwrite = TRUE)
# First time, relead your enviornment so you can use the key without restarting R.
readRenvirom("~/Renvirom")
# You can check it with:
Sys.getenv("BLS_KEY")

## End(Not run)
```

state_map_data	<i>Dataset for mapping U.S. states</i>
----------------	--

Description

A fortified data set that includes U.S. states and is suitable for making maps with ggplot2. The county FIPS codes and boundary lines from the most recent TIGER release from the U.S. Census Bureau.

- long: State longitude
- lat: State latitude
- order: Polygon order
- hole: hole
- piece: Polygon piece
- id: FIPS Code
- group: group

Usage

```
data(state_map_data)
```

Format

A data frame with 13,660 rows and 7 variables

Details

Dataset with the lat. / long. of county FIPS codes used for mapping.

Built-in dataset for use with the `bls_map_state()` function. To access the data directly, issue the command `datastate_map_data`.

Note

Last updated 2017-01-26

`urlExists`

urlExists

Description

A utility function to run a `tryCatch` on a URL.

Usage

```
urlExists(target)
```

Arguments

`target` `url`

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