Package ‘bea.R’

February 23, 2018

Title Bureau of Economic Analysis API
Version 1.0.6
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Depends R (>= 3.2.1), data.table
Imports httr, DT, shiny, jsonlite, googleVis, shinydashboard, ggplot2,
stringr, chron, gtable, scales, htmltools, httpuv, xtable,
stringi, magrittr, htmlwidgets, Rcpp, munsell, colorspace,
plyr, yaml
Description Provides an R interface for the Bureau of Economic Analysis (BEA)
API (see <http://www.bea.gov/API/bea_web_service_api_user_guide.htm> for
more information) that serves two core purposes -
1. To Extract/Transform/Load data [beaGet()] from the BEA API as R-friendly
   formats in the user's work space [transformation done by default in beaGet()]
can be modified using optional parameters; see, too, bea2List(), bea2Tab()].
2. To enable the search of descriptive meta data [beaSearch()].
Other features of the library exist mainly as intermediate methods
or are in early stages of development.
Important Note - You must have an API key to use this library.
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LazyData no
RoxygenNote 6.0.1
NeedsCompilation no
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Repository CRAN
Date/Publication 2018-02-23 19:30:19 UTC
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**bea2List**

*Convert BEA API httr response payload to list*

**Description**

Convert BEA API httr response payload to list

**Usage**

```
bea2List(beaPayload, isMeta = FALSE)
```

**Arguments**

- `beaPayload` An object with httr class 'response' from call to BEA API
- `isMeta` Special parameter meant to interact with metadata functions (default: FALSE)

**Value**

An object of class 'list' of several dimensions. View list structure using 'str(yourList)'.

**Examples**

```
userSpecList <- list('UserID' = 'yourKey',
                    'Method' = 'GetData',
                    'datasetname' = 'NIPA',
                    'Frequency' = 'A',
                    'TableID' = '68',
                    'Year' = 'X')
resp <- beaGet(userSpecList, asTable = FALSE)
BL <- bea2List(resp)
```
bea2Tab

Convert BEA API httr response or list payload to data.table

Description
Convert BEA API httr response or list payload to data.table. Also, converts LONG data frame (default API format - see bea2List results) to WIDE data (with years as columns) by default.

Usage
bea2Tab(beaPayload, asWide = TRUE, iTableStyle = TRUE)

Arguments
beaPayload An object of class 'list' or httr 'response' returned from beaGet() call to BEA API
asWide Return data.table in wide format (default: TRUE)
iTableStyle If "asWide = TRUE", setting "iTableStyle = TRUE" will return data.table in same format as shown on BEA website, with dates and attributes as column headers and series as rows; otherwise, results have series codes as column headers (default: TRUE)

Value
An object of class 'data.table' containing data from beaGet(...) with custom attributes(BDT)$params.

Examples
userSpecList <- list('UserID' = 'yourKey', 'Method' = 'GetData', 'datasetname' = 'NIPA', 'Frequency' = 'A', 'TableID' = '68', 'Year' = 'X')
resp <- beaGet(userSpecList)
BDT <- bea2Tab(resp)

beaget
Pass list of user specifications (including API key) to return data from BEA API.

Description
Pass list of user specifications (including API key) to return data from BEA API.
beaparams

Usage

beaGet(beaSpec, asString = FALSE, asList = FALSE, asTable = TRUE, asWide = TRUE, isMeta = FALSE, iTableStyle = TRUE)

Arguments

beaSpec A list of user specifications (required). In this example, 'GetData' specifies that we want data values (rather than metadata), 'NIPA' specifies the dataset, 'A' specifies that we want annual data, 'TableID' = '68' gets a specific table, and 'X' gets all years. See BEA API documentation or use metadata methods for complete lists of parameters.

asString Return result body as a string (default: FALSE)
asList Return result body as a list (default: FALSE)
asTable Return result body as a data.table (default: TRUE)
asWide Return data.table in wide format (default: TRUE)
isMeta Special parameter meant to interact with metadata functions (default: FALSE)
iTableStyle If "asWide = TRUE", setting "iTabelleStyle = TRUE" will return data.table in same format as shown on BEA website, with dates and attributes as column headers and series as rows; otherwise, results have series codes as column headers (default: TRUE)

Value

By default, an object of class 'list' of several dimensions. View list structure using 'str(yourList)'.

Examples

userSpecList <- list('UserID' = 'yourAPIKey',
'Method' = 'GetData',
'datasetname' = 'NIPA',
'Frequency' = 'A',
'TableID' = '68',
'Year' = 'X')
BDT <- beaGet(userSpecList, asTable = TRUE)

beaparams Gives list of parameters possible for a given dataset

Description

Gives list of parameters possible for a given dataset

Usage

beaparams(beaKey, setName)
**beaParamVals**

**Arguments**

- **beaKey**: Your API key
- **setName**: Name of BEA dataset (e.g., 'NIPA')

**Value**

A metadata object of class 'list' of several dimensions. View list structure using 'str(yourList)'.

**Examples**

`beaParams('yourAPIkey', 'RegionalData')`

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**beaParamVals**

*Gives list of values possible for a given dataset's parameters*

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**Description**

Gives list of values possible for a given dataset's parameters

**Usage**

`beaParamVals(beaKey, setName, paramName)`

**Arguments**

- **beaKey**: Your API key
- **setName**: Name of BEA dataset (e.g., NIPA)
- **paramName**: Name of BEA dataset parameter (e.g., TableID)

**Value**

A metadata object of class 'list' of several dimensions. View list structure using 'str(yourList)'.

**Examples**

`beaParamVals('yourAPIkey', 'RegionalData', 'keycode')`
beaSearch

*Search a selection of indexed BEA data table names, series labels, and series codes.*

**Description**

Searches indexed dataset table name, label, and series codes. CAUTION: Currently only works with NATIONAL datasets (NIPA, NIUnderlyingDetail, FixedAssets), temporarily excluding FixedAssets, and REGIONAL datasets (RegionalProduct, RegionalIncome).

**Usage**

```r
beaSearch(searchTerm, beaKey = NULL, asHtml = FALSE)
```

**Arguments**

- `searchTerm`: A word or phrase of class 'character' to be found in BEA datasets
- `beaKey`: Character string representation of user API key. Necessary for first time use and updates; recommended for anything beyond one-off searches from the console.
- `asHtml`: Option to return results as DT markup, viewable in browser. Allows search WITHIN YOUR ALREADY-FILTERED RESULTS ONLY. Requires package 'DT' to be installed.

**Value**

An object of class 'data.table' with information about all indexed sets in which the search term was found.

**Examples**

```r
beaSearch('gross domestic product', asHtml = TRUE)
```

beaSets

*Returns a list of all datasets*

**Description**

Returns a list of all datasets

**Usage**

```r
beaSets(beaKey)
```

**Arguments**

- `beaKey`: Your API key
**beaUpdateMetadata**

**Value**
A metadata object of class 'list' of several dimensions. View list structure using 'str(yourList)'.

**Examples**
```
beaSets('yourAPIkey')
```

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**beaUpdateMetadata**  
*Download BEA metadata into library/data folder if needed*

**Description**
Download BEA metadata into library/data folder if needed

**Usage**
```
beaUpdateMetadata(datasetList, beaKey)
```

**Arguments**
- `datasetList` list of BEA datasets to update local metadata file for (e.g., list('NIPA', 'FixedAssets'))
- `beaKey` Your API key

**Value**
Nothing. This updates local .RData files to be used in beaSearch.

**Examples**
```
beaUpdateMetadata(list('RegionalData', 'NIPA'), beaKey = 'yourAPIkey')
```

---

**beaViz**  
*Visualize BEA API response payload*

**Description**
When entered into the R console, the function below starts an interactive dashboard. CAUTION: Currently only works with NATIONAL datasets (NIPA, NIUnderlyingDetail, FixedAssets). R Studio users must opt to "show in browser" for this method to be fully functional.

**Usage**
```
beaViz(beaPayload = NULL, beaKey = NULL)
```
Arguments

beaPayload An httr response from call to BEA API
beaKey Your 36-digit BEA API key

Examples

```r
userSpecList <- list('UserID' = 'yourKey',
                    'Method' = 'GetData',
                    'datasetname' = 'NIPA',
                    'Frequency' = 'A',
                    'TableID' = '68',
                    'Year' = 'X')
resp <- beaGet(userSpecList)
BDF <- beaViz(resp)
userSpecList <- list('UserID' = 'yourKey',
                    'Method' = 'GetData',
                    'datasetname' = 'NIPA',
                    'Frequency' = 'A',
                    'TableID' = '68',
                    'Year' = 'X')
```
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