Package ‘tradestatistics’

June 30, 2023

Type Package
Title Open Trade Statistics API Wrapper and Utility Program
Version 4.5.0
Description Access 'Open Trade Statistics' API from R to download international trade data.
License Apache License (>= 2)
URL https://docs.ropensci.org/tradestatistics/
BugReports https://github.com/ropensci/tradestatistics/issues/
Depends R (>= 2.10)
Imports crul, data.table, digest, jsonlite, memoise, utils
Suggests covr, knitr, rmarkdown, testthat (>= 2.1.0), tibble, vcr
VignetteBuilder knitr
Encoding UTF-8
LazyData TRUE
RoxygenNote 7.2.3
NeedsCompilation no
Author Mauricio Vargas [aut, cre, cph]
  (<https://orcid.org/0000-0003-1017-7574>),
  Joshua Kunst [ctb] (contributed to different parts of the pre-release code),
  Alexey Kravchenko [ctb] (reviewed 2021 version of the API),
  Emma Mendelsohn [ctb] (updated the functions to take available years from the API instead of hardcoded values),
  Daniela de los Santos [ctb] (proposed improvements to default parameters),
  Emily Riederer [rev] (reviewed the package for rOpenSci, see https://github.com/ropensci/onboarding/issues/274),
  Mark Padgham [rev] (reviewed the package for rOpenSci, see https://github.com/ropensci/onboarding/issues/274),
  Amanda Dobbyn [rev] (reviewed a previous package that evolved into the current package for rOpenSci, see

1
OTS Commodities

Description

Official commodity names from the Harmonized System rev 2012 (HS12, six digits detail).

Usage

ots_commodities

Format

A data frame with 5,304 observations on the following 4 variables

- commodity_code
  Code of every commodity (e.g. 010110)
- commodity_fullname_english
  HS commodity names (e.g. 'Horses, asses, mules and hinnies; live, pure-bred breeding animals')
- section_code
  Section code (e.g. 01)
- section_fullname_english
  Section name (e.g. 'Live animals and animal products')
ots_commodities_short

Source
Open Trade Statistics

Description
Official commodity names from the Harmonized System rev 2012 (HS12, four digits detail).

Usage
ots_commodities_short

Format
A data frame with 1,225 observations on the following 2 variables
- commodity_code: Code of every commodity (e.g. 010110)
- commodity_fullname_english: HS commodity names (e.g. 'Horses, asses, mules and hinnies; live, pure-bred breeding animals')
- section_code: Section code (e.g. 01)
- sectionfullname_english: Section name (e.g. 'Live animals and animal products')

Source
Open Trade Statistics

ots_commodity_code

Description
String matching of official commodity/section names and Harmonized System (HS) codes according to the United Nations nomenclature

Usage
ots_commodity_code(commodity = NULL, section = NULL)

Arguments
- commodity: A text string such as "Animals", "COPPER" or "fruits".
- section: A text string such as "meat", "FISH" or "Dairy".
Value

A tibble with all possible matches (no uppercase distinction) showing the commodity name and commodity code

Examples

```r
ots_commodity_code(commodity = "ANIMALS ")
ots_commodity_code(section = " fish")
ots_commodity_code(commodity = "Milk", section = "Dairy")
```

<table>
<thead>
<tr>
<th>ots_countries</th>
<th>OTS Countries</th>
</tr>
</thead>
</table>

Description

Official country names, ISO-3 codes, continent and EU membership.

Usage

```r
ots_countries
```

Format

A data frame with 264 observations on the following 5 variables

- `country_iso`: ISO code of the country (e.g. "chl" means Chile)
- `country_name_english`: Country name (e.g. Germany)
- `country_fullname_english`: Country name with indications (e.g. Germany (former Federal Republic of Germany until 1990))
- `continent_id`: Numeric id of the continent where the country belongs to
- `continent_name_english`: Continent where the country belongs to

Source

Open Trade Statistics
ots_countries_colors  

OTS Countries Colors

Description
Unofficial colors to ease visualization for countries.

Usage
ots_countries_colors

Format
A data frame with 276 rows and 3 variables
- continent_id Numeric id of the continent where the country belongs to
- country_iso ISO code of the country (e.g. "chl" means Chile)
- country_color Section hex color (e.g. '#D05555')

Source
Open Trade Statistics

ots_country_code  

String matching of official country names and ISO-3 codes according to the United Nations nomenclature

Description
Takes a text string and searches within the package data for a country code in the context of valid API country codes.

Usage
ots_country_code(countryname = NULL)

Arguments
countryname A text string such as "Chile", "CHILE" or "CHL".

Value
A single character if there is a exact match (e.g. ots_country_code("Chile")) or a tibble in case of multiple matches (e.g. ots_country_code("Germany"))
Examples

```r
ots_country_code("Chile ")
ots_country_code("america")
ots_country_code("UNITED STATES")
ots_country_code(" united.")
```

**Description**

Downloads and processes the data from the API to return a human-readable tibble

**Usage**

```r
ots_create_tidy_data(
  years = 2019,
  reporters = "all",
  partners = "all",
  commodities = "all",
  sections = "all",
  table = "yr",
  max_attempts = 5,
  use_cache = FALSE,
  file = NULL
)
```

**Arguments**

<table>
<thead>
<tr>
<th>Argument</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>years</td>
<td>Year contained within the years specified in api.tradestatistics.io/year_range (e.g. c(2002, 2004), c(2002:2004) or 2002). Default set to 2019.</td>
</tr>
<tr>
<td>reporters</td>
<td>ISO code for reporter country (e.g. &quot;chl&quot;, &quot;Chile&quot; or c(&quot;chl&quot;, &quot;Peru&quot;)). Default set to &quot;all&quot;.</td>
</tr>
<tr>
<td>partners</td>
<td>ISO code for partner country (e.g. &quot;chl&quot;, &quot;Chile&quot; or c(&quot;chl&quot;, &quot;Peru&quot;)). Default set to &quot;all&quot;.</td>
</tr>
<tr>
<td>commodities</td>
<td>HS commodity codes (e.g. &quot;0101&quot;, &quot;01&quot; or search matches for &quot;apple&quot;) to filter commodities. Default set to &quot;all&quot;.</td>
</tr>
<tr>
<td>sections</td>
<td>HS section codes (e.g. &quot;01&quot;). Default set to &quot;all&quot;.</td>
</tr>
<tr>
<td>table</td>
<td>Character string to select the table to obtain the data. Default set to yr (Year-Reporter). Run ots_tables in case of doubt.</td>
</tr>
<tr>
<td>max_attempts</td>
<td>How many times to try to download data in case the API or the internet connection fails when obtaining data. Default set to 5.</td>
</tr>
<tr>
<td>use_cache</td>
<td>Logical to save and load from cache. If TRUE, the results will be cached in memory if file is NULL or on disk if ‘file’ is not NULL. Default set to FALSE.</td>
</tr>
<tr>
<td>file</td>
<td>Optional character with the full file path to save the data. Default set to NULL.</td>
</tr>
</tbody>
</table>
Value

A tibble that describes bilateral trade metrics (imports, exports, trade balance and relevant metrics such as exports growth w/r to last year) between a reporter and partner country.

Examples

```r
## Not run:
# The next examples can take more than 5 seconds to compute,
# so these are just shown without evaluation according to CRAN rules

# Run `ots_countries` to display the full table of countries
# Run `ots_commodities` to display the full table of commodities

# What does Chile export to China? (2002)
ots_create_tidy_data(years = 2002, reporters = "chl", partners = "chn")

# What can we say about Horses export in Chile and the World? (2002)
ots_create_tidy_data(years = 2002, commodities = "010110", table = "yc")
ots_create_tidy_data(years = 2002, reporters = "chl", commodities = "010110", table = "yrc")

# What can we say about the different types of apples exported by Chile? (2002)
ots_create_tidy_data(years = 2002, reporters = "chl", commodities = "apple", table = "yrc")

## End(Not run)
```

Description

Distance between countries, alongside colonial relation, common language, and continuity.

Usage

```r
ots_distances
```

Format

A data frame with 22,791 rows and 8 variables

- `country1`: First ISO-3 code in the dyad (alphabetical order)
- `country2`: Second ISO-3 code in the dyad (alphabetical order)
- `dist`: Distance between most populated cities (in kilometers)
- `distcap`: Distance between capitals (in kilometers)
- `colony`: Variable coded as 1 when the two countries are or were in a colonial relation
- `comlang_ethno`: Variable coded as 1 when the two countries have at least 9% of their population speaking the same language
- `comlang_off`: Variable coded as 1 when the two countries share the same official language
- `contig`: Variable coded as 1 when the two countries are next to each other and 0 otherwise
Source
Adapted from CEPII

<table>
<thead>
<tr>
<th>ots_gdp_deflator</th>
<th>GDP Deflator</th>
</tr>
</thead>
</table>

Description
Year to year GDP deflator some of the countries in the OTS database. For countries not available in the World Bank database, rows labelled as "wld" are provided, which were computed as the weighted median for each year using the GDP of listed countries for each year expressed as constant dollars of the year 2010.

Usage
ots_gdp_deflator

Format
A data frame with 7,238 observations on the following 4 variables
- country_iso: ISO code of the country (e.g. "chl" means Chile)
- from: Integer values in the range 1980-2018
- to: Integer values in the range 1981-2019
- gdp_deflator: Numeric value expressed as one plus 1-year deflator

Source
Open Trade Statistics

<table>
<thead>
<tr>
<th>ots_gdp_deflator_adjustment</th>
<th>Expresses tidy data from the API in dollars of a reference year</th>
</tr>
</thead>
</table>

Description
Uses GDP deflator records from The World Bank to convert trade records and express them in dollars of the same year. The records are internally subsetted to World’s values, because country specific levels would largely re-scale observations for reporters that reflect unstable macroeconomic policies.

Usage
ots_gdp_deflator_adjustment(trade_data = NULL, reference_year = NULL)
ots_sections

Arguments

  trade_data  A tibble obtained by using ots_create_tidy_data. Default set to NULL.
  reference_year  Year contained within the years specified in api.tradestatistics.io/year_range (e.g. 2010). Default set to NULL.

Examples

## Not run:
# The next example can take more than 5 seconds to compute,
# so this is shown without evaluation according to CRAN rules

# Convert dollars of 2010 to dollars of 2000
d <- ots_create_tidy_data(years = 2010, reporters = "chl", partners = "chn")
ots_gdp_deflator_adjustment(trade_data = d, reference_year = 2000)

## End(Not run)

---

<table>
<thead>
<tr>
<th>ots_sections</th>
<th>OTS Sections</th>
</tr>
</thead>
</table>

Description

Official section names from the Harmonized System rev 2012 (HS12).

Usage

ots_sections

Format

A data frame with 22 rows and 2 variables

  * section_codeSection code (e.g. '01')
  * section_fullname_englishSection hex color (e.g. 'Live animals and animal products')

Source

Adapted from UN COMTRADE
ots_sections_colors  OTS Sections Colors

Description
Unofficial colors to ease visualization for the sections in the Harmonized System rev 2012 (HS12).

Usage
ots_sections_colors

Format
A data frame with 22 rows and 2 variables
- section_codeSection code (e.g. '01')
- section_colorSection hex color (e.g. '#74c0e2')

Source
Open Trade Statistics

ots_tables  OTS Tables

Description
Existing API tables with both description and source.

Usage
ots_tables

Format
A data frame with 16 rows and 3 variables
- tableTable name
- descriptionDescription of table contents
- sourceSource for the data (OTS tables are processed after UN Comtrade raw data)

Source
Open Trade Statistics
Index

* datasets
  - ots_commodities, 2
  - ots_commodities_short, 3
  - ots_countries, 4
  - ots_countries_colors, 5
  - ots_distances, 7
  - ots_gdp_deflator, 8
  - ots_sections, 9
  - ots_sections_colors, 10
  - ots_tables, 10

* functions
  - ots_commodity_code, 3
  - ots_country_code, 5
  - ots_create_tidy_data, 6
  - ots_gdp_deflator_adjustment, 8

ots_commodities, 2
ots_commodities_short, 3
ots_commodity_code, 3
ots_countries, 4
ots_countries_colors, 5
ots_country_code, 5
ots_create_tidy_data, 6
ots_distances, 7
ots_gdp_deflator, 8
ots_gdp_deflator_adjustment, 8
ots_sections, 9
ots_sections_colors, 10
ots_tables, 10