Package 'ARDECO'

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Type Package

Title Annual Regional Database of the European Commission (ARDECO)

Version 2.1.0

Description A set of functions to access the 'ARDECO' (Annual Regional Database of the European Commission) data directly from the official ARDECO public repository through the exploitation of the 'ARDECO' APIs.
The APIs are completely transparent to the user and the provided functions provide a direct access to the 'ARDECO' data.
The 'ARDECO' database is a collection of variables related to demography, employment, labour market, domestic product, capital formation.
Each variable can be exposed in one or more units of measure as well as refers to total values plus additional dimensions like economic sectors, gender, age classes. Data can be also aggregated at country level according to the tercet classes as defined by EUROSTAT.
The description of the 'ARDECO' database can be found at the following URL <https://urban.jrc.ec.europa.eu/ardeco>.

Depends R (>= 4.2.0),

Imports httr, ghql, jsonlite, stringr, dplyr, tidyr

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Description

This package provide a set of functions to access the ARDECO data directly from the official ARDECO public repository through the exploitation of the ARDECO API. The API are completely transparent to the user and the provided functions provide a direct access to the ARDECO data. The ARDECO (Annual Regional Database of the European Commission) database is a collection of variables related to demography, employment, labour market, domestic product, capital formation. Each variable can be exposed in one or more units of measure as well as refers to total values plus specific values related to different dimensions defined for each variable. For example, sex, age or economic sectors (NACE sectors as defined by EUROSTAT). In addition, for each variable having data at nuts level 3, it's possible to require aggregated data at tercet classes. Currently the available tercet are Urban-Rural typology and Urban-Rural typology with remoteness The description of the ARDECO database can be found at the following URL https://urban.jrc.ec.europa.eu/ardeco

The exposed funtions

This package provides four functions which are linked between them and have to be used in the following way.

- **ardeco_get_variable_list** - to recover the list of the avavilable variables with related description.
- **ardeco_get_dataset_list** - After having identified the variable of interest, it's possible to identify the list of datasets included into the variable of interest. This function return the list of the dimensions defined into the selected variable with the possible values.
- **ardeco_get_tercet_list** - this function return the list of tercet and related tercet class for which it's possible to aggregate data of a variable.
- **ardeco_get_dataset_data** - To recover the data related to a variable it's possibile to do it by using just the variable code (recovering all variable data) or filtering it using unit, nuts version, levels, year, nutscode and all optional additional dimension (like sector, age, sex) recovered by ardeco_get_dataset_list.

Examples

```
ardeco_get_variable_list()
ardeco_get_dataset_list('SNPTN')
ardeco_get_tercet_list('SNPTN')
ardeco_get_dataset_data('SNPTN', version=2021, level='0', nutscode='LT', year='2020')
```

ardeco_get_dataset_data

ardeco_get_dataset_data

Description

The function recover the data via API of the dataset specified in input applying the optional filters and return the list of data in data frame format.

Usage

```
ardeco_get_dataset_data(variable, ...)
```

Arguments

`variable`	mandatory: the code of variable
`...`	Other optional parameters to filter according to the different dimensions. This can be: version, level, nutscode, year, unit, tercet and the additional dimensions depending by the selected varable

Details

Each parameter have to be passed using notation **<param-name>='<param-value>'**.

For some Optional parameters it can be used a special notation increasing the filtering options.

FILTERING OPTION FOR PARAMETER **nutscode**

It's possible to require values with nuts codes satisfing multiple conditions, using the character ',' to sepatare the different conditions.

For example: **nutscode='EE,IT'** return only the nuts codes related starting with 'EE' or 'IT', i.e. return all values for Estonia and Italy.

FILTERING OPTION FOR PARAMETERS **year** and **level**

The parameters **year** and **level** are numeric parameters.

A numeric parameter can have a simple value. In this case the function return the values in which the specific parameter is EQUAL to the inserted value.

For example: **level=0** return the values at NUTS0 level.

It's possible to require values satisfing multiple conditions, using the character ',' to require values for different year or level.

For example: **level='0,2'** return the values for level 0 and level 2. Remember to use quote to define the list of values.

It's also possible to filter data defining an interval of years/levels. It can be defined using this notation: **'min-max'** where min and max are the minimun and maximus values. Remember to use quote to define the values interval.

For example: **year='2000-2005'** return the values for the years starting from 2000 to 2005.

FILTERING OPTION FOR PARAMETERS **tercet**

The parameters **tercet** is a numeric parameter corresponding to a tercet class returned by ardeco_get_tercet_list() function.

Using this parameter, the returned values are related to the aggregated data at country level (nuts level 0) for the selected tercet class.

The parameters **tercet** and **level** cannot be use together

For example: **tercet=0** return the values at country level relatet to the tecet class "Predominantly urban"

Value

This function return a data frame including the data related to the selected dataset. The data frame include the following fileds:

- VARIABLE: code of the variable
- VERSION: nuts version of NUTS code.
- LEVEL: level of NUTS code. From 0 to 3 represent NUTS0-3 level; 4 refers to Metropolitan regions, 9 refers data at EU level.
- NUTSCODE: code of the territorial unit of reference. It\'s one of the NUTS code (see EUROSTAT)
- YEAR: year of reference of the value.
- DIM(s): one or mode columns depending by the dimensions defined for the selected dataset
- UNIT: unit of measure of the value.
- VALUE: value of the selected variable related to the date, sector, territory_id, unit, variable

Examples

```
ardeco_get_dataset_data('SNPTN', version=2021, level=0, nutscode='IT', year=2020, sex='Males')
ardeco_get_dataset_data('SUVGD', version=2021, level='0,2', nutscode='EE', year='2018-2020')
```

`ardeco_get_dataset_list`

ardeco_get_dataset_list

Description

The function return the list of dataset linked to a variable through the ARDECO API by defining the varaible code. For each dataset it'ìs returned the code of variable, the unit fo measure, the nuts version and the eventual additional dimensions (like sector, sex, age classes) for which the data is available.

Usage

```
ardeco_get_dataset_list(var_code)
```

Arguments

var_code	one of the code returned by ardeco_get_variable_list()

Value

The set of datasets related to the selected variable. Each dataset is described by: - var: variable code - unit: unit of measure - vers: available nuts version - additioanl dimensions: additional dimensions (like sector, sex, age class) and related permitted values

Examples

```
ardeco_get_dataset_list('SNPTN')
```

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ardeco_get_tercet_list

ardeco_get_tercet_list

Description

The function return the list of the tercet with the related tercet classes for which is possible to agregate variables data. If a variable code is passed, the function returns the tercet classes list for which it's possibile to aggregate data for the selected variable. In general, it's possible to aggregate data at tercet classes if the variable have data at nuts3 level

Usage

```
ardeco_get_tercet_list(var_code)
```

Arguments

var_code	OPTIONAL - one of the code returned by ardeco_get_variable_list()

Value

The list of tercet and related tercet classes for which is possible to aggregate data. - tercet_code: Code of tercet: For example URT (Urban-Rural Typologies) - tercet_name: detailed name of tercet: For example Urban-Rural Typologies - tercet_class_code: code of the tercet class - tercet_class_name: name of the tercet class. For example "Predominantly Urban"

Examples

```
ardeco_get_tercet_list()
ardeco_get_tercet_list('SNPTN')
```

ardeco_get_variable_list *ardeco_get_variable_list*

Description

This function return the list of all available ARDECO variable recovered through the ARDECO API. The function returns the list of code and description of each variable. Code will be used to recover the list of datasets and also the data of a variable.

Usage

```
ardeco_get_variable_list()
```

Details

return the list of the available variables exposed by ARDECO database

Value

This function returns the list of the code and the description of each available variables. The code have to be used in the next functions to recover the datasets and the data values

Examples

```
ardeco_get_variable_list()
```

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