

Package ‘inegiR’

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Type Package

Title Integrate INEGI’s (Mexican Stats Office) API with R

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Description Provides functions to download and parse information from INEGI (Official Mexican statistics agency). To learn more about the API, see <<http://www.inegi.org.mx/desarrolladores/default.aspx>>.

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inegiR-package	<i>Integrate INEGI's (Mexican Stats Office) API with R</i>
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Description

Provides functions to download and parse information from INEGI (Official Mexican statistics agency).

Details

Package: inegiR
 Type: Package
 Version: 2.0
 Date: 2018-03-27

Author(s)

Eduardo Flores <eduardo@enelmargen.org>

References

The INEGI API can be found here: <http://www.inegi.org.mx/desarrolladores/indicadores/apiindicadores.aspx>

auto_production	<i>Auto production</i>
-----------------	------------------------

Description

Returns auto production in Mexico and year-over-year change. Wrapper for `inegi_series()` and `YoY()`.

Usage

```
auto_production(token)
series_produccion_autos(token)
```

Arguments

token API token supplied by INEGI

Value

data.frame

Author(s)

Eduardo Flores

Examples

```
## Not run:
token <- "webservice_token"
Autos <- auto_production(token)

## End(Not run)
```

balance_payments	<i>Balance of Payments</i>
------------------	----------------------------

Description

Returns the main components of balance of payments. Wrapper for `inegi_series()` and `YoY()`.

Usage

```
balance_payments(token)
series_balanza_pagos(token)
```

Arguments

token	API token supplied by INEGI
-------	-----------------------------

Value

data.frame

Author(s)

Eduardo Flores

Examples

```
## Not run:
token<-"webservice_token"
MxBoP <- balance_payments(token)

## End(Not run)
```

city_inflation	<i>Inflation by city</i>
----------------	--------------------------

Description

Returns monthly year-over-year inflation rates for 46 main cities in Mexico. Wrapper for `inegi_series()` and `YoY()`.

Usage

```
city_inflation(token)
inflacion_ciudades(token)
```

Arguments

token token API token supplied by INEGI

Value

data.frame

Author(s)

Eduardo Flores

Examples

```
## Not run:  
token<-"webservice_token"  
cities <- city_inflation(token)  
  
## End(Not run)
```

commerce

Commerce growth rate

Description

Returns commerce growth rate (terciary activity as defined officially by INEGI) vs. same month year earlier. Wrapper for `serie_inegi()` and `YoY()`.

Usage

```
rate_commerce(token)
```

```
tasa_comercio(token)
```

Arguments

token API token supplied by INEGI

Value

Data.frame

Author(s)

Eduardo Flores

Examples

```
## Not run:  
token<-"webservice_token"  
Commerce <- rate_commerce(token)  
  
## End(Not run)
```

compact_inegi_series *Compacts metadata into a data.frame*

Description

Returns data.frame with metadata and data from inegi_series() in data.frame form. Each meta-data data is replicated in its corresponding column.

Usage

```
compact_inegi_series(series, token)
```

Arguments

series	INEGI series as passed to inegi_series()
token	INEGI API token

Author(s)

Eduardo Flores

Examples

```
## Not run:  
df <- compact_inegi_series(GDP_seriescode, token)  
  
## End(Not run)
```

confidence	<i>Consumer confidence</i>
------------	----------------------------

Description

Returns the rate of change in consumer confidence. Month over month is a seasonally adjusted rate, year over year is the original series.

Usage

```
rate_cconfidence(token)
```

```
tasa_confianza(token)
```

Arguments

token	API token supplied by INEGI
-------	-----------------------------

Value

```
data.frame
```

Author(s)

Eduardo Flores

Examples

```
## Not run:  
token<-"webservice_token"  
conf <- rate_cconfidence(token)  
  
## End(Not run)
```

country_exports	<i>Exports by country</i>
-----------------	---------------------------

Description

Returns exports to main trading partners of all products. Regions are the following: United States, Canada, China, CentralAmerica, SouthAmerica Wrapper for `inegi_series()` and `YoY()`.

Usage

```
exports_country(token)
```

```
series_exportaciones_pais(token)
```

Arguments

token API token supplied by INEGI

Value

data.frame

Author(s)

Eduardo Flores

Examples

```
## Not run:  
token <- "webservice_token"  
xbycountry <- exports_country(token)  
  
## End(Not run)
```

crecer

Grows a series by a set rate

Description

When specifying an initial starting value, this "grows" the value by a vector of growth rates. This is a legacy function.

Usage

```
crecer(tasas, comienzo)
```

Arguments

tasas vector with rates
comienzo initial value

Value

numeric

Author(s)

Eduardo Flores

See Also

series_crecimiento_regiones

Examples

```
rates <- c(1.10,1.20,1.05,1.02,1.10)

# Grow by that rate
Results <- crecer(tasas = rates, comienzo = 100)
```

denu	<i>Returns DENUE businesses</i>
------	---------------------------------

Description

Returns data.frame with businesses registered in DENUE in the vicinity of supplied coordinates.

Usage

```
inegi_denu(latitud, longitud, token, metros = 250, keyword = "todos")

denu_inegi(latitud, longitud, token, metros = 250, keyword = "todos")
```

Arguments

latitud	Character vector with latitud (in decimals)
longitud	Character vector with longitud (in decimals)
token	API token supplied by INEGI
metros	Meters to search in a circle from coordinates. Defaults to 250
keyword	Keyword to search in business description (in spanish). Defaults to all (todos).

Value

Data.frame

Author(s)

Eduardo Flores

Examples

```
# All businesses in a 1 km radius from the Macroplaza in Monterrey, Mex.
## Not run:
token<-"webservice_token"
latitud<-"25.669194"
longitud<:"-100.30990"
# in english
businesses <- inegi_denu(latitud, longitud, token, metros = 1000)
# in spanish (legacy)
negocios <- denu_inegi(latitud, longitud, token, metros = 100)
```

```
## End(Not run)
```

denue_grid	<i>Businesses in a grid larger than 5 kms</i>
------------	---

Description

Returns data.frame with businesses registered in the DENUÉ in spaces larger than 5 kilometers. Calls `make_grid`. Functions contributed by Arturo Cardenas <https://github.com/arturocm>.

Usage

```
denue_grid(lat1, lat2, lon1, lon2, token, metros = 5000, keyword = "todos",
           espacio_lat = 0.07, espacio_lon = 0.07, unicos = TRUE)
```

Arguments

lat1	First corner (latitud)
lat2	Second corner (latitud)
lon1	First corner (longitud)
lon2	Second corner (longitud)
token	API token supplied by INEGI
metros	Distance in meters to search by coordinate
keyword	Keyword of businesses to include. Defaults to all ("todos")
espacio_lat	Space between latitud coordinates defaults to 0.07 degrees
espacio_lon	Space between longitud coordinates defaults to 0.07 degrees
unicos	Default = TRUE, eliminates duplicate businesses

Details

Makes a loop for each pair of coordinates, creating a grid to extract businesses inside. Uses maximum and minimum coordinate pairs to draw frame.

Value

Data.frame

Note

Legacy function, will return data in spanish.

Author(s)

Arturo Cardenas

Examples

```
## Not run:
token<-"webservice_token"
latitud1 <- "25.669194"
latitud2 <- "25.169194"
longitud1 <- "-100.30990"
longitud2 <- "-101.20102"
Negocios <- denue_grid(latitud1, latitud2, longitud1, longitud2, token)

## End(Not run)
```

denue_varios_stats *Returns statistics of coordinate*

Description

Returns basic statistics of businesses, using DENUE, in the vicinity of coordinate.

Usage

```
denue_varios_stats(data, col_lat, col_long, token, metros = 250,
  keyword = "todos")
```

Arguments

data	data.frame with columns for latitud and longitudes
col_lat	number of column in data with latitud column
col_long	number of column in data with longitud column
token	API token supplied by INEGI
metros	Distance in meters to search by coordinate
keyword	Keyword of businesses to include. Defaults to all ("todos")

Value

Data.frame

Note

Legacy function, will return data in spanish.

Author(s)

Eduardo Flores

Examples

```
## Not run:
token<-"webservice_token"
df <- as.data.frame(latitud = c(25.669194, 25.121194),
                    longitud = c(-100.30990, -99.81923))
stats <- denue_varios_stats(data = df,
                           col_lat = 1,
                           col_long = 2,
                           metros = 500)

## End(Not run)
```

econ_sectors	<i>Sectorial growth rates</i>
--------------	-------------------------------

Description

Returns growth rate by economic sector as defined in INEGI (subsectors of IGAE). None of the series are seasonally adjusted and percent change is year over year. Wrapper for `serie_inegi()` and `YoY()`.

Usage

```
rate_econsectors(token)

tasa_sectoresYoY(token)
```

Arguments

token API token supplied by INEGI

Value

data.frame

Author(s)

Eduardo Flores

Examples

```
## Not run:
token<-"webservice_token"
sectors <- rate_econsectors(token)

## End(Not run)
```

exchange_rate	<i>Exchange rate</i>
---------------	----------------------

Description

Returns exchange rate (interbank, sale) for pesos to U.S. dollars.

Usage

```
exchange_rate(token)
```

```
series_tipocambio(token)
```

Arguments

token API token supplied by INEGI

Value

Data.frame

Author(s)

Eduardo Flores

Examples

```
## Not run:  
token <- "webservice_token"  
USD <- series_tipocambio(token)  
USD <- exchange_rate(token)  
  
## End(Not run)
```

ext_geo	<i>Extracts INEGI GeoJSON</i>
---------	-------------------------------

Description

Helper function

Usage

```
ext_geo(x)
```

Arguments

x GeoJSON description

Value

Data.frame

GDP	<i>GDP growth rate</i>
-----	------------------------

Description

Returns GDP growth rate vs. same period a year earlier. Wrapper of `serie_inegi()` and `YoY()`.

Usage

```
rate_GDP(token)
```

```
tasa_PIB(token)
```

Arguments

token API token supplied by INEGI

Value

data.frame

Note

BIE route: `Indicadores económicos de coyuntura ... Producto interno bruto trimestral, base 2008 ... Series originales ... Valores a precios de 2008 ... Producto interno bruto, a precios de mercado`

Author(s)

Eduardo Flores

Examples

```
## Not run:
token <- "webservice_token"
# interchangeable
gdp <- rate_GDP(token)
gdp <- tasa_PIB(token)

## End(Not run)
```

get_gas	<i>Gets gas cost from INEGI API</i>
---------	-------------------------------------

Description

Helper function

Usage

```
get_gas(token, onlyPremium = FALSE)
```

Arguments

token	Sakbe API token supplied by INEGI
onlyPremium	Only export premium price

Value

data.frame

IGAE	<i>IGAE growth rate</i>
------	-------------------------

Description

Returns IGAE (Indicador Global de Actividad Economica) growth rate year over year and month over month. Wrapper for `serie_inegi()` and `YoY()`.

Usage

```
rate_IGAE(token)
```

```
tasa_IGAE(token)
```

Arguments

token	token API token supplied by INEGI
-------	-----------------------------------

Details

Month over month is a seasonally-adjusted series, while the original is used for year over year.

Value

data.frame

Author(s)

Eduardo Flores

Examples

```
## Not run:  
token<-"webservice_token"  
igae <- rate_IGAE(token)  
  
## End(Not run)
```

inegi_catalog

INEGI Catalog

Description

A dataset containing some INEGI codes from the most common data requests. This has been collected by manually searching the BIE Website in INEGI, as no official catalog exists.

Usage

```
inegi_catalog
```

Format

A data frame with 54 rows and 10 variables:

NAME Name of data indicador, possibly in spanish

LEVEL_2 Level 2 of desagregation

LEVEL_3 Level 3 of desagregation

LEVEL_4 Level 4 of desagregation

UNITS Units

BASE If they are constant units this is the base year

FREQUENCY Frequency

INEGI_CODE Numeric INEGI code

GROUP Group of codes, manually updated

INEGI_SERIES Series in the form of URL to pass to inegi_series()

Value

data.frame

Author(s)

Eduardo Flores

Source

INEGI. Accessed Jan 2018.

inegi_code	<i>INEGI code to call</i>
------------	---------------------------

Description

This function is a simple paste0() command that allows you to only pass a unique indicator ID to inegi_series(), instead of the entire URL string.

Usage

```
inegi_code(id)
```

Arguments

id	numeric INEGI id number
----	-------------------------

Value

string

Note

Works only for national statistics (00000 geography code)

Author(s)

Eduardo Flores

Examples

```
# Get the corresponding URL for GDP
GPD_ID <- 381016
GDP_CALL_URL <- inegi_code(381016)
```

inegi_destiny	<i>Returns INEGI destiny id's with matching searches</i>
---------------	--

Description

Returns data.frame with id's and coordinates that match with the API names.

Usage

```
inegi_destiny(search, token)
```

Arguments

search	Character vector to search for
token	Sakbe API token supplied by INEGI

Value

Data.frame

Author(s)

Eduardo Flores

Examples

```
# All id's in Monterrey, Mex.
## Not run:
token <- "webservice_token"
dest_ids <- inegi_destiny("monterrey", token)

## End(Not run)
```

inegi_route	<i>Returns the route between two points in Mexico</i>
-------------	---

Description

Uses SAKBE API to return a route between two destiny id's considering the given parameters.

Usage

```
inegi_route(from, to, token, pref, vehicle, calc_cost = FALSE,
            rawJSON = FALSE)
```

Arguments

from	Destiny id from where the route begins
to	Destiny id of end of route
token	Sakbe API token supplied by INEGI
pref	Preference for road: 1 = with tolls (cuota), 2 = without tolls (libre), 2 = suggested route
vehicle	Vehicle choice: 0 = motorcycle, 1 = auto, 2 = two axis bus, 3 = three axis bus, 4 = four axis bus, 5 = two axis truck, 6 = three axis truck, 7 = four axis truck, 8 = five axis truck, 9 = six axis truck, 10 = seven axis truck, 11 = eight axis truck, 12 = nine axis truck.
calc_cost	if TRUE will use the price of gasoline to calculate total cost of trip. Very experimental, defaults to FALSE.
rawJSON	if TRUE returns only the JSON data, not parsed

Value

list

Note

To calculate the cost, it is wiser to use the more conservative estimate. Thus, this function assumes a premium type of gasoline (the most expensive) at the lower end bound of fuel-efficiency (11 kms per liter)

Author(s)

Eduardo Flores

References

See the official API here: <http://www.inegi.org.mx/desarrolladores/sakbe/apisakbe.aspx>

Examples

```
# Macropiazza in Monterrey to Mexico City airport.
## Not run:
token <- "webservice_token"
route <- inegi_route(from = 6940, to = 57, token, pref = 2, vehicle = 1)

## End(Not run)
```

inegi_series	Returns INEGI data series
--------------	---------------------------

Description

Returns a data.frame with the time series chosen from INEGI webservice. If the parameter Metadata is TRUE, a list is returned with two objects: data and metadata.

Usage

```
inegi_series(series, token, metadata = FALSE, coerce = TRUE)
```

```
inegi_series_json(series, token, metadata = FALSE, coerce = TRUE)
```

Arguments

series	Vector with complete url in character, obtained via INEGI
token	API token supplied by INEGI
metadata	Defaults to FALSE, if TRUE, returns a list with metadata information.
coerce	Defaults to TRUE. The bi-weekly indicators will be coerced to monthly. All observations will be kept but in the same day of the month.

Value

data.frame or list

Note

if using JSON url, the "?callback?" at the end of the string is not needed.

Author(s)

Eduardo Flores

Examples

```
## Not run:  
# General INPC series  
token<-"webservice_token"  
url <- "http://www3.inegi.org.mx/sistemas/api/indicadores/v1//Indicador/216064/00000/es/false/xml/"  
INPC <- inegi_series(url, token)  
  
## End(Not run)
```

inflation	<i>Get rate of inflation</i>
-----------	------------------------------

Description

Returns anual inflation rate (national, overall rate). Technically, it is the percent anual change of the INPC index. Wrapper for `serie_inegi()` and `YoY()`.

Usage

```
overall_inflation(token)
```

```
inflacion_general(token)
```

Arguments

token API token supplied by INEGI

Value

data.frame

Author(s)

Eduardo Flores

Examples

```
## Not run:  
token<-"webservice_token"  
inflation <- overall_inflation(token)  
  
## End(Not run)
```

legacy	<i>Miscellaneous functions in spanish</i>
--------	---

Description

Each of these functions return data in the previous (v1.2) format in spanish and have no interchangeable pair in english. See the examples for each series meaning.

Usage

```
series_opiniones(token)
```

```
series_actividad_industrial(token)
```

Arguments

token API token supplied by INEGI

Value

Data.frame

Note

Legacy functions, will return data in spanish and are not actively maintained.

Author(s)

Eduardo Flores

Examples

```
## Not run:
token<-"webservice_token"
# Opinion of bussinesmen in different sectors
dat <- series_opiniones(token)
# Industrial activity (monthly survey)
dat <- series_actividad_industrial(token)

## End(Not run)
```

legacy_productivity *Productivity functions in spanish*

Description

Each of these functions return data in the previous (v1.2) format in spanish and have no interchangeable pair in english. See the examples for each series meaning.

Usage

```
series_productividad_man(token)

series_productividad_const(token)
```

Arguments

token API token supplied by INEGI

Value

Data.frame

Note

Legacy functions, will return data in spanish.

Author(s)

Eduardo Flores

Examples

```
## Not run:  
token <- "webservice_token"  
# Manufacturing productivity, by state  
dat <- series_productividad_man(token)  
# Construction productivity, by state  
dat <- series_productividad_const(token)  
  
## End(Not run)
```

legacy_state

State functions in spanish

Description

Each of these functions return data in the previous (v1.2) format in spanish and have no interchangeable pair in english. See the examples for each series meaning.

Usage

```
series_PIB_estados(token)  
  
series_crecimiento_regiones(token)  
  
series_ITAE_estados(token)
```

Arguments

token API token supplied by INEGI

Details

For detail of calculation of growth by regions, refer to: <http://enelmargen.org/eem/regiones/index.html>

Value

Data.frame

Note

Legacy functions, will return data in spanish.

Author(s)

Eduardo Flores

Examples

```
## Not run:
token <- "webservice_token"
# GDP by state
dat <- series_PIB_estados(token)
# Growth by regions (see details)
dat <- series_crecimiento_regiones(token)
# Trimestral economic activity indicator, by state
dat <- series_ITAE_estados(token)

## End(Not run)
```

make_grid

Makes a grid set of coordinates

Description

Returns a set of coordinates that intertwine to create an area larger than 5 kilometers. Suggestion by Arturo Cardenas <https://github.com/arturocm>.

Usage

```
make_grid(lat1, lat2, lon1, lon2, espacio_lat = 0.07, espacio_lon = 0.07)
```

```
hacer_grid(lat1, lat2, lon1, lon2, espacio_lat = 0.07, espacio_lon = 0.07)
```

Arguments

lat1	First corner (latitud)
lat2	Second corner (latitud)
lon1	First corner (longitud)
lon2	Second corner (longitud)
espacio_lat	Space between latitud coordinates defaults to 0.07 degrees
espacio_lon	Space between longitud coordinates defaults to 0.07 degrees

Value

Data.frame

Author(s)

Arturo Cardenas

See Also

denue_grid

Examples

```
## Not run:
token<-"webservice_token"
latitud1 <- "25.669194"
latitud2 <- "25.169194"
longitud1 <- "-100.30990"
longitud2 <- "-101.20102"
# in spanish (legacy)
setofcoords <- hacer_grid(latitud1, latitud2, longitud1, longitud2)
# in english
setofcoords <- make_grid(latitud1, latitud2, longitud1, longitud2)

## End(Not run)
```

ordenar_porconteo	<i>Order factors by count</i>
-------------------	-------------------------------

Description

Wrapper for rapid ordering in a data.frame. This is a legacy function.

Usage

```
ordenar_porconteo(df, col)
```

Arguments

df	Data.frame
col	Column with factor. (Bare, no parenthesis).

Value

data.frame

Author(s)

Eduardo Flores

See Also

denue_varios_stats

Examples

```
df <- data.frame(factors=c("A", "A", "B", "C", "C", "D", "A", "A"),
                 others=c(1,3,2,4,5,1,2,7))
#order by count
ByCount <- ordenar_porconteo(df, factors)
```

serie_inegi

Obtiene serie de tiempo de INEGI

Description

Regresa data.frame con la serie de tiempo escogida, al buscar en el webservice del INEGI y parsear via XML y ZOO. Si parametro Metadata=TRUE, regresa lista con indicadores meta y datos. Es una de las funciones primitivas del paquete.

Usage

```
serie_inegi(serie, token, metadata = FALSE, coercionar = TRUE)
```

```
serie_inegi_json(serie, token, metadata = FALSE, coercionar = TRUE)
```

Arguments

serie	Vector en caracter de url de dirección. Este es un método directo (se requiere de URL en formato XML, con token)
token	token personal emitido por el INEGI para acceder al API.
metadata	Default = FALSE, si TRUE, parsea una lista con metadatos de serie.
coercionar	Por default (TRUE), los indicadores quincenales serán coercionados a mensuales. Aparecerán todas las observaciones pero en el mismo día del mes a pesar de estar en diferentes quincenas. Para usar días = FALSE.

Value

Dataframe o lista

Note

La instancia "?callback?", requerida por la documentación del INEGI para series JSON no es necesaria.

Author(s)

Eduardo Flores

Examples

```
## Not run:
#Serie de INPC General
token<-"webservice_token"
url <- "http://www3.inegi.org.mx/sistemas/api/indicadores/v1//Indicador/216064/00000/es/false/xml/"
Serie <- serie_inegi(url, token)

## End(Not run)
```

student_inflation	<i>Student Price Index Inflation</i>
-------------------	--------------------------------------

Description

Returns the calculated inflation for students. See <http://enelmargen.org/eem/ipe/> for more information.

Usage

```
inflacion_estudiantes(token)
```

Arguments

token	API token supplied by INEGI
-------	-----------------------------

Value

Data.frame

Author(s)

Eduardo Flores

Examples

```
## Not run:
token<-"webservice_token"
studentinflation <- inflacion_estudiantes(token)

## End(Not run)
```

terms_trade	<i>Terms of trade</i>
-------------	-----------------------

Description

Returns the terms of trade for Mexico, defined as the price index of exports over the price index of imports. Wrapper for `inegi_series()` and `YoY()`.

Usage

```
trade_terms(token)
```

```
inflacion_tot(token)
```

Arguments

token API token supplied by INEGI

Value

data.frame

Author(s)

Eduardo Flores

Examples

```
## Not run:  
token <- "webservice_token"  
tot <- trade_terms(token)  
  
## End(Not run)
```

trade_balance	<i>Trade balance</i>
---------------	----------------------

Description

Returns exports, imports and trade balance (all products, services and countries) in a data.frame. Wrapper for `inegi_series()` and `YoY()`.

Usage

```
trade_balance(token)
```

```
series_balanza_comercial(token)
```

Arguments

token API token supplied by INEGI

Value

data.frame

Author(s)

Eduardo Flores

Examples

```
## Not run:  
token<-"webservice_token"  
external_com <- trade_balance(token)  
  
## End(Not run)
```

ultimos *Returns n most recent data points*

Description

Wrapper for other functions

Usage

```
ultimos(serie, col = "Fechas", n = 12)
```

Arguments

serie serie in data.frame
col Column with dates
n amount of periods

Value

data.frame

Author(s)

Eduardo Flores

See Also

denue_varios_stats

Examples

```
#return last 13 months
## Not run:
Ultimos <- ultimos(Inflation, n = 12)

## End(Not run)
```

unemployment

Urban unemployment rate

Description

Returns a unified data series (32 city aggregate) of urban unemployment rate. Wrapper of `serie_inegi()` and `YoY()`.

Usage

```
rate_unemployment(token)
```

```
tasa_desempleo(token)
```

Arguments

token API token supplied by INEGI

Value

data.frame

Author(s)

Eduardo Flores

Examples

```
## Not run:
token<-"webservice_token"
Desempleo <- rate_unemployment(token)

## End(Not run)
```

YoY	<i>Calculates growth</i>
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Description

Year over year growth (or versus any period)

Usage

```
YoY(serie, lapso, decimal = TRUE)
```

Arguments

serie	numeric vector or series
lapso	period separations (12 = for monthly data, 4 = quaterly data)
decimal	Should result be in decimals? Default = TRUE. False returns percents x 100.

Value

Vector numeric

Note

Vector must be in ascending order (oldest to newest). The `inegi_series()` function returns in that order.

Author(s)

Eduardo Flores

Examples

```
# Calculate inflation
## Not run:
token <- "webservice_token"
INPC <- serie_inegi(INPC, token)
Inflation <- YoY(INPC$Valores, 12)

## End(Not run)
```

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