

# Diverse examples of the custom sie\_function

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## Overview

The aim of this document is to share diverse examples on how to use the custom function `sie_function`, developed to get a quick view of diverse selected SIE series.

For details of the code of this function, look at the Rscript `SIE_function.R` in the **src** folder of this repository.

## SIE's Series Catalogue

The time series used in this notebook for examples are:

1. Exchange Rate, of U.S. Dollar, Canadian Dollar, British Pound, Australian Dollar, and Euro to Mexican Pesos.
2. Operations in ATMs with Debit and Credit Cards.
3. Number of ATM for the eight most-populated States in Mexico.
4. Retail payment systems transactions at ATMs, Points of Sales (POS), Checks, and Transfers by Electronic Payments, Internet Banking and Phone.
5. Consumer Price Index (INPC), main index and subindexes.

[Click here](#) to look for the complete catalogue of the SIE's time series published by Banco de Mexico.

## Examples:

### 0. Load libraries and set token

The first step is to use the custom function to load the library, as well to call and set the token.

```
# load libraries
library("siebanxicor")
library("tidyverse")
```

```
## -- Attaching packages ----- tidyverse 1.3.0 --
```

```
## v ggplot2 3.3.2      v purrr   0.3.4
## v tibble  3.0.3      v dplyr   1.0.2
## v tidyr   1.1.2      v stringr 1.4.0
## v readr   1.4.0      v forcats 0.5.0
```

```
## -- Conflicts ----- tidyverse_conflicts() --
## x dplyr::filter() masks stats::filter()
## x dplyr::lag() masks stats::lag()

# bring the token
token_file <- read.csv("../token/SIE_Token.csv", header=FALSE)

# set the token
setToken(token_file$V2)

# call the customized function from the RScript
source("SIE_function.R")
```

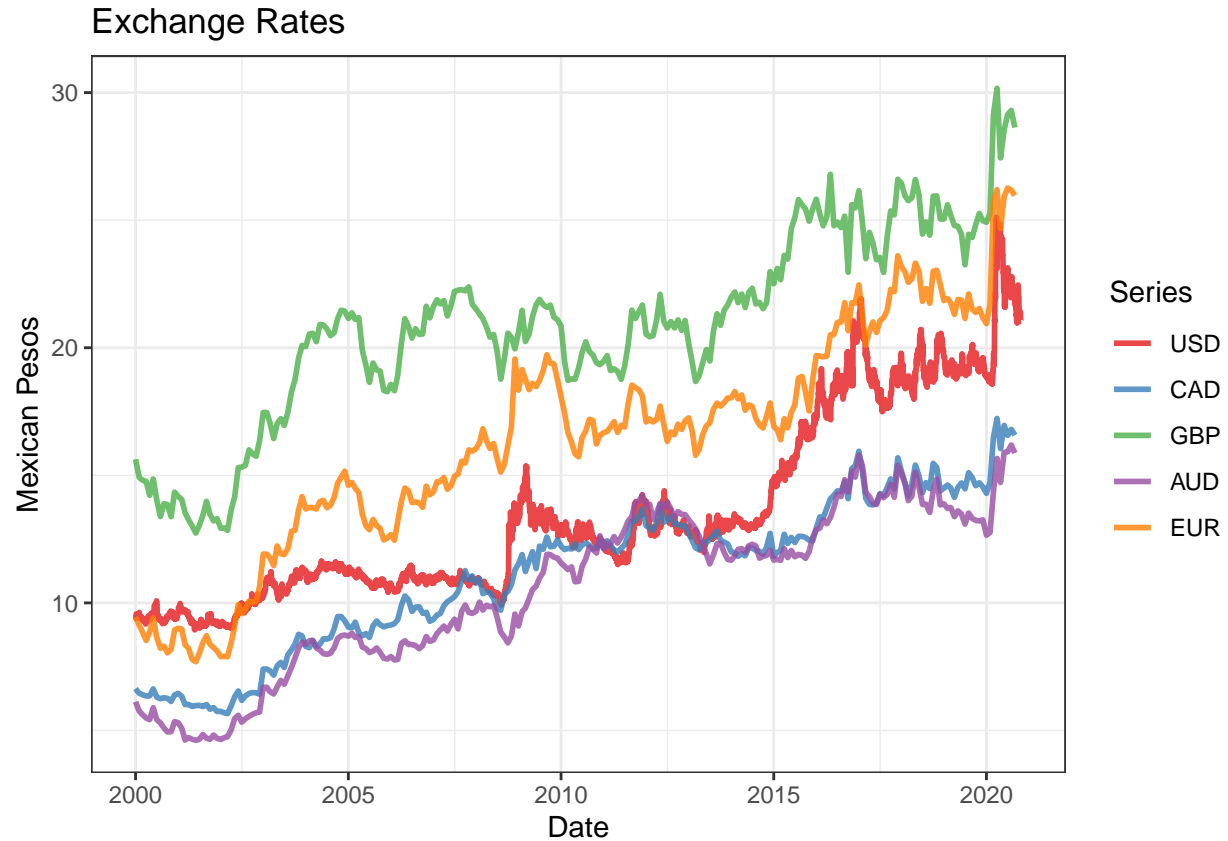
## 1. Exchange Rate

Exchange rate of U.S. Dollar, Canadian Dollar, British Pound, Australian Dollar, and Euro to Mexican Pesos, since 2000.

```
serie_tc <- c("SF60653", "SF57771", "SF57815", "SF57753",
              "SF57923")
name_tc <- c("USD", "CAD", "GBP", "AUD", "EUR")
title_tc <- "Exchange Rates"
my_start <- '2000-01-01'
my_y <- "Mexican Pesos"
my_x <- "Date"

# run the function
df_tc <- sie_function(serie_tc, name_tc,
                      title_tc, route="../img/",
                      y_lab = my_y, x_lab = my_x,
                      startDate=my_start)
```

```
## Saving 6.5 x 4.5 in image
```



```
## idSerie
## 1 SF57771
## 2 SF60653
## 3 SF57815
## 4 SF57753
## 5 SF57923
##
## 1 Foreign Exchange Rates for Fiscal Valuation Purposes used by Banco de México CAD C
## 2 Exchange rate pesos per US dollar Used to settle liabilities denominated in fo
## 3 Foreign Exchange Rates for Fiscal Valuation Purposes used by Banco de México STG United Kingdom (P
## 4 Foreign Exchange Rates for Fiscal Valuation Purposes used by Banco de México AUD Aust
## 5 Foreign Exchange Rates for Fiscal Valuation Purposes used by Banco de México EUR E. Monetary U
## startDate endDate frequency dataType unit
## 1 2000-01-01 2020-09-01 Monthly Exchange Rate Pesos
## 2 1991-11-14 2020-10-27 Daily Exchange Rate Pesos per US Dollars
## 3 2000-01-01 2020-09-01 Monthly Exchange Rate Pesos
## 4 2000-01-01 2020-09-01 Monthly Exchange Rate Pesos
## 5 2000-01-01 2020-09-01 Monthly Exchange Rate Pesos
```

## 2. Operations in ATMs

Series of number of operations in ATMs with Debit and Credit Cards.

```

serie_atm <- c("SF62270", "SF62271")
name_atm <- c("with Debit Card", "with Credit Card")
title_atm <- "Operations in ATMs"
my_y <- "Number of operations"
my_x <- "Quarter"

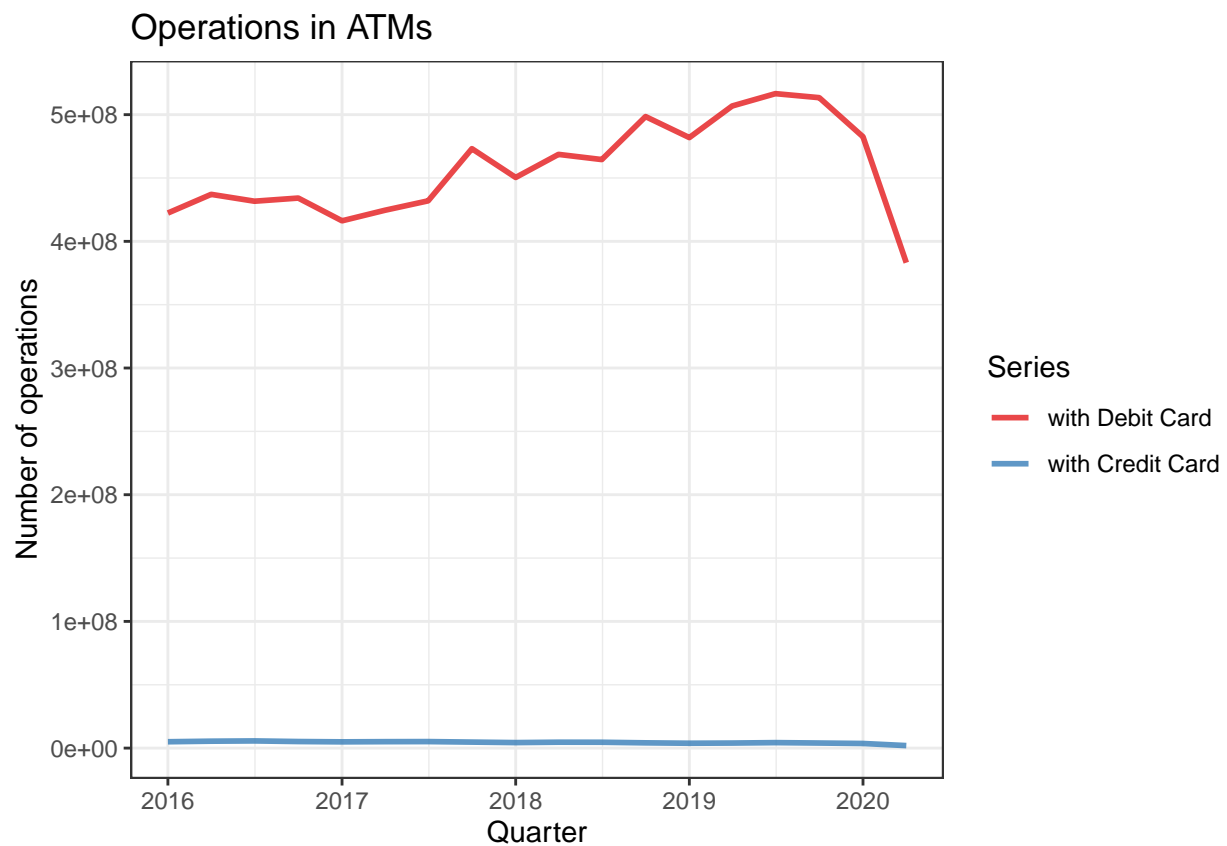
```

```

# run the function
df_atm <- sie_function(serie_atm, name_atm,
  title_atm, route="../img/",
  y_lab = my_y, x_lab = my_x)

```

## Saving 6.5 x 4.5 in image



```

## idSerie
## 1 SF62271
## 2 SF62270
##
## 1 Retail payment systems Transactions in ATMs Total transactions with credit cards Number of operations
## 2 Retail payment systems Transactions in ATMs Total transactions with debit cards Number of operations
## startDate endDate frequency dataType unit
## 1 2002-01-01 2020-04-01 Quarterly Volume Without units
## 2 2002-01-01 2020-04-01 Quarterly Volume Without units

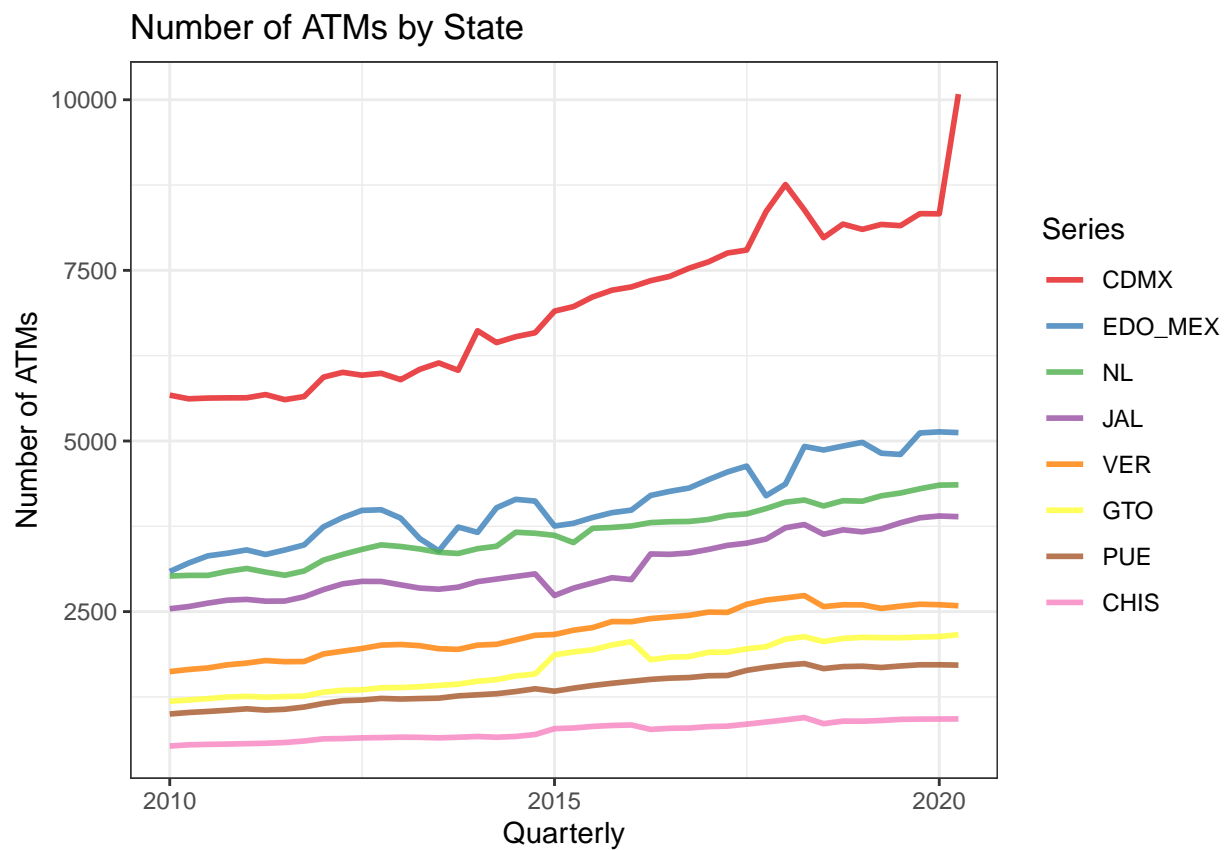
```

### 3. Number of ATM for the most populated States

Quarterly time series of the number of ATMs by State, for the 8 states more populated in Mexico, from 2010.

```
serie_state <- c("SF42310", "SF42338", "SF42346", "SF42336",  
                "SF42368", "SF42330", "SF42350", "SF42324")  
name_state <- c("CDMX", "EDO_MEX", "NL", "JAL", "VER",  
               "GTO", "PUE", "CHIS")  
title_state <- "Number of ATMs by State"  
my_start <- '2010-01-01'  
my_y <- "Number of ATMs"  
my_x <- "Quarterly"  
  
# run the function  
df_state <- sie_function(serie_state, name_state,  
                        title_state, route="../img/",  
                        y_lab = my_y, x_lab = my_x,  
                        startDate=my_start)
```

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```
## idSerie  
## 1 SF42346  
## 2 SF42336
```

```

## 3 SF42368
## 4 SF42310
## 5 SF42324
## 6 SF42350
## 7 SF42338
## 8 SF42330
##
## title
## 1 Retail payment systems Number of ATMs by State Total in Nuevo León
## 2 Retail payment systems Number of ATMs by State Total in Jalisco
## 3 Retail payment systems Number of ATMs by State Total in Veracruz
## 4 Retail payment systems Number of ATMs by State Total in Distrito Federal
## 5 Retail payment systems Number of ATMs by State Total in Chiapas
## 6 Retail payment systems Number of ATMs by State Total in Puebla
## 7 Retail payment systems Number of ATMs by State Total in Estado de México
## 8 Retail payment systems Number of ATMs by State Total in Guanajuato
## startDate endDate frequency dataType unit
## 1 2002-01-01 2020-04-01 Quarterly ciphers without type Without units
## 2 2002-01-01 2020-04-01 Quarterly ciphers without type Without units
## 3 2002-01-01 2020-04-01 Quarterly ciphers without type Without units
## 4 2002-01-01 2020-04-01 Quarterly ciphers without type Without units
## 5 2002-01-01 2020-04-01 Quarterly ciphers without type Without units
## 6 2002-01-01 2020-04-01 Quarterly ciphers without type Without units
## 7 2002-01-01 2020-04-01 Quarterly ciphers without type Without units
## 8 2002-01-01 2020-04-01 Quarterly ciphers without type Without units

```

#### 4. Retail payment systems transactions

Information from retail payments at ATMs, Poinrs of Sales (POS), Checks, and Transfers by Electronic Payments, Internet Banking and Phone, from 2016 to 2019.

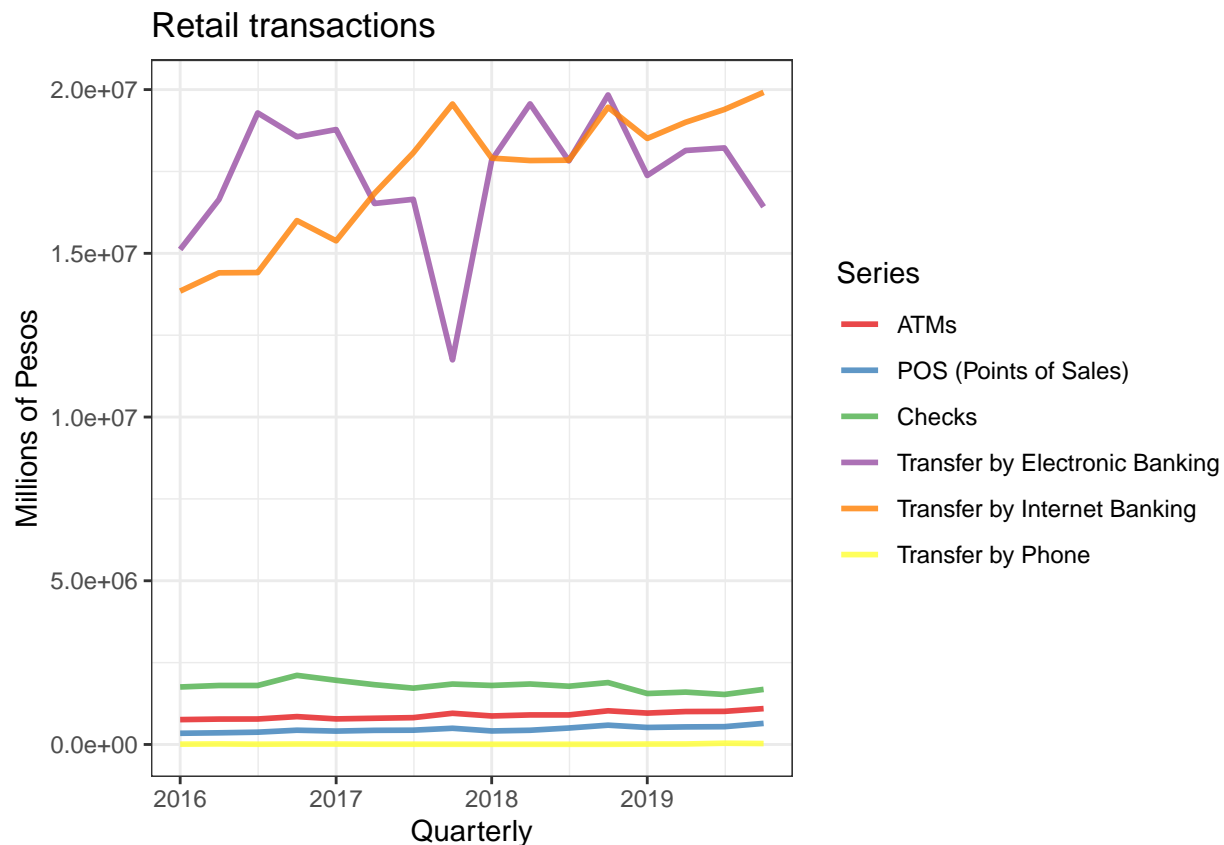
```

serie_trans <- c("SF62275", "SF62278", "SF61610", "SF60841",
                 "SF60842", "SF60843")
name_trans <- c("ATMs", "POS (Points of Sales)", "Checks",
               "Transfer by Electronic Banking",
               "Transfer by Internet Banking",
               "Transfer by Phone")
title_trans <- "Retail transactions"
my_y <- "Millions of Pesos"
my_x <- "Quarterly"
my_start <- '2016-01-01'
my_end <- '2019-12-31'

# run the function
df_trans <- sie_function(serie_trans, name_trans,
                        title_trans, route="../img/",
                        y_lab = my_y, x_lab = my_x,
                        startDate=my_start, endDate=my_end)

```

```
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```



```
##      idSerie                                     title
## 1 SF60841  Retail payment systems Operations by electronic banking Total Amount
## 2 SF62278  Retail payment systems Operations in POS Total transactions Amount
## 3 SF61610  Retail payment systems Total checks in local currency Amount
## 4 SF60842  Retail payment systems Operations by Internet banking Total Amount
## 5 SF60843  Retail payment systems Operations by phone Total Amount
## 6 SF62275  Retail payment systems Transactions in ATMs Total transactions Amount
##      startDate  endDate frequency      dataType      unit
## 1 2002-01-01 2020-04-01 Quarterly Accumulated flows Millions of Pesos
## 2 2002-01-01 2020-04-01 Quarterly Accumulated flows Millions of Pesos
## 3 2002-01-01 2020-04-01 Quarterly Accumulated flows Millions of Pesos
## 4 2002-01-01 2020-04-01 Quarterly Accumulated flows Millions of Pesos
## 5 2002-01-01 2020-04-01 Quarterly Accumulated flows Millions of Pesos
## 6 2002-01-01 2020-04-01 Quarterly Accumulated flows Millions of Pesos
```

## 5. Consumer Price Index (INPC)

Main time series of the Consumer Price Index (INPC for it's acronym in spanish), and their core and non-core subindexes. Time window of Enrique Peña Nieto's Presidency of Mexico.

```
serie_inpc <- c("SP74625", "SP74626", "SP74628", "SP56337",
               "SP74631")
name_inpc <- c("INPC (main)", "Merchandise (sub, core)",
              "Services (sub, core)",
              "Agricultural (sub, non-core)",
```

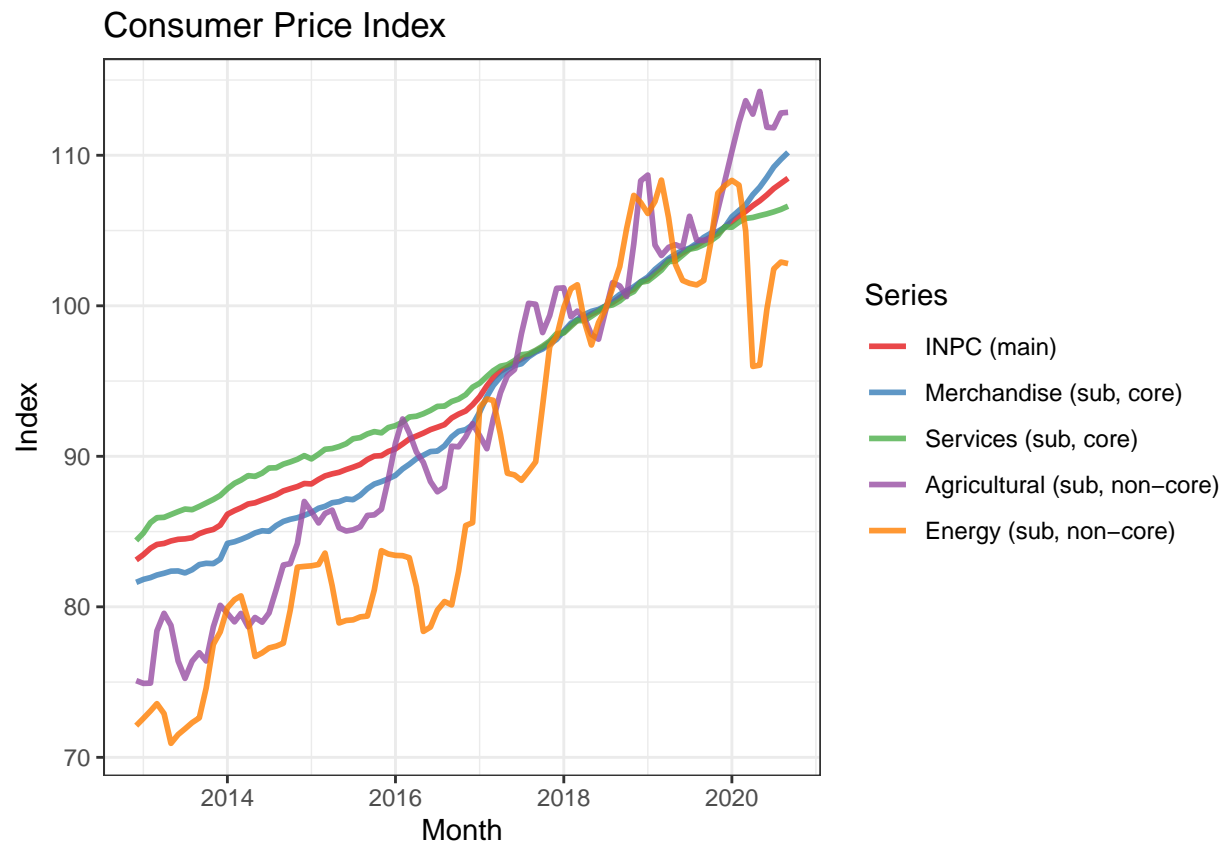
```

        "Energy (sub, non-core)")
title_inpc <- "Consumer Price Index"
my_y <- "Index"
my_x <- "Month"
my_start <- '2012-12-01'
my_end <- '2018-11-30'

# run the function
df_inpc <- sie_function(serie_inpc, name_inpc,
                        title_inpc, route="../img/",
                        y_lab = my_y, x_lab = my_x,
                        startDate=my_start)

```

## Saving 6.5 x 4.5 in image



```

## idSerie
## 1 SP74625
## 2 SP74626
## 3 SP74631
## 4 SP74628
## 5 SP56337
##

```

```

## 1 Core and complementary subindexes Consumer price index
## 2 Core and complementary subindexes Consumer price index (INPC) Cor

```



```

## 3 Core and complementary subindexes Consumer price index (INPC) Non-Core Energy and Prices Approved I
## 4                                     Core and complementary subindexes Consumer price index (INPC) (
## 5                                     Core and complementary subindexes Consumer price index (INPC) Non-Core
##      startDate      endDate frequency dataType      unit
## 1 1982-01-01 2020-09-01   Monthly Indexes Without units
## 2 1982-01-01 2020-09-01   Monthly Indexes Without units
## 3 1982-01-01 2020-09-01   Monthly Indexes Without units
## 4 1982-01-01 2020-09-01   Monthly Indexes Without units
## 5 1969-01-01 2020-09-01   Monthly Indexes Without units

```