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TIME-SERIES FILES OF THE BANCO DE ESPAÑA PUBLICATIONS

User manual

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1 Introduction

The aim of this document is to describe the information in the files containing the time series of the statistical tables and charts that the Banco de España publishes on its website, and to provide guidance on the possible uses of these files.

Data for the whole available sample period are provided for each series, as well as qualitative information or metadata. This information provides the user with the details of each series, such as the economic concept they represent, the units in which the data is expressed, their source or the notes.

The target audience for this information is as wide as the network through which it is distributed. Nevertheless, two categories of potential users can be distinguished:

- a Users who download one or more tables to their computer to process them using a spreadsheet.
- b Users or institutions who download all or most of the information to upload it to a database and combine it with other sources of statistical data or even with the institution's own information.

The information provided is geared to both types of users.

It should be noted that the statistics provided by the Banco de España in the form of statistical charts or tables are organised in two different ways on its website: either by statistical publication, which is the one addressed by this document, or by subject, which is the main way in which the Statistics **section** is organised, but the tables and the download URLs are the same in both cases.

This document, which will focus on publications, is organised as follows: the second section explains the two types of files released and their format and content; the third section provides guidelines for users wishing to process the information with a spreadsheet; and the fourth provides guidelines for institutions who wish to develop software for automatically uploading the information to a database.

Since the tables in the theme-based classification are the same as those in the publications, only organised differently, everything mentioned in this manual regarding CSVs is valid for both.

2 Time-series files

Files containing the time series of the tables of the relevant publication are in **csv (comma separated value)** format, in which, as its name would suggest, the fields or values in each line or record are separated by commas. The decimal separator is the full stop “.” and the thousand separator is a blank space. Two examples of **csv** files are included below.

They can be classified into two different types according to their content:

a Catalogue file (only available at the moment for complete publications): it contains a list of all the series as well as information on the characteristics of each series included in statistical publications. For example, the file for all the **Statistical Bulletin** series is called **catalogo_be.csv**.

The catalogue file is updated on a daily or a quarterly basis, depending on the type of publication. (See Annex I for more information on the minimum publication frequency for each publication)

Example: Records of the **catalogo_be.csv** file

```
"Alias de la serie","Número secuencial","Nombre de la serie/Código de la serie","Nombre del archivo con los valores de la serie","Descripción de la serie","Tipo de variable","Código de unidades","Exponente","Número de decimales","Descripción de unidades y exponente","Frecuencia de la serie","Fecha de la primera observación","Fecha de la última observación","Número de observaciones","Título de la serie","Fuente","Notas"
"SI_1_1.1",3778094,DSPC102016VP30000_ES14A_TSC.T,"SI_1_1.csv",,"SUMA","Base_2016=100",0,2,"Base_2016=100","TRIMESTRAL",...
"SI_1_1.2",805995,D_1KH90101,"SI_1_1.csv","Encuestadeopinióndelconsumidor.Índiceconfianza.",,"SUMA","Porcentaje_neto",...-2,1,...
"SI_1_1.3",1832510,D_1KH99500_D09,"SI_1_1.csv","Encuestadeopinión.Índiceconfianza delcomercio minorista",,"MEDIA","Porcentaje_neto",...
"SI_1_1.4",3272949,DCMICN2015INDVD_ETOT_TSC.M,"SI_1_1.csv",,"MEDIA","Base_2015=100",0,3,"Base_2015=100","MENSUAL",...
"SI_1_1.5",1525635,D_1KN31000,"SI_1_1.csv","Ventasdeautomóviles(ANFAC)",,"SUMA","Vehiculos",0,0,"Vehiculos","MENSUAL","MAY1988",...
"SI_1_1.6",1832565,DOECIIND_D09CNS_ACPT_VSN_RN.M,"SI_1_1.csv","ECl.Bienesdeconsumo:carteradepedidostotal",,"MEDIA",...
"SI_1_1.7",3272703,DCIPI2015IND_D09CNS.M,"SI_1_1.csv",,"MEDIA","Base_2015=100",-2,3,"CéntimosdeBase_2015=100","MENSUAL",...
"SI_1_1.8",2601084,DXEMGIMPESA1GRU1000_TTVA.M,"SI_1_1.csv","ComercioExterior.España.Importaciones.Bienesdeconsumo...
"SI_1_1.9",903376,DPU1KH98212_TVA,"SI_1_1.csv","Indicadordedisponibilidadesdebienesdeconsumo.Tasavariacióninteranual",,"SUMA",...
"SI_1_1.10",3778091,DSPC102016VP30000_ES13_TSC.T,"SI_1_1.csv",,"SUMA","Base_2016=100",0,2,"Base_2016=100","TRIMESTRAL",...
```

b Files containing the time-series data of a table: they cover the entire sample period of every series of a table. There will be a file for each table. These files are updated on a daily basis, which means that each csv file will be updated whenever data for the table in question changes.

Example: Records of the **be23a.csv** file

```
"ALIAS DE LA SERIE","BE_23_A.1"," BE_23_A.2"," BE_23_A.3"," BE_23_A.4"," BE_23_A.5"," BE_23_A.6"," BE_23_A.7"," BE_23_A.8",...
"NÚMERO SECUENCIAL",3777714,3777708,3777711,3777707,3777761,3777742,3777755,3779141,3777758,3777776,3779717,...
"NOMBRE DE LA SERIE/CÓDIGO DE LA SERIE",DSPC102016CP30000_ES1_VCNTRA.T,DSPC102016CP30000_ES14.T,...
"DESCRIPCIÓN DE LA SERIE","Descripción Familia:Contabilidad nacional de España. Metodología:METODOLOGÍA DEL AÑO SEC2010...
"DESCRIPCIÓN DE LAS UNIDADES","Millones de Euros","Millones de Euros","Millones de Euros","Millones de Euros","Millones de Euros",...
"FRECUENCIA","TRIMESTRAL","TRIMESTRAL","TRIMESTRAL","TRIMESTRAL","TRIMESTRAL","TRIMESTRAL","TRIMESTRAL"...
"MAR 1995",88400,68435,1203,18762,24247,22598,15506,7092,1649,-1172,111475,23894,18293,5601,3094,2507,26204,21688,...
"JUN 1995",89949,67556,1122,21271,26062,24239,16949,7290,1823,1554,117565,26209,17939,8270,3975,4295,27141,22406,4735,...
"SEP 1995",87765,68032,1046,18687,24369,22768,16315,6453,1601,173,112307,24721,15056,9665,4135,5530,24630,19679,4951,...
"DIC 1995",95919,72356,1156,22407,26176,24132,16771,7361,2044,2310,124405,25709,18952,6757,3672,3085,27722,22620,5102,...
"MAR 1996",92797,71842,1256,19699,25800,23952,15997,7955,1848,-1057,117540,25705,19322,6383,3484,2899,27469,22720,...
"JUN 1996",94642,71043,1159,22440,26519,24572,16472,8100,1947,2003,123164,28788,19901,8887,4327,4560,28666,23626,5040,...
"SEP 1996",92894,72022,1075,19797,25706,23985,16691,7294,1721,-8,118592,28403,17605,10798,4692,6106,26821,21375,5446,...
"DIC 1996",101020,76239,1169,23612,28068,25869,17580,8289,2199,1702,130790,29779,22093,7686,4238,3448,30602,24999,5603,...
```

The names of time-series files follow the pattern: **ppccaaa.csv**

Where:

- **pp:** is the publication code. For example, **be** for all **Statistical Bulletin** tables. (See Annex I for all publication codes)
- **cc:** is the chapter number (two digits). For example: 01 for Chapter 1.
- **aaa:** is the table code. In some cases, it is a two-digit number. For example: 01 for Table 1.

In other cases, the table code is or includes a letter, so it could be from one- to three-characters long. For example, 17b.

- **csv:** is the extension.

For example: the file called **be0101.csv** contains the series of Table 1 in Chapter 1 of the Statistical Bulletin.

A compressed **pp.zip**¹ file with all the time-series files of a publication is provided for those users who wish to download this content. This file is updated on a daily or quarterly basis, depending on the publication, along with the catalogue file. (See Annex I for more information on publication frequencies)

Also, for users interested in downloading all the files of a particular chapter, a compressed file has been generated for each chapter containing all of the chapter's files. The name of these files follows the pattern **ppcc.zip**.

Where:

- **pp:** is the publication code.
- **cc:** is the chapter number (two digits).
- **zip:** is the extension.

For example: the file called **be01.zip** contains all the time-series files of Chapter 1 of the Statistical Bulletin

These files are generated whenever any of the csv files of the chapter are updated.

The download URL can be found by adding the name of the CSV file (whether table or catalogue) or ZIP file to the following string:

<https://www.bde.es/webbde/es/estadis/infoest/series/>

For example, the URL for Table 2.5 of the **Statistical Bulletin** will be:

<https://www.bde.es/webbde/es/estadis/infoest/series/be0205.csv>

And the URL for the ZIP file of Chapter 2 will be:

<https://www.bde.es/webbde/es/estadis/infoest/series/be02.zip>

¹ Files are compressed with **WinZip**.

And for its catalogue file:

https://www.bde.es/webbde/es/estadis/infoest/series/catalogo_be.csv

See Annex III for the ZIP file names and URLs by theme and subtheme.

2.1 Content of the catalogue file

The catalogue file has a line or record for each time series of the tables in the publication. When the same series is included in several tables, the catalogue file will have a line for each table in which it appears. Each column or field contains a characteristic of the time series. The name and content of each field is described below:

a Alias de la serie (series alias)

The alias shows where this series can be found in the publication. It follows the pattern: **pp_c_a.o[f]**

Where:

- **pp:** is the publication code.
- **c:** is the chapter number. For example: 1 for Chapter 1.
- **a:** is the table number or code. For example: 1 for Table 1.
- **o:** is the column number in vertical or double-entry tables, or the row number in horizontal tables. For example: 1 for column 1 or for row 1.
- **f:** is the row number in double-entry tables. Vertical and horizontal tables will not have this digit. For example: 1 for row 1.

For example: series alias **be_6_1.1** represents the series of column 1, Table 1 (which is a vertical table), Chapter 6 of the Statistical Bulletin, and series alias **be_15_C.1.2** represents the series of column 1, row 2, Table C (which is a double-entry table), Chapter 15 of the Statistical Bulletin.

The series alias, as mentioned above, is a positional code showing the location (column and/or row) of the series in the table. However, although it is unique, it is not a good candidate to be used as the series ID, as it is subject to change. If a series changes position in the table, its alias will also change. If a new series is inserted into a table, all the aliases that come after it will change and will not represent the same series. Therefore, the series ID must always be the series name/series code or the sequential code explained below.

b Código secuencial (sequential code)

The series aliases described in the previous section are topographic in nature. This means that, when the series order is changed within a table or a table changes number or chapter, the series alias will change. To ensure series can still be identified, even after these changes, they are assigned a sequential number which will remain unchanged throughout the series' lifetime.

c Nombre de la serie/Código de la serie (series name/series code)

It is the series code or ID in the Banco de España databases. It is a unique and invariable identifier

d Nombre del archivo con los valores de la serie (name of the file containing the series values)

It is the name of the file corresponding to the table to which the series belongs, which contains the series observations.

e Descripción de la serie (series description)

The series description is a string of characters summarising the economic concept that the series represents. It is complemented by the title field, described below.

f Tipo de variable (variable type)

It shows whether the economic concept the series represents is a flow, stock, average or annualised rate of change. The “variable type” field is necessary for the proper frequency conversion of the series. The following table lists and explains the different types of variables.

Type of variable	Explanation
Principio (start)	Stock at the start of the period
Final (end)	Stock at the end of the period
Media (average)	Period average
Suma (total)	Flow during the period
Anualizado (annualised)	Annualised variable

g Código de unidades (unit code)

A code showing the unit in which the series is expressed. The meaning of this code is detailed in the “description of units and exponent” field.

h Exponente (exponent)

It shows the power of ten by which the values of the series have to be multiplied to obtain the units. The meaning of this number is detailed in the “description of units and exponent” field.

i Número de decimales (number of decimals)

It shows the precision with which the series is measured.

j Descripción de unidades y exponente (description of units and exponent)

It describes or decodes the unit and exponent codes.

k Frecuencia (frequency)

The series frequency will be the highest of those with which it appears in the table. For example, if a series appears in a table with monthly and annual frequencies, the series frequency displayed in the file will be monthly.

These frequencies can be: DIARIA (daily), LABORABLE (business days), MENSUAL (monthly), TRIMESTRAL (quarterly), SEMESTRAL (half-yearly) o ANUAL (yearly).

Note: LABORABLE frequency means Monday to Friday. DIARIA frequency also includes Saturdays and Sundays.

l Fecha de la primera observación (date of first observation)

Date of the first observation inside the sample period included in the file with the series values. The date of the first observation is expressed according to the frequency of the series. See Annex II for date formats.

m Fecha de la última observación (date of last observation)

Date of the last observation inside the sample period included in the file with the series values. The date of the last observation is expressed according to the frequency of the series. See Annex II for date formats.

n Número de observaciones (number of observations)

The number of observations contained in the sample period of the series, which are included in the file with the series values.

o Título (title)

It describes in detail the economic concept measured or represented by the series. It complements the description field. It consists of a set of character strings separated by the “/” character.

p Fuente (source)

It describes the original source of the series. It consists of a set of character strings separated by the “/” character.

q Notas (notes)

It contains general comments on how the series was compiled or on certain particular observations. It consists of a set of character strings separated by the “/” character.

2.2 Content of files with series values

Files with the series values of a table contain six header lines identifying the series, a line with values for each date of the sample period and, at the end of the file, two lines with the source and notes.

a Header lines for identifying the series

To identify the values of each series, six header lines are included in the file explaining their main features:

- the first line contains a list of the series aliases;

- the second line contains their sequential codes;
- the third line contains the series name/series code or ID;
- the fourth line contains the description of the series; The difference with respect to the catalogue file is that, when there is no description, the series title is displayed here.
- the fifth line contains the description of the units;
- and the sixth line contains the frequency.

An explanation of the content of these fields can be found in Section 2.1.

b Values lines

The header lines are followed by the value lines. Each line contains the values for one of the dates of the sample period. See Annex II for date formats.

The values of each series will have the number of decimals specified in the catalogue file, in the line which refers to that series. See Section 2.1.

When no data is available for a given series and date, instead of a value, a symbol explaining the reason for the lack of value will be displayed. The following table explains the symbols that are used and their meaning.

Symbol	Explanation
–	The phenomenon in question does not exist
...	Data not available

c Last lines

The last lines are the source and the notes.

3 Loading csv files into a spreadsheet

This section offers guidance on working with **csv** files in a Windows environment with Excel spreadsheets and on using catalogue files to conduct series searches.

3.1 Options for loading files into Excel

In Windows, **csv** files can be opened with the following applications:

- Internet Explorer.
- File Explorer.
- Excel application.

All three options will open Excel and will load the file so that each value or field is loaded into a spreadsheet cell.

To ensure this operation is performed correctly using one of the three options mentioned above, the **csv** extension must be associated with the Excel application and Windows regional settings must be set to the appropriate options.

To associate the **csv** extension with Excel:

- 1 On My PC or Windows Explorer, select the tools menu and click on Folder Options.
- 2 Select the File Types tab.
- 3 In the file types list, select new type if the **csv** extension has no association, or change if it exists but is not associated with Excel.

For further details on file association, see Windows help.

If the **csv** extension is not associated with Excel, when attempting to open the file using options a) or b) above, you will have to choose the application with which you wish to open the file.

CSV files have been created using the following numerical symbols:

- decimal separator: full stop
- thousands separator: none
- list separator: comma

If Windows regional settings are set to these options, you will be able to visualise the files correctly in an Excel spreadsheet. If you cannot visualise them correctly, you can change your regional settings.

These are the steps you must follow, depending on the Windows and Office version installed on your computer:

- Earlier Windows versions:
 1. Go to Home - Control Panel - Regional Settings or Regional and Language Settings
 - Clic on the Additional Settings button - click on the “Numbers” tab and change the following settings:
 - i. Decimal symbol: enter a full stop.
 - ii. Digit grouping symbol: enter a space.
 - iii. List separator: enter a comma.
 2. Clic on "Accept".
- Windows 10:
 1. Write the following in the search box in the Windows 10 taskbar: Control panel.

2. In the Clock, language and region tab - Change date, time or number formats
 - Click on the Additional Settings button, choose the Numbers tab and change the following settings:
 - i. Decimal symbol: enter a full stop.
 - ii. Digit grouping symbol: enter a space.
 - iii. List separator: enter a comma.
3. Click on “Accept”

If the decimal, thousands and list separator values are not set to the symbols specified above, the way Excel will open these files will depend on your Windows and Excel versions. The most likely outcome is that each line of the **csv** file will be loaded into the first cell of each spreadsheet row, instead of loading each value or field into a different cell. If that is the case, you may try to load the information correctly into Excel² by following these steps:

- 1 In Excel, select the range of rows in the first column containing the information from the loaded csv file.
- 2 In the Data menu, select the Text to columns option. The Wizard window will open to convert text to columns. Select the option: Delimited and choose the comma “,” as the delimiter.

However, if the **csv** file contains values with a decimal point, these values will be loaded incorrectly. In this case, we recommend editing the file and replacing these separators before opening it in Excel or via the Internet browser associated with Excel.

3.2 Searches using the catalogue file

The catalogue file can be used to locate series by searching for specific series characteristics. To conduct a search, the *Edit>Find* option in Excel can be used. In the search window, you must specify:

- 1 The text you wish to find.
- 2 In the Search box, choose: by rows.
- 3 In the Look in box, choose: values.

For example, you could locate series with the string “precios de consumo” (consumer prices) in the title column. When the row representing a series is located, by navigating to the “Nombre de archivo” (file name) column you can find the file containing the series values.

4 Loading information from csv files into databases

Considering the broad range of possible database management systems and data model designs for storing the information provided, it would be quite complex to explain in detail how to develop software for loading this information into a database in order to combine it with other statistical or management data of an institution. In this section, we will therefore outline some ideas on the strategy for designing such data-loading software.

² For more information on **csv** formats and Excel, see “Microsoft Excel User’s Guide 2”.

To load all or a large share of the series of a publication into a database, the file mentioned above is provided, called **pp.zip** (see Annex I with the publications list), which contains the catalogue file and the files for all the publication's tables in compressed form.

Indeed, one of the aims of the catalogue file is to make it easier to load the information into a database. Firstly, the catalogue file contains the characteristics or metadata of all series. Secondly, it also contains, for each series:

- a** The name of the file containing the data.
- b** The dates of the first and the last observation.
- c** The number of observations.

Thus, the software application can open data files automatically and can control the dates and the number of values it has to read.

The data-loading software would operate as follows:

- 1** Open the catalogue file.
- 2** Read the catalogue file lines with information on the series of a particular table, such as, for instance, table beccaa.
- 3** Open the file containing the series observations or values of table beccaa, which it has read in the previous step.
- 4** Read the values of the file opened in the previous step.
- 5** Close the file opened in step 3.
- 6** Update the series of table beccaa in the target database.
- 7** Repeat steps 2 to 5 until the end of the catalogue file is reached.
- 8** Close the catalogue file.

5 Annex I: Statistical publications

CODE	PUBLICATION	FREQUENCY WITH WHICH CSV AND CATALOGUE FILES ARE UPDATED	FREQUENCY OF THE PUBLICATION
BE	Statistical Bulletin	Daily	Monthly
SI	Summary Indicators	Daily	Daily
TC	Exchange Rates	Daily	Daily
TI	Interest Rates	Daily	Daily
PB	Bank Lending Survey	Quarterly	Quarterly

6 Annex II: Date formats

FREQUENCY	FORMAT	EXAMPLES
Daily / Business day	DD MMMYYYY	02 FEB2019
Monthly	MMM YYYY	MAR 2020
Quarterly	MMM YYYY, where MMM is the first or the last month of the quarter, depending on the value of its variable OBSERVED.	For the first quarter of 2020: ENE 2020 MAR 2020
Half-yearly	MMM YYYY, where MMM is the first or the last month of the half-year period, depending on the value of its variable OBSERVED.	For the first half of 2020: ENE 2020 JUN 2020
Annual	YYYY	2020

7 Annex III: Theme-based classification

THEME	ZIP FILE NAME AND LINK	SUBTHEME	ZIP FILE NAME AND LINK
Interest rates statistics	TE_TIPOS.zip	Reference rates	SB_TIINTREF.zip
		Interest rates applied by the monetary financial institutions	SB_TIIF.zip
		Money market	SB_TIIMER.zip
		Spanish securities markets	SB_TIIMERVAL.zip
		International markets	SB_TIIRENT.zip
Exchange rates statistics	TE_TIPOSCAM.zip	Official exchange rates for the Euro (European Central Bank)	SB_TICAMBIO.zip
		Other exchange rates	SB_TICAOTROS.zip
		Competitiveness indices	SB_EXTICOM.zip
Financial accounts statistics	TE_CF.zip	Financial Accounts of the Spanish Economy	SB_CFESP.zip
		Liquidity and funding indicators	SB_CFLIQ.zip
		Integrated summary of the economic accounts (non-financial and financial) of the institutional sectors	SB_CFRESUMEN.zip
		Economic accounts of households and NPISHs	SB_CFHOG.zip
		Euro area economic accounts	SB_CFEURO.zip
Financial corporations statistics	TE_IFINA.zip	Statistics of the European System of Central Banks	SB_IFIESCBS.zip
		Statistics based on individual supervisory statements	SB_IFISUP.zip
		Bank lending survey	SB_IFIEPB.zip
		Financial balance sheet of non-bank financial corporations	SB_IFINOBA.zip
		Statistics of the European System of Central Banks: Spanish contribution	SB_IFINOESCBS.zip

THEME	ZIP FILE NAME AND LINK	SUBTHEME	ZIP FILE NAME AND LINK
		Statistics on non-monetary financial corporations, except insurance corporations and pension funds, in accordance with ESA 2010 methodology	SB_IFINOMO.zip
		Statistics on appraisal companies	SB_IFISOTA.zip
		Insurance corporations statistics	SB_IFIESE.zip
		Pension funds statistics	SB_IFIFP.zip
General Government statistics	TE_DEU.zip	Indicators (early information)	SB_DEUAVANMEN.zip
		General government	SB_DEUAAPP.zip
		Central government and social security funds	SB_DEUACSS.zip
		Regional (autonomous) governments	SB_DEUCCAA.zip
		Local governments	SB_DEULOCAL.zip
Non-financial corporations statistics	TE_CENBAL.zip	Summary	SB_CBRESUMEN.zip
		Profit and loss account	SB_CBCТАRESULTS.zip
		Profitability ratios	SB_CBRATIOS.zip
External statistics	TE_SECEXT.zip	Balance of Payments and International Investment Position	SB_EXTBPPII.zip
		External Debt	SB_EXTDEU.zip
		International reserves and foreign currency liquidity	SB_EXTRESE.zip
Financial markets statistics	TE_MERCA.zip	Securities issues	SB_MERCAEMI.zip
		Securities portfolios	SB_MERCACART.zip
		Listing and trading	SB_COTIZ.zip
General economic statistics	TE_ESTECON.zip	Summary indicators	SB_INDSINTESIS.zip
		National Accounts of the Spanish Economy	SB_CNESP.zip
		Non-financial Accounts of the Institutional Sectors	SB_CNSEC.zip
		International comparison	SB_CNINT.zip
		Industry, energy and construction	SB_INDENCONS.zip
		Services	SB_SERVICIOS.zip
		Spain's foreign trade	SB_COMEXT.zip
		Economically Active Population Survey	SB_ENPOBACT.zip
		Labour costs	SB_ENCUESLAB.zip
		Employment statistics	SB_ESEMPL.zip
		Consumer price index (CPI) and harmonised index of consumer prices (HICP)	SB_IPC.zip
		Agricultural, industrial and construction price indices	SB_OIP.zip

To download the ZIP file of any of the above themes, the URL can be formed by adding the name of the ZIP file (case sensitive) to the following URL:

<https://www.bde.es/webbde/es/estadis/infoest/series/>

For example, the complete URL for downloading the Financial Markets ZIP file would be:

https://www.bde.es/webbde/es/estadis/infoest/series/TE_MERCA.zip