JDEMETRA+: WORKBOOK FOR THE GRAPHICAL USER INTERFACE (GUI)

Part 1 : import data and explore raw series/
run standard SA procedure with X-13

EXERCISE 1: FIRST STEPS WITH JDEMETRA+

1. Create and Save a Workspace

- To launch the software JDemetra+ double click on the shortcut icon
- How to Save a Workspace :
    - Click on **File > Save Workspace as…**
    - Enter a name for the workspace and choose the folder where the workspace will be saved
    - Exit JDemetra+ and open the folder where the workspace is saved
        - What is the structure and format of a JD+ workspace?

2. Import your series (raw data) in JDemetra+

2.1. Import an Excel file

The Excel file should have the following structure:

- The first Column should contain the Date variable in an Excel date format DD/MM/yyyy
- The first Line should contain the variable names of your series

- Launch JDemetra+ again
- Click on the Panel **Providers**
- Right-click on **Spreadsheets**
    - Choose **Open**
    - Click on the button "**…"** at the right of the line "**spreadsheet file**"
    - Select the Excel file containing the raw data
    - Click on **OK**
        - What do you notice under the **Spreadsheets** node**?**

---- To avoid losing the link to your data when you exit and re-open the workspace

- Right-click on the Excel file name under the **Spreadsheets** node
- Choose **Add star** to save the link created between the Excel file and JDemetra+

2.2. Import an CSV file

Check first the structure of your csv file. You can open it with text editor like Notepad++.

- Click on the Panel **Providers**

- Right-click on **Txt Files**
  - Choose **Ope**n
  - Follow the instructions

3. Run your first SA processing with JDemetra+

3.1. Create a SA « multi-document »

- Select the panel **Workspace**
- Open the node **Seasonal adjustment**
- Right-click on **multi-documents**
- Choose **New**
  - What do you notice?
- Double click on the « multi-document » (named **SAProcessing-1** by default)
  - What do you notice?

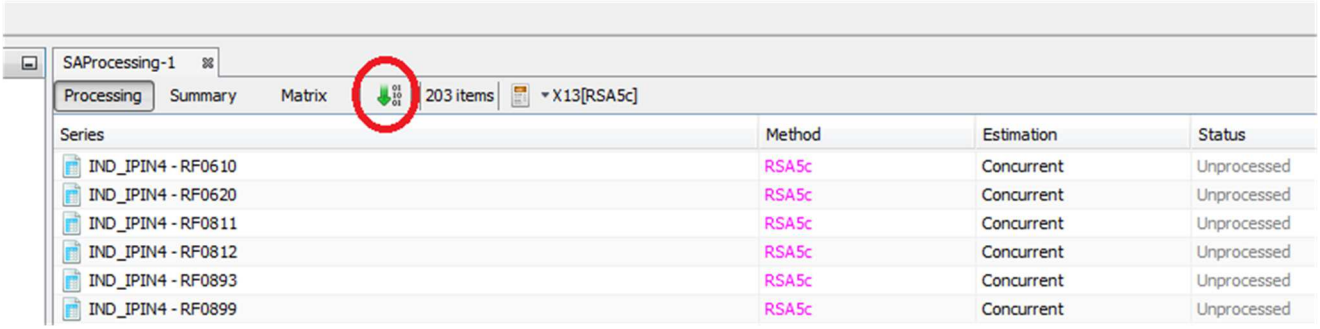
3.2. Choose a pre-defined specification

- Go to the panel **SAProcessing-1**
- Click on the arrow on the right of the icon « calculator »
- Open the node « X13 », and choose **RSA5c**
- Click anywhere in the **SAProcessing-1** window to leave the menu

Specification = set of parameters needed to run the algorithm, can be pre-defined or user-defined, by customization of a pre-defined. For details on pre-defined specifications, see JD+_Pre-defined specifications.pdf in dedicated repository or mail
Specifications are usually defined for the whole data set, then customized series by series (2 levels: SA-Processing and series)

3.3. Run the SA processing

- Select the panel **Providers**
- Drag and drop the Excel file from the **Spreadsheets** node to the **SAProcessing-1** window (you can also drag and drop a smaller sub-set of series)
  - What do you notice?
- Click on the green arrow in the panel **SAProcessing-1**
  - What do you notice ?



- Select any series in the **SAProcessing-1** window
  - What is displayed?

- **Save your workspace**

EXERCISE 2: EXPLORATORY ANALYSIS

4. Plot a series with JDemetra+

- Go to the main menu in the upper left corner of the screen and follow the path **Tools > Container > Chart**

- Drag and drop one of your series from the panel **Providers** to the **Chart** window
    - Now describe your series :
        - How is the Trend?
        - Is there a seasonal component?
            - Are there peaks or dips?
                - Do the peaks or dips have the same magnitude?

NOTE: any series (and/or several of them) can be dragged in this window : useful for comparisons

5. The “year-by-year” representation

- Select the previous graph with a click (or click on the name of the series under the chart)
- Right-click on the graph (or on the variable name)
- Choose **Split into yearly components**
    - What does this graph tell us?

6. The Growth Chart

- Go to the main menu and follow the path **Tools > Container > GrowthChart**

- Drag and drop your series from the panel **Providers** to the **GrowthChart** window
    - By default, what kind of growth rate is plotted in this graph?
    - Plot the annual growth rate by right-clicking anywhere on the graph window, and choose **Kind > Previous Year**
    - Place the mouse cursor on one of the bars: what can you read?
- What kind of information can we gather from these graphs?

7. The Spectrum

- Go to the main menu and follow the path **Tools > Spectral analysis > Periodogram**

- Drag and drop your series from the panel **Providers** to the **Periodogram Window**
    - Is there any peak in the spectrum?
        - At which frequencies?

EXERCISE 3: SEASONAL ADJUSTMENT WITH X13

In this exercise, the series will be seasonally adjusted, without taking into account any calendar effect.
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8. Automatic Seasonal Adjustment with the X13-ARIMA method

- Create a new workspace
- Give it a name and save it
- Import your series (if necessary)
- Perform an automatic seasonal adjustment of your series by choosing the pre-defined specification **X13 > RSA3** (for details see §3.1 §3.2 and §3.3 of exercise 1)
- Rename your SA processing 1 ("Exercise_3" for instance) by right-clicking on its name under the **multi-documents** node (workspace panel)

9. Read automatic parameters chosen by JDemetra+

For each series,

9.1. Decomposition

- Go to the **Main results** window
  - Can you see what decomposition scheme has been chosen by JDemetra+?
    - Do you agree with JDemetra+?

9.2. Outliers

- In the **Main results** window
  - Can you see how many outliers JDemetra+ detects?
    - Are there too many outliers?

- Go now to the **Pre-processing** window
  - Can you see what the types of outliers detected by JDemetra+ are?
    - Write down on a piece of paper some AO, TC, LS and SO (and the corresponding dates)

- Go back to the **Main results** window
  - Expand the node **Main results > Charts**
    - Look at the graphs under this node
    - Can you point out the outliers you wrote down earlier, in the raw series and in the components?

9.3. S-I Ratio

- Expand the **Main results** node
  - Go to the **S-I ratio** window
    - Can you read if the decomposition scheme is additive or multiplicative?
    - What is the meaning of this graph?

10. Analyse the quality of the seasonally adjusted series

For each series,

- Look at the diagnostics available in the **Main results** window
    - How is the quality of the pre-processing step?
        - For more details go to the **Pre-processing** window and Expand the node
    - How is the quality of the decomposition step (X11)?
        - Is there any residual seasonality in the SA series?
        - Is there any residual calendar effect in the SA series?
        - Is the X11 decomposition good enough?