Eurostat's Business Cycle Clock (BCC)
A user's guide

June 2020

Version 1.6

1. THE BCC WEB APPLICATION

1.1. When is the Business Cycle Clock (BCC) updated?

It is updated by 8th day of each month.

1.2. What is the BCC web application?

The BCC web application is an online tool provided by Eurostat. The tool depicts in a visually appealing and intuitively understandable manner the economic development of Euro Area (EA) member states.

The BCC web application can be accessed using the following link:

http://www.development.ec.europa.eu/eurostat/cache/bcc/bcc.html

At the center of the tool is the idea that different phases of economic activity can be visualized using a clock-type graph. The clock is intended to provide an user-friendly picture of the cyclical situation based on the outcome of a predefined set of indicators, which are not directly displayed but used as input.
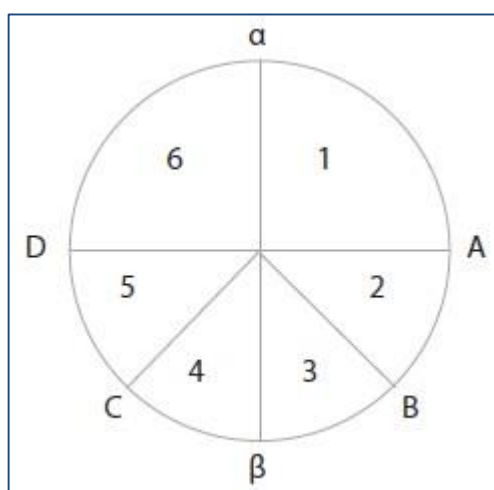
The clock looks as follows:

Figure 1 – Business Cycle Clock: Visualisation

As outlined by *Mazzi (2015)*, the current status of an economy is depicted using a single hand against the background of a clock with different sectors and positions, comparable to the hours of a real clock.

The position of the hand and the different areas of the clock depend on where an economy is located in terms of its growth cycle. The exact position of the hand is derived from an underlying econometric model. The clock is structured according to the co-called αABβCD approach, as outlined by *Mazzi (2015)*.

The location of the hand in the clock is based on the values of the three cyclical coincident indicators for the acceleration, growth and business cycles, as well as on their positioning with respect to the 0.5 threshold (see *Mazzi et al (2015)* for more details).

The characteristic points in the clock, the so-called "turning points" represent the following information:

- α : maximum of the growth rate
- A : the growth rate slips below the trend
- B : the growth rate becomes negative
- β : minimum of the growth rate
- C : the growth rate becomes positive
- D : the growth rate overpasses the trend

A line can be drawn between points A and D: In the sectors of the clock above that line, the economy is growing above trend (sectors 6 and 1), while in the others the economy is growing either below trend or even decreasing.

The key points of the clock delimitate six sectors in the clock which correspond to various phases of the business cycle. The phases, represented by different sectors, are as follows:

- Sector 1 Expansion, with decelerating growth
- Sector 2 Slowdown
- Sector 3 Recession
- Sector 4 Recession, with accelerating growth
- Sector 5 Recovery
- Sector 6 Expansion, with accelerating growth

The clock and graph representation are dynamic. The current position in the graph representation is highlighted and the clock hand runs. A play button sets time running.

1.3. How can the BCC web application be used?

The BCC web application can be used in the following way: The BCC web application has essentially two views:

(1) the main view with graphs and clocks; and

(2) the map view:

- The main view displays a linear graph of the GDP growth cycle during time as well as the cycle clocks for a selected number of up to six countries. It includes an animation to show the values during time. Economic performance is assessed in a comparative manner. In that case the Euro Area as a whole is selected as a comparator.

- The map view offers a different way to visualize the data by displaying it on a map. This view also includes an animation to visualize the evolution over time.

In both views, different levels of economic activity are highlighted using different colors. Colors in the main view and the map view correspond to the different segments of the clock and hence different phases of economic development.
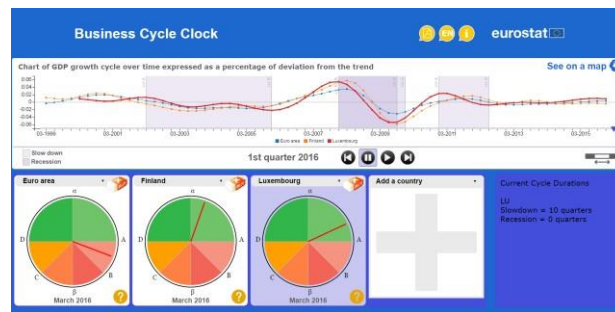
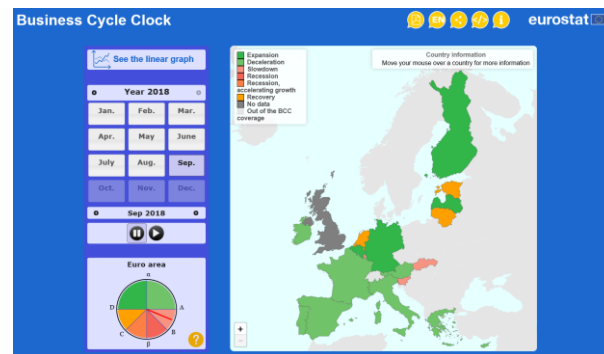**Figure 2 – Main view of the BCC web application**

Figure 3 – Map view of the BCC web application

Both views can be animated by selecting a start and end date: To start the animation, the user has to push the "Play" button. The animation can be paused using the "Pause" button.

When the animation starts, the data changes during time from the start of the defined time period to the last available time period.

At the same time, the hand of the clock changes pointing to different phases of the cycle. Once the animation reaches the last period that has been selected, it stops.

1.4. The header

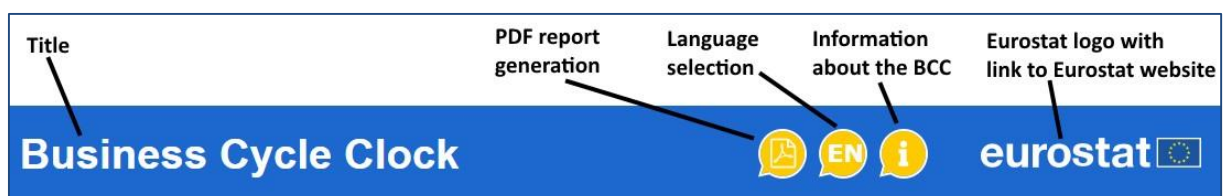The header looks the same in both views.

Figure 4 – Header of the BCC web application

In addition to the BCC title, the header provides three action buttons:

1. one for PDF report generation,
2. one for language selection and
3. one to show a window with information about the BCC.

The Eurostat logo is also present with a direct link to the main page of Eurostat website.

1.5.   Main view

The main view is divided into three main blocks:

1. On the top there is the linear graph of the GDP growth cycle over time.
2. On the bottom are the cycle clocks and the selection of the countries.
3. On the bottom right is a block that displays additional information.

The user can choose up to six countries at a time. For those countries selected, a clock will be display on the bottom part and a line will be added to the linear graph on the top.

Additionally, a selection mechanism allows the user to select and highlight one single country. In that case, the line of the selected country will be highlighted on the linear graph and the turning points and slowdown/recession regions on the graph will be display for that selected country. The panel on the bottom right will then only display additional information only for the selected country.

1.6.   Graph and control elements

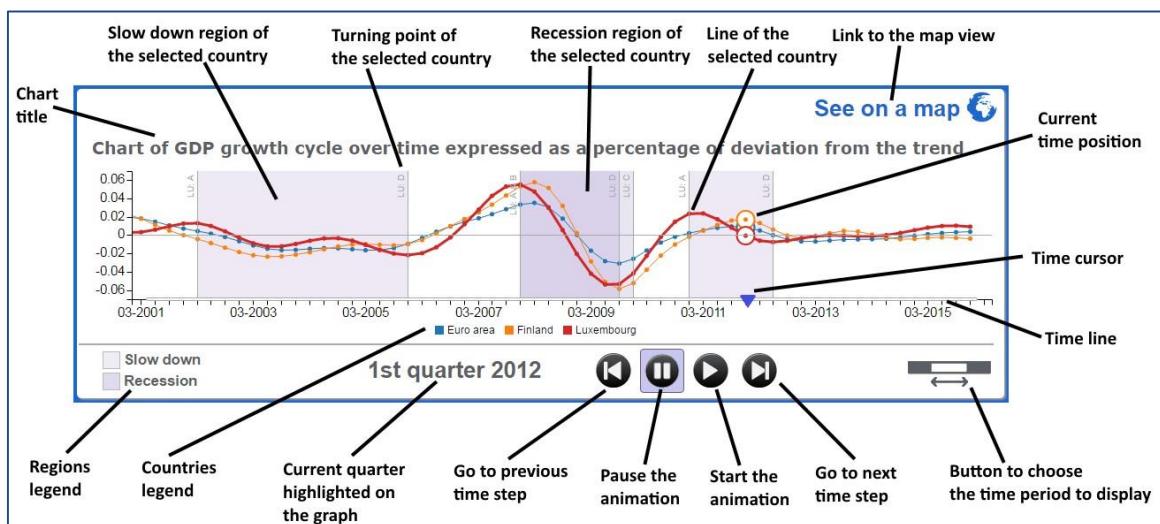The following graph shows the graph and control elements for the animation part.

Figure 5 –Graph of GDP growth cycle over time and control elements

The graph in the upper part of the screen shows the GDP growth cycle over time, expressed as a percentage of deviation from the trend. One line is displayed for each country chosen by the user. Up to 6 countries can be selected at once. Periods of economic slowdown and recession periods of the currently selected country are shown as shaded elements in the background.

The animation can be started, paused or stopped using the "Play" and "Pause" buttons below the graph. Additional buttons allow jumping backwards or forwards along the time period selected.

When the animation is running, points on the graph as well as a cursor moving along the time line indicate the current position. The user can jump to any position in time by click the time line or dragging the cursor.

The animation of the graph is linked to the clocks, so the time of the clocks are always a month from the current quarter on the linear graph.

On the right hand side, there is a button to choose the time period to display with an arrow underneath it. If selected, the user can chose a customized time period including the respective start and end date to be displayed.
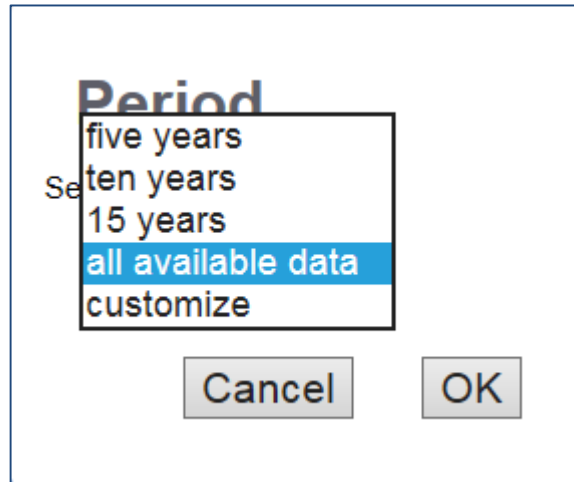

Figure 6 – Time period selection

Different options for the selection of the time period are available: Standard time periods of 5 years, 10 years, 15 years, or all data, or a custom date to be displayed.

1.7.   Cycle clocks and country selection

The bottom part has two functions:

- To display the cycle clocks of each country the user has chosen.
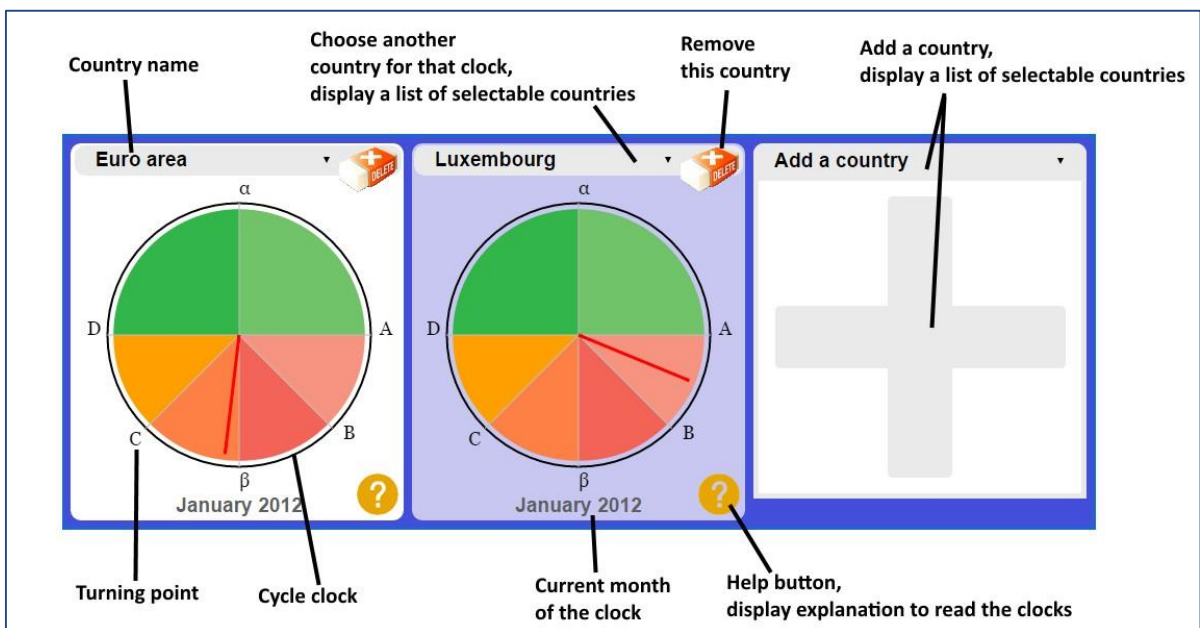- To let the user add and remove countries.

Figure 7 – Cycle clocks and country chooser

The bottom part initially shows one clock for the Euro Area and the "Add a country" option. On each panel of a clock there are several elements:

- The name of the country, which also is a dropdown menu used to switch to another country.
- A remove icon, used to remove that country from clocks and linear graph.
- The clock itself.
- The current month, for which the position on the clock is displayed.

A help icon, that gives access to some explanations about the meaning of the clock.

The user can then add a country by clicking on the "Add a country" label or the + shape. This will display a list of all available countries (except countries already displayed). When the user chooses a new country, a new clock is added for that country. A new line appears on the graph and it is automatically selected and highlighted.

The selected country can easily be identified because of the blue background of its clock.

1.8. Map view

The map view offers a different way to visualize the cyclic economic situation of the Euro Area countries and UK. This view is also animated in a similar way as the main view.

The view is divided into two main parts:

- On the left is the user interface. Here, the user can control the animation or jump to a specific position in time. On the bottom is also displayed the clock for the Euro Area.
- The map is the main part of the view. This view displays a map of Europe where EA countries and UK have a specific color giving information on the cyclic economic situation of each of them.
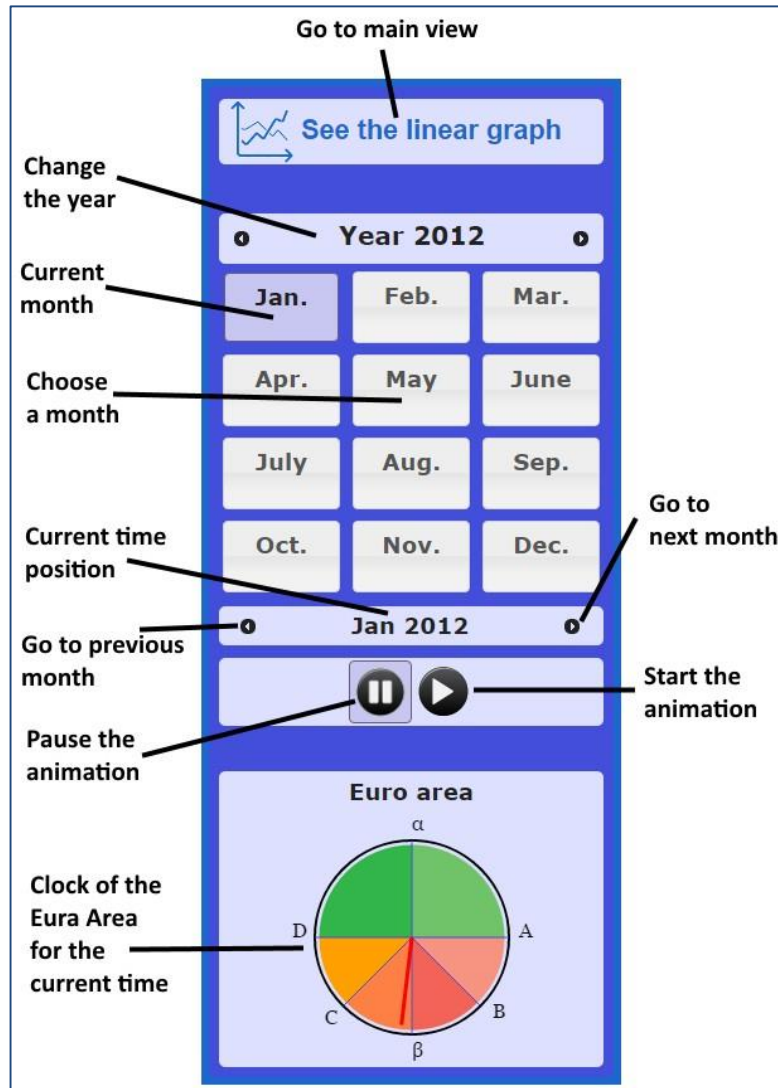
1.9. The left interface

Figure 8 – Left interface if the map view

The main element of this interface is the calendar shape that lets the user choose a specific month and year easily. The current month is highlighted in the calendar. Below the calendar shape, is the label of the current month and year, with two buttons that allow jumping directly to the previous or next month.

The second function of the interface is the control of the animation. Two dedicated buttons are there to start or pause the animation. The animation is paused initially when the user arrived on the map view. On the bottom is the clock of the Euro Area.

1.10. The map

The map shows EA countries with different colors that represent one of the growth, slowdown and recession situation, or a neutral grey color if no data is available for it.

The map is focused on EA countries, other countries are visible for more readability but only the shape with no border and in a neutral color.

A legend explains the colors chosen. When the user move the mouse over a country, additional information are visible on the top right; it includes the name of the country, his membership in EU, EA or EFTA and the cycle clock.
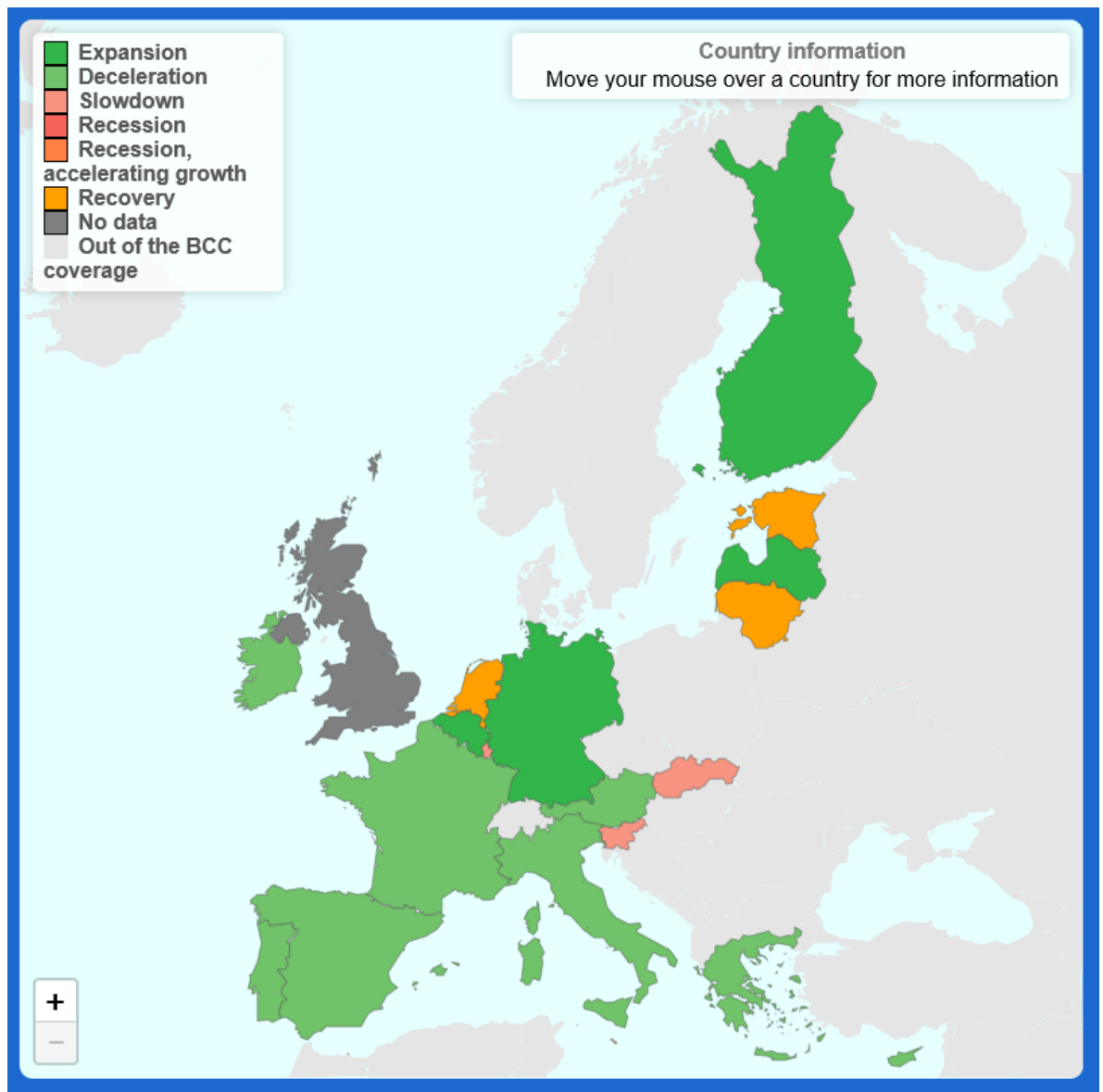

Figure 9 – The map on map view

A zoom functionality is available by a zoom-in button and a zoom-out button at the bottom left.

Colors of countries and the cycle clocks are defined for a precise month and are changing automatically over time when the animation is started.

1.11. PDF report generation

The BCC application includes a feature of PDF report generation that allows users to generate a document with the same graph than in the BCC as well as the clocks, for the countries he wants.

Figure 10 – PDF report generation form

The user can choose the countries to include in the PDF report. For that purpose, a form is accessible by a button with a PDF icon on the top right of the BCC web application.

The user can select a number of countries and regions to be included. A further selection has to be made for the country/region and its respective turning points as well as the time period. All of this information will be included in the PDF report.

Figure 11 – Example of generated PDF report

2.   REFERENCES

Mazzi, G. L. (2015): *Complementing scoreboards with composite indicators: the new business cycle clock*, EURONA — Eurostat Review on National Accounts and Macroeconomic Indicators, 02/2015, Luxembourg, 2015.