Design 4

Sanne Strikkers Chris Olberts Maarten Hogeweij
Martijn Kruiten

March 4, 2016

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1.1 Introduction

We have chosen for a visualization by Eurostat, showing, in their own words, "data on European regions at NUTS 2 level, grouped into different statistical domains" [1]. These domains include, but are not limited to, economy, health and education. At the left side, a map is shown with color-coded information for different regions at NUTS 1, 2 and 3 level (presumably, NUTS 1 and 3 level were added later). On mouse-over, a pop-up appears with additional information for that region. At the right side there is some statistical information available in either a distribution plot, a scatter plot, a bar chart or a data table. Additionally, there is a timeline at the bottom which can be automatically scrolled. See figure 1 for a screenshot.

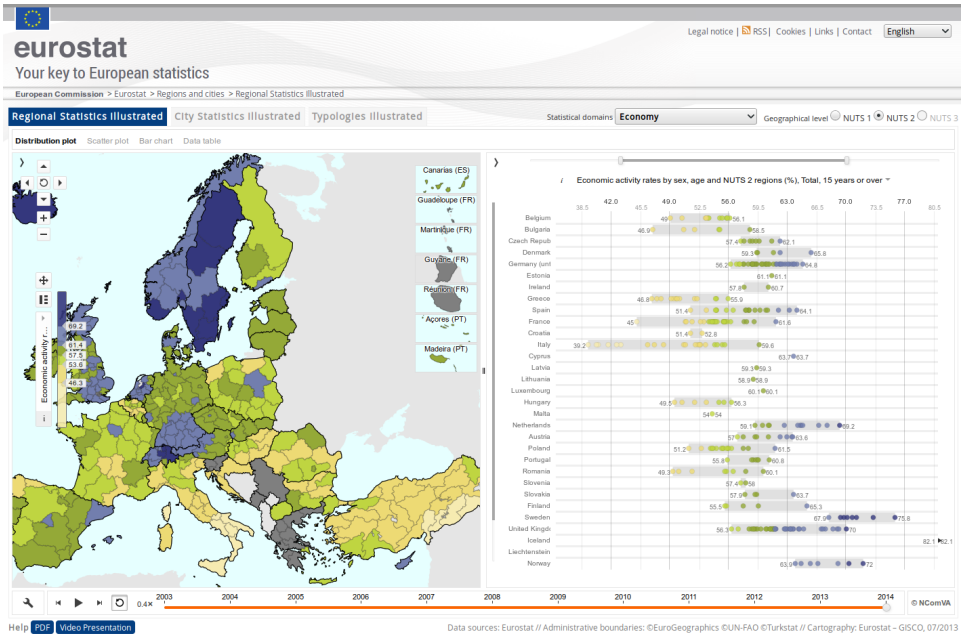

Figure 1: "This interactive tool contains data on European regions at NUTS [1, 2 and 3] level, grouped into different statistical domains." [1]

1.2 Objective and target audience

The objective of this visualization is to convey statistical data from multiple domains to the target audience and let them compare regions to one another on two different NUTS levels. Eurostat does not mention what that target audience consists of, but presumably the target audience is the general public, or anyone that is interested in these statistics and is able to understand them in the way that they are presented.

1.3 Interactive elements

1.3.1 General elements

There are certain elements that are not inside the map or statistical visualizations and that are always visible. At the top left of the page, right above the map, you can select the type of statistical visualization that you would like to see on the right side. More to the right you can select from which domain you want to see the data. Still to the right, you can select the geographical level. This will change the map view to show larger or smaller regions and it will add or subtract data points in the statistical views on the right.

At the bottom of the page, there is a timeline on which you can manually select a year to view the data from, or you can choose to let the timeline scroll automatically. At the left of the timeline are controls to set the speed, skip forward or backward and to play or pause the timeline.

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1.3.2 Map elements

On the map, all countries are interactive, by hovering your mouse over them. Then, a pop-up will appear with additional information for that region.

On the top left, controls are shown to zoom, pan and rotate the map. Right beneath the map controls, is the legend, with on the top left controls to alter its position and its view (qualitative or quantitative). A bit down is a pop-out menu with options to show different variables within the chosen domain.

1.3.3 Distribution plot elements

At the top of the distribution plot, a bar is shown to change the scale of the horizontal axis (which therefore acts like a zoom control). Additionally, different data points can be selected and are highlighted on the map.

The same menu that is shown no the map to select different variables, is also shown in the right pane for all selectable visualizations.

1.3.4 Scatter plot elements

At the top right, a control is shown to alter the scale. This will zoom all circles, to make it easier to compare them.

The variables on the horizontal and vertical axes are selectable right next to each axis.

Underneath the plot, there are controls to show or hide the labels for each data point, and the axes can be scaled differently.

1.3.5 Bar chart elements

The bar chart can be either shown as a scrollable chart, or, by clicking the icon at the bottom left, in focus mode, where all bars are shown, but only a subset thereof are shown large and the rest is compressed into a smaller space. The bars on which to focus are selectable by dragging the sliders on the left.

1.3.6 Data table elements

At the top of the data table, you can set whether all regions are shown, or only a selection, if you want to include the identifier code for each region and if you want to include the units of the variables. Also, the width of the columns can be set, you can select which variables to show and the table can be transposed.

1.4 Discussion

There are elements to alter the view of the visualization and elements to alter the dataset and/or its variables. We think that this visualization is very well designed and most elements proof to be useful in certain situations where the standard view does not suffice. For example, if some datapoints are too small, you can just zoom them. If the legend is unreadable, you can alter it's appearance and make it readable again. If you want to see different variables: no problem, they are selectable within each pane and each visualization. Whether you want to focus on a subset of the data of you want to search for correlations, it can all be done. Virtually everything that one would be interested in to see can be shown by interacting with the visualization. The dataset is the limiting factor, not the visualization itself.

References

[1] Eurostat. *Eurostat Regional Statistics Illustrated: Usage guide*. 1.0 edition, 2013.

[2] Jeffrey Heer and Ben Shneiderman. Interactive dynamics for visual analysis. *Queue*, 10(2):30, 2012.

[3] Michelle Q Wang Baldonado, Allison Woodruff, and Allan Kuchinsky. Guidelines for using multiple views in information visualization. In *Proceedings of the working conference on Advanced visual interfaces*, pages 110–119. ACM, 2000.

[4] C. Ware. *Visual Thinking: for Design*. Morgan Kaufmann series in interactive technologies. Elsevier Science, 2010.