

## How the tool can support policymakers and policy implementation

Whatever indices are used for political decisions, they have to be evaluated in relative terms. This may be done according to various territorial contexts, which are differentiated according to the scale of political intervention or action they are referring to and that have a sense for the questioning: a large, a medium or a small scale. Let us take the example of the European Union as a group of 28 countries, at regional level (NUTS2 for instance), and let the observed index be the wealth per resident in the regions (GDP/inhabitant). The HyperAtlas offers the possibility to consider the level of wealth of the regions relatively to three territorial contexts. The chosen contexts may be for instance respectively:

1. the European Union;
2. the country;
3. the neighborhood, defined by contiguous regions.

Multiscalar analysis can support political decisions. In case policymakers want to build political scenarios or in case they want to evaluate propositions of policy instruments, for example the criteria for distributing structural funds, a synthesis on the situation of regions depend on the various territorial contexts.

The question of perequation (transfer from “advanced” to “lagging” region) is very sensitive and it is important to propose a complete view of the scales where those perequation processes can take place, according to the principle of subsidiary.

## Before starting the HyperAtlas

The HyperAtlas is available on-line from the HyperCarte Web Application. Based on the Java technology applet, the HyperAtlas requires a standard Web browser and a correctly installed Java Runtime Environment (JRE) plugin. This JRE is available by default for almost all standard Web browsers, whatever the platform is. However, there are some exceptions that do not support Java like Google Chrome.

Before starting the application, the user is warned that the HyperAtlas Applet is about to be run without the security restrictions that are normally provided by Java. Indeed, the HyperAtlas is allowed to read-write on the user's disk to load a personal .hyp file or to write an html report for example. To overcome the default behaviour

As an example, how can the picture of “less developed” regions change (operationalised as less than 75% of the mean value of GDP) is applied simultaneously at three scales: European, national and local. Furthermore, it is possible to propose a typology of “advanced regions” based on the symmetric criteria of more than 133% of the mean value of GDP at those three scales.

According to this methodology, it is possible to demonstrate that very few regions are “lagging at all scales” and “advanced at all scales”. Many are in more complex situations, like certain regions of Switzerland or Norway which are “advanced” at European scale, but they are “lagging” at their national or local scales. Reversely, the metropolitan regions of candidate countries are very often “lagging at European scale” but “advanced at national and local scales” (see figures 3 and 4).



of Java Applets that are not allowed to write on the user's disk, the HyperAtlas applet has been signed with a CNRS-2 standard certificate (CNRS is an acronym for Centre National de la Recherche Scientifique). Thus, the security warning window which is opened before the startup of the application is expected.

The HyperAtlas is available at: <http://hypercarte.espon.eu>

### ESPON 2020 – More Information

[www.espon.eu](http://www.espon.eu)



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## Inspire policy making by territorial evidence

# ESPON Tools

Guidance sheet

## HyperAtlas

### Compare and Analyse Regions

*Analysing a territory can be done in various ways and depends on the purpose of the observation. A territorial representation depends on a combination of different choices regarding to the territories and geographical scales, and the statistical indicators explored.*

*From a policy point of view and in a social science perspective, contrasts and gradients are often much more interesting than absolute values, because regions belong to broader territorial and spatial systems. Aggregating and disaggregating territorial units allow policy makers to see how local values perform within a territorial context and how do they position in relation to others on different spatial scales.*

*The HyperAtlas is a tool for Multiscalar Territorial Analysis. It can be used to analyse and visualise spatial phenomena of a given territorial unit by taking into account its relative situation and localization for different spatial contexts on the basis of the ratio of two initial geographical indices.*

### How to use the HyperAtlas

The HyperAtlas is an interactive tool which works with three sets of parameters that are linked to one or more datasets. In the HyperAtlas, the user can change the different input parameters at any time, and the linked maps are immediately updated. The user has also the possibility to configure each map individually: number of equivalence classes, statistical progression (arithmetic or geometric), the pallet of colours, etc. This gives the possibility to generate a multitude of very accurate maps based on users needs.

#### 1. Selecting a dataset

When launching the application you will be first guided to the default dataset (currently: Economy and Social Affairs). However, a selection of customized datasets on other topics is also available from the "Datasets" page of the web application. Currently, 6 datasets are available for the HyperAtlas: Economy and Social affairs, Demography, Euromed, Metroborder and Land Use. The user can also load datasets made for the HyperAtlas from his disk via the "File-Open" menu item of the application.

#### 2. Selecting the study area, elementary zoning and indicators

In order to proceed with the multiscalar territorial analysis, the user has to define the study area, elementary zoning and select the relevant indicators for the analysis which can be selected in the four respective drop down menus.

The input data for the HyperAtlas is derived from count variables for which the HyperAtlas calculates the ratio

as well. The user may combine different sets of variables. For example, the first variable could be GDP and the second one population which will then calculate a ratio for GDP per inhabitant.

The HyperAtlas generates three maps (figure 2) on the basis of the chosen indicators, each under a different tab. The maps for the numerator and denominator (count variables) are represented with proportional circles. The ratio map is shown with coloured shades, according to the ratio value. The number of classes and their associated colours (the pallet tool) can be adjusted in the "Option" tab of the ratio map.

Figure 1 Screenshot HyperAtlas

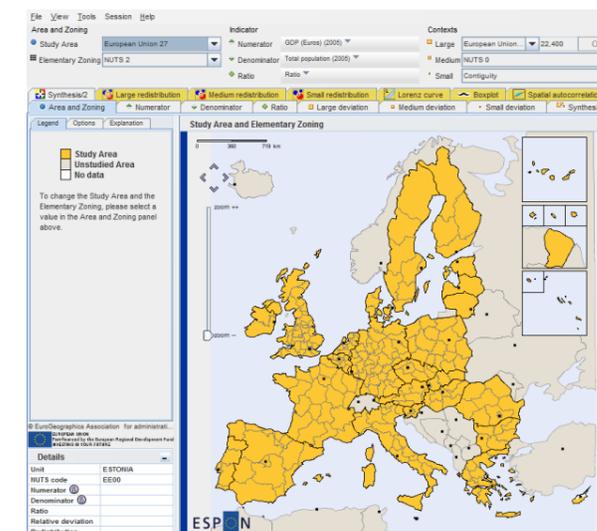


Figure 2 a-c Output of example two showing the nominator (a), denominator (b) and ratio (c).

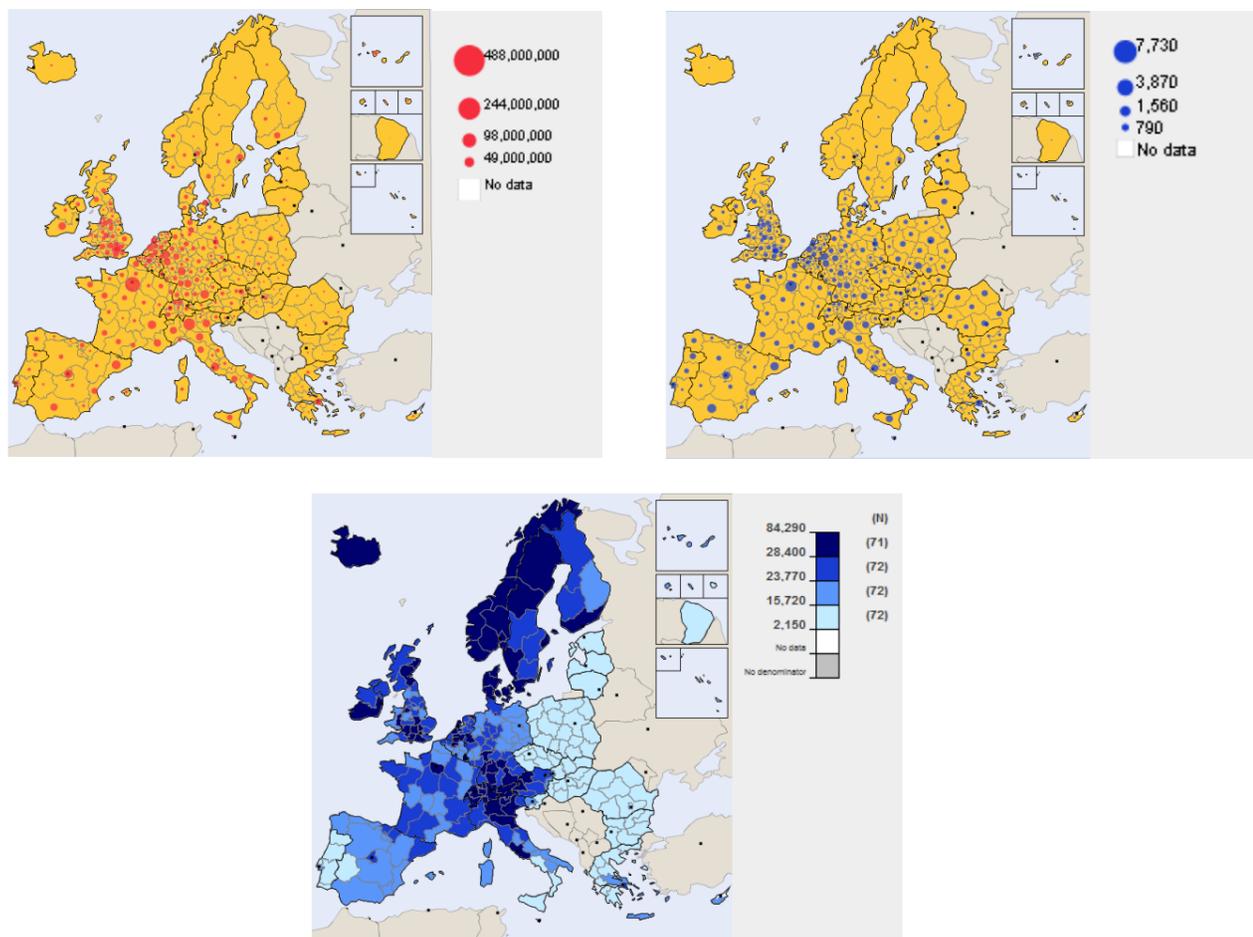
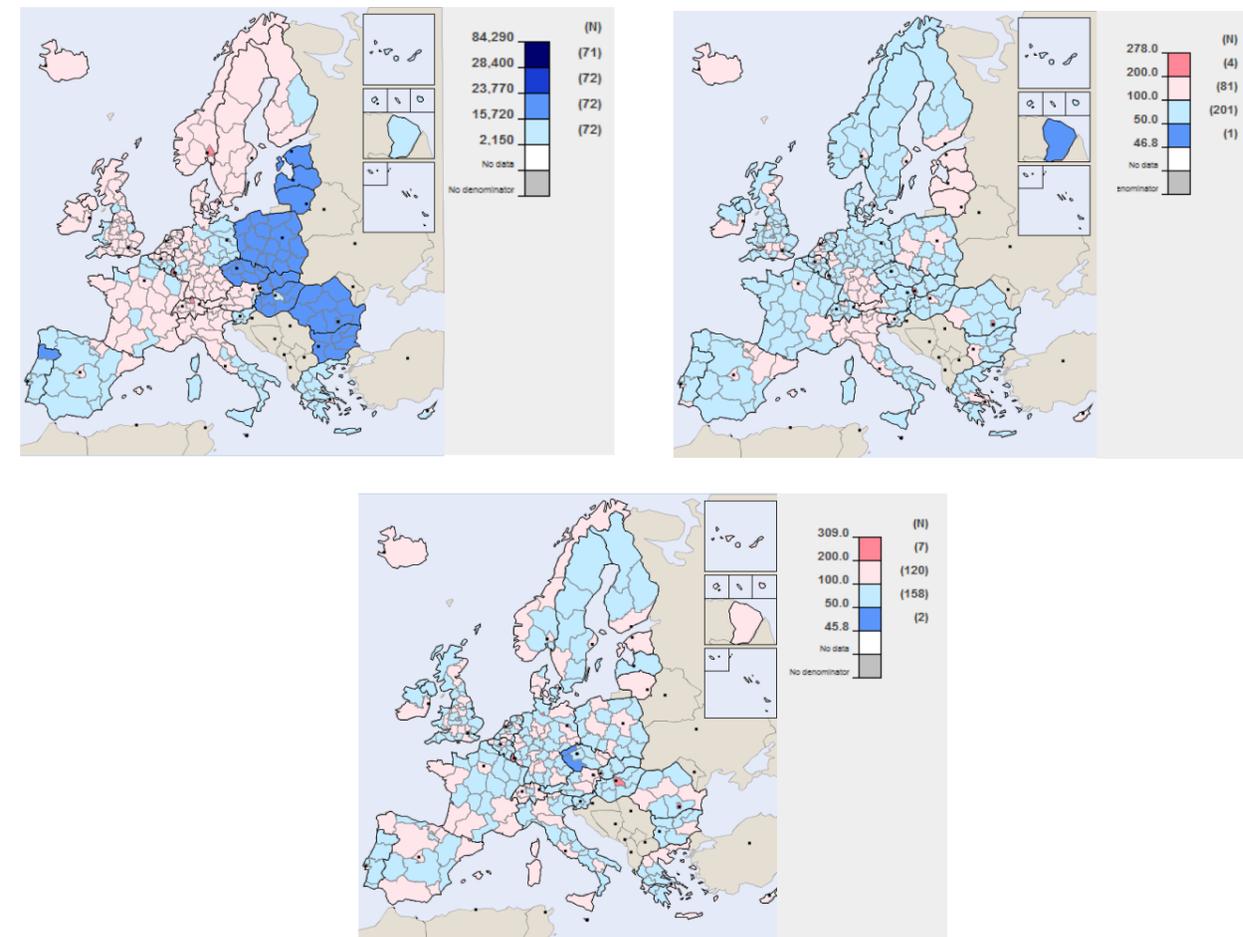


Figure 3 a-c Output of example three showing large (a), medium (b) and small deviations (c).



3. Explore deviations

The HyperAtlas generates three maps (figure 3) showing the territorial deviation corresponding to the three different levels of spatial observation: large, medium and small.

- The large deviation is associated to the chosen study area by default. The user can choose another extent for the reference value, for instance the EU15 when exploring EU28. Then the map will show the regional deviation in relation to the EU15.
- The medium deviation, is a geographical associated to the chosen “elementary zoning” unit, which is by default the smallest territorial unit.

- The small deviation will be based on a proximity relation used for the neighbourhood’s definition for each elementary unit. That is usually “contiguity”, but it may also be a relation based on unit- or time-distances. Then, each elementary unit’s value will be compared to its neighbourhood’s value.

The spatial context on which the deviations are based can be changed using the respective drop down menus.

The values of the deviations are transformed into indexes centred on 100, in order to highlight the regions that are under and above their reference value.

4. Explore synthesis maps

The HyperAtlas also generates two synthesis maps based on the multiscalar analysis. The three deviations are summarized in the first synthesis map showing the perspective based on the three different territorial contexts. The synthesis is based on a deviation threshold, either by upper value or by lower value. This has to be indicated by the user because it depends on the meaning of the ratio. For instance low values for unemployment rates are in general good, while low

values for an indicator related to resources are in general not good. According to which regions have to be differentiated (lagging ones or winning ones), one has to chose the point of view of the synthesis. The second synthesis map aims at showing the status of regions by taking into account two chosen deviations. For example, how do regions position on unemployment when looking at European and national contexts in parallel.

5. Expert mode

With the expert mode, the user has the possibility to explore different statistical indexes like Lorenz curve, Gini Coefficient, Hoover Index, the Coefficient of Variation, equi-repartition maps, spatial autocorrelation charts and box plots. As this set of cartographic and statistic tools are mainly designed for more advanced

users, they are not available by default at the startup of the application. In order to keep the application easy to use for not so advanced users, this set of tools must be enabled on clicking the "Enable the expert mode" menu item of the "Tools" menu.

Figure 4 a-b Output of example four showing two synthesis maps

