

EUROPEAN TERRITORIAL COHESION INDEX

Recent progress and new perspectives

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INTRODUCTION

Summary of results achieved in ESPON 3.2 on ETCI

- It could be interesting for EU to develop a **European Territorial Cohesion Index (ETCI)** equivalent to *Human Development Index* at world scale
- This indicator should be **policy-driven** (based on a political document like Universal Declaration of Human Rights for HDI) and not **data-driven** (based on existing data).
- This indicator should be both **policy relevant** and **scientifically correct**.

INTRODUCTION

Summary of results achieved in ESPON 3.2 on ETCI

- **A review of scientific and political literature** on composite indicators of human or sustainable development has been achieved in ESPON Project 3.2 (Interim Reports). HDI is a particular example.
- **First experiments on ETCI in ESPON 3.2** has been realised on the creation of composite indicators, but they **have mainly produced negative results** (“manipulation” of structural funds, lack of social data for a full coverage of territorial cohesion topics, scale problems, lack of time series, ...)

INTRODUCTION

Summary of results achieved in ESPON 3.2 on ETCI

- **Most promising results of ESPON 3.2 was related to the exploration of demographic data** for at less 3 different reasons :

This data are easily available at various spatial scale and for long period of time.

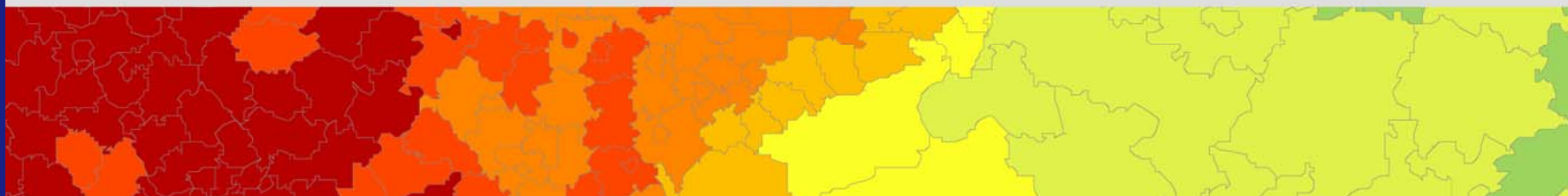
Demography is one of the major challenge for Territorial Cohesion in Europe.

Demography provides indirect proxy of other dimensions, in particular social and economic dimensions.

INTRODUCTION

New results obtained after ESPON in 2007-2008

- **Study for European Parliament on “Regional disparities ... ”** (*Coordinated by Nordregio, delivered in June 2007*)
- **Study for European Parliament on “Shrinking Regions”** (*Coordinated by UMS RIATE, to be delivered in June 2008*)
- ***Based on these new results, what are the new possible development for the creation of a relevant ETCI ?***



Part 1
BUILDING COMPOSITE INDICATORS :
SOME METHODOLOGICAL CONSIDERATIONS

Selected results of the Study entitled
**"Regional disparities and cohesion – what strategies
for the future"**

European Parliament, 2007, Chap. 4, pp. 53-85



Selection of a limited number of variables

- **GDP/inh. ppp** : a “classical” indicator or regional policy which is supposed to catch regional competitiveness but with many weakness ...
 - **Share of highly educated people** : an attempt to complete GDP by a measure of the Human resources available for Lisbon Strategy.
 - **(Un)employment rate** : another “classical” indicator of regional policy which is supposed to catch partly social cohesion but with many weakness ...
 - **Life expectancy at birth** : an attempt to complete unemployment by an indirect measure of global social well being of the population.
- *All variables were standardised between 0 and 1 and unemployment rate transformed into a positive factor by the relation $X' = (1-X)$.*

Principal Component Analysis

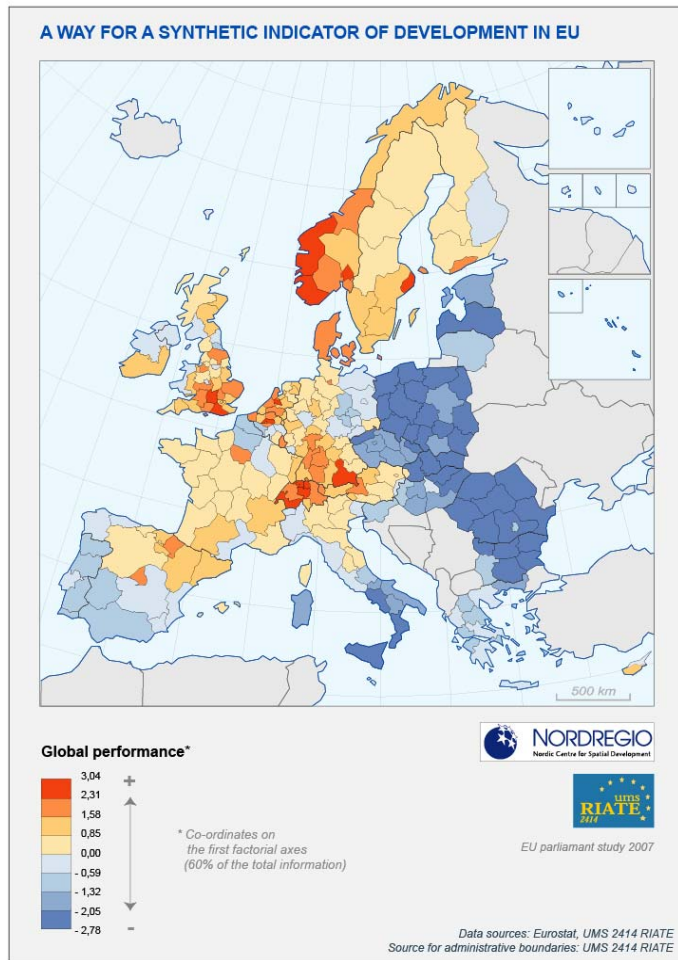
- PCA presents many scientific advantages as compared to synthetic indexes based on average of standardised values.

PCA introduce a **control of the colinearity** between the various variables and limit the risk of manipulation.

PCA make possible a **distinction between different components of the phenomena** (groups of correlated variable).

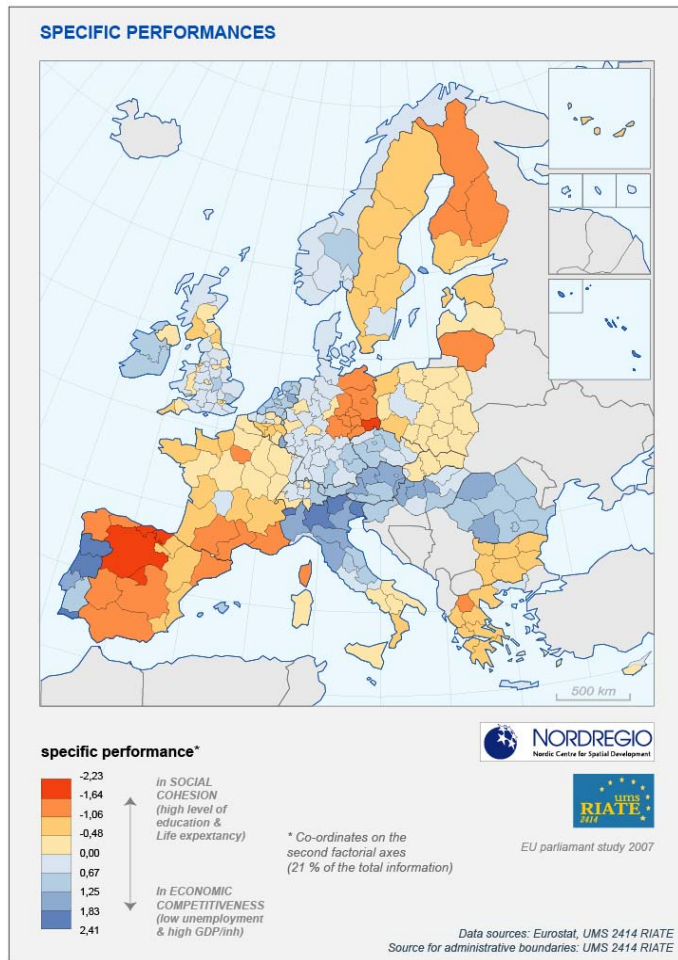
In particular, distinction between a **global measure** (1st component) and an **analysis of specificities** (2nd and eventually 3rd components).

A global measure of regional performance ...



- The 1st Component account for **60% of information** on the 4 variables and is equivalent ($r = +0.99$) to a **synthetic index of regional performance** that would be based on the mean of the 4 standardised variables.
- But it reveals precisely that **40% of the information is missing** and based on other **specificities**.

... balanced by regional specificities



- The 2nd Component account for **21% of information** and reveals oppositions between regions all things being equal with their global level of performance.
- It reveals a clear opposition between regions that are better performing on **social parameters** (life expectancy, education) and regions that are better performing on **economic parameters** (GDP, Employment).

From PCA to Cluster Analysis

- PCA is more interesting than synthetic index but should be completed by Cluster Analysis that provide the most precise view of regional potentialities and weaknes.

Cluster Analysis reveals groups of regions that are characterised by **global differences** of level but also by **specificities** that are related to specific national and regional actions (**liberalism versus welfare ?**) .

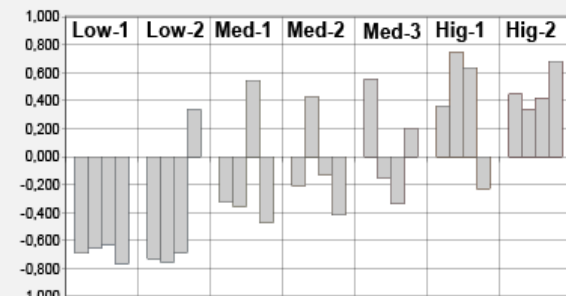
Combining this quantitative and qualitative approach helps to develop "**taylor made**" **policies** in favour of regional development : trying to push regional strength and to reduce regional weakness in a differenciate way.

TYOLOGY OF PERFORMANCES OF UE27 REGIONS



- Hig-2
- Hig-1
- Med-3
- Med-2
- Med-1
- Low-2
- Low-1

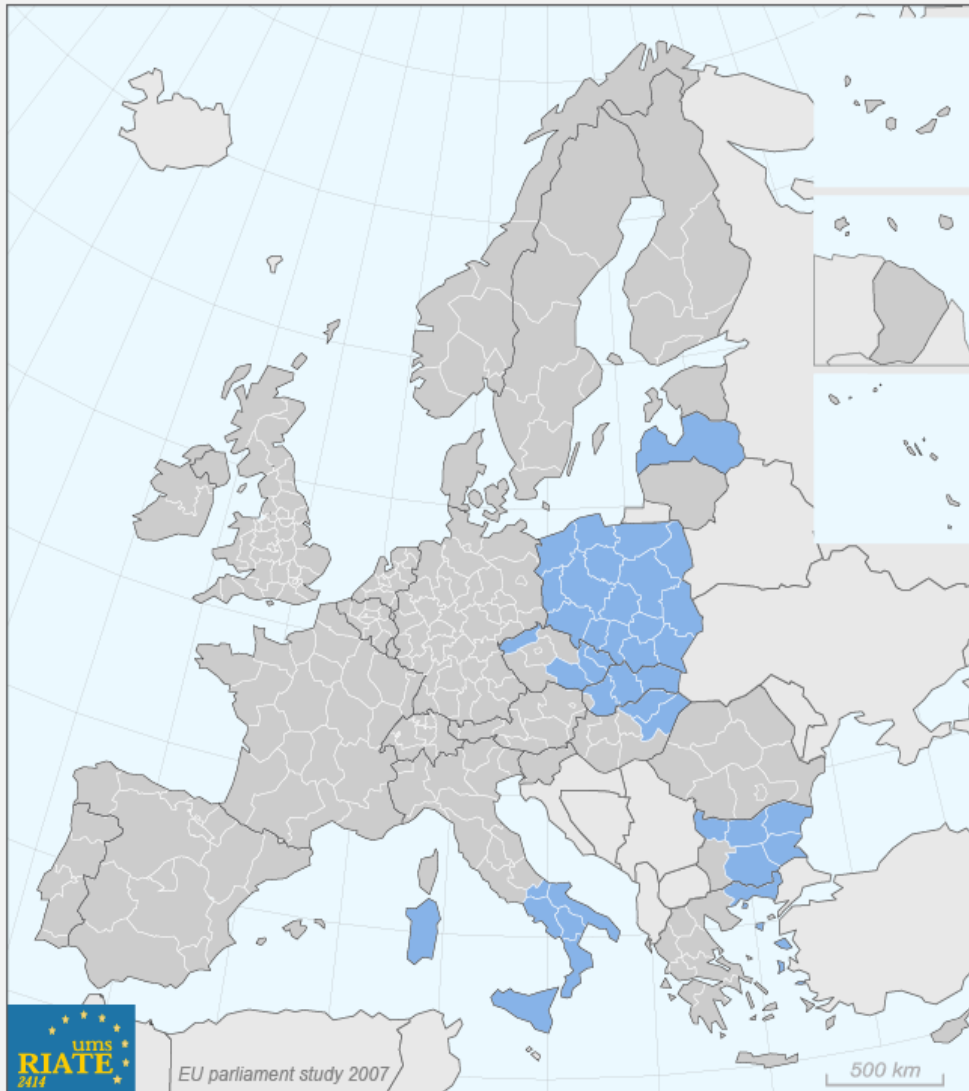
Deviation to the average profile



Specific performances, from the left to the right profile:
GDP/inh, Life expectancy, education, unemployment

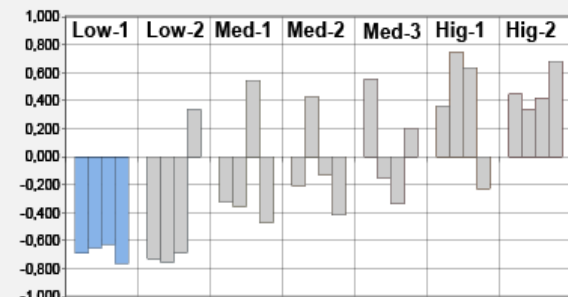
Data sources: Eurostat, UMS 2414 RIATE
Source for administrative boundaries: UMS 2414 RIATE

TYOLOGY OF PERFORMANCES OF UE27 REGIONS



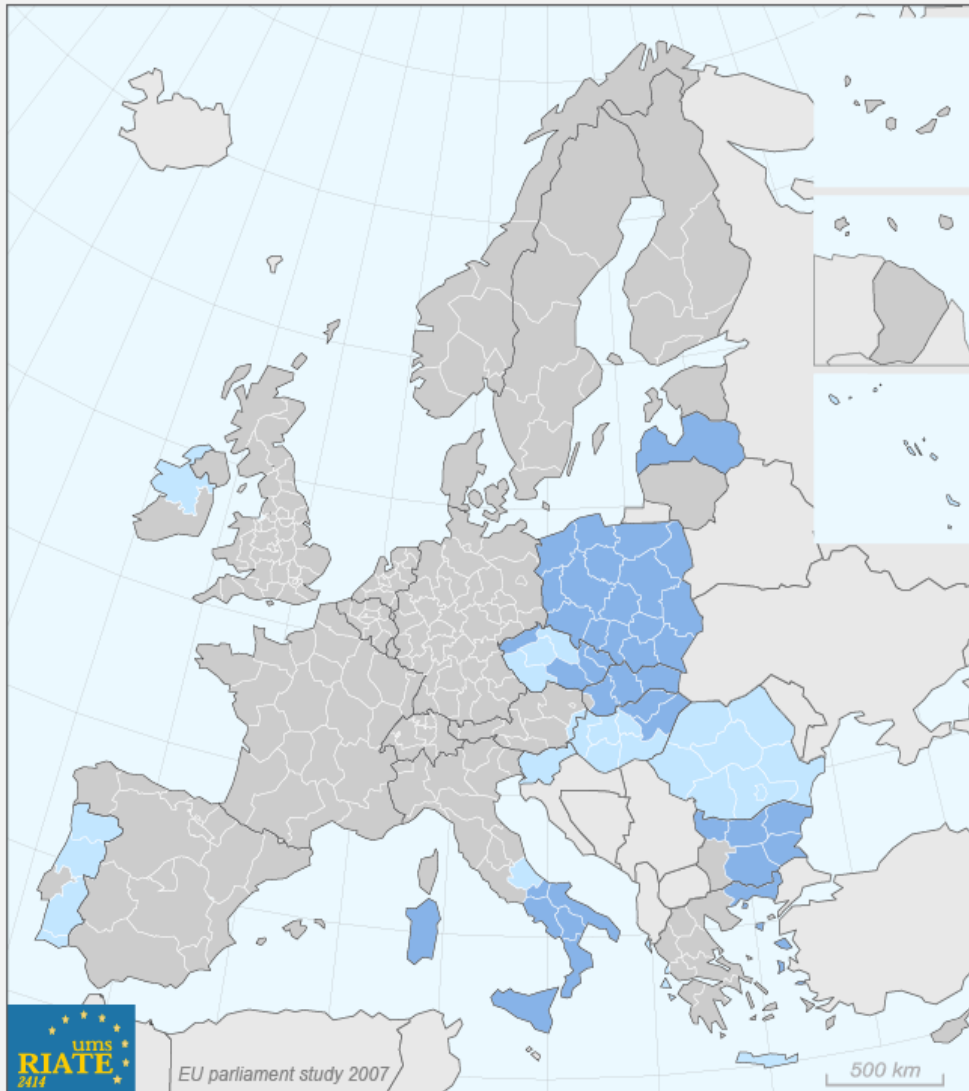
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- Med-1
- Low-2
- Low-1

Deviation to the average profile



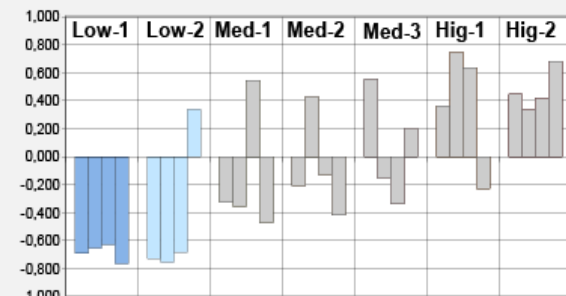
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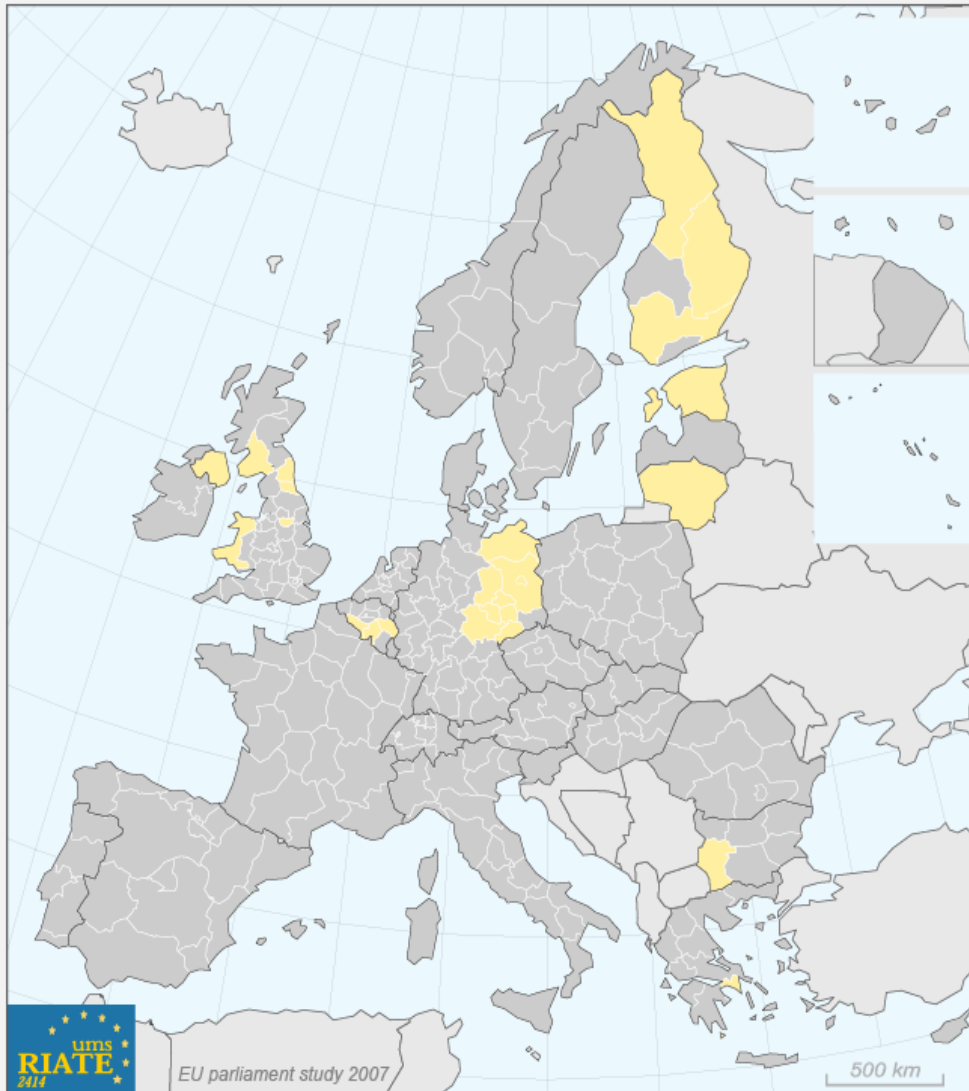
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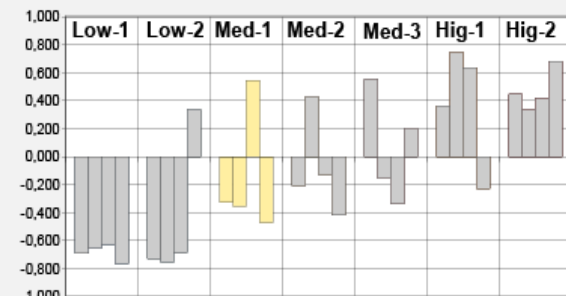
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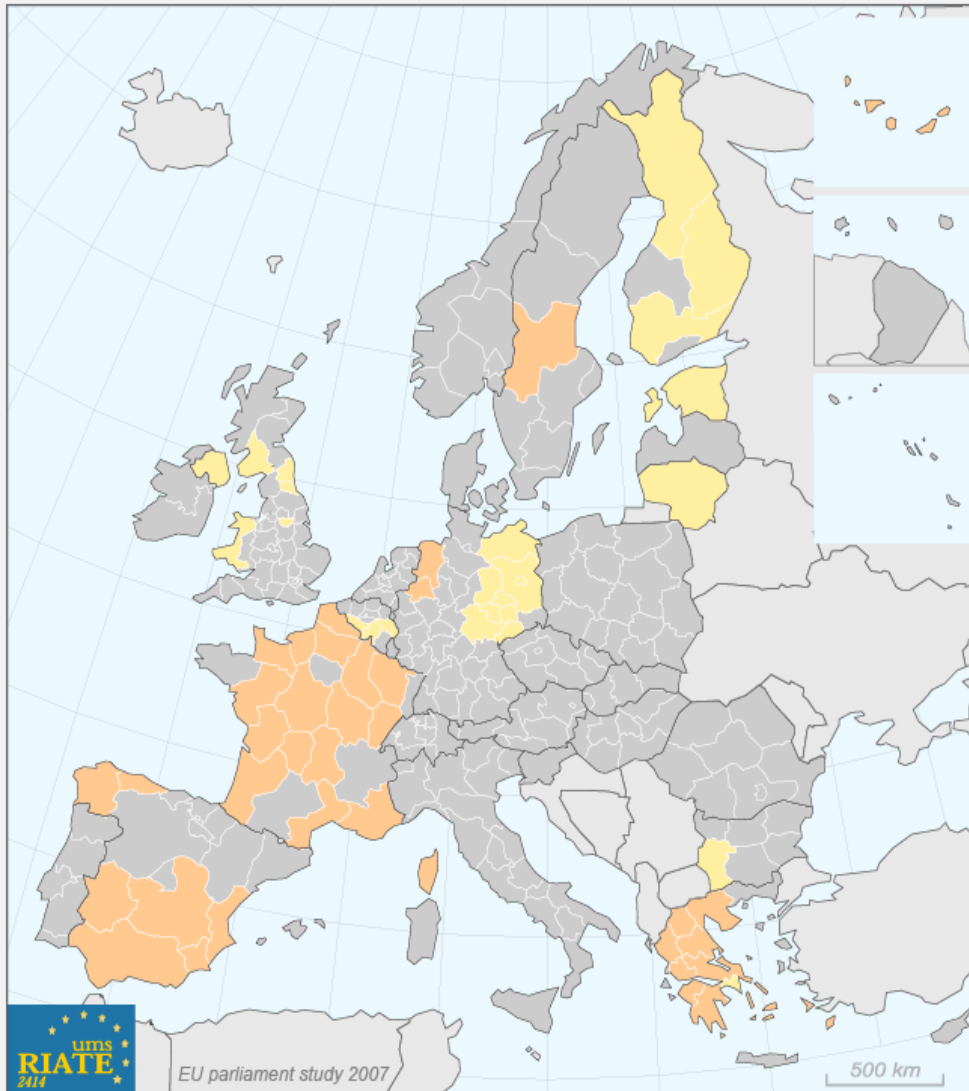
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- Med-2
- **Med-1**
- Low-2
- Low-1

Deviation to the average profile



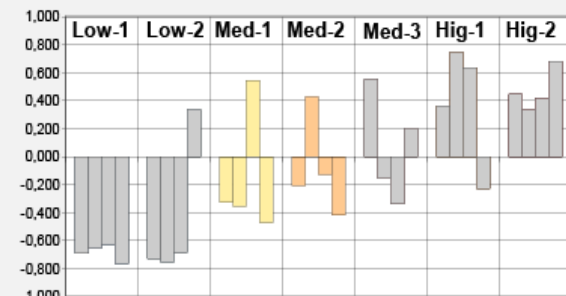
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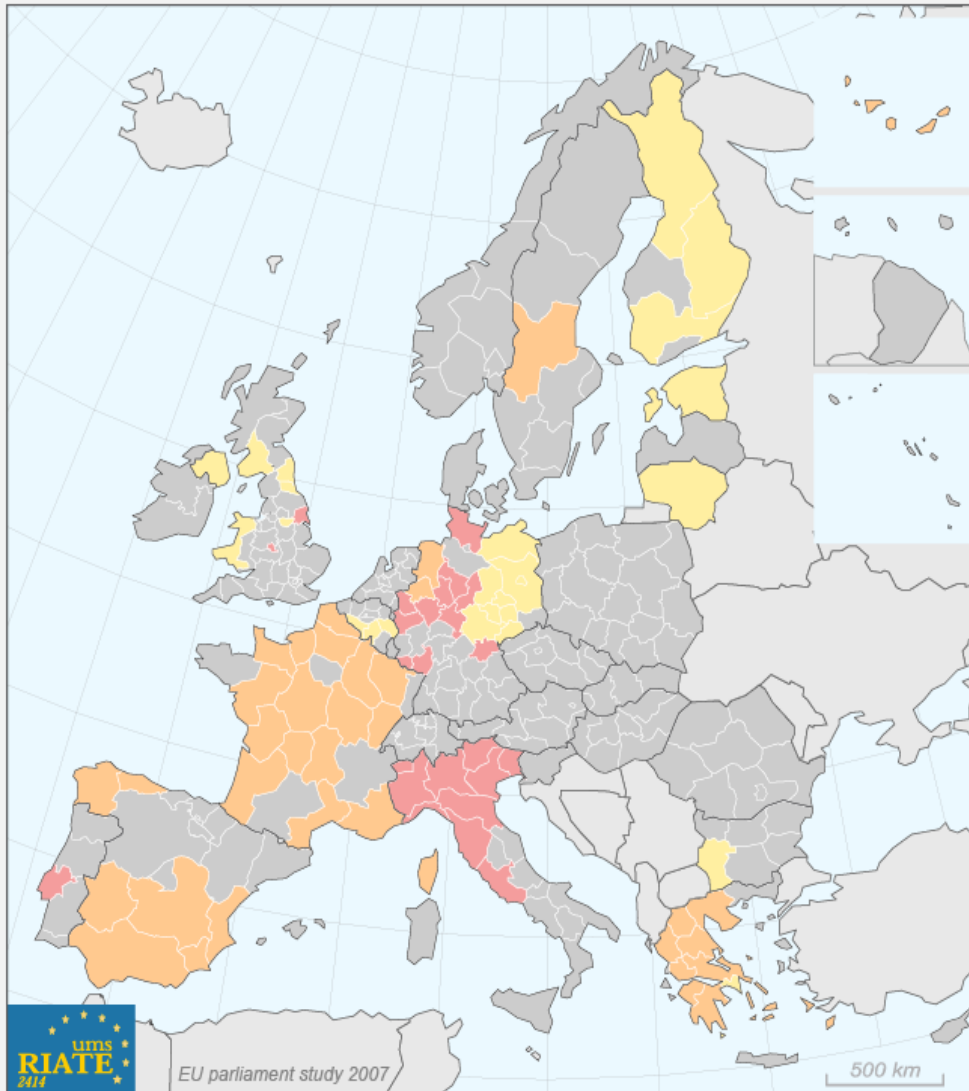
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- Med-2
- Med-1
- Low-2
- Low-1








Deviation to the average profile



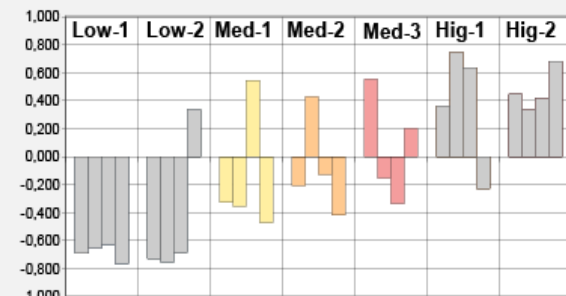
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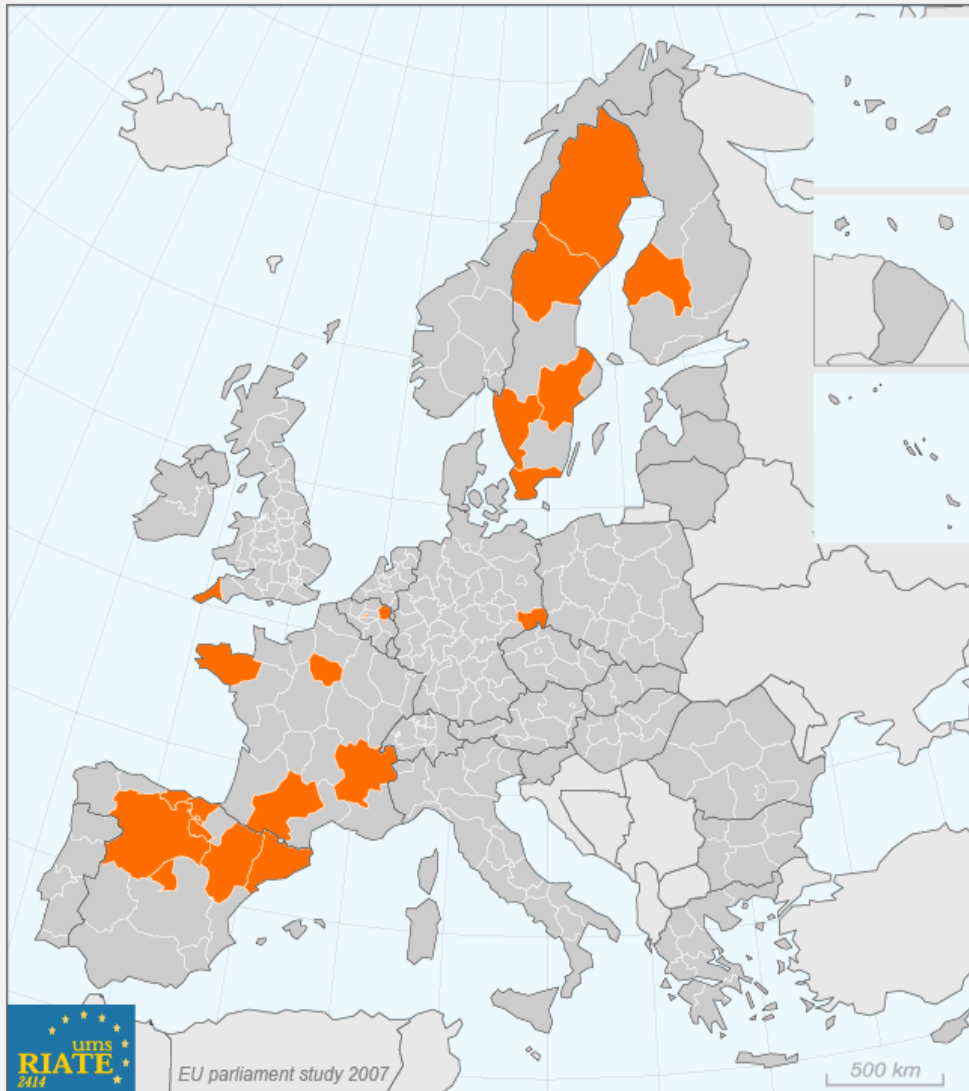
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Deviation to the average profile



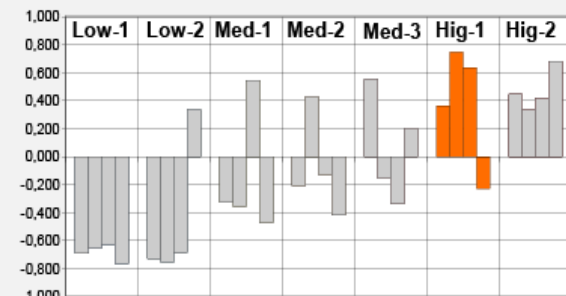
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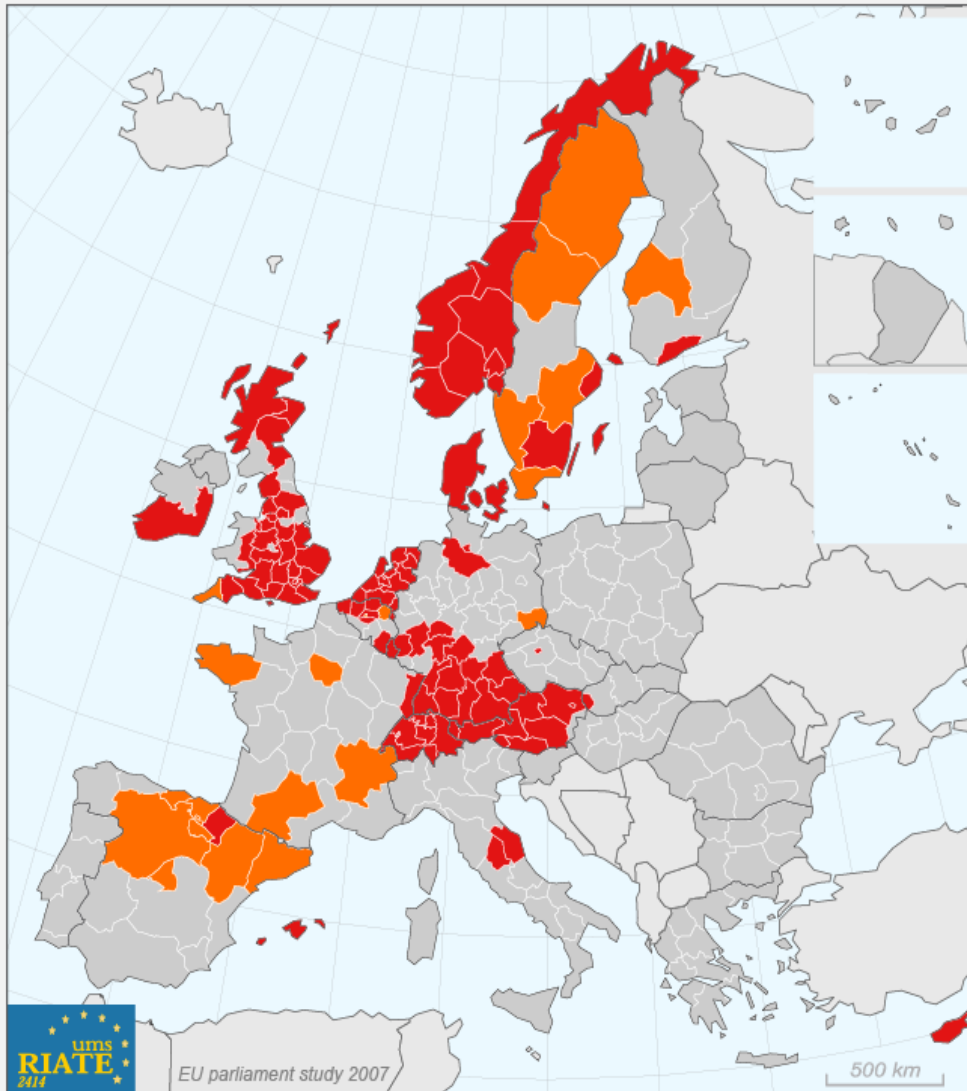
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Hig-1

Med-3

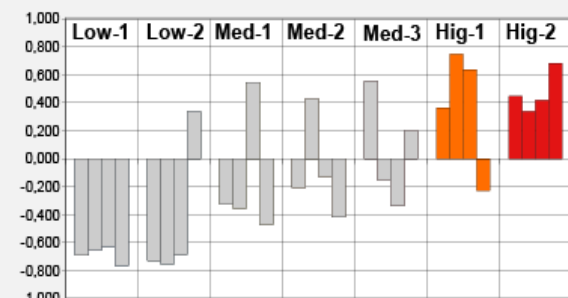
Med-2

Med-1

Low-2

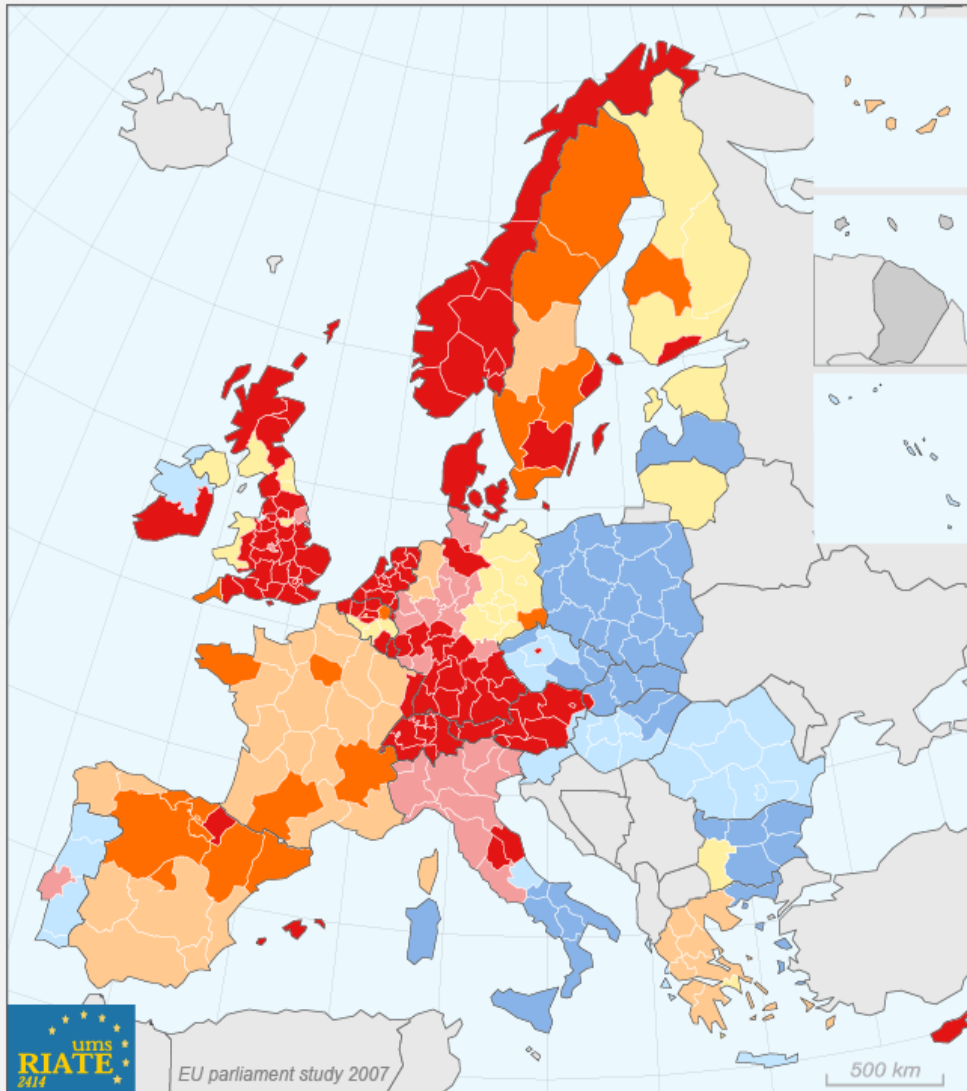
Low-1

Deviation to the average profile



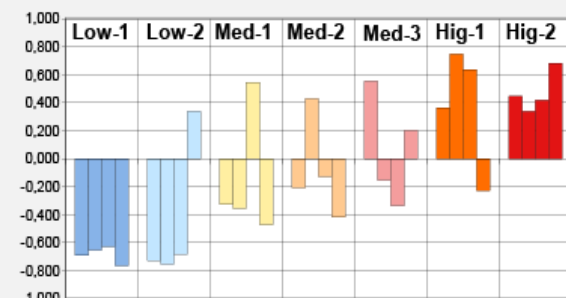
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Part 2
TOWARD A SYNTHETIC INDICATOR OF
SUSTAINABLE DEMOGRAPHIC DEVELOPMENT

Selected results of the Study entitled
"Shrinking Regions"
Progress Report, 2008, Working Paper 2.2

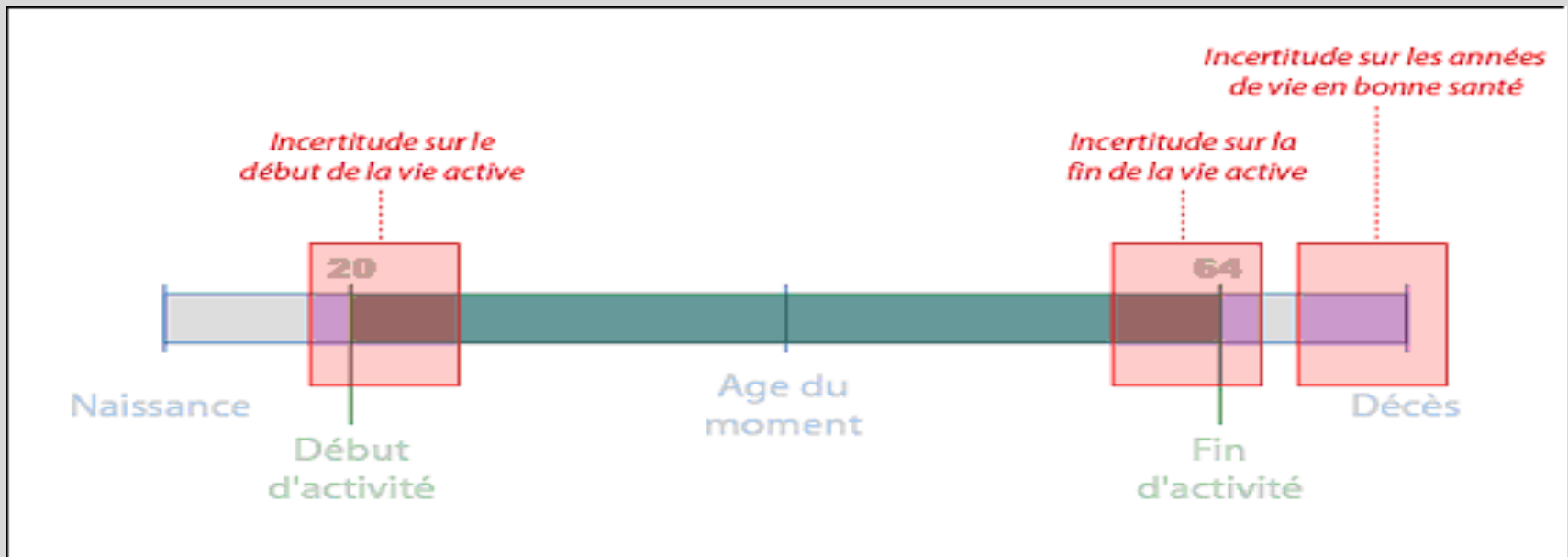


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How to measure "ageing" ?



Distance to birth

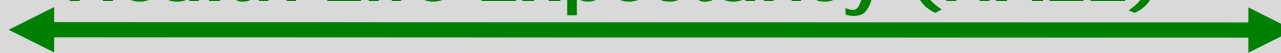
Distance to death



Life Expectancy



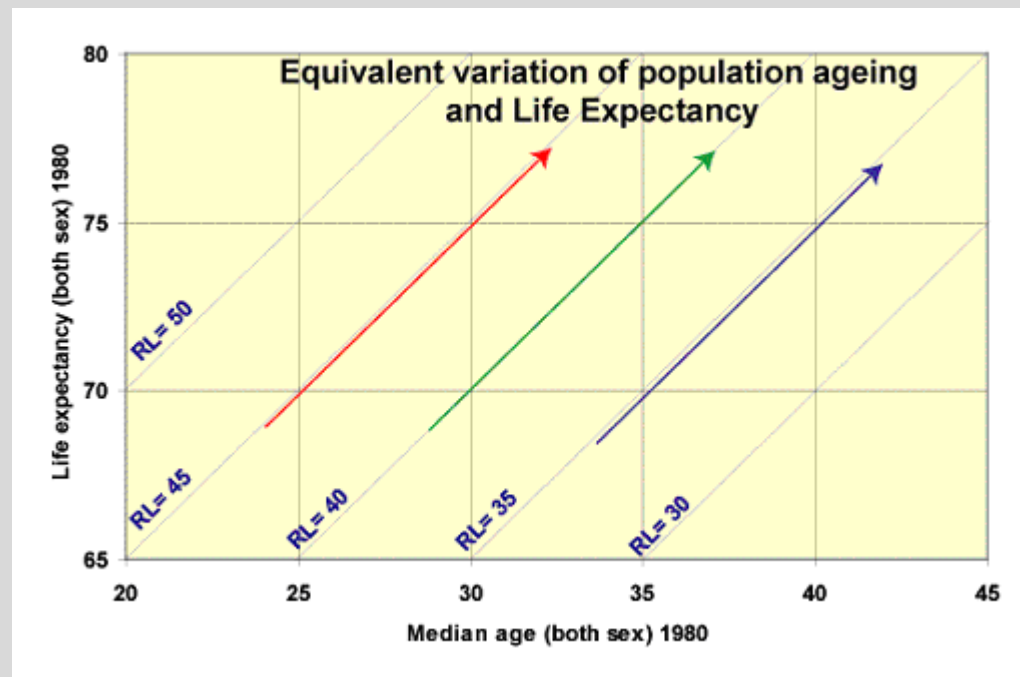
Health Life Expectancy (HALE)



The initial indicator of “Remaining Life”

In ESPON 3.2 we proposed to estimate the “remaining life” of a population by the formula

$$RL = \text{Life Expectancy at birth} - \text{Median Age}$$

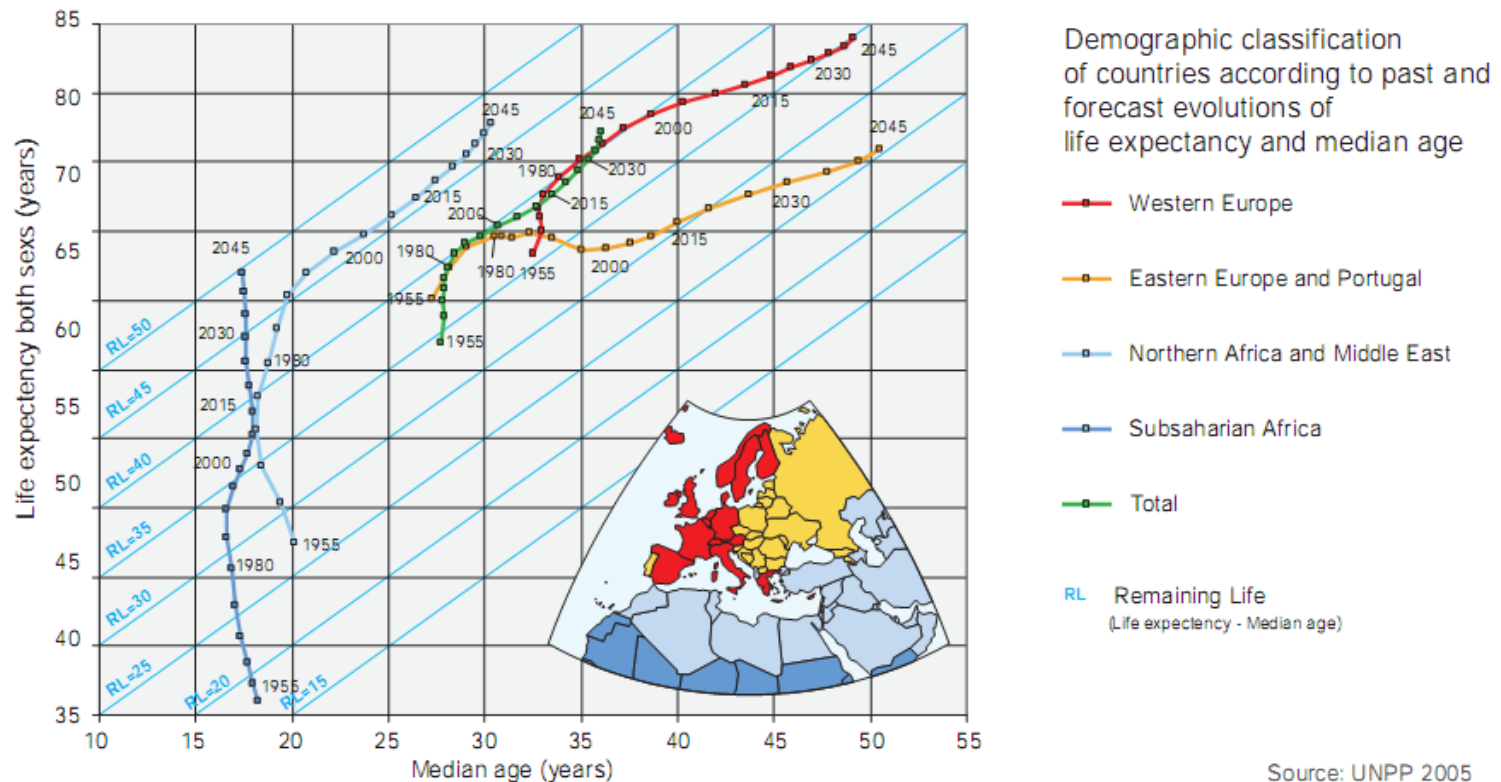


The idea is that the **dynamic** of RL is more important than the **level** at a given point of time.

A parallel increase of median age and life expectancy means a stability of the level of ageing (*Cf. graphic*).

A dynamic view of demographic sustainability

Demographic trends in EU and its neighbourhood, 1950-2045



"In systemic terms, we can say that each part of the Euro-Mediterranean Region would face strong demographic problems in isolation - too many young active people on the southern shore, and too many old people on the northern shore. The "whole is better than the sum of the parts"; considered together, the area as a whole displays a nice pattern of demographic equilibrium and sustainability."

Toward a new formulation

In the study "*Shrinking Region*" we propose an alternative formulation which appears more correct from scientific point of view :

- Median Age is replaced by **Mean Age (MA)**
- Life expectancy is replaced by **Health Life Expectancy (HALE)**
- Remaining Life is replaced by **Index of Demographic Sustainability (IDS)**

$$IDS = (HALE - MA) / HALE$$

Toward a new formulation

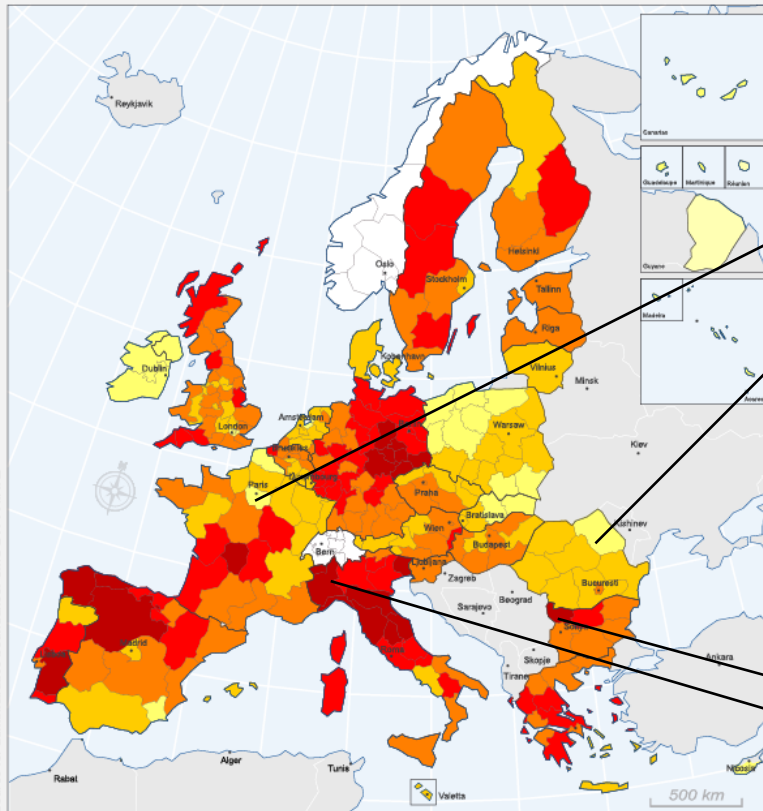
This new formulation has **better statistical properties** (because mean age and life expectancy are both *average* number of years that can be easily aggregated by weighted mean – which is not possible with *median*).

But it has also **better comparative properties** as the result is a *relative* index (between 0 and 1) and not an *absolute* number of years.

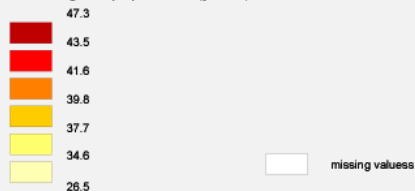
Finally it delivers a **simple and powerful political message** as it is a proxy of *the potential of healthy life of the population located in a given region*.

Application to EU regions NUTS2 in 2005

MEAN AGE OF POPULATION IN 2005 (Both Sexes)



Mean age of population (years)

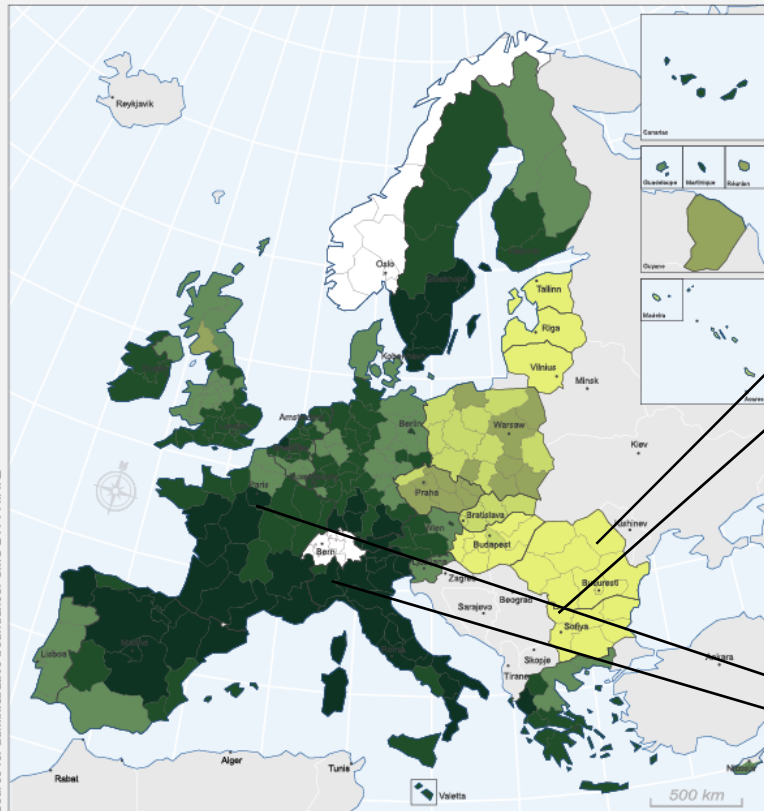


Ile de France (FR) and *Moldova* (RO) are both regions with « Young » population (37 years)

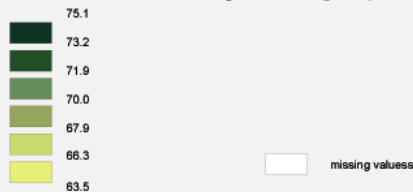
Severozapaden (BU) and *Lombardia* (IT) are both regions with « Old » population (44 years)

Application to EU regions NUTS2 in 2005

HEALTHY LIFE EXPECTANCY IN 2005 (Both Sexes)



Estimated duration of life in good health (years)

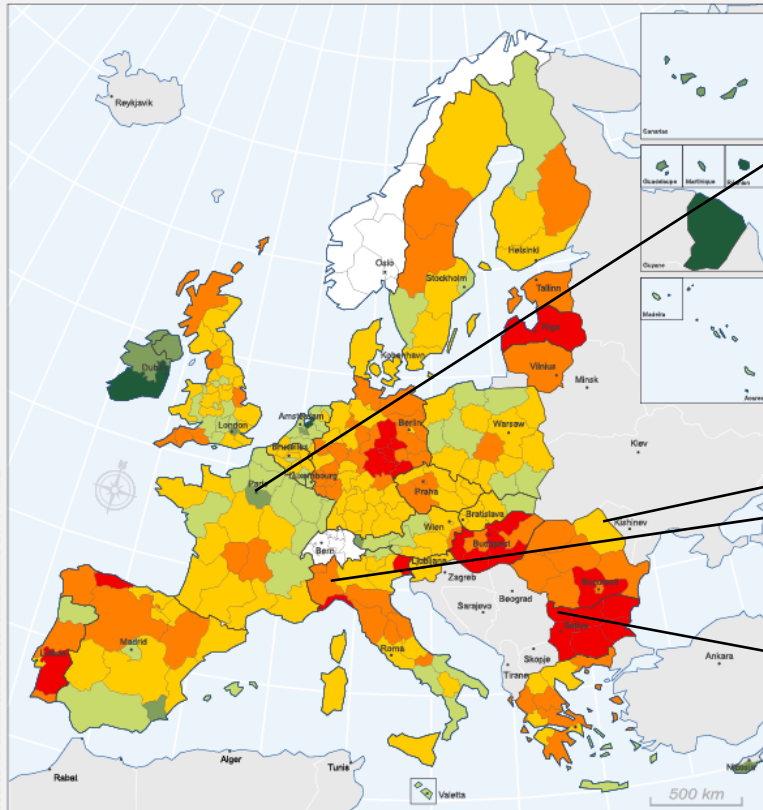


The level of healthy life expectancy is low and equal to 65 years in *Moldova (RO)* and *Severozapaden (BU)*

The level of healthy life expectancy is high and equal to 74 years in *Piemonte (IT)* and *Ile de France (FR)*.

Application to EU regions NUTS2 in 2005

INDEX OF DEMOGRAPHIC SUSTAINABILITY 2005 (Both Sexes)

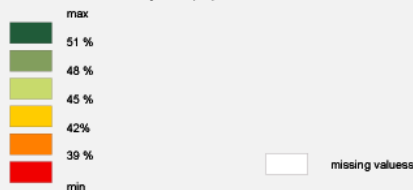


- Medium level of demographic sustainability in *Ile de France* (**50 %**)
- Low level of demographic sustainability in *Lombardia* (**42%**) and *Moldova* (**43%**)
- Very low level of demographic sustainability in *Severozapaden* (**32%**)

Source for administrative boundaries: UMS 2414 RIATE

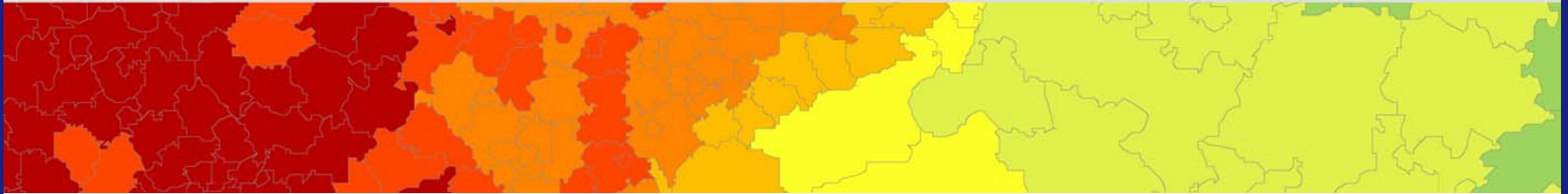
EU Parliament study - Linking regions - a paradigm shift in demography and territorial development

Potential of healthy life (%)



Discussion

- **Scientific improvements** : Preliminary results on IDS are based on many estimations that should be improved by better demographic data at regional level.
- **Political interest** : ISD is a good summary of the effect of several policies (health, migration, labour market, family,...). It provides a better estimation of « Potential of activity » of a population than classical indexes based on artificial age-groups (0-14, 15-64, more than 65).



THANK YOU FOR YOUR ATTENTION !

And sorry to be unable to be present at the meeting !



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