

**RIS3 in macro-regional
strategies:
building a comparative
framework to learn from
other Regions**

Regional structural heterogeneity. Evidence and policy implications for RIS3 in macro-regional strategies

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SO4.1 (Increase the application of multilevel and transnational governance in the Alpine Space)

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Introduction

The current debate on post 2020 EU Cohesion Policy should capitalize on:

- **macro-regional strategies (MRS)**
a policy tool aiming at enhancing **inclusive and sustainable development**,
by means of **synergies among neighbouring regions**
(COWI, 2017)
- **research and innovation strategies for smart specialisation (RIS3)**
which identify strategic areas for intervention, based both
on the analysis of the strengths and potential of local economy
and on an Entrepreneurial Discovery Process
(Foray et al., 2012; Foray, 2015; McCann, 2015; McCann & Ortega-Argilés, 2015)

If macro-regions represent relevant territorial units
to enhance bottom-up policy planning,
how can be its integrated territorial development supported?

Research questions & tools

Two specific research questions:

1. Which comparative framework on **RIS3** could help policy makers and stakeholders in improving their innovative performance by **learning from other regions**?
2. What can we learn with regard to **synergies and complementarities**, to be enhanced within the **MRSs**?

A set of tools:

- to highlight regional heterogeneity (i.e. structural features)
[this presentation] Pagliacci et al. (2018)
- to categorize **RIS3 priorities** (i.e. the intended development path that the regions aim at) [Pavone, next session] (Pavone et al., 2018)

to address a **multidimensional perspective** on EU regions
needed to measure and monitor
the **impact of integrated investments** and policies
on the development of the macroregion

MRS_regional heterogeneity

MRS can generate thematic orientations with slightly different priorities compared to EU or national policy agendas.

- A proper recognition of these elements is crucial to achieve further integration potential, obtained through "cross-areas **complementarity networks**" and through "wide area **synergy networks**"
(Camagni et al., 2017: 62).
- Moving in this direction, a comparative perspective within the MRS of both socioeconomic features and RIS3s may support the process of the gradual **hardening of the soft space of macro-regional strategies towards a more effective planning space**
(Faludi, 2010; Metzger and Schmitt, 2012; Stead, 2014)
See Camagni et al. (2017) for an example on EUSALP.

Socioeconomic comparative framework

Data

on NUTS2 EU-28 regions [208 territorial entities] (Eurostat data)

a set of 31 input variables that cover three domains:

- **Population and other demographic features** (6 variables)
 - Total population on 1st January
 - People aged 65 and over (% of total population)
 - People aged less than 15 (% of total population)
 - Foreign (EU and non-EU countries) population (% of total population)
 - Population density (per km²)
 - Population aged 25-64, with upper secondary and tertiary education (ISCED levels 3-8) (% of total population)
- **Regional economy and the labour market** (3 variables);
 - Gross domestic product (GDP) at current market prices in Purchasing Power Standard, per inhabitant
 - Unemployment rate (15-74 years)
 - Employment rate (15-64 years)
- **Sectoral structure**, by covering both sections (agriculture, industry, construction, Wholesale and Trade) and division of the manufacture (22 variables).

Socioeconomic comparative framework

Methods: multidimensional explorative analyses_PCA

■ Principal Component Analysis (PCA)

- *reduces the dimensions* of the problem under investigation, explaining the largest part of the total variance
- the nine extracted Principal Components (PCs) (with eigenvalues >1) explain 72% of total variance
 - orthogonal to each other (i.e., they do not correlate), by construction
 - derived in a decreasing order of importance, with the first PCs accounting for a larger share of the total variance
- PC1: **urbanization** and share of **service** employment,
- PC2: share of **manufacturing** employment (B-E industries) and **higher education**
- PC3: **touristic** arrivals and tiny population,
- PC4: **population imbalances**
- PC5: share of **agricultural gross value added** and share of **employment in public services** (O-Q industries)
- PC6: share of **employment in real estate activities** (L industry)
- PC7: lower share of employment in **textile** and **wood industries** (13-15 & 16-18 industries, respectively)
- PC8: share of employment in **mining** and **quarrying industries** (05-09 industries)
- PC9: share of employment in **construction industry** (F industry)

Socioeconomic comparative framework

Methods: multidimensional explorative analyses_CA

These PCs → inputs for the **hierarchical cluster analysis**

distances between all the observations (regions) are computed

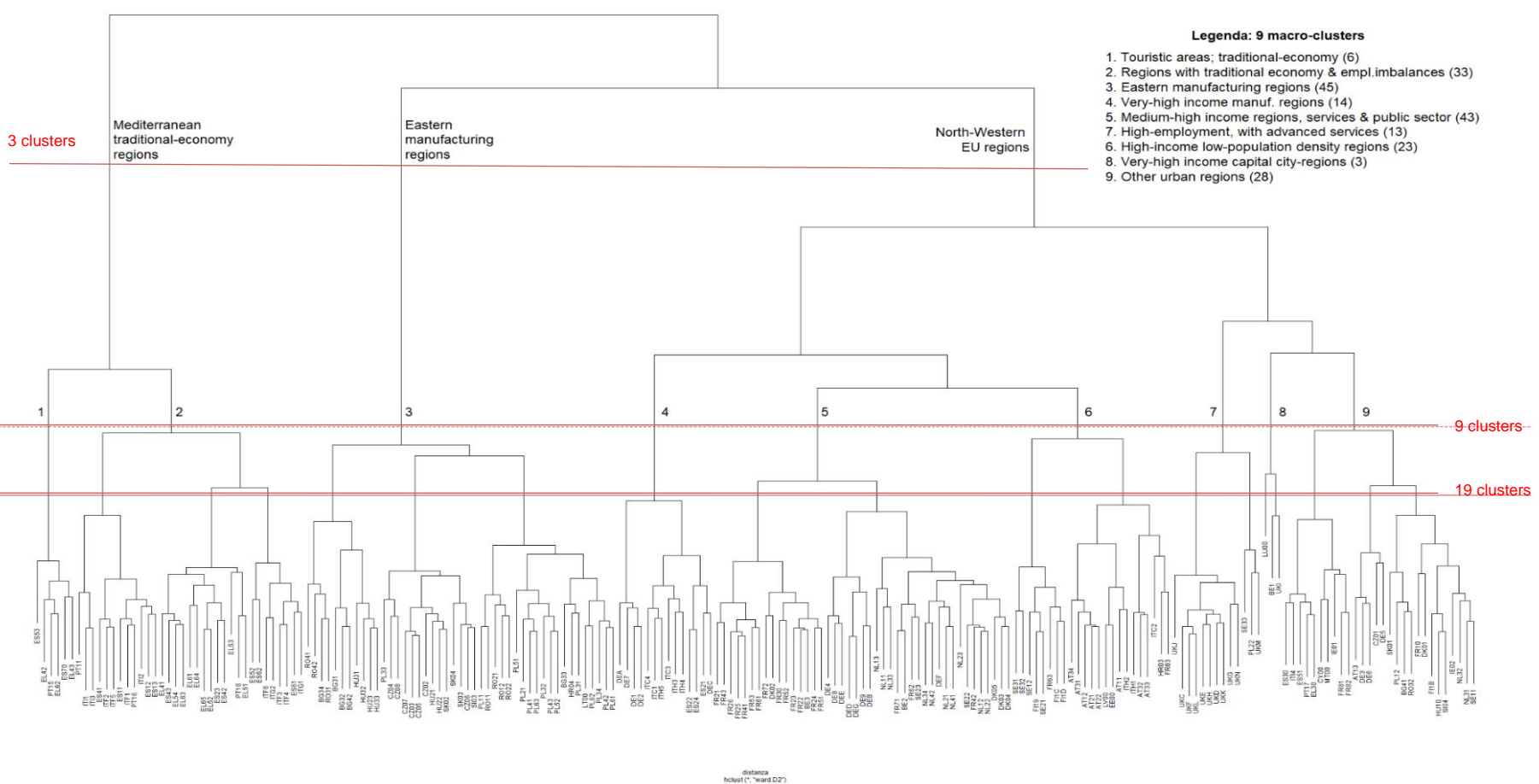
Ward's linkage as a criterion of agglomeration of clusters, Euclidean distance

- to single out groups of EU regions
with relatively similar socioeconomic features.

Methods: multidimensional explorative analyses_CA

These PCs → inputs for the **hierarchical cluster analysis**

Clusters of regions

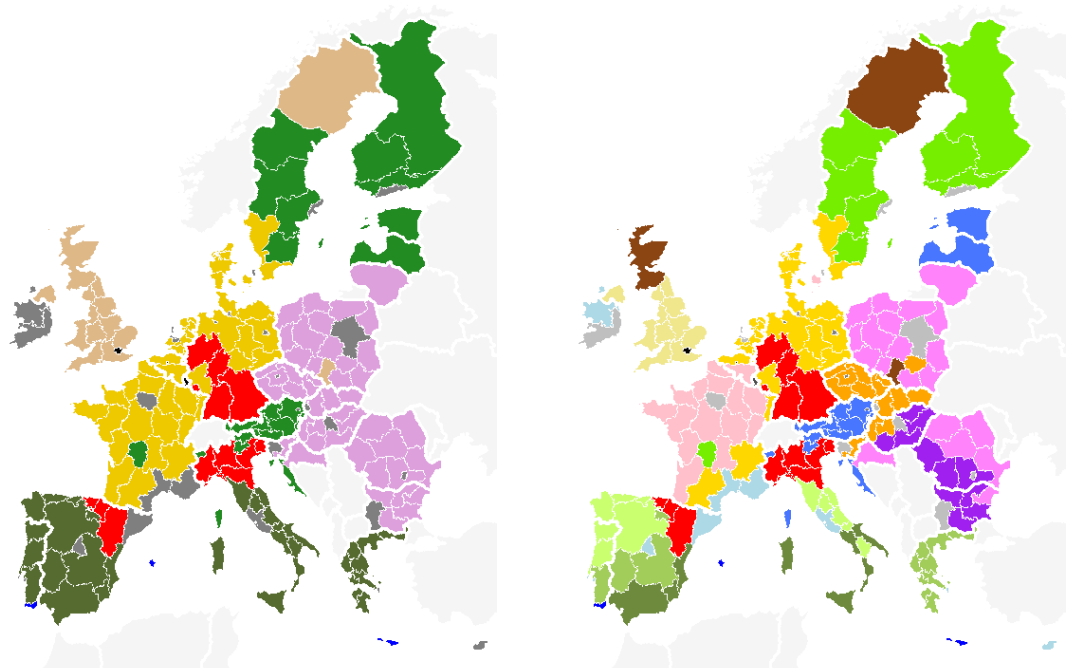


Socioeconomic comparative framework

Results



- ▨ North-Western EU regions
- ▧ Eastern manufacturing regions
- ▩ Mediterranean traditional-economy regions



North-Western EU regions

- Very-high income capital city-regions
- Other urban regions
- Very-high income manuf. regions
- Medium-high income regions, services & public
- High-employment, with advanced services
- High-income low-population density regions

Eastern manufacturing regions

- Eastern manufacturing regions

Mediterranean traditional-economy regions

- Regions with traditional economy & empl. imbalan
- Touristic areas; traditional-economy

North-Western EU regions

- Very-high income; financial centres; foreigners
- Very-high income; capital city-regions; diversified services
- Very-high income; large urban regions; high-employment, highly educated
- Very-high income; high-density city-regions; high-employment, highly educated, touristic
- Urban regions; high-income; poorer employment conditions, touristic
- Very-high income; manufacturing; population imbalances
- High-income; high-employment, low-manufacturing; services & public sector
- Medium-income; employment imbalances; low-manufacturing; services & public sector
- Medium-income; high-employment; manufacturing & private services
- Medium-income; high-employment; highly educated; manufacturing: mining & quarrying
- High-income; low-population density; tourism
- High-income; sparsely populated; public sector; highly educated

Eastern manufacturing regions

- Low-income; high-employment; manufacturing; no foreigners; very highly educated
- Very low-income; manufacturing; no foreigners; highly educated
- Very low-income; agricultural; manufacturing: textile, electric, transport; low-population density

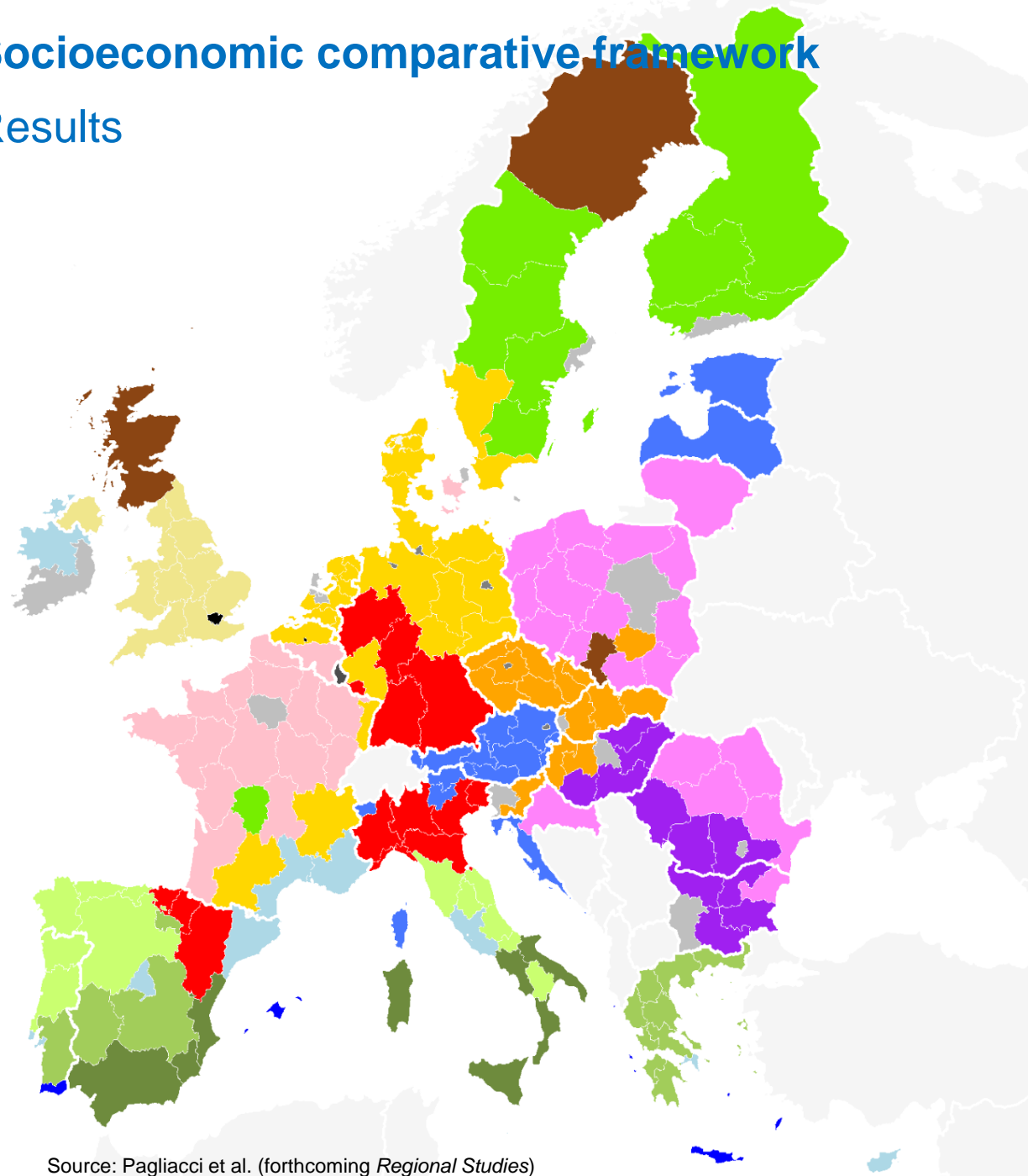
Mediterranean traditional-economy regions

- Medium-income; employment & population imbalances; manufacturing: textile, basic metal, transp.; very-low educated
- Low-income; high-density; high unemployment; agriculture; food & drinks; very-low educated
- Very-low income; agriculture; sparsely populated; very high unemployment; traditional services (G-I)
- Low-income; high-unemployment; touristic; food & drinks; traditional services (G-I); very-low educated

Source: Pagliacci et al. (forthcoming *Regional Studies*)

Socioeconomic comparative framework

Results



North-Western EU regions

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- Very-high income; capital city-regions; diversified services
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- poorer employ. conditions; touristic
- Very-high income; manuf.; population imbalances
- High-income; high-employ.; low-manuf.; services & public sector
- Medium-income; employ. imbalances; low-manuf.; services & public sector
- Medium-income; high-employ.; manuf. & private services
- Medium-income; high-employ.; highly educated; manuf.: mining & quarrying
- High-income; low-population density; tourism
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Eastern manufacturing regions

- Low-income; high-employ.; manuf.; no foreigners; very highly educated
- Very low-income; manuf.; no foreigners; highly educated
- Very low-income; agricultural; manuf.: textile, electric, transport; low-pop. density

Mediterranean traditional-economy regions

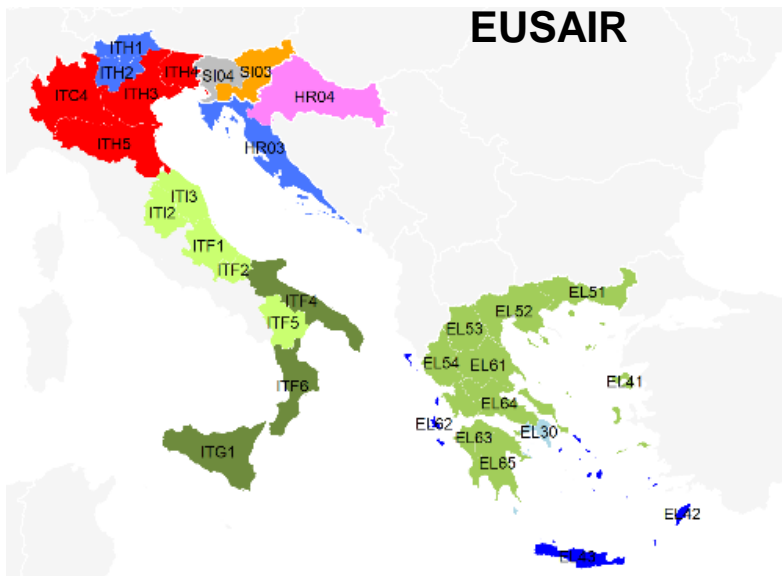
- Medium-income; employ. & population imbalances; manuf.: textile, basic metal, transp.; very-low educated
- Low-income; high-density;
- high unemployment.; agriculture; food&drinks; very-low educated
- Very-low income; agriculture;
- sparsely populated; very high unemployment.; traditional services (G-I)
- Low-income; high-unemployment.; touristic;
- food & drinks; traditional services (G-I); very-low educated

Socioeconomic comparative framework Results

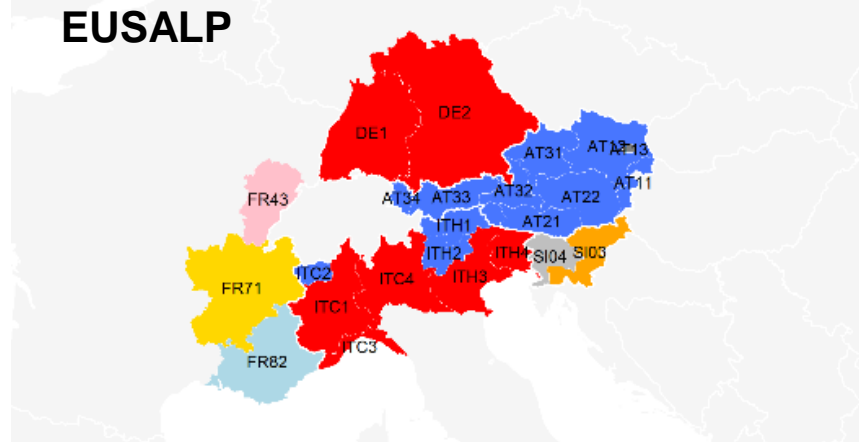
a classification of socioeconomic features that returns:

- 19 clusters of regions, comprised in three main groups:
- **North-Western** regions [124 regions]
 - six** main groups of regions, accounting for 12 clusters out of 19 clusters
- **Eastern manufacturing** regions [45 regions]
 - one** main group of regions, accounting for 3 clusters out of 19 clusters
- **Mediterranean** traditional-economy regions [39 regions]
 - two** main groups of regions accounting for 4 clusters out of 19 clusters

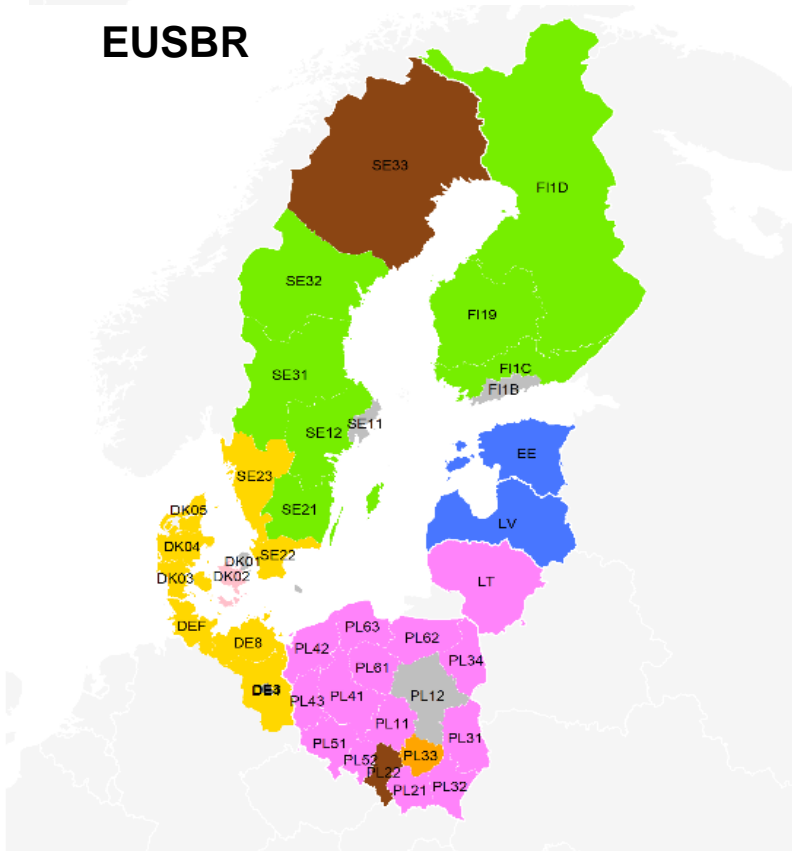
EUSAIR



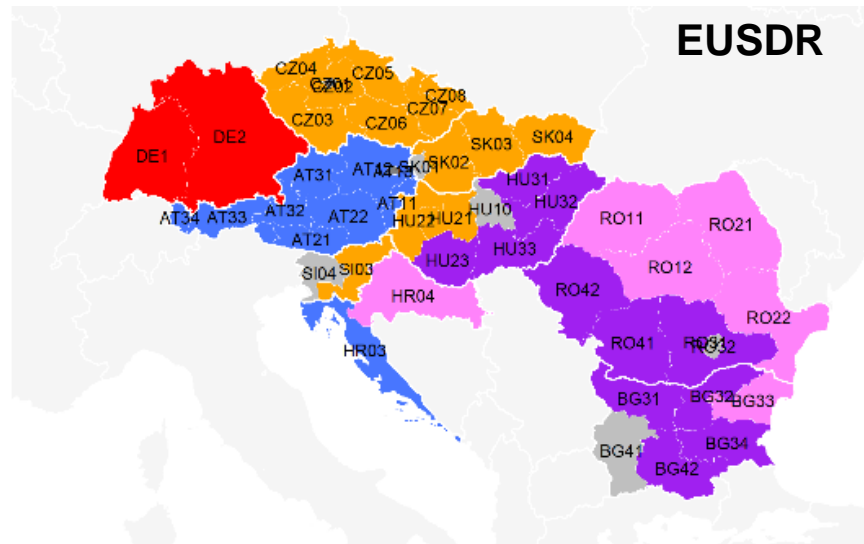
EUSALP



EUSBR



EUSDR



Discussion_heterogeneity within the macroregions

Diverse patterns across macro-regions

- no_"Very-high income; capital city-regions; diversified services";
- no_"Very-high income; financial centres; foreigners"; and
- no_"Medium-income; high-employment; manufacturing & private services".
- **EUSAIR_31 regions**, (10 clusters) & four clusters with one region
 - high-income regions (e.g. Very-high income; manufacturing; population imbalances)
 - and more backward rural ones (e.g. Very-low income; agriculture; sparsely populated).

equidistribution of different socioeconomic features → variety of RIS3
- **EUSALP_24 (+CH) regions**, six clusters with only one region:
 - "High-income; low-population density; tourism"
 - and "Very-high income; manufacturing; population imbalances";
 - other clusters of regions only represent a tiny share.

the highest socio-economic similarities → synergies for RIS3 implementation
- **EUSBSR_40 regions**, three clusters with only one region
 - high-income and low-income groups of regions,
 - but manufacture plays a key role, especially in low-income clusters.
- **EUSDR_48 regions**, the less diversified area one (only 7 cluster)
 - very different types of clusters:
 - ...high per-capita income clusters
 - ...poor and less developed regions, with agricultural activities.

Discussion_heterogeneity within the macroregions

implications for RIS3 implementation at macroregional level

- existing regional heterogeneity is expected to affect the impact of innovation processes
 - learning opportunities from other regions' practices
 - RIS3, by contextualizing their priorities in their socioeconomic settings.
- targeting specific heterogeneity within the macro-regions, could strengthen **complementarities** across regions

Vs. COWI 2017 (assessing the impact of MRS):
insufficient elements for a comparative perspective of demographic and socioeconomic dimensions,
to be applied both at intra- and inter- macro-region level
- more place-sensitive policies:
highlighting heterogeneity generally contributes to the debate on the future of the post-2020 Cohesion Policy, by providing effective comparative tools to support new policy instruments.

Discussion_

implications for methods and tools

- some socioeconomic clusters only include a small number of regions, hence reducing comparability, this element should not be artificially removed.
e.g. London or Luxembourg: comparison should be found outside Europe
- tools to be implemented in further analyses, when information will be available for the assessment of the impact of RIS3 projects at regional level.
Some hints emerge from the RIS3 categorization → **see 2nd session**
- Synthetic indicators vs investigating each dimension of regional context, by using separate indicators
- Opportunity of accessing all the elementary data
(DB **doi** : [10.25431/11380_1177860](https://doi.org/10.25431/11380_1177860))
- plus other indicators capturing dimensions of relevance for regional policy design (e.g., institutional set-up, government quality, innovation)
- and classification of RIS3 priorities:
a broad perspective on both priorities and socioeconomic conditions to be considered by policy makers and stakeholders engaged in defining the specific projects to support innovation development in the macro-regions

Conclusion

From a multidimensional perspective on regions
a significant set of insights emerge
on similarities, on specific conditions, on best practices,...

They might support local stakeholders and policy makers

- in **further implementation of their own RIS3s**
(e.g. by considering specific projects)
- in **designing more integrated territorial strategies**,
capitalizing on both intra- and inter-MRS multidimensional comparison
of the RIS3s (*the intended development path that the regions aim at*)
and socioeconomic conditions (*summarising the current structural features*).

Background References

DATABASE

- Pagliacci, F., Pavone, P., Russo, M., Giorgi, A. (2019). *Socioeconomic classification of EU regions*. DOI:10.25431/11380_1177860. <http://hdl.handle.net/11380/1177860>.
- Pagliacci, F., Pavone, P., Russo, M., Giorgi, A. (2019). *R&I smart specialisation strategies and on socio-economic and demographic conditions*. DOI:10.25431/11380_1177861. <http://hdl.handle.net/11380/1177861>
- Pavone, P., Russo, M., Pagliacci, F., Giorgi, A. (2019). *R&I smart specialisation strategies: classification of EU regions' priorities*. DOI 10.25431/11380_1177858. <http://hdl.handle.net/11380/1177858>

PAPERS

- Pagliacci, F., Russo, M., Pavone, P., Giorgi, A. (forthcoming). Regional structural heterogeneity: Evidence and policy implications for RIS3 in macro-regional strategies, *Regional Studies*. DOI: 10.1080/00343404.2019.1635689
- Pavone, P., Russo, M., Pagliacci, F., Giorgi, A. (2018). R&I smart specialisation strategies: classification of EU regions' priorities. Results from automatic text analysis. *Deliverable AlpGov Project*
- [Russo M., Pagliacci F., Pavone P., Giorgi A. \(2019\). RIS3 in macro-regional strategies: tools to design and monitor integrated territorial development paths.](#) DEMB Working Paper Series n.145. ISSN: 2281-440X online
- [Russo M., Pavone P., Pagliacci F., Righi S., Giorgi A. \(2019\). Detecting multidimensional clustering across EU regions. Focus on R&I smart specialisation strategies and on socio-economic and demographic conditions.](#) DEMB Working Paper Series n.142. ISSN: 2281-440X online.

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