

Lucian
Roşu

Editors
Ema
Corodescu-Roşca

Sebastien
Bourdin

ATLAS OF WELLBEING

European Spatial Perspectives



SAGES Project
2026

[\[https://sages.uaic.ro/\]](https://sages.uaic.ro/)

ATLAS OF WELLBEING

European Spatial Perspectives

EDITORS

Lucian Roșu
Ema Corodescu-Roșca
Sebastien Bourdin

CONTRIBUTORS TO CHAPTERS CONTENT

Chapter 1. Bogdan-Constantin Ibănescu, Sebastien Bourdin, Gabriela Carmen Pascariu
Chapter 2. Carmen Pintilescu, Ramona Țigănașu, Alexandra Grosu & Cristina Sîrbu
Chapter 3. Corneliu Iațu, Lucian Roșu, Alexandra Cehan, Ema Corodescu-Roșca, Bogdan-Constantin Ibănescu, Carmen Pintilescu, Ramona Țigănașu & Alexandra Grosu
Chapter 4. Ema Corodescu-Roșca, Bogdan-Constantin Ibănescu, Lucian Roșu & Daniela-Andreia Damian
Chapter 5.1. Lucian Roșu & Ema Corodescu-Roșca
Chapter 5.2. Alexandra Gheorghiu, Daniela Victoria Zaharia, Oara Prundeanu & Mioara Cristea
Conclusion Sebastien Bourdin & Bogdan-Constantin Ibănescu

DATABASE MANAGEMENT

Daniela-Andreia Damian, Ramona Țigănașu, Carmen Pintilescu, Grosu Alexandra & Cristina Sîrbu

CARTOGRAPHY & DATA VISUALISATION

Lucian Roșu & Corneliu Iațu

DESIGN & LAYOUT

Lucian Roșu & Ioana Bejenaru

ACKNOWLEDGEMENT

We acknowledge the contribution of Professor Peter Nijkamp in shaping the Smiley Index. His valuable advice provided within the SAGES project is greatly appreciated.

This publication is supported by “SAGES: Spatial Analysis of Growth, Environment and Sustainable Well-being”, project code CF 20/27.07.2023, financed through National Recovery and Resilience Plan for Romania within project call – PNRR-III-C9-2023 - 18 PNRR/2023/Component 9/Investment 8. [NextGenerationEU].

Editura Universității „Alexandru Ioan Cuza” din Iași - UAIC
ISBN 978-630-381-026-3

How to cite:

Roșu, L., Corodescu-Roșca, E. & Bourdin, S. (Eds.) *Atlas of wellbeing. European spatial perspectives*. Editura Universitatii Alexandru Ioan Cuza din Iasi ISBN 978-630-381-026-3; https://sages.uaic.ro/Atlas_of_Wellbeing.pdf

Table of Contents

Introduction: The Case for Spatial Wellbeing Analysis in Europe	1
1.1. The SAGES Project: Concept and Rationale	1
1.2. Purpose and Objectives of the Atlas	2
1.3. Structure of the Atlas	3
1.4. Final remarks	3
Methodology: Data Architecture, Indicator Framework, and the Smiley Index	5
2.1 Overview	5
2.2. Conceptual Architecture	5
2.3. Data Sources and Temporal Coverage	7
2.4. Data Processing	8
Smiley Index — A Multi-Scale Perspective	11
3.1. Smiley Index and its dimensions at national level	12
3.2. Smiley Index at NUTS2 level	29
At the roots of well-being. Key indicators at regional level	42
Sub-national Spatial Patterns of Well-being	49
5.1. Local Human Development Index in Romania – hot spots and urban-rural divide	50
5.2. A deep dive into regional variation in subjective well-being	52
Conclusion	58

1

Introduction: The Case for Spatial Wellbeing Analysis in Europe

Bogdan-Constantin Ibănescu, Sebastien Bourdin, Gabriela Carmen Pascariu

1.1. The SAGES Project: Concept and Rationale

For a long time, most studies, and incidentally the policies derived from them, focused on societal and individual well-being through an approach dominated by GDP-centred thinking. Whether GDP value, GDP growth, or GDP per capita, these indicators have been constantly used as proxies for evaluating people's well-being. Despite a semantic confusion between well-being and welfare that nowadays seems more visible than in the second half of the twentieth century, this approach did little more than overly focus measures, policies, and efforts in a unidirectional manner, sometimes to the point of a caricatural policy approach.

Several examples reflect the limits of the GDP growth paradigm and related policies in relation to well-being. Growth policies in the US after 2008 allocated 91% of income gains to the top 1% (Saez, 2019), while GDP growth now generates fewer jobs than it did a few decades ago (Basole et al., 2018; Klinger and Weber, 2020). In Europe, the European Green Deal (EGD) calls for structural changes (Hennicke et al., 2014), as there is no longer a straightforward relationship between GDP growth, employment, and poverty reduction (Capello and Nijkamp, 2019). Changes in well-being should be place- and people-sensitive, since context matters, and highly correlated with territorial, environmental, and social capital (Capello et al., 2011; Camagni and Capello, 2013).

Starting with the new sustainability paradigm that emerged in the 1980s, statistical approaches to people's well-being began to develop into a more multidimensional concept, beyond GDP. This new approach encompassed, among institutional and environmental factors, subjective dimensions, as well, creating a complex puzzle of the well-being equation (Sen, 1989; Nussbaum and Sen, 1993; Stiglitz et al., 2009).

While economic indicators have never disappeared from the formula, as it would ultimately be somewhat unreasonable to completely omit the financial factor from the discussion, the range of indicators now measured and weighted in the discourse has become not only wider, but also more inclusive, more complex, and closer to the reality of the complexity that we, as individuals, experience every day.

Today we can indeed distinguish as many as three categories of models regarding well-being approaches: subjective well-being, such as the Gallup survey, the Standard Eurobarometer, and the ESS; objective well-being, such as the SDGs and HDI; and combinations of both in sectoral assessments, such as Springday's Well-being Check (Lenzi and Perucca, 2016, 2018).

This diversity is also reflected in an increased interest among decision-makers at national and regional levels in developing a clearer, more realistic, and more complex vision of their population's well-being. This interest is strongly related to the recent evolution of discontent, which has proved that people's

well-being is not only an economic issue, but a more complex one. When not treated carefully, it may result in serious consequences, both electorally and in terms of social unrest (Bourdin, 2024; Bourdin and Tai, 2022).

In this particular context, SAGES project seeks to provide a new paradigm on well-being beyond GDP growth, focused on an innovative theoretical and methodological assessment through the construction of an integrated and multidimensional, both objective and subjective, sustainable well-being index, the Smiley Index. The project not only developed a place-based conceptual and methodological framework for sustainable well-being, but also developed evidence-based interventions and policy recommendations aimed at structuring a long-term effect. The Atlas represents the manifestation of this complex methodological and conceptual work in a published, easy-to-navigate, graphically rich format. The aim of the Atlas is not only to map data, but also to enrich the work through the identification of patterns, insights, in-depth interpretation, and careful navigation of the threats and opportunities that emerge from the results. What the current Atlas brings forward, compared with other existing frameworks, such as the HDI, the SDGs, the OECD Better Life Index, or regional dashboards on quality of life, is both its index architecture and its policy-oriented reading. Its architecture covers a genuinely multidisciplinary approach, combining objective and subjective sub-indicators while remaining open to progressive adjustments. At the same time, its policy reading draws from the SAGES project's ambition to build knowledge that can be used by policymakers at various levels.

1.2. Purpose and Objectives of the Atlas

The importance of the spatial dimension in well-being analysis and policy development

The new geographies of discontent, the revenge of places that do not matter, and emerging electoral patterns have confirmed that ignoring the spatial dimension of people's discontent and, by extension, of well-being, is a luxury we can no longer afford. The view that overall indicators of well-being are somehow homogeneously distributed across a territory is long gone, if it was ever really true. Granular spatial disaggregation shows how, both at regional and national scales, the emergence of pockets of unrest and distress is closely related to variations in well-being. New approaches in electoral geography not only allow us to closely observe these phenomena, but also to anticipate and identify the places where well-being-derived discontent starts to form.

In this way, the Atlas not only depicts current reality, but also allows for anticipation and rapid policy interventions before discontent manifests through social unrest or extremist voting. With a strong spatial dimension inspired by recent studies on the geography and economics of happiness (Baycan-Levent and Nijkamp, 2004; Ballas and Tranmer, 2012; Ballas, 2013; Atkinson et al., 2016; Mouratidis, 2021), the new pattern depicts the approach at different scales, ranging from well-being indicators related to equitable access to goods, services, and amenities, to the long-term capabilities of economic, social, and environmental sustainability required to generate well-being.

The utility of a spatial lens when analysing well-being is not only necessary, but also mandatory, as relying blindly on solely economic data could hide the message from academia and decision-makers. Hence, the Atlas is not a supplement to the analysis, but an obligatory milestone on the long path of deciphering well-being scores and trends. It can be argued that the spatial dimension of well-being is now challenging older approaches, prompting a constant reorientation of the discourse towards territorially based policies and measures.

Added value and reading lens

The Atlas is built from a multi-perspective approach. First, it provides an in-depth evidence-based and conceptual understanding of current sustainable well-being determinants and patterns at different geographical scales. While this is one of the main objectives, it does not cover the full utility and aim of the endeavour. Secondly, it addresses the limits of conventional approaches in order to capture the critical environmental and societal constraints on well-being research and provides a new interconnected, place-based framing of current research orientations. Thirdly, it spatially represents the impact of new drivers of change. Fourthly, it helps design new policy recommendations.

Ultimately, the Atlas should not be read through an absolute lens. We do not claim that the information provided is the absolute truth, but rather the current image and imprint of well-being based on existing data and, of course, subject to further scrutiny. It would be absurd, but also counterproductive, to claim that we have deciphered the *Beyond GDP* approach to well-being. We have only brought our contribution to what we hope will continue to be a developing and flourishing field. As with any atlas, this one has also been designed as both an informative and decision-making instrument, with a flexible methodological approach that allows interdisciplinarity, but also academic rigour, in equal measure, in order to properly address the importance of the issues at hand and their long-term implications for European territories, communities, and futures.

1.3. Structure of the Atlas

The Atlas is structured with the double aim of providing a fluent and coherent reading of well-being indicators, from broader to more granular levels, while also offering a chronological account of how the entire work gravitating around the Smiley Index was developed, adjusted, and subsequently translated into visual and textual material suitable for this type of endeavour.

Therefore, our effort begins with a detailed description of the methodological work behind the Index: how the data architecture was designed, how the indicators were selected, according to which principles, how they fitted the overall conceptual framework designed in the first part of the project, and how the constant evolution of the Smiley Index was carried out by the team. This chapter is not only a mandatory step for understanding the data and the forthcoming results, but also a solid stepping stone for future academic efforts seeking to replicate and, hopefully, further advance the search for a granular, society-based, and exhaustive well-being indicator.

The following chapter is dedicated entirely to the Smiley Index as a multi-scale perspective on well-being. It is organised into two distinct parts: one based on national data and the other on regional data. Beyond the cartographic and visual benefits of moving from a national perspective to a regional, more colourful, and more diverse image, the chapter also advances the argument that the geography of well-being is not uniform and that greater attention should be paid to internal variations. This point, which is worth making even at the risk of repetition, offers further justification for a more meaningful search for the roots of well-being at smaller spatial scales. In fact, it is the aspiration of this research team that, sooner rather than later, a scientific endeavour will manage to provide a detailed map of well-being at local level, one that will certainly reveal hidden messages and patterns that our regional lens could not fully capture. Nevertheless, the comparison between national and regional scales offers the reader a perspective carefully anchored in real and recent data.

In order to further emphasise this aspect of spatial variation, several key indicators at regional level are developed in the chapter “At the roots of well-being”, where we aim to present some of the foundations of our index, namely regionally collected indicators in their raw form. Far from being a mere display of data, this is an attempt to provide a wider context for the well-being story and for the diversity of an index that is sometimes reduced to a single, seemingly homogeneous value for a territory, despite the high variations among the subindicators composing that respective value.

Finally, the Atlas also dedicates a chapter to sub-national spatial patterns of well-being, with the aim of showing that the well-being equation tends to be even more complex than initially depicted. Taking Romania as a case study, this chapter reveals the signs of a clear and worrying spatial divide, especially between urban and rural areas. However, due to the limitations of the Romanian administrative system, this divide should be understood rather as a metropolitan versus non-metropolitan divide.

We consider that this structure of the Atlas allows not only for a smoother reading, but also for a better understanding of the overall effort that supported it and guided both the project and one of its most representative deliverables.

The Atlas is not, in any case, a product designed solely for researchers. Its easy-to-read and accessible approach, as well as the complexity of the data covered, makes it equally suitable for researchers, regional planners, policymakers, and the wider public interested in recent developments in well-being and well-being indicators. To this end, we would like to underline that the translation of existing data into measurable and methodologically sound metrics, and then into cartographic representations, was a process that sought to maintain, in equal measure, scientific and methodological rigour, attractiveness, readability, and the broader usefulness of the graphical material and interpretations. In this respect, some of the interpretations included in the Atlas serve to bridge the gap between hidden patterns and the public.

1.4. Final remarks

Finally, we would like to acknowledge the full extent of the work behind the Atlas. While the cartographic tasks, formatting, and most of the interpretations were carried out by the spatial team of the project, composed of members with a geographical background, this work would not have been possible without the precious input of all colleagues involved in the project. Their contributions included databases, methodological input, interpretations, observations, and their assiduous work on all the other deliverables that allowed the project to fulfil its aim, including this Atlas.

While, for editorial and sometimes practical reasons, the names of the editors tend to take centre stage, this work is not, in any case, the work of a small group of individuals, but of an entire dedicated project team.

2

Methodology: Data Architecture, Indicator Framework, and the Smiley Index

Carmen Pintilescu, Ramona Țigănașu, Alexandra Grosu & Cristina Sîrbu

2.1. Overview

The **Smiley Index** is a composite wellbeing index developed within the SAGES project. Its purpose is to provide a multidimensional, evidence-based picture of quality of life across European Union member states. Building on the capability approach to wellbeing (Sen, 1989; Nussbaum and Sen, 1993), the Atlas distinguishes between the structural and institutional conditions that enable people to live good lives — captured through the Education, Health, Social, Housing, Pollution, and Institutional Stability dimensions — and the outcome of these conditions as directly experienced and self-reported by citizens, captured through the Subjective Well-being dimension. The index integrates these two complementary perspectives — objective structural conditions as the enabling context for wellbeing, and citizens' own subjective experience as its outcome — into a single, interpretable score that enables meaningful cross-country comparisons and longitudinal tracking over time.

Scores range from 0 to 1, where a **higher value indicates a better level of wellbeing**. The index is computed at the national level for all **27 EU member states**, covering the period **2013–2024** (12 annual observations per country, 324 country-year observations in total). A regional variant of the index has also been developed, computed at the NUTS 2 level for 205 European regions over the same 2013–2024 period, following the same general construction approach. However, due to data availability constraints at the sub-national level, the regional variant is built on a narrower and partly different set of indicators and dimensions than the national index. The national and regional indices are therefore comparable in spirit and overall approach, but not directly comparable in substantive content or final scores.

The name 'Smiley' reflects the dual ambition of the index: to capture both the structural conditions that shape people's lives and people's own perception of how well they are living — combining the objective and the subjective into a coherent composite measure.

2.2. Conceptual Architecture

The Smiley Index at national level is structured around **seven thematic dimensions**, each represented by a normalised subindex on the [0, 1] scale, which are subsequently aggregated into the composite score:

- **Education** — captures human capital formation, educational attainment levels, school-to-work transitions, and youth disengagement from education and employment.
- **Health** — reflects population health outcomes, including life expectancy, healthy life years at birth, and the level of public investment in healthcare.
- **Social** — covers social protection expenditure, interpersonal trust, and income inequality.
- **Housing** — measures housing quality deficiencies and overcrowding as proxies of material living conditions.

- **Pollution** — captures environmental pressures on wellbeing through fine-particle air pollution exposure and carbon dioxide emissions per capita.
- **Institutional Stability** — draws on World Bank Worldwide Governance Indicators to assess the quality, reliability, and accountability of public institutions.
- **Subjective Well-being (SWB)** — integrates survey-based measures of life satisfaction, positive and negative affect, sense of freedom, and perceived social support as reported in the World Happiness Report.

Table 1. Smiley Index at national level — Dimensions, Indicators, and Data Sources

DIMENSION	#	INDICATOR	SOURCE	DIRECTION
EDUCATION	1	Population with tertiary educational attainment (25+)	<i>Eurostat</i>	+
	2	Persons aged 25–34 with tertiary educational attainment	<i>Eurostat</i>	+
	3	Early leavers from education and training	<i>Eurostat</i>	–
	4	Employment rate of recent graduates	<i>Eurostat</i>	+
	5	NEET rate — young persons (15–24) neither in employment nor in education/training	<i>Eurostat</i>	–
HEALTH	6	Life expectancy at birth	<i>Eurostat</i>	+
	7	Healthy life years at birth	<i>Eurostat</i>	+
	8	Total health care expenditure (% of GDP)	<i>Eurostat</i>	+
SOCIAL	9	Expenditure on social protection (% of GDP)	<i>Eurostat</i>	+
	10	Trust in others (EU-SILC)	<i>Eurostat</i>	+
	11	Gini coefficient	<i>Eurostat</i>	–
HOUSING	12	Population in structurally deficient dwellings (leaking roof, damp walls)	<i>Eurostat</i>	–
	13	Overcrowding rate	<i>Eurostat</i>	–
POLLUTION	14	PM2.5 air pollution — mean annual exposure	<i>Eurostat</i> / <i>EEA</i>	–
	15	CO ₂ emissions per capita	<i>Eurostat</i>	–
INSTITUTIONAL STABILITY	16	Control of Corruption	<i>World Bank WGI</i>	+
	17	Government Effectiveness	<i>World Bank WGI</i>	+
	18	Political Stability and Absence of Violence/Terrorism	<i>World Bank WGI</i>	+
	19	Rule of Law	<i>World Bank WGI</i>	+
	20	Regulatory Quality	<i>World Bank WGI</i>	+
	21	Voice and Accountability	<i>World Bank WGI</i>	+
SUBJECTIVE WELL-BEING	22	Life satisfaction (Cantril ladder, 0–10 scale)	<i>World Happiness Report</i>	+
	23	Positive emotions (global rank)	<i>World Happiness Report</i>	+*
	24	Negative emotions (global rank)	<i>World Happiness Report</i>	–*
	25	Freedom — autonomy proxy (global rank)	<i>World Happiness Report</i>	+*
	26	Social support — relatedness proxy (global rank)	<i>World Happiness Report</i>	+*

Note: (+) direct direction — higher raw value = better outcome; (–) inverse direction — higher raw value = worse outcome. (※) WHR rank variables: lower rank number = better global position; inverse normalisation applied to align direction with the rest of the index.

In addition to the national-level composite, a regional variant of the Smiley Index has been constructed following the same conceptual and methodological framework. The Regional Smiley Index is computed at the NUTS 2 level and covers 205 European regions, observed over the period 2013–

2024, yielding a panel of 2,460 region-year observations. Data availability at the sub-national level constrains the indicator set relative to the national version; accordingly, the regional index is built around five thematic dimensions and ten indicators, all sourced from Eurostat.

The five dimensions of the Regional Smiley Index each capture a distinct aspect of regional economic and social development:

- **Economic Prosperity** — measures regional economic output and household income, using GDP at current market prices and the balance of primary incomes of households at the NUTS 2 level.
- **Labour Market** — reflects regional employment conditions through the employment rate and the labour force participation rate, both for the 15–64 age group.
- **Education & Skills** — assesses human capital accumulation through the participation rate in education and training (ages 18–64) and the share of the population holding upper-secondary or tertiary qualifications (ages 25–64).
- **Education & Youth Inclusion** — captures youth disengagement from education and the labour market, measured by the early school leavers rate (ages 18–24) and the NEET rate (ages 15–29).
- **Innovation & Knowledge Economy** — reflects regional innovation capacity through the share of employment in high-technology sectors and the share of human resources in science and technology (HRST) in the total population.

DIMENSION	INDICATOR	SOURCE	DIRECTION
ECONOMIC PROSPERITY	Gross domestic product (GDP) at current market prices, NUTS 2 (million euro)	Eurostat	+
	Income of households — balance of primary incomes, NUTS 2 (million euro)	Eurostat	+
LABOR MARKET	Employment rate, 15–64 years (%)	Eurostat	+
	Labor force participation rate, 15–64 years (%)	Eurostat	+
EDUCATION & SKILLS	Participation rate in education and training, 18–64 years (%)	Eurostat	+
	Population with upper-secondary or tertiary education, 25–64 years (%)	Eurostat	+
EDUCATION & YOUTH INCLUSION	Early leavers from education and training, 18–24 years (%)	Eurostat	–
	NEET rate (not in employment, education or training), 15–29 years (%)	Eurostat	–
INNOVATION & KNOWLEDGE ECONOMY	Employment in high-technology sectors (% of total employment)	Eurostat	+
	Human resources in science and technology — HRST (% of total population)	Eurostat	+

Note: (+) direct direction — higher raw value = better outcome; (–) inverse direction — higher raw value = worse outcome.

2.3. Data Sources and Temporal Coverage

The Smiley Index draws on **three primary data sources**, selected for their EU-wide coverage, methodological rigour, annual frequency, and cross-national comparability:

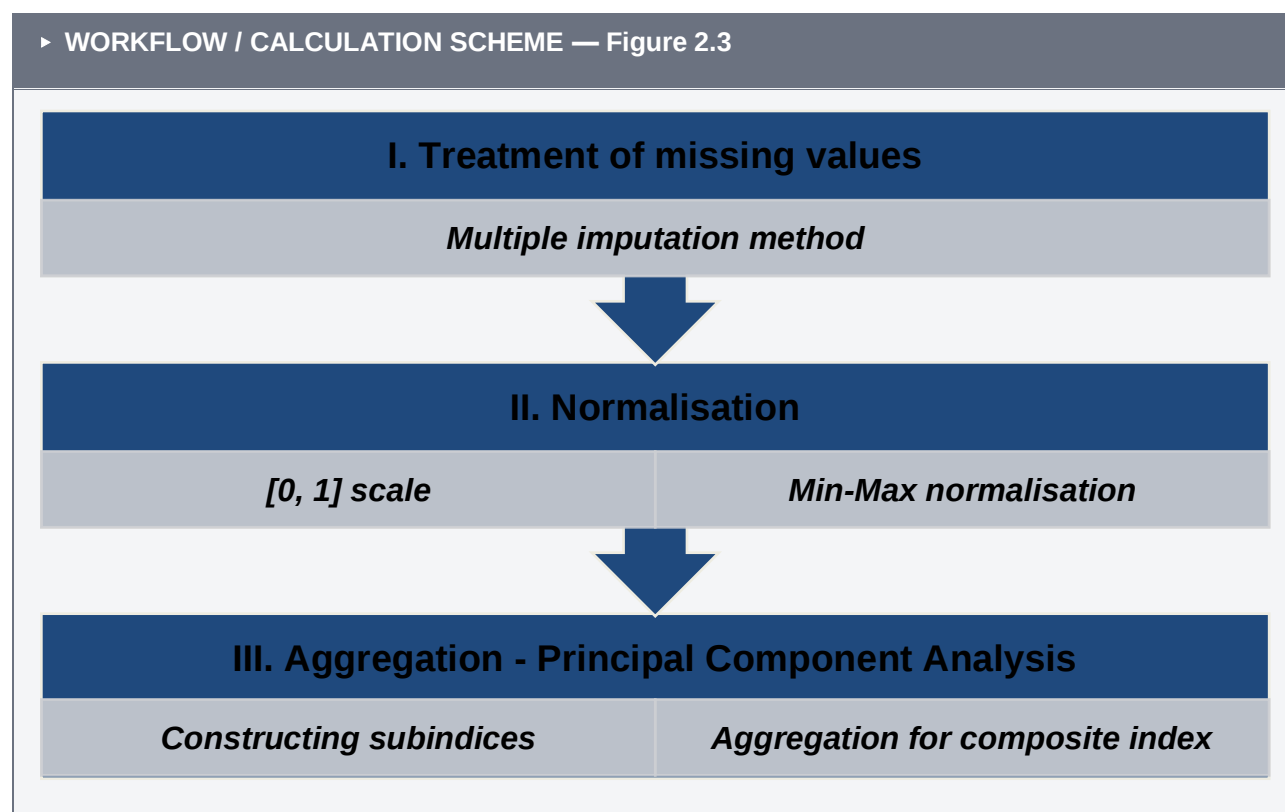
- **Eurostat** — the official statistical office of the European Union provides harmonised, annually updated data on education, health, social protection, housing conditions, and environmental indicators for all EU-27 member states.
- **World Bank Worldwide Governance Indicators (WGI)** — six composite governance dimensions produced annually by the World Bank, drawing on over 30 underlying data sources and covering more than 200 countries. Used for the Institutional Stability subindex.
- **World Happiness Report (WHR)** — an annual publication based on the Gallup World Poll, providing cross-nationally comparable survey data on life evaluation and affect. Data accessed via the online data table at data.worldhappiness.report/table. Variables used: Life satisfaction (Cantril ladder, 0–10), and global rankings for Positive emotions, Negative emotions, Freedom (autonomy proxy), and Social support (relatedness proxy).

The dataset covers all 27 EU member states over the period **2013–2024**, yielding a balanced panel of **324 country-year observations**. This time span encompasses major social and economic disruptions — including the aftermath of the European sovereign debt crisis, the COVID-19 pandemic (2020–2021), and the post-pandemic recovery phase — enabling the index to track both structural wellbeing trends and the impact of cyclical shocks.

For the Regional Smiley Index, each dimension is operationalised by two indicators, all drawn from Eurostat’s regional statistics (Table 2).

2.4. Data Processing

► WORKFLOW / CALCULATION SCHEME — Figure 2.3



For some missing values from our dataset, we applied multiple imputations.

All 26 indicators are normalised to a common [0, 1] scale using **Min-Max normalisation**, which rescales each indicator relative to the minimum and maximum observed values across all countries and all years in the dataset:

$$\text{Normalised value} = (x_i - x_{\min}) / (x_{\max} - x_{\min})$$



For indicators with a negative influence on wellbeing — where a higher raw value signals a worse outcome — inverse normalisation is applied. Indicators subject to inverse normalization include:

Early leavers from education and training, NEET rate, Gini coefficient, housing deficiency rate, overcrowding rate, PM2.5 air pollution exposure, and CO₂ emissions per capita. For the four WHR rank variables (**Positive emotions, Negative emotions, Freedom, Social support**), inversion is also applied, since a lower rank number indicates a better global position (Rank 1 = best in the world).

After normalization, every indicator is directionally consistent: a higher normalized score always reflects a better outcome.

The Smiley Index uses **Principal Component Analysis (PCA)** as its core aggregation method. PCA is a data-driven dimensionality-reduction technique that derives indicator weights from the empirical co-variation structure of the data, rather than assigning equal or subjectively determined weights. This approach:

- reduces the influence of highly correlated indicators by extracting the underlying latent structure of the data;
- produces weights that reflect actual co-variation patterns, grounded in empirical evidence rather than normative assumptions;
- is fully transparent and replicable, as both the algorithm and data are documented.

The procedure is applied in **two stages**: first to construct each of the seven domain subindices from their constituent normalised indicators, then to aggregate the seven subindices into the composite score.

Each of the **seven domain subindices** — Education, Health, Social, Housing, Pollution, Institutional Stability, and Subjective Well-being — is constructed from its constituent normalised indicators following the same procedure:

1. **Direction alignment**: for indicators where a lower raw value is preferable (e.g. rank-based WHR variables, where Rank 1 = best globally), the values are negated so that all indicators within the subindex point in the same direction — higher value = better outcome.
2. **Standardisation**: all direction-aligned indicators are standardised to Z-scores (zero mean, unit variance) using statistics computed across the full EU-27 panel (2013–2024).
3. **PCA**: Principal Component Analysis is applied to the standardised indicators. The first principal component (PC1) is retained, as it captures the dominant latent dimension shared by the indicators within each domain.
4. **Sign verification**: the direction of PC1 is verified to ensure it is positively correlated with the underlying wellbeing concept. If a sign reversal has occurred, PC1 scores are multiplied by -1 .
5. **Min-Max normalisation**: PC1 scores are normalised to [0, 1], yielding the domain subindex.

This approach is applied uniformly across all seven subindices. In the case of the **Subjective Well-being subindex**, the five input variables — **Life satisfaction** (Cantril ladder, 0–10), Positive emotions, Negative emotions, Freedom, and Social support (the latter four expressed as global ranks sourced from the World Happiness Report, data.worldhappiness.report/table) — are pre-processed in step 1 to

align directions before standardisation and PCA are applied. PC1 consistently carries **positive loadings** for all five variables after alignment, confirming theoretical coherence.

In the final step, the seven domain subindices — each expressed on the [0, 1] scale — are aggregated via a second-stage PCA into the **Composite Smiley Index**. The composite score is Min-Max normalised to [0, 1] across all EU-27 countries and years (2013–2024):

- 0 = the lowest observed wellbeing level in the EU-27 sample over 2013–2024;
- 1 = the highest observed wellbeing level in the EU-27 sample over 2013–2024.

The Regional Smiley Index is constructed following the same methodological steps described in Section 24. All ten indicators are normalised to a [0, 1] scale using Min-Max normalisation, with inverse normalisation applied to the two indicators with a negative relationship to wellbeing (early school leavers and NEET rate). Each of the five domain subindices is then constructed via Principal Component Analysis (PCA): the first principal component is retained and subsequently normalised to [0, 1]. In the final step, the Composite Regional Smiley Index is obtained as the unweighted arithmetic mean of the five subindices, rather than through a second-stage PCA as used at the national level. This difference reflects the smaller number of indicators and dimensions available at the regional level (ten indicators across five dimensions, compared to twenty-six indicators across seven dimensions nationally): with fewer subindices, a second-stage PCA would offer limited added value over a simple average, while an unweighted mean keeps the aggregation transparent and avoids imposing data-driven weights on a small number of components. All normalisation bounds and PCA parameters are estimated from the full regional panel (205 regions x 2013–2024), ensuring comparability across regions and over time.

3

Smiley Index — A Multi-Scale Perspective

Corneliu Iașu, Lucian Roșu, Alexandra Cehan, Ema Corodescu-Roșca, Bogdan-Constantin Ibănescu, Carmen Pintilescu, Ramona Țigănașu & Alexandra Grosu

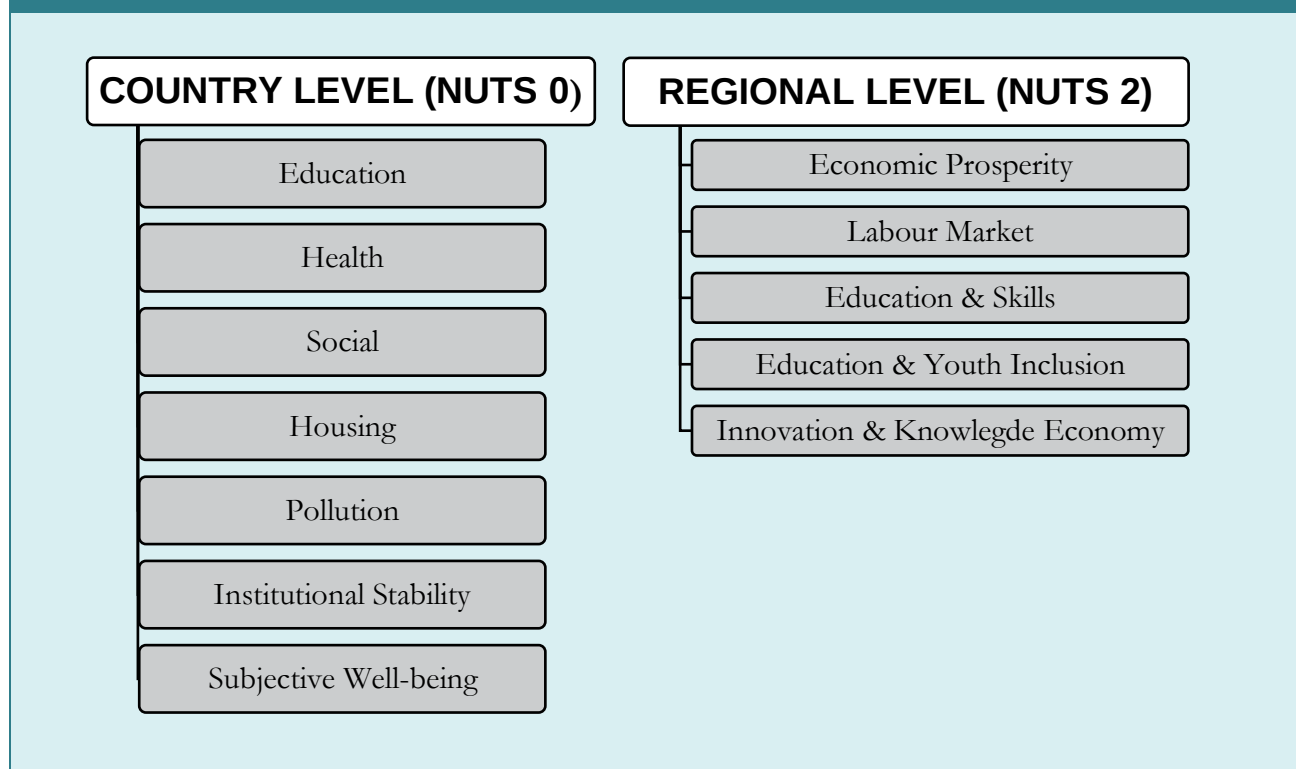
The Smiley Index is a **relative measure**: scores reflect a country's position within the EU-27 distribution over the 2013–2024 reference period, not an absolute threshold of wellbeing.

Because the index integrates both structural conditions (objective indicators) and self-reported experience (subjective wellbeing), it captures complementary aspects of quality of life that neither type of measure alone could fully convey. Countries may score well on objective dimensions while reporting lower subjective satisfaction — or vice versa — and these divergences are themselves analytically informative for policy-makers and researchers.

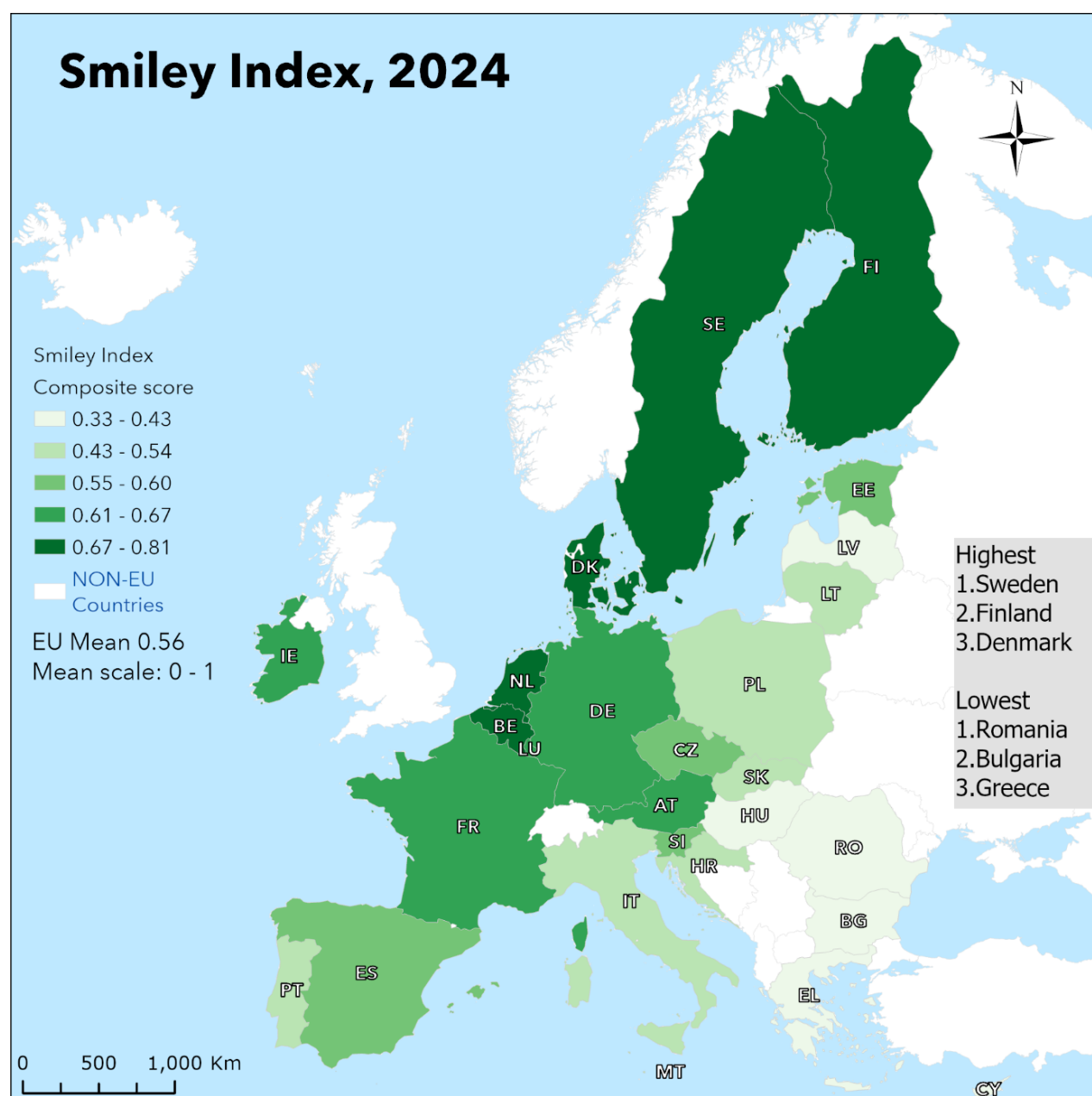
The longitudinal design (2013–2024) allows the index to track **progress, stagnation, or deterioration** in wellbeing at both the composite and dimension level, including the effects of major external shocks such as the COVID-19 pandemic.

The **seven dimensions** enable a diagnostic reading alongside the composite score: a country with a moderate overall score can be examined dimension by dimension to identify which areas are driving or constraining overall wellbeing, supporting evidence-based policy prioritisation.

► SMILEY INDEX ARCHITECTURE – DIMENSIONS AT NUTS 0 and NUTS 2

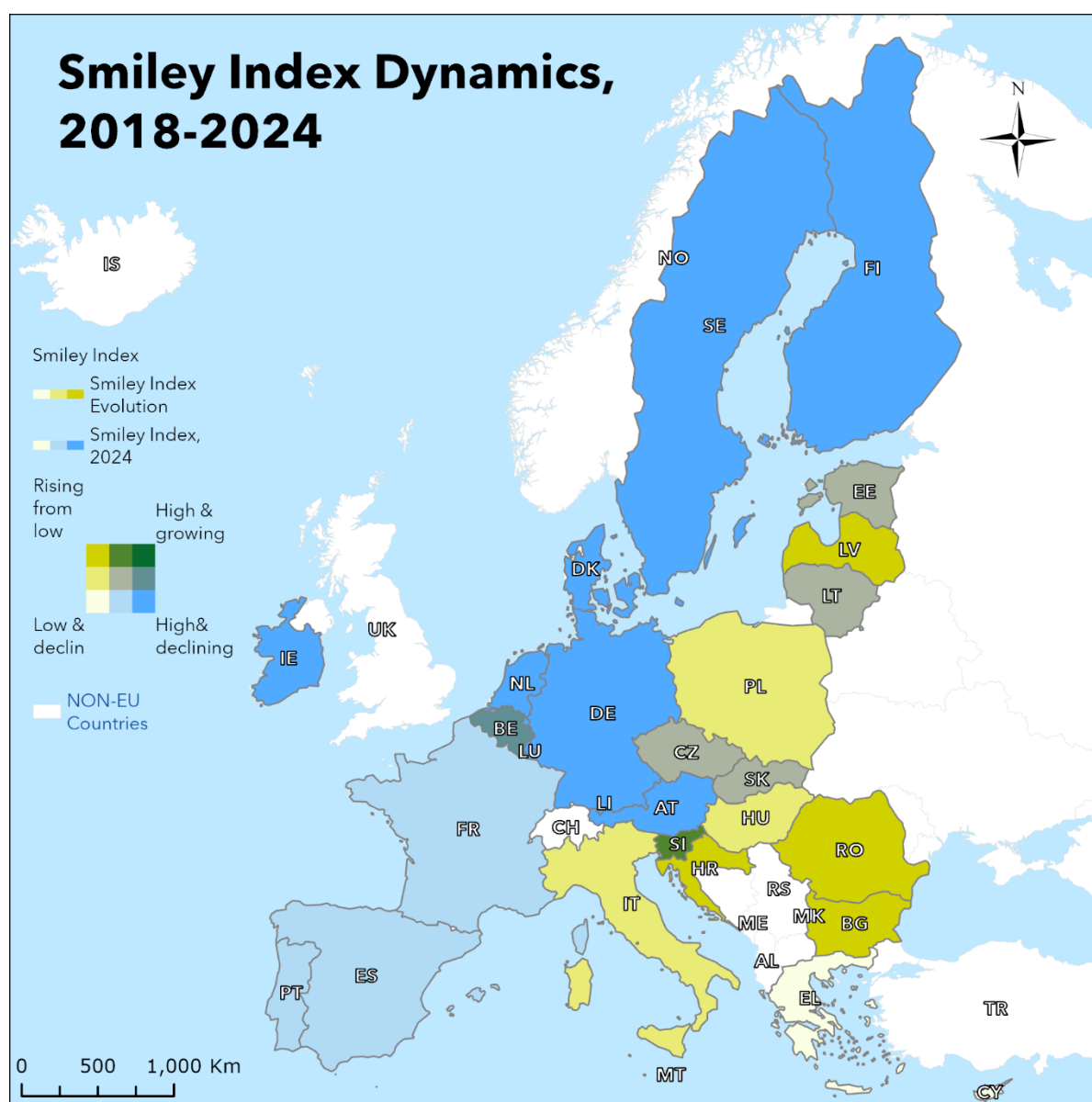


3.1. Smiley Index and its dimensions at national level



The map of national values of the Smiley Index reveals the classical “four Europes”, with a visible distinction between Northern countries, which are champions of well-being and related indexes; Western Europe, following closely behind; Southern Europe, with values closer to the European average; and Eastern Europe, where most of the lowest values are recorded. This spatial split, which, with a few exceptions, dominates the distribution of the Smiley Index, is another reason why, in some of the following pages, the reader may encounter, for some indicators, a split between the four groups of countries, in order to better emphasise their different dynamics and positioning. Nevertheless, the “four Europes” model should not be taken as a predetermined lens, as several exceptions tend to introduce a rather heterogeneous note to the spatial dimension. This is visible, for example, in the diversity and range of the index in the Baltic countries or in Southern Europe. The four parts split should therefore be understood rather as a reading helper for better understanding the importance of the spatial dimension.

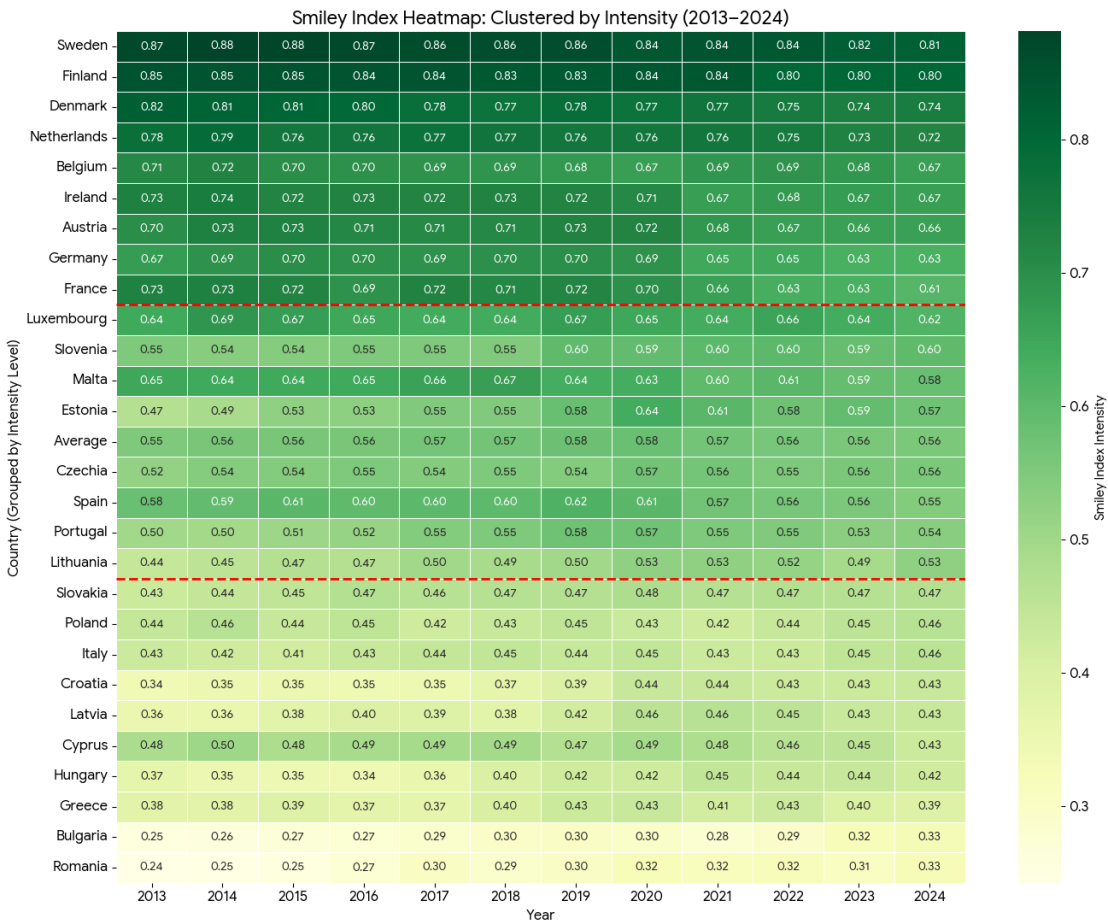
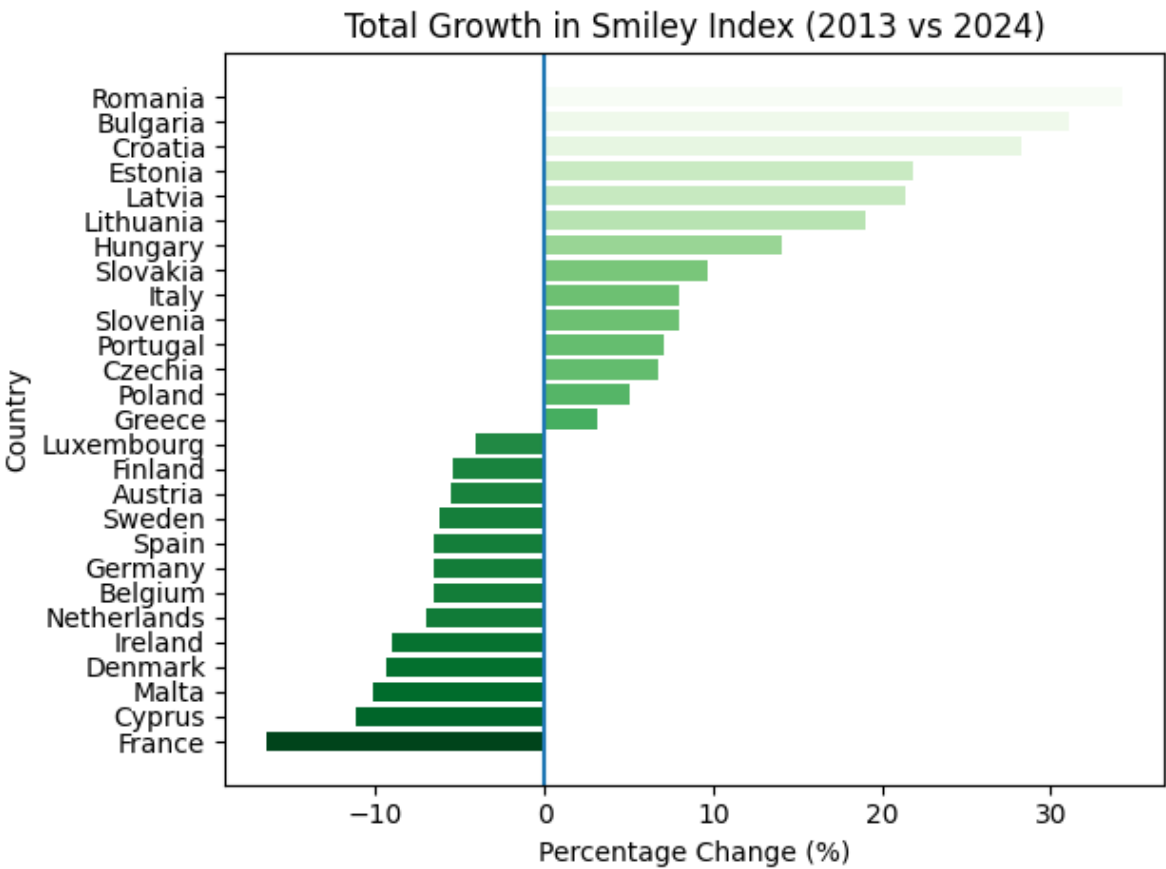
A final remark is worth mentioning: the Southern group is the most subject to variation, from Spain, which tends to close the gap with the Western group, to Greece, which is now in the bottom three at EU level. This is a sign of the multiple shocks, crises, and differences in policy responses that the Mediterranean area has recorded during the past two decades.

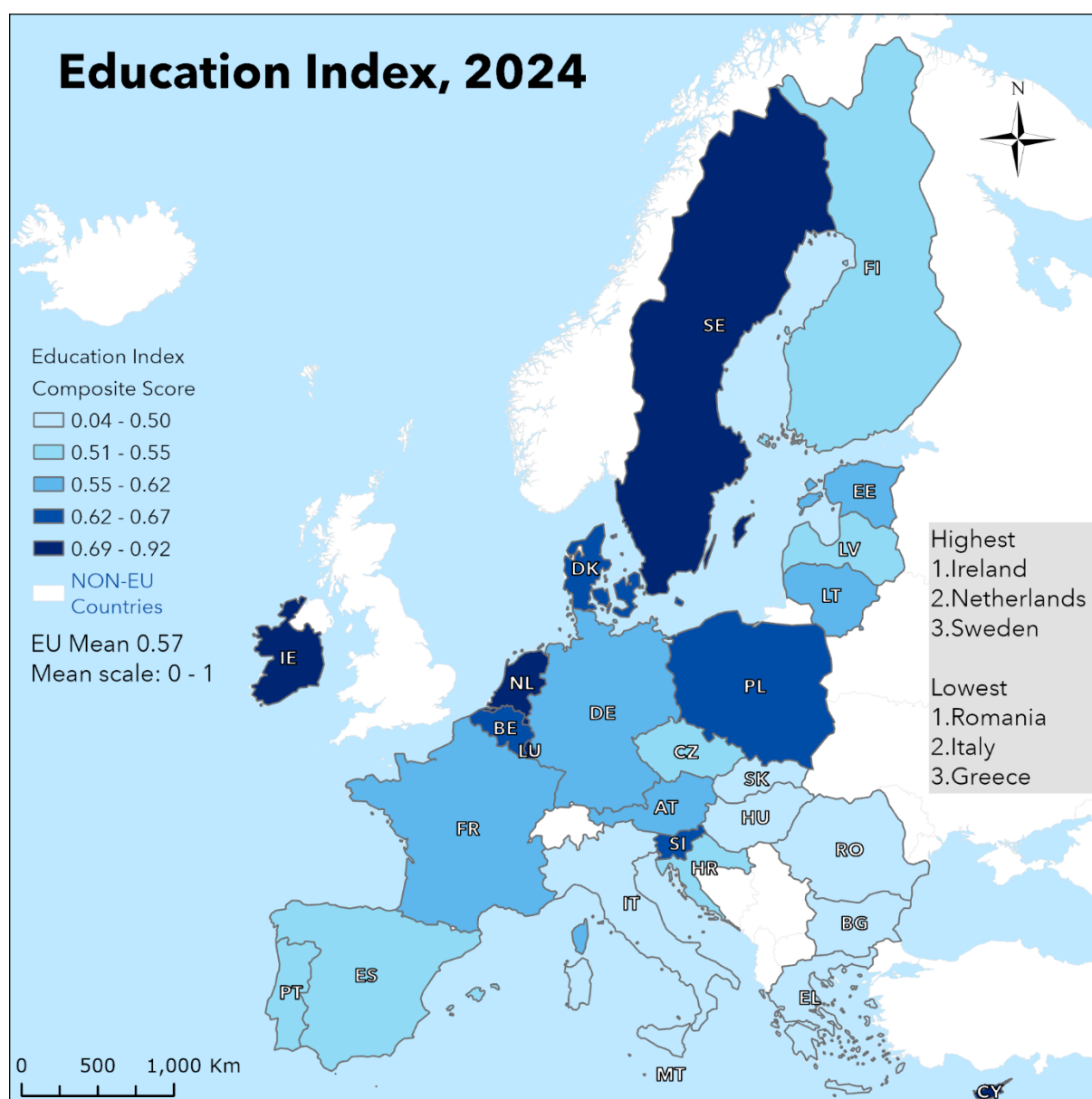


The spatial distribution of the Smiley Index across EU member states exposes an important tension between achieved wellbeing levels and their temporal trajectories over the 2018–2024 period.

The most relevant spatial pattern is the concentration of high-level, declining trajectories across Northern and Western Europe. Countries such as Sweden, Finland, Denmark, the Netherlands, Austria, and Ireland occupy the lower-right quadrant of the bivariate matrix, combining top-quartile Smiley Index scores in 2024 with a consistent downward trend over the observation period. This configuration may suggest that post-pandemic institutional stress, and rising inequality are gradually eroding wellbeing even among historically top-performing welfare states.

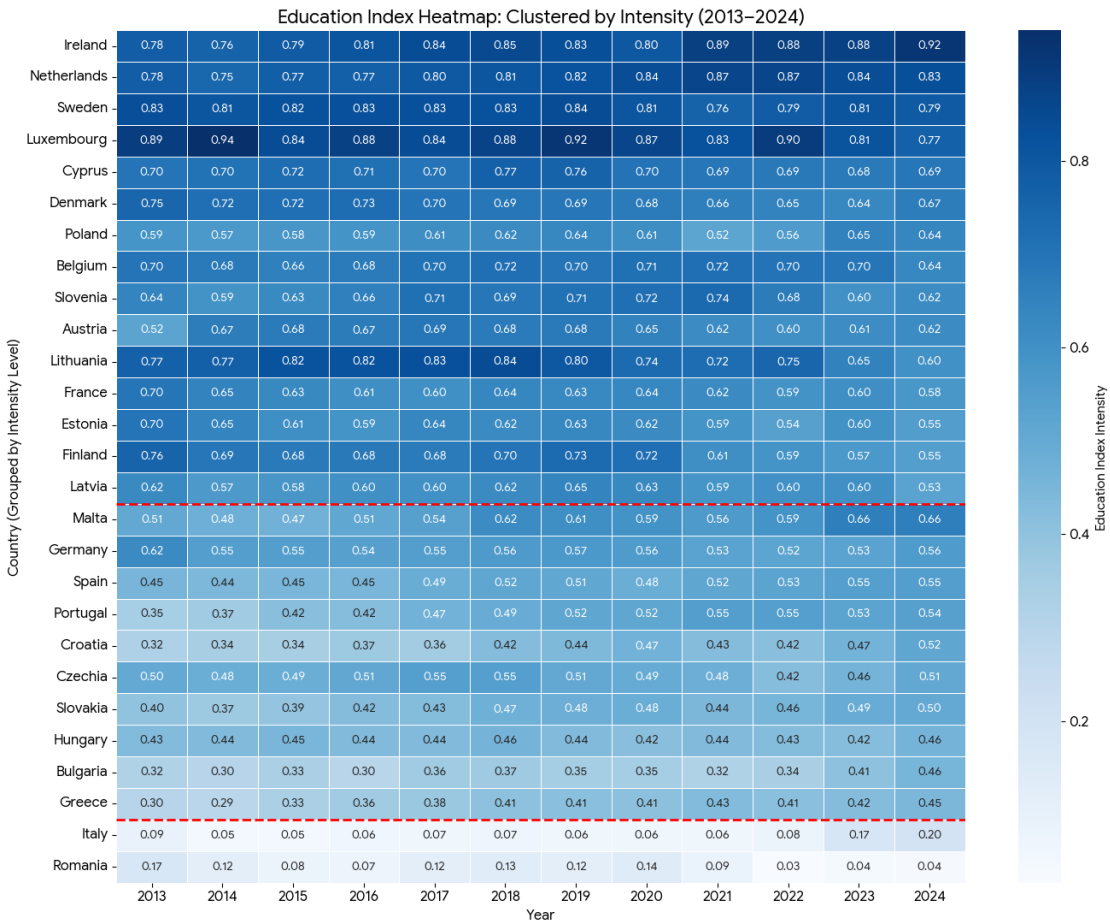
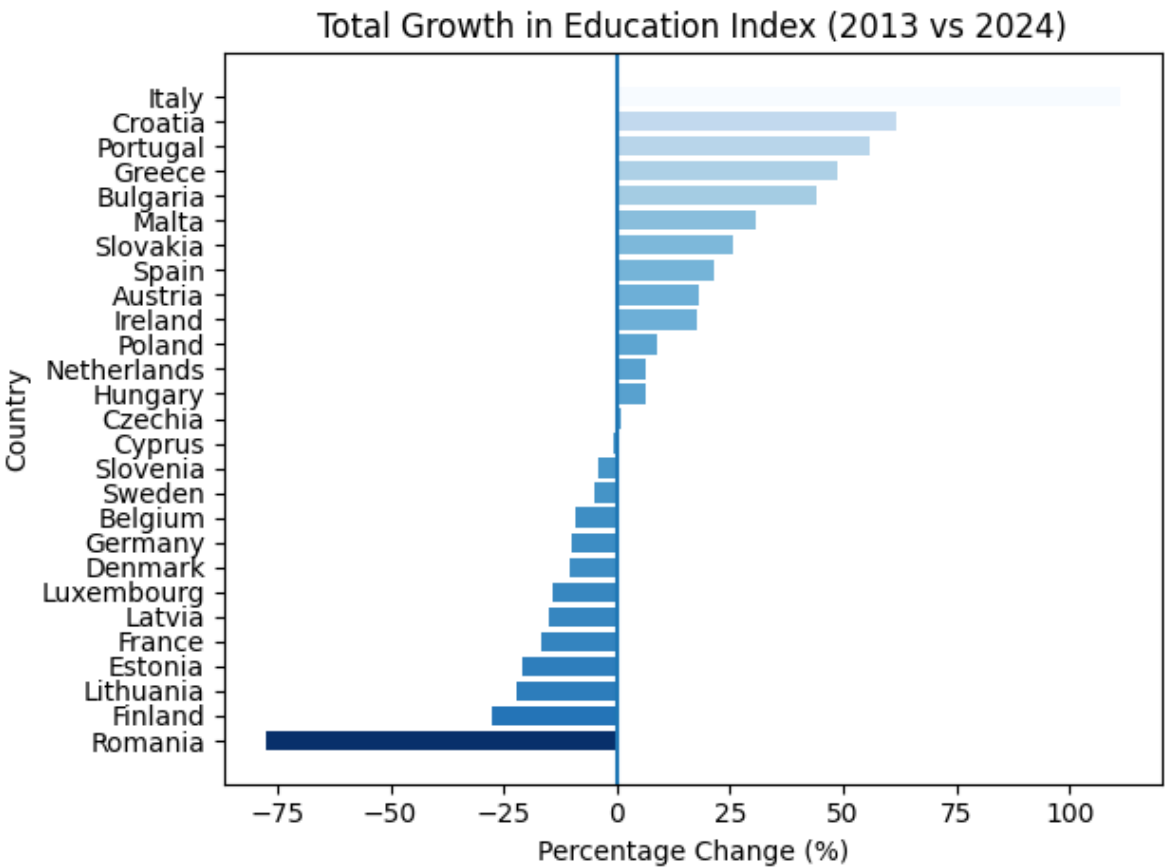
In contrast, the top-left quadrant — characterized by a low current level and a positive trend — encompasses Romania, as well as parts of Bulgaria, Croatia, and Latvia. These countries exhibit measurable progress across education attainment, labour market integration, and housing quality, yet remain structurally anchored in the lowest performance tier, underscoring that observed growth reflects catching-up dynamics rather than consolidated wellbeing. A broad central band of stagnating countries — including Czechia, Poland, Italy, Lithuania, and Slovakia — occupies the middle quartiles, indicating that moderate wellbeing levels have remained largely stable, with no significant net improvement or deterioration detectable through the regression-based trend coefficient.

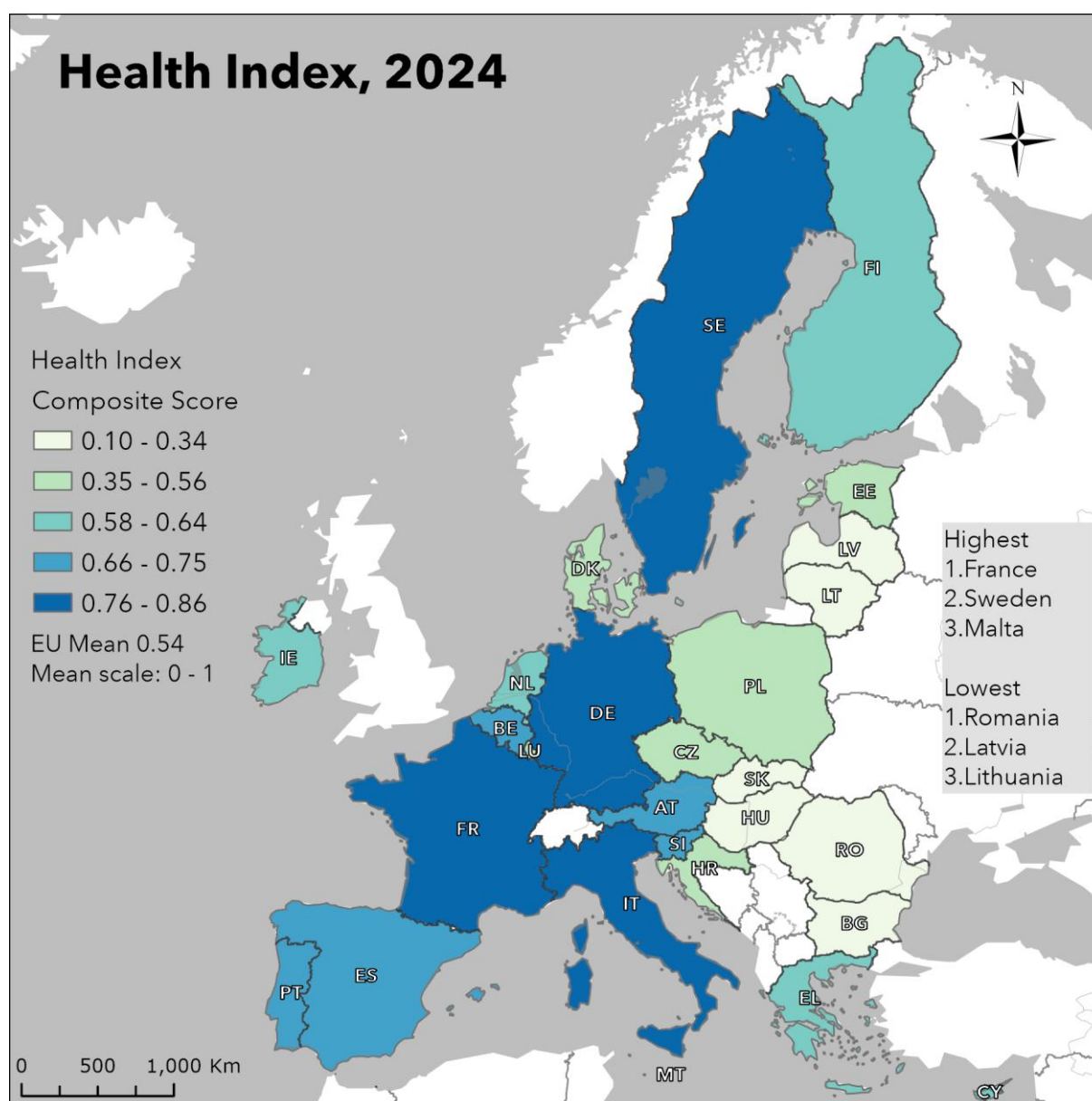




The Education Index reveals significant territorial disparities across the European Union, a strong contrast being emphasised between countries with highly developed educational systems and those characterised by educational and labour-market challenges. The first category includes mainly Northern and Western countries, with the highest values in Ireland, Netherlands and Sweden, which have been constantly at the top of the hierarchy for the last decade. These countries are well-known for their accessible and well-developed university systems, high public investment in education and effective youth integration into labour markets. Also, the fact that they are advanced knowledge-based economies further consolidates their high levels of educational performance. Other countries also stand out through a good educational performance in 2024, such as Belgium, Luxembourg, Denmark or Slovenia, despite showing slight downward trends over the last decade.

Low index values are clustered in Southern and South-Eastern Europe, of these countries Romania and Italy standing out due to particularly low scores. While in Italy the gradual progress is evident over the last decade, Romania represents the opposite extreme, with the most significant decline. Weak educational performance is generally associated with uneven access to education (with the notable examples of the North-South divide in Italy or between urban and rural regions, in Romania, among other countries), lower levels of investment in education systems and difficult transition from education to employment.

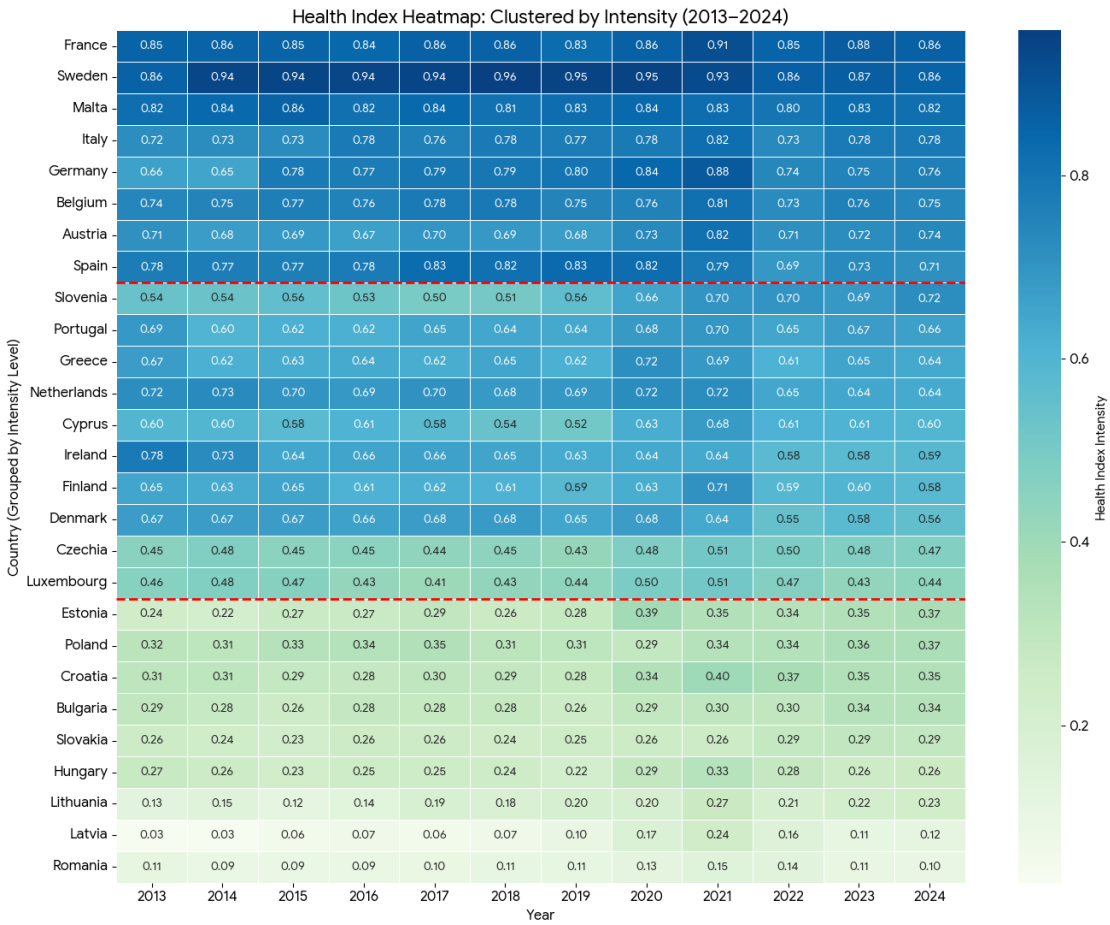
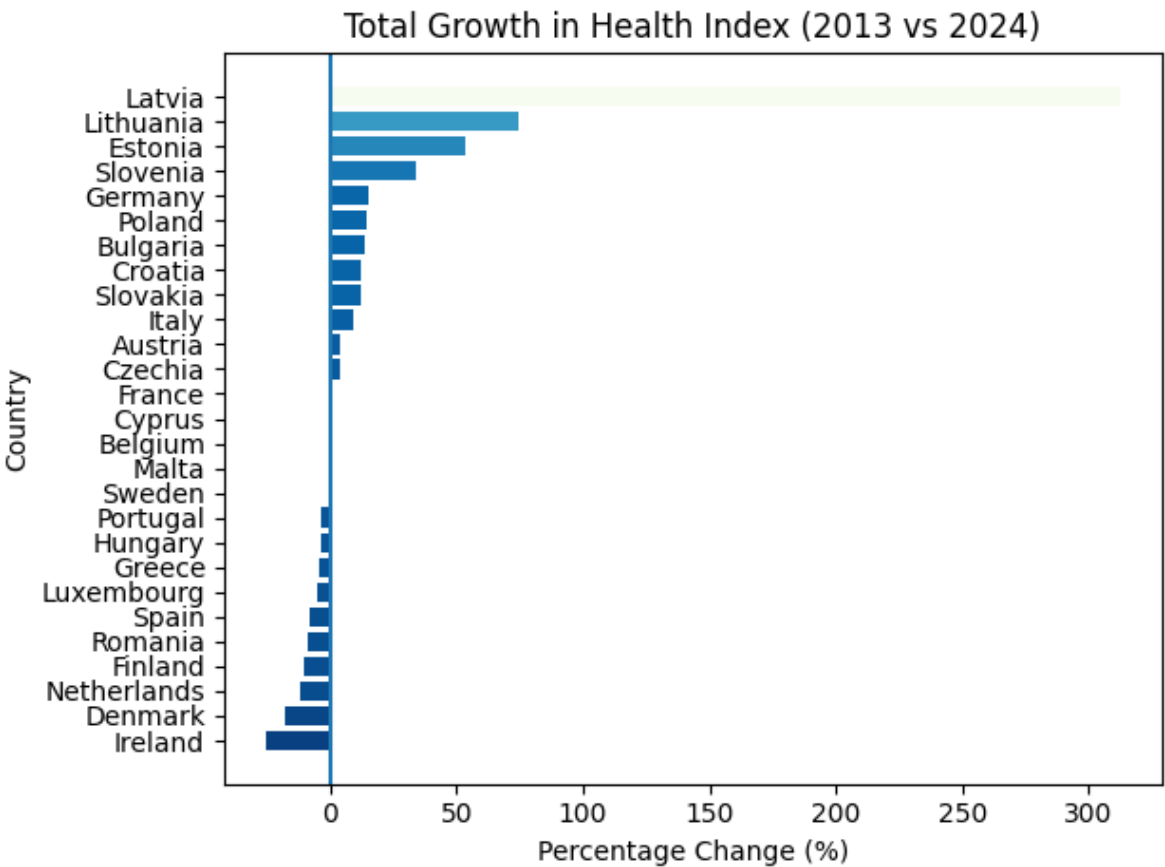


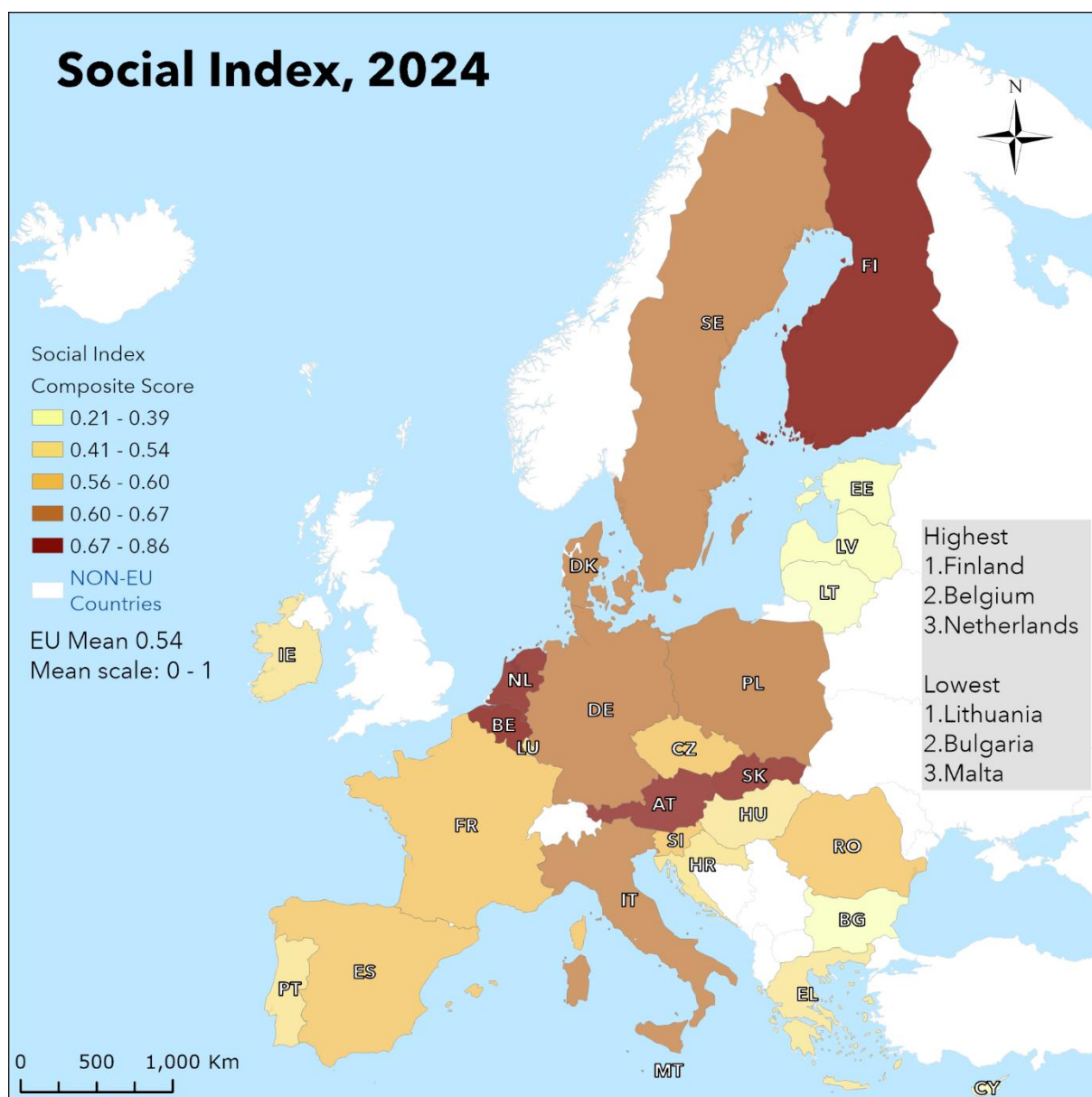


Health Index distribution reflects the classical West-East divide, with the lowest values recorded in eastern countries.. France, Sweden, Malta, Italy and Germany and Sweden record the highest values, explained by more effective sanitary policies, focused on prevention and higher level of health education.

Recent improvements in healthcare are visible in Baltic countries; Latvia, Lithuania and Estonia displayed the highest growth rates across the last decade, although they continue to hold low values compared to other EU countries. The opposite situation, with lowest growth rates is specific to Ireland (where rapid growth due to multinational companies' headquarters decreased the relative share of health expenditure, in spite of its continuous growth in absolute terms) and very developed countries which reduced their health expenditure due to increased efficiency and prevention (Denmark, Netherlands, Finland).

The heatmap indicates three clusters of countries based on their health index variation across the considered period. Most countries have a relatively constant position across time, with the middle cluster displaying the highest fluctuations. All the countries recorded a two-year peak in 2020 and 2021 due to higher health expenditure related to Covid-19 pandemics. Slovenia and Estonia display the most significant and constant progress for the health index across the studied period.

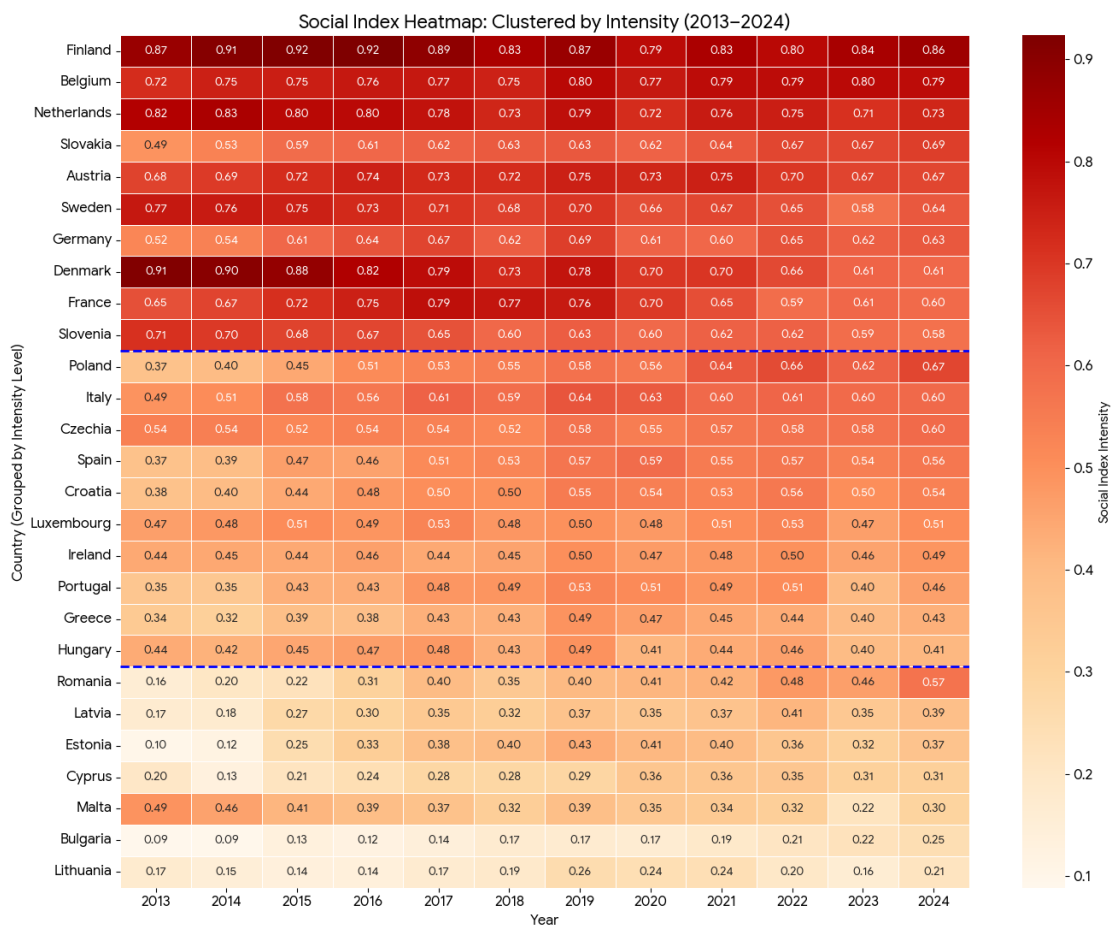
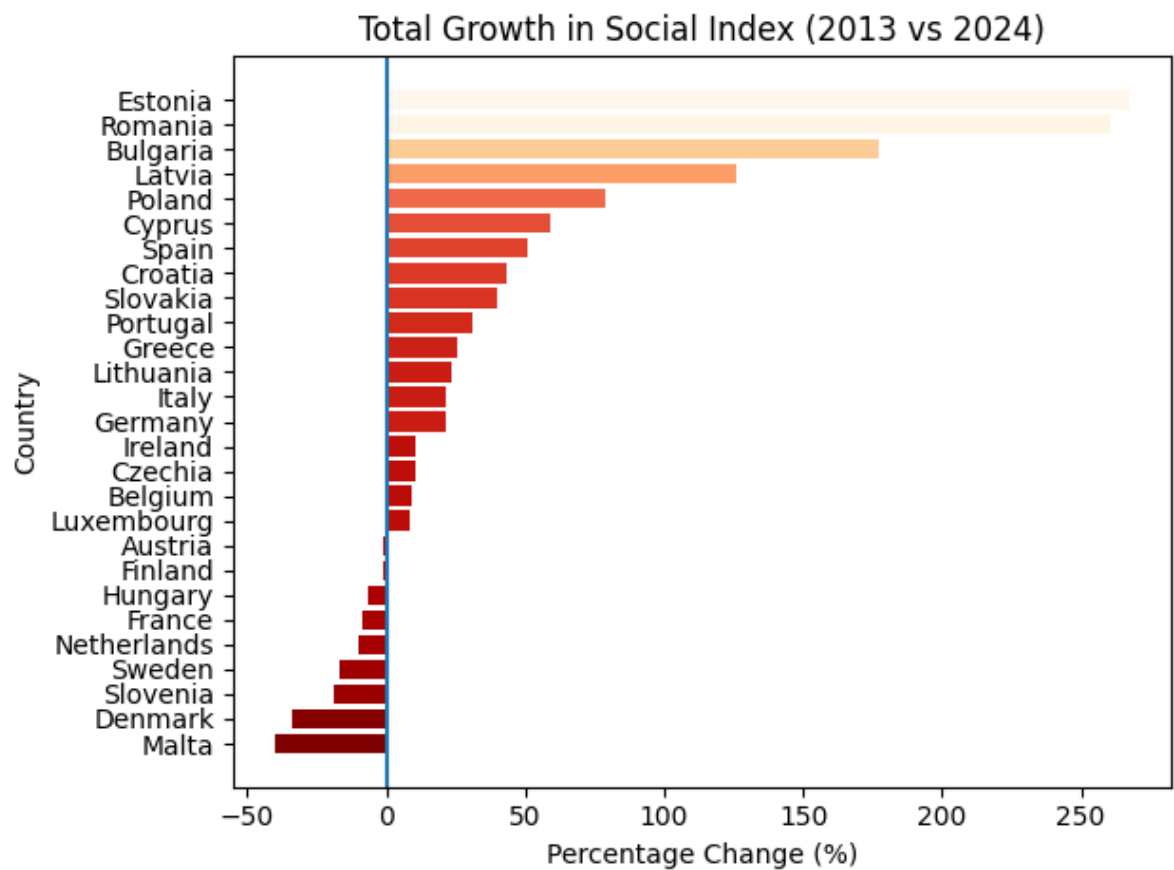


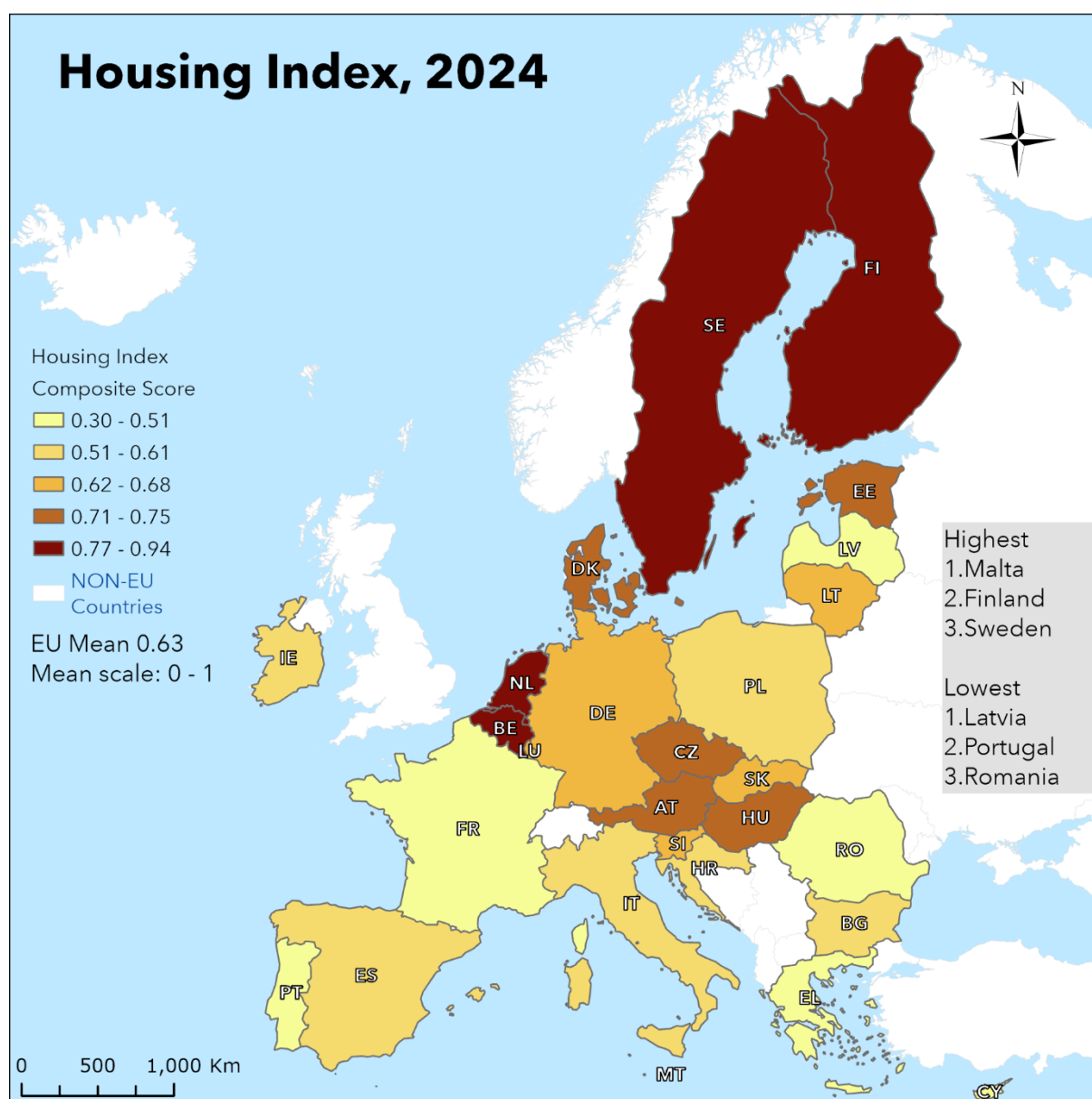


Social index records lowest values in Baltic Countries and Bulgaria, due to reduced social expenditure and high economic inequalities; these countries prioritize rapid GDP growth over the wide social safety nets recorded in some Central, Western or Nordic Europe. The high values (above 0.6) create a North-South “spine”, with Sweden, Finland, Belgium, Netherlands – well known for their advanced welfare economies, but also Italy in the southern Europe, due to the increased social expenditure related to ageing population.

Highest total increase in the social index during the last decade was recorded in several East and South-East European Countries, even if they still hold low values compared to the EU average, while decrease has been recorded in countries situated at the top of the hierarchy, due to the improved efficiency of social expenditure.

The three clusters displayed in the heatmap show a clear tendency of constant increase for East European and Southern countries found in the bottom and the middle cluster, while more advanced countries in the top cluster record various patterns, with constant decrease in Slovenia, Denmark, Sweden, Netherlands, a fluctuating pattern in France, Germany, Austria and Belgium and a constant increase in Slovenia and Slovakia.

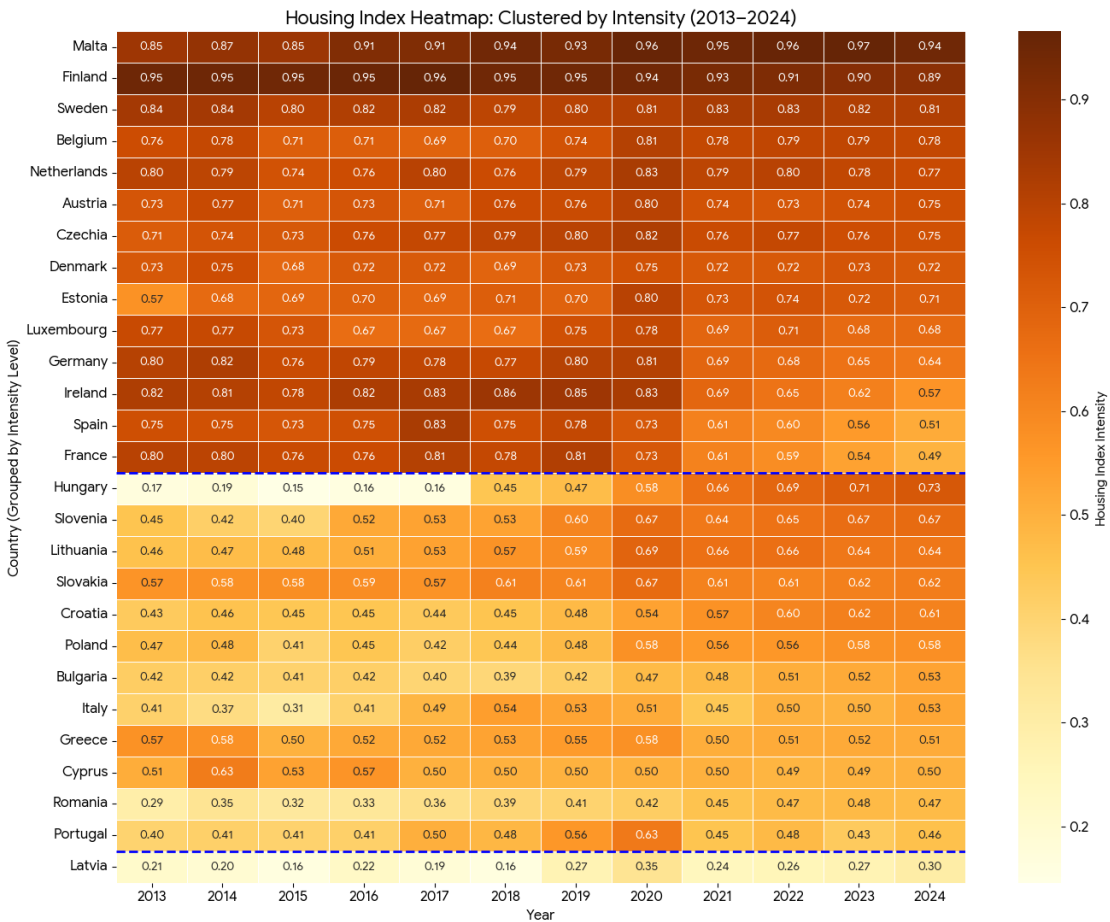
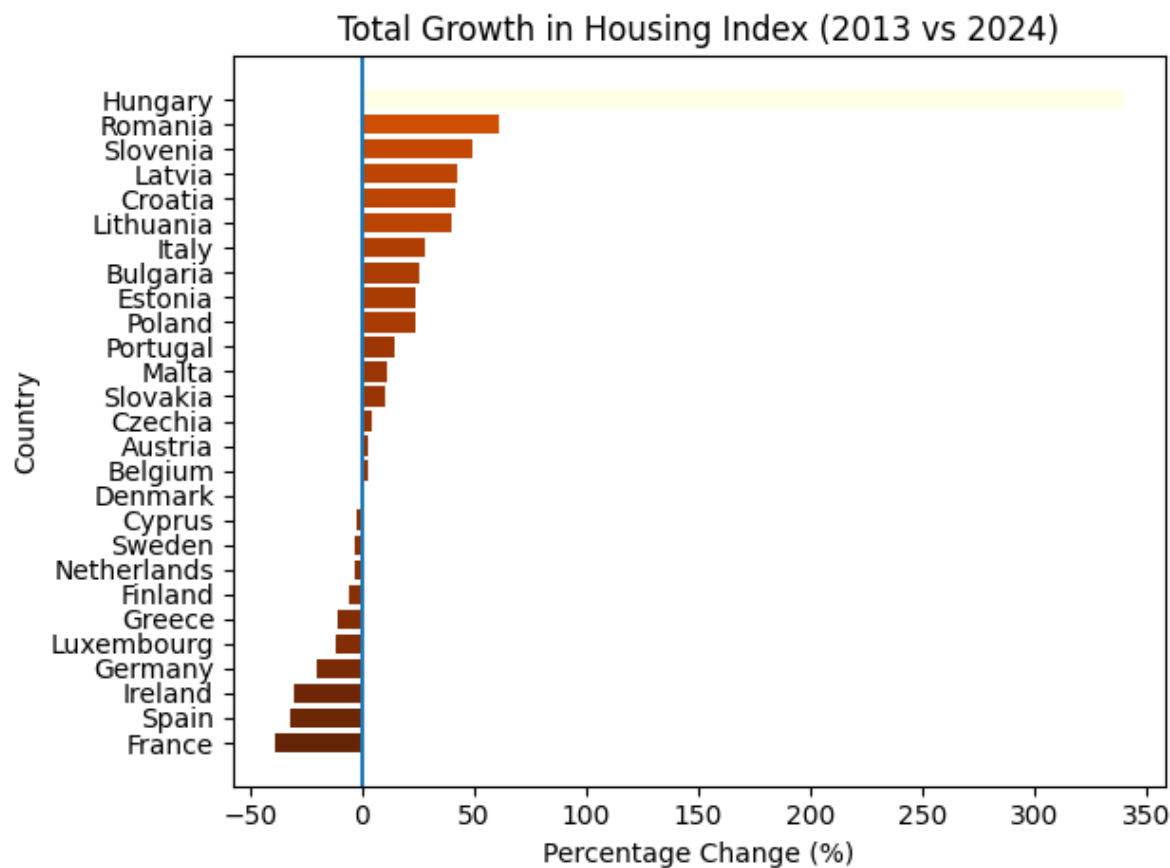


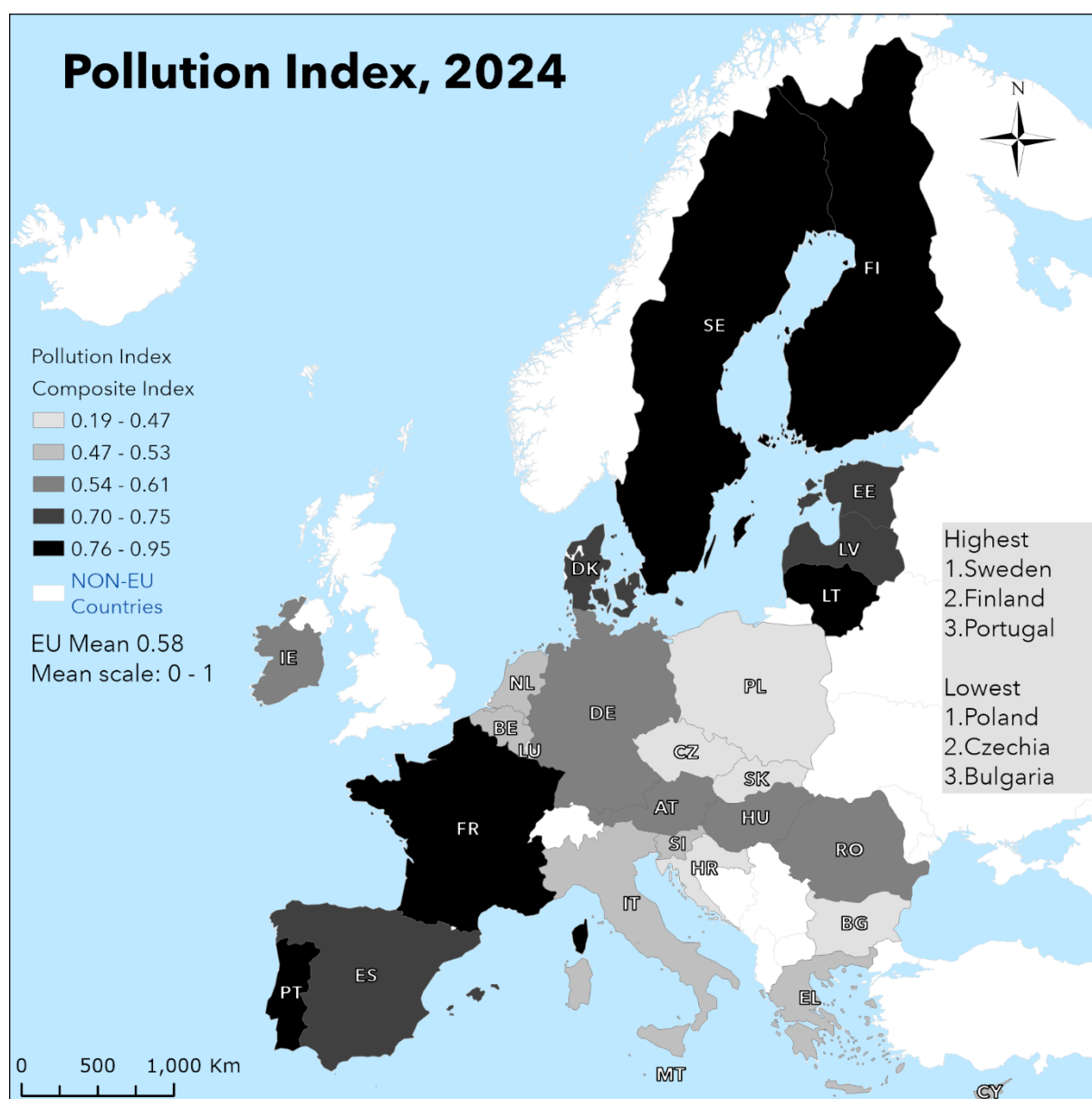


Housing index reveals a heterogeneous spatial pattern with highest values and lowest value at the fringes of EU; highest values concentrate in northern countries (Sweden, Finland, Netherlands and Belgium), while lowest values are found in Latvia, Romania, Greece, Portugal and France. The rapid rise of housing costs, combined with the low share of social housing in Latvia and with poor living conditions in Romanian villages favoured housing deprivation in these countries. Greece also faced difficulties in maintaining housing quality after the depth crisis, while Airbnb tourism in Portugal (especially in Porto and Lisbon) pushed local population to small, lower quality apartments, leading to overcrowding. France is well-known for increased housing inequalities, with large *banlieues* with crowded and/or inappropriate housing populated by immigrants.

Overall, housing conditions got ameliorated across the last decade in post socialist countries, such as Hungary, Romania, Latvia etc., while France, Spain, Ireland or Germany faced a deterioration of housing affordability, due to insufficient policies in the context of increased pressure from immigration and tourism.

The heatmap reveals a steady evolution for the top counties and a significant peak in 2020 in most of the countries, due to the temporary reduced pressure on big cities in western Europe (urban-rural migration, freezing tourism and other in-person activities). Hungary recorded a sharp increase in housing affordability in 2018, due to a set of interventionist government housing policies (Family Housing Support Programme and VAT reduction for new homes).

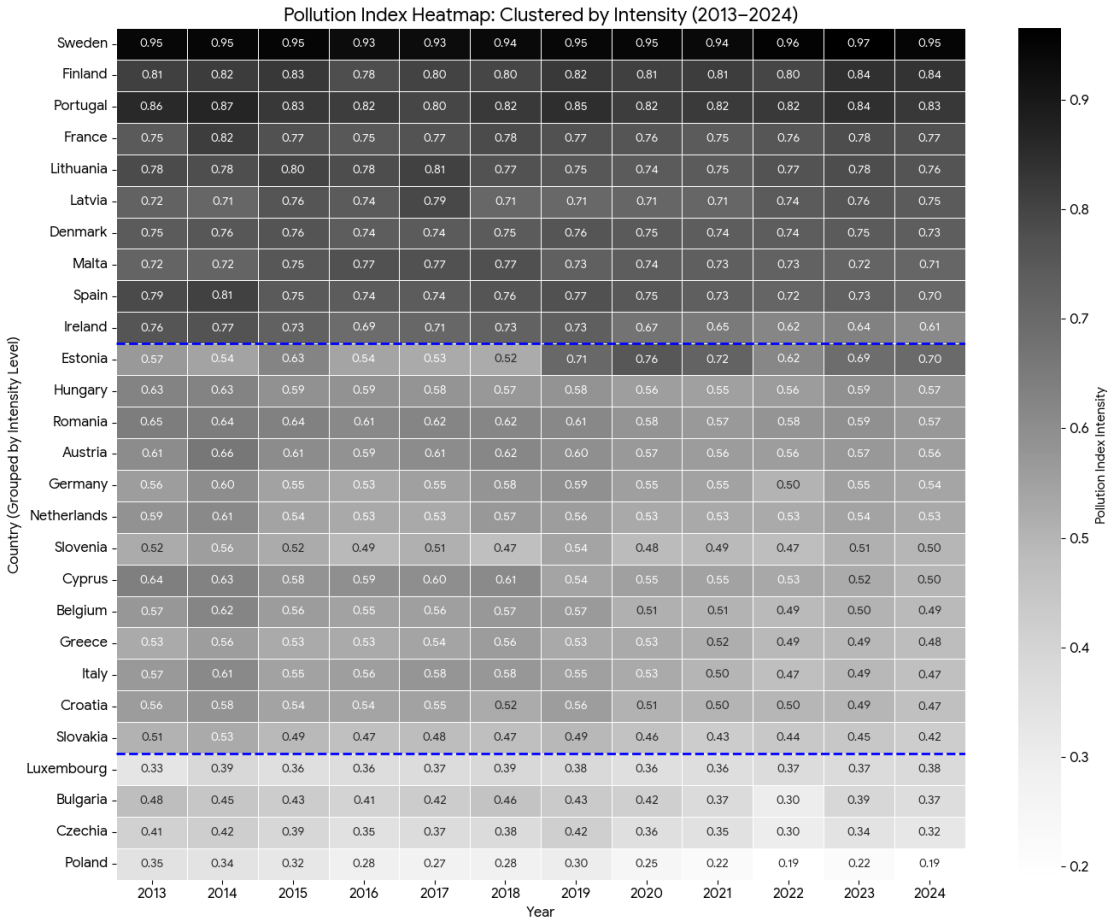
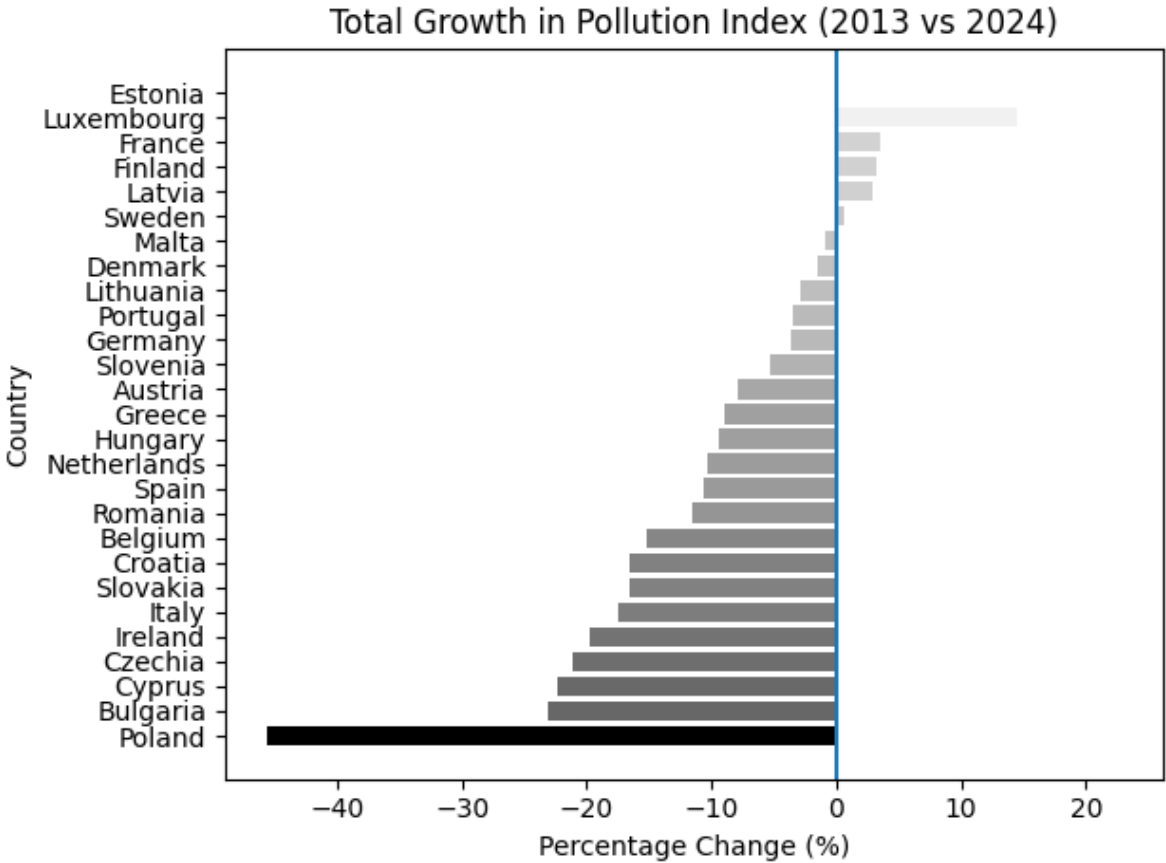


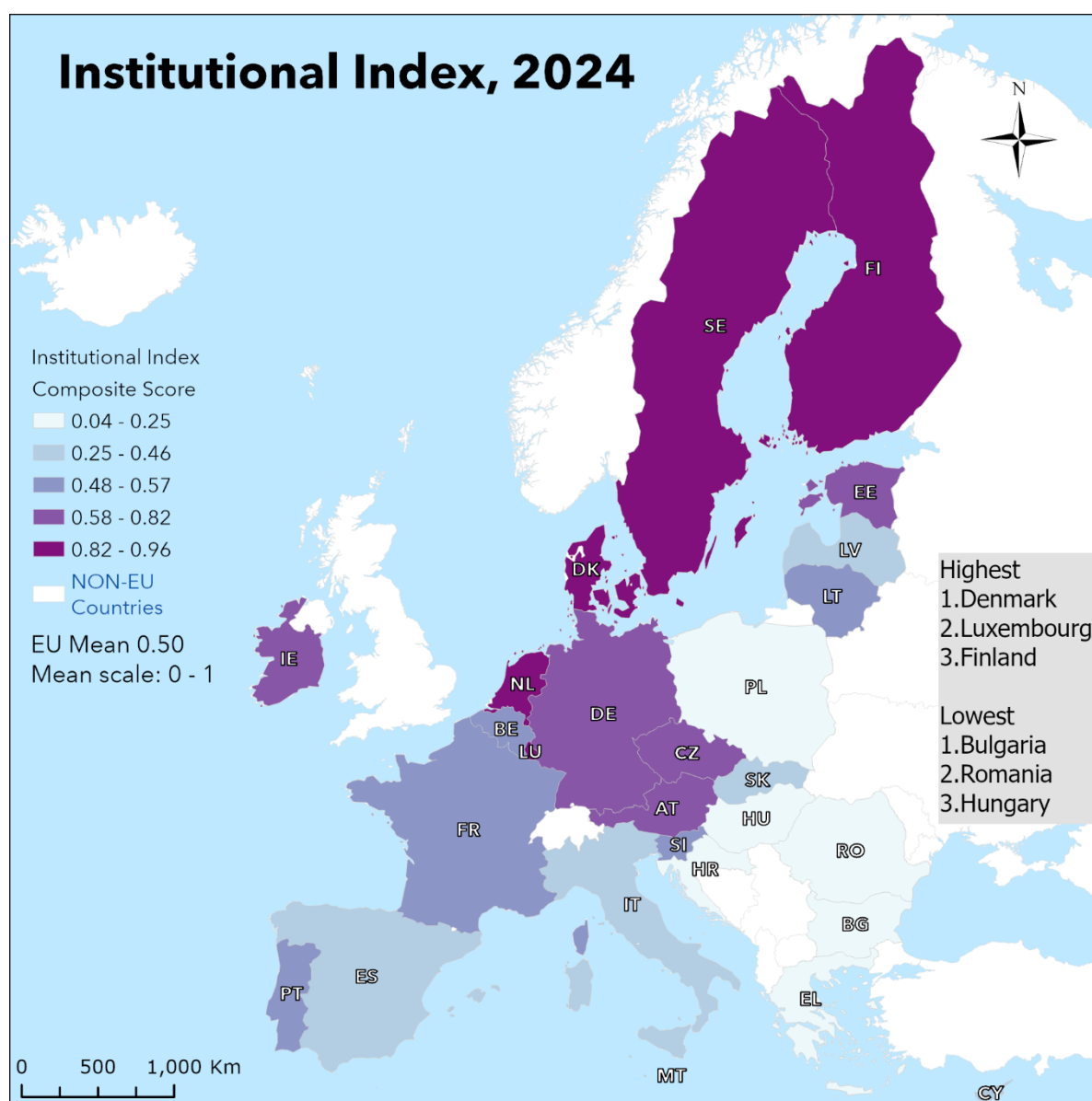


The Pollution Index displays a relatively clustered spatial pattern at EU level, with highest pollution levels (reflected through low values of the Pollution Index) grouped at the eastern border, respectively in Poland, Slovakia and Czech Republic, but also in Bulgaria and Croatia, while the lowest pollution levels register in the group of Nordic and Baltic countries, as well as in the South-West (France, Portugal, Spain).

Better air quality and lower carbon emissions per capita are usually specific to highly developed countries, with stricter environmental regulations, a visible transition toward renewable energy or important investments in sustainable technologies. While some of the high value countries have had a long tradition in this regard for the last years, with generally constant high values (Sweden, Finland, Portugal), others, as it is the case of Estonia, stand out through a more recent positive evolution. This improvement in Estonia is a result of the implementation of EU environmental and climate policies, the reduction of its dependence on oil shale as source of electricity, and the increasing integration of renewable energy sources.

Poland, Czech Republic and Bulgaria stand out not only for recording the lowest levels of environmental performance, but also for exhibiting a persistent downward trend over recent years, most notably in the case of Poland, where the index declined by more than 40%.

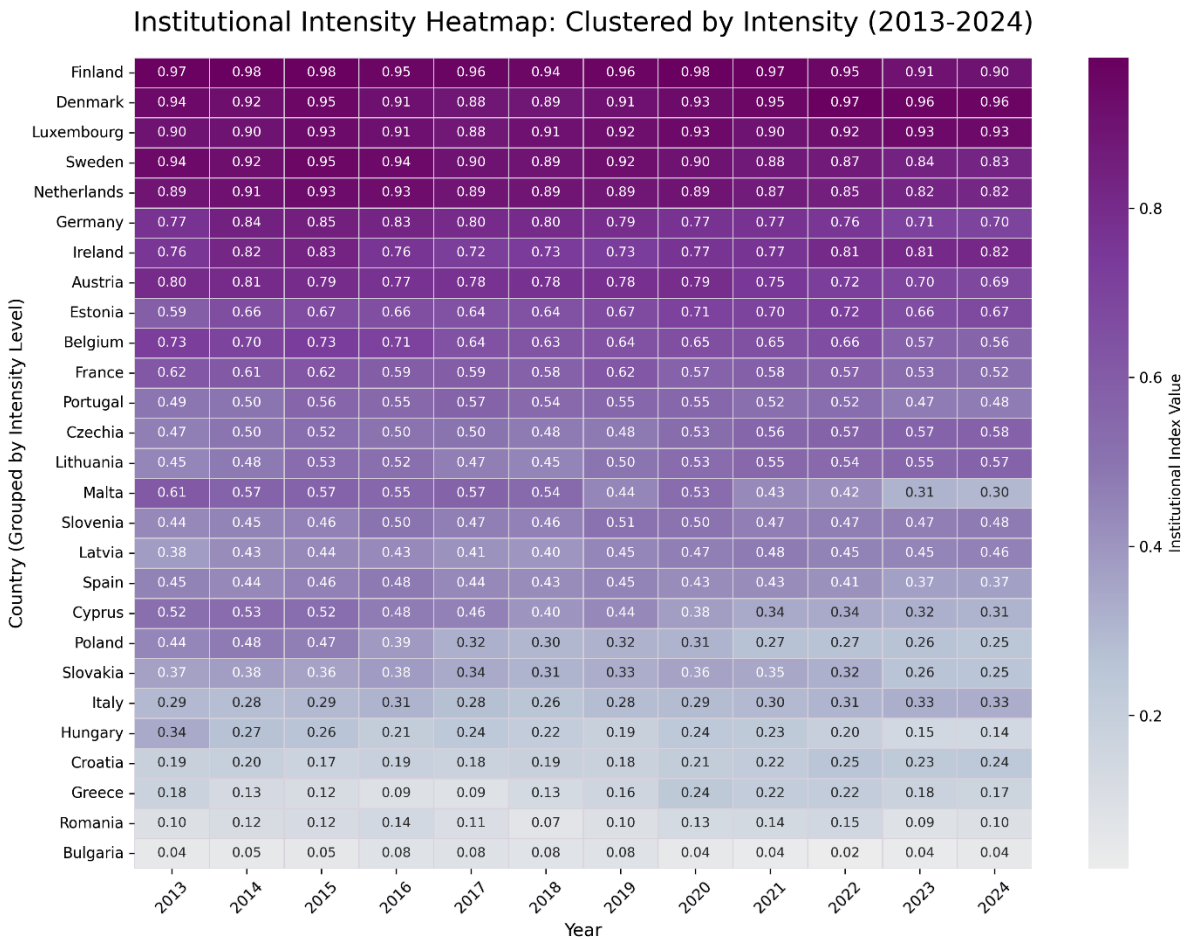
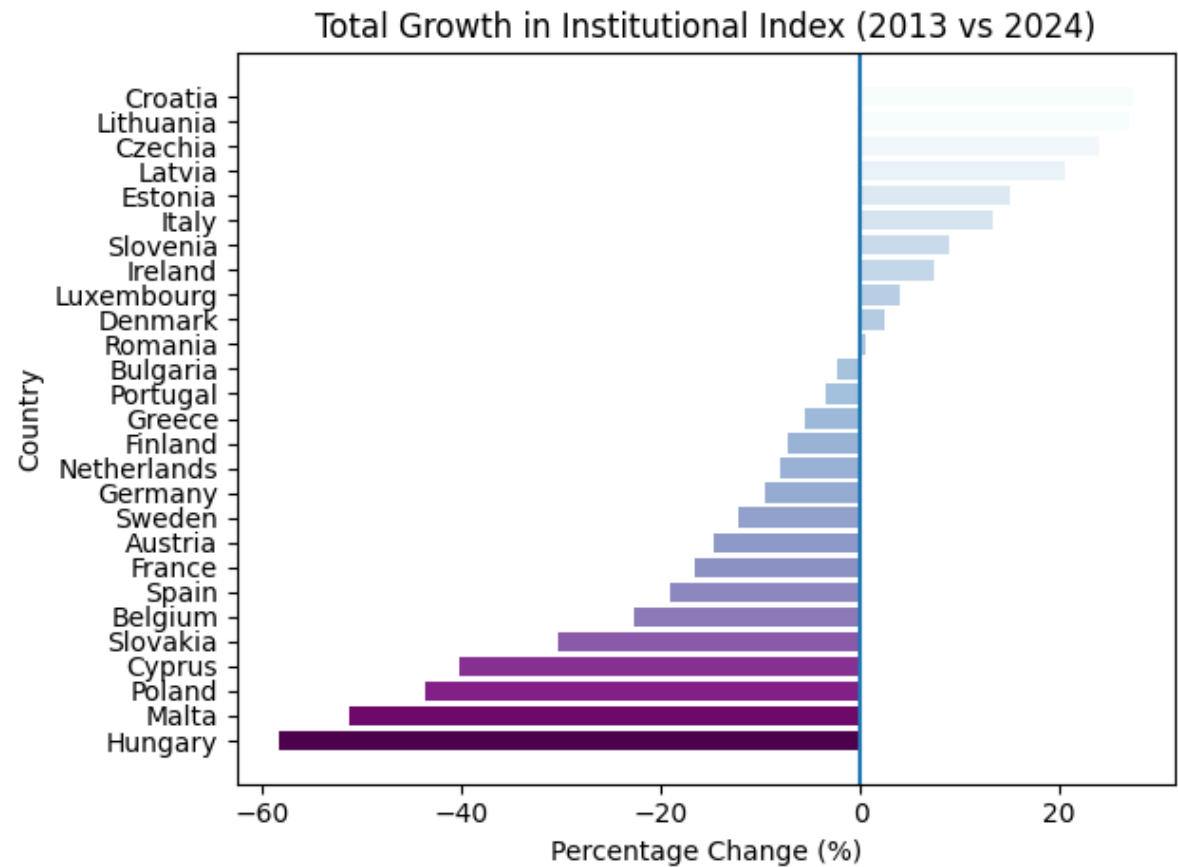


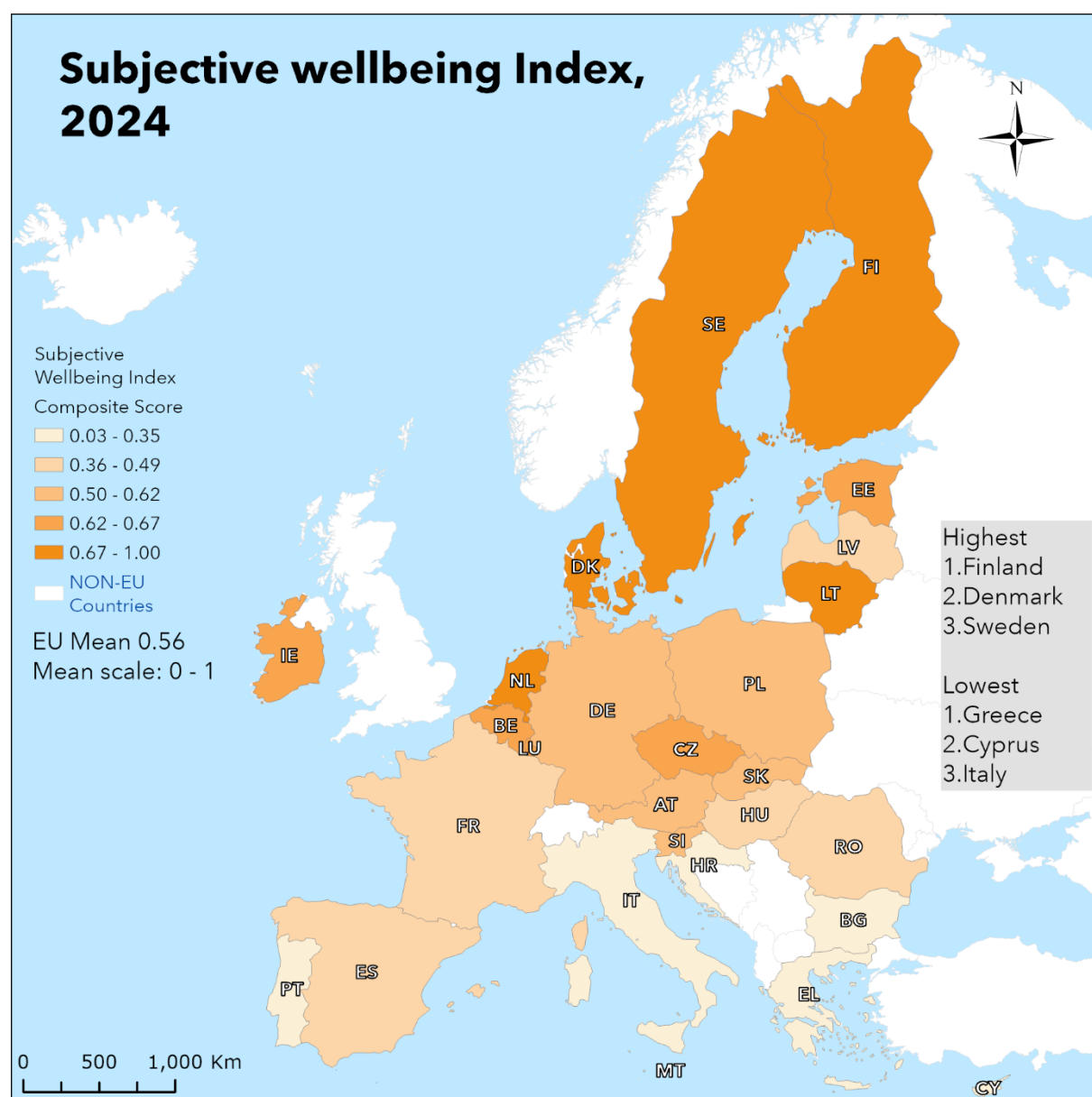


For the institutional dimension, Eastern, followed by South Europe record the lowest values, due to the persisting corruption, reduced government effectiveness, frequent political volatility and a general lower level of quality in public administration. Baltic countries split this pattern due their constant progress in this respect. Estonia is a well-documented example for its large-scale digitalisation in public administration, which leads to a drop in corruption and a sharp increase in public service transparency and effectiveness. Highest values are concentrated in mature democracies – Denmark, Finland, Sweden, Luxemburg and Netherlands.

The improvements in the last decade are concentrated in some countries from Southern and Eastern Europe. Nevertheless, countries like Hungary and Poland faced democratic backsliding, through reorganisation of the judicial power and weakening its independence, while Cyprus and Malta faced economic issues related to financial transparency, and scandals.

The heatmap show an intricate pattern across each cluster, as the perception of institutions is volatile and very sensitive to individual political and economic events. While stable northern democracies in the top record steady evolution on this indicator too, some core EU countries, such as France, Belgium, Germany, Austria, face a progressive drop in confidence in institutions, especially after 2019-2020. This drop is generally tied to some delay in effectiveness, especially in digitalisation and de-bureaucratisation (for instance compared to Baltic counties), political fragmentation and the rise of far-right political parties which gained momentum from the migration-prone policies and Covid-19 crisis management promoted by governments.

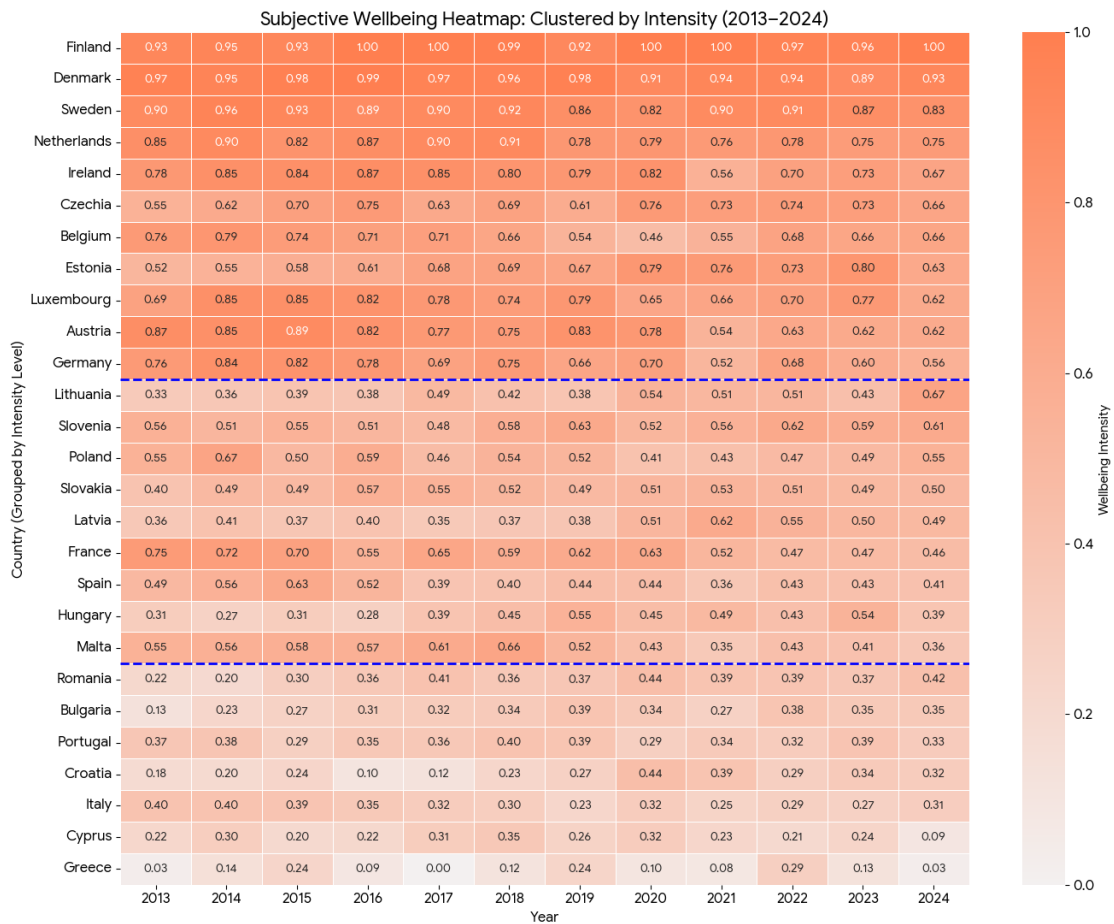
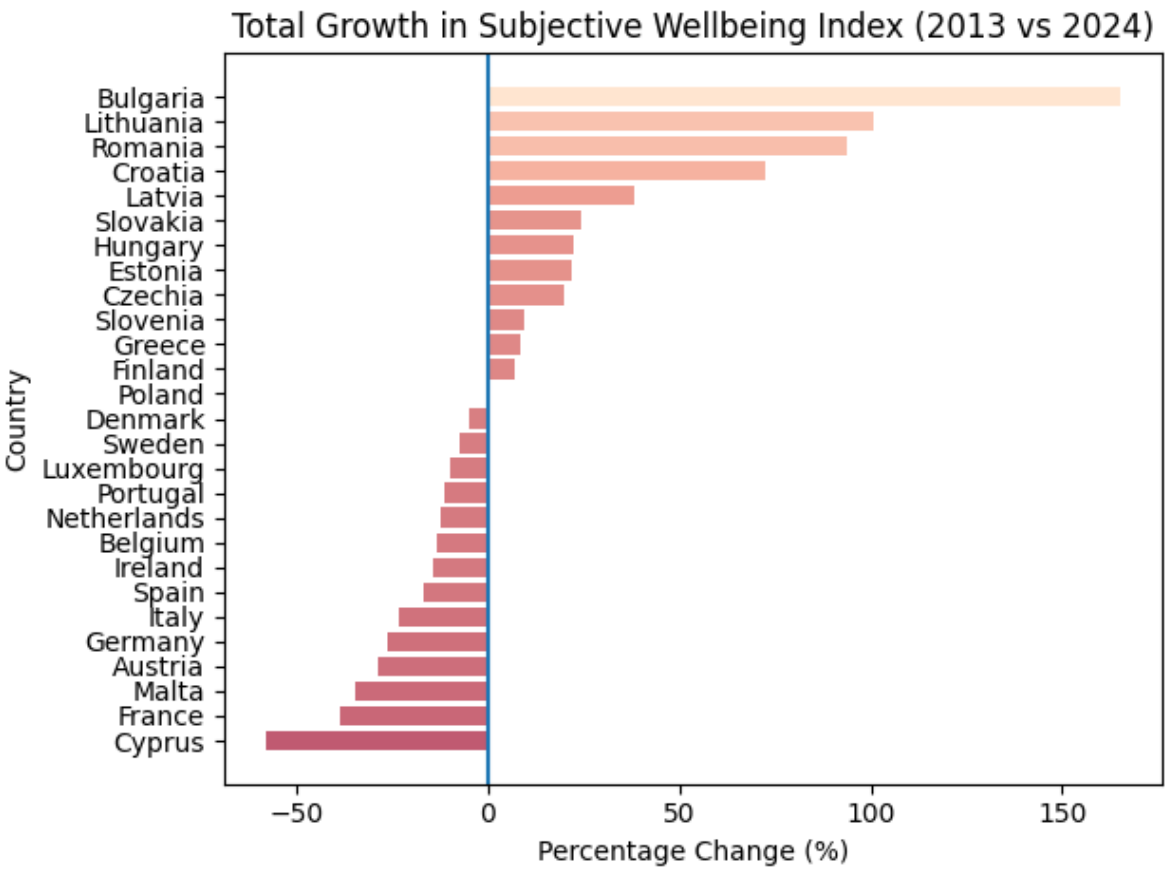




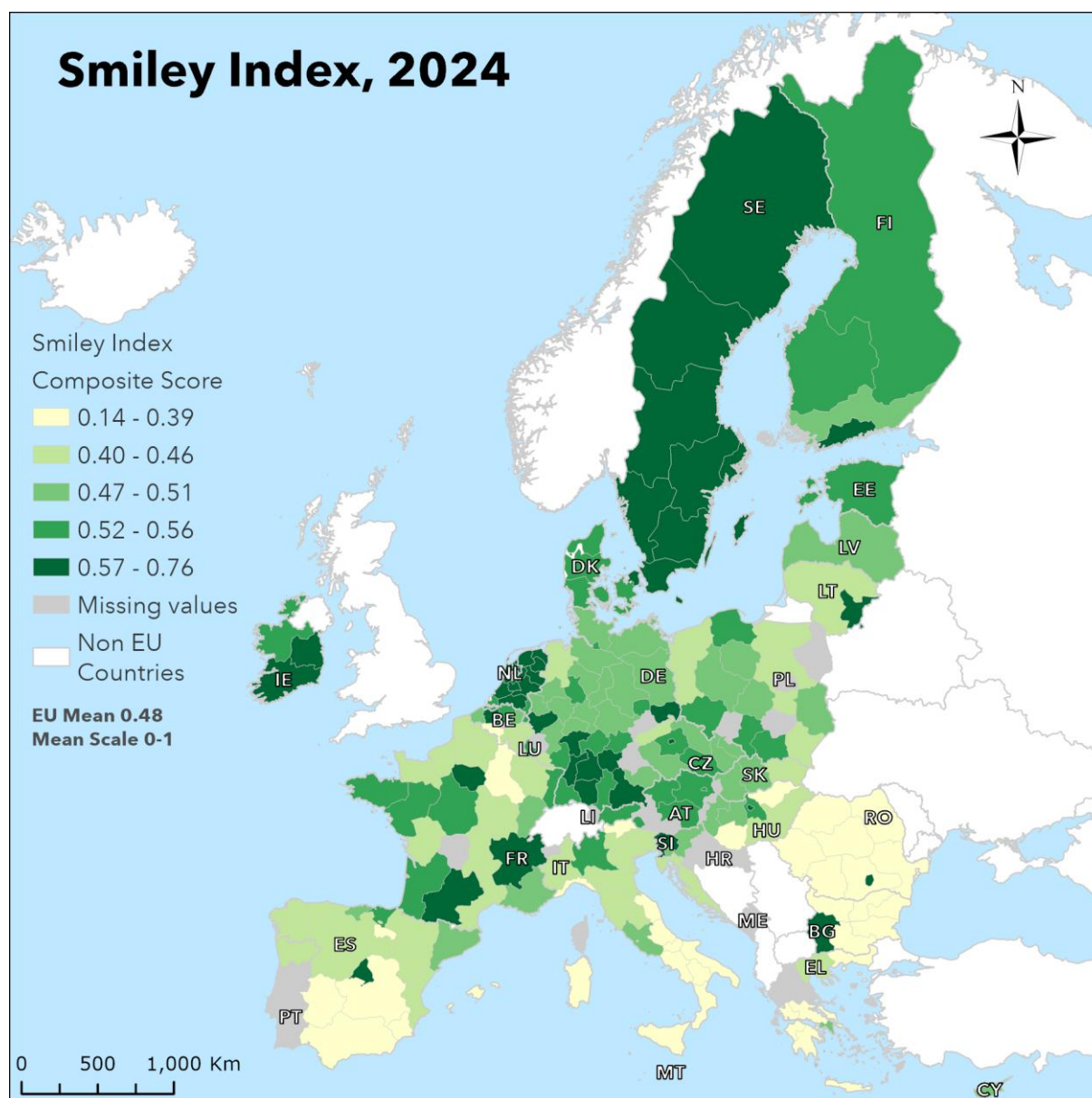
Subjective well-being, which includes overall self-evaluation of life satisfaction as well as emotional and eudemonic dimension primarily, displays a north-south divide – with Finland, Denmark, Sweden, Netherlands and Latvia on the top of EU happiness, while Portugal, Italy, Croatia, Greece and Bulgaria display the lowest levels of life satisfaction. For the rest of the Europe, the spatial pattern is fragmented, with Ireland, Belgium and Czechia recording higher values, average values in most of the central-European countries and lower values in Hungary, Romania, France and Spain.

The total growth of well-being across the last decade is the highest in Bulgaria, Lithuania, Croatia and Latvia – all countries starting from a very low baseline, while Cyprus, France, Malta, Austria showed the highest deterioration. This pattern associates with the evolution of the perception on institutions, suggesting that the relative degradation of individual well-being is related to wider institutional and political discontent.

Excepting the three top “happy countries” - Finland, Denmark and Sweden where public policies and established local culture ensures constancy in their well-being perception, the rest of the countries display swinging patterns, related to both individual and collective factors. This swinging pattern is the most prominent in Greece, the less happy country in the EU, due to recurrent financial difficulties. At the opposite side, more constant patterns of growth are recorded in Baltic countries, Czechia, Romania and Bulgaria, while constant degradation of life satisfaction characterises countries such as France and Germany.



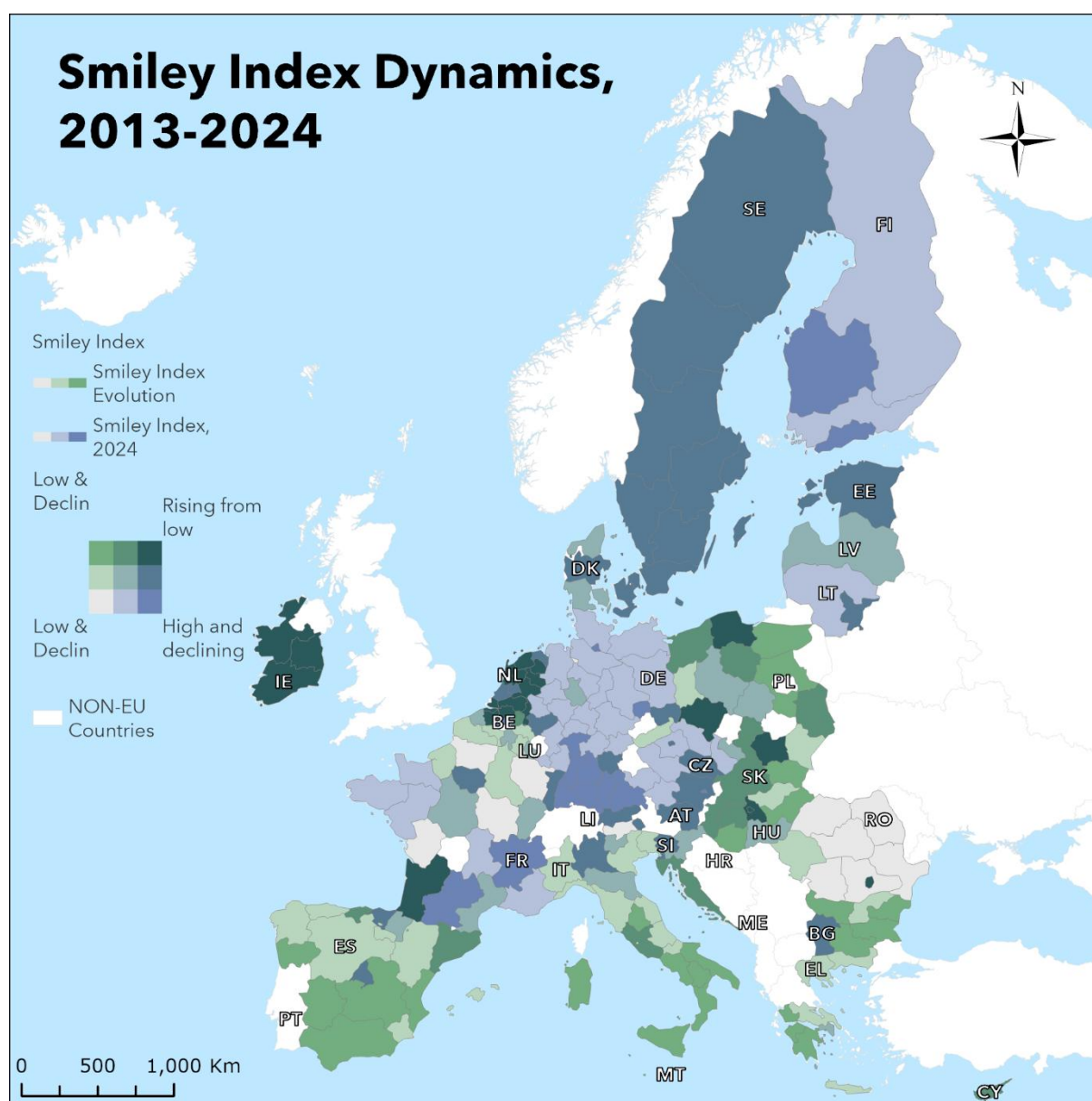
3.2. Smiley Index at NUTS2 level



The regional scale of the Smiley Index provides a more granular image of how well-being values are truly distributed across the EU. While the four groups of countries are still somewhat visible, as a reminiscence of national values, we can now clearly see that within each country there are different stories.

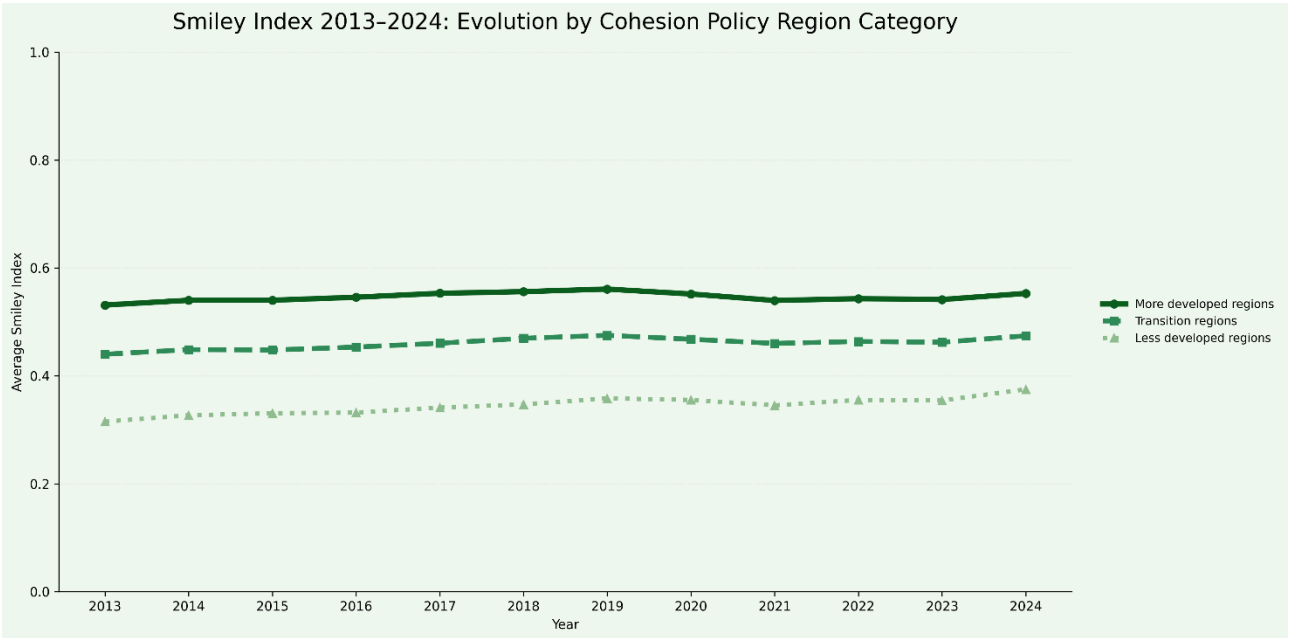
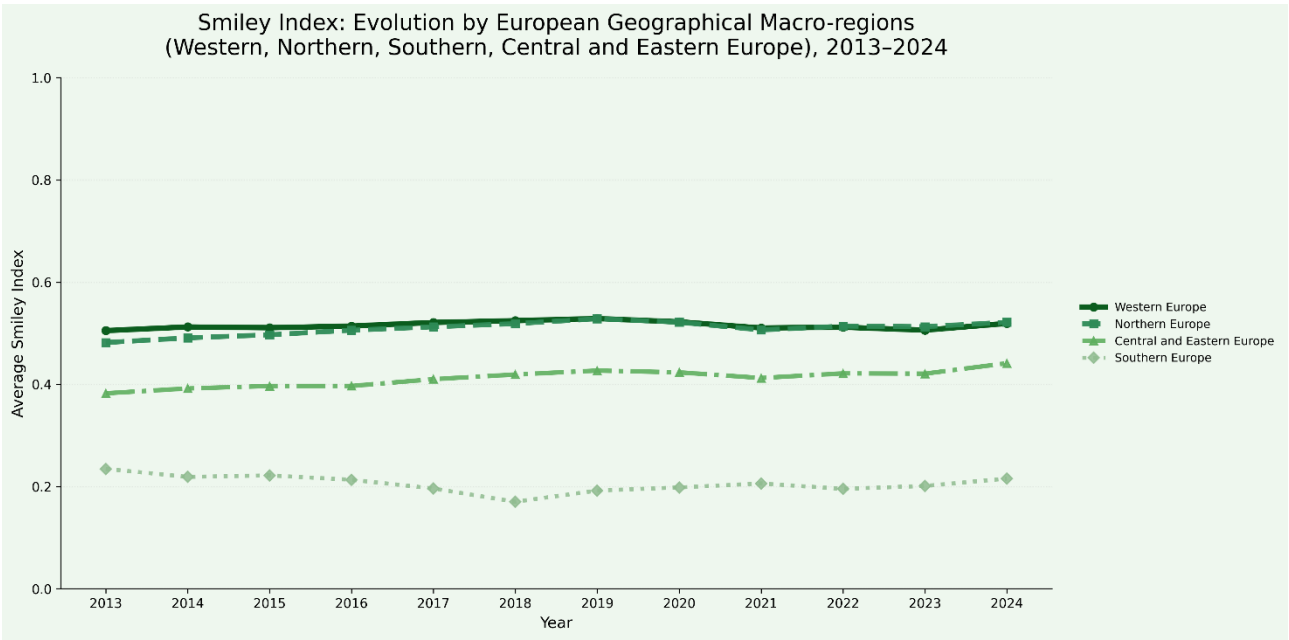
In Eastern and Southern Europe, we can observe an overconcentration of high values in very attractive areas, usually around the most dynamic city, as in Romania or Bulgaria. However, a North-South split, with visibly higher values around the leading cities, can also be observed in Spain and Italy. These territories are those where inequalities in terms of well-being are not only most visible, but also most likely to generate social unrest and discontent, as the overall tendency is that of a significant rift between territories, reflecting different realities.

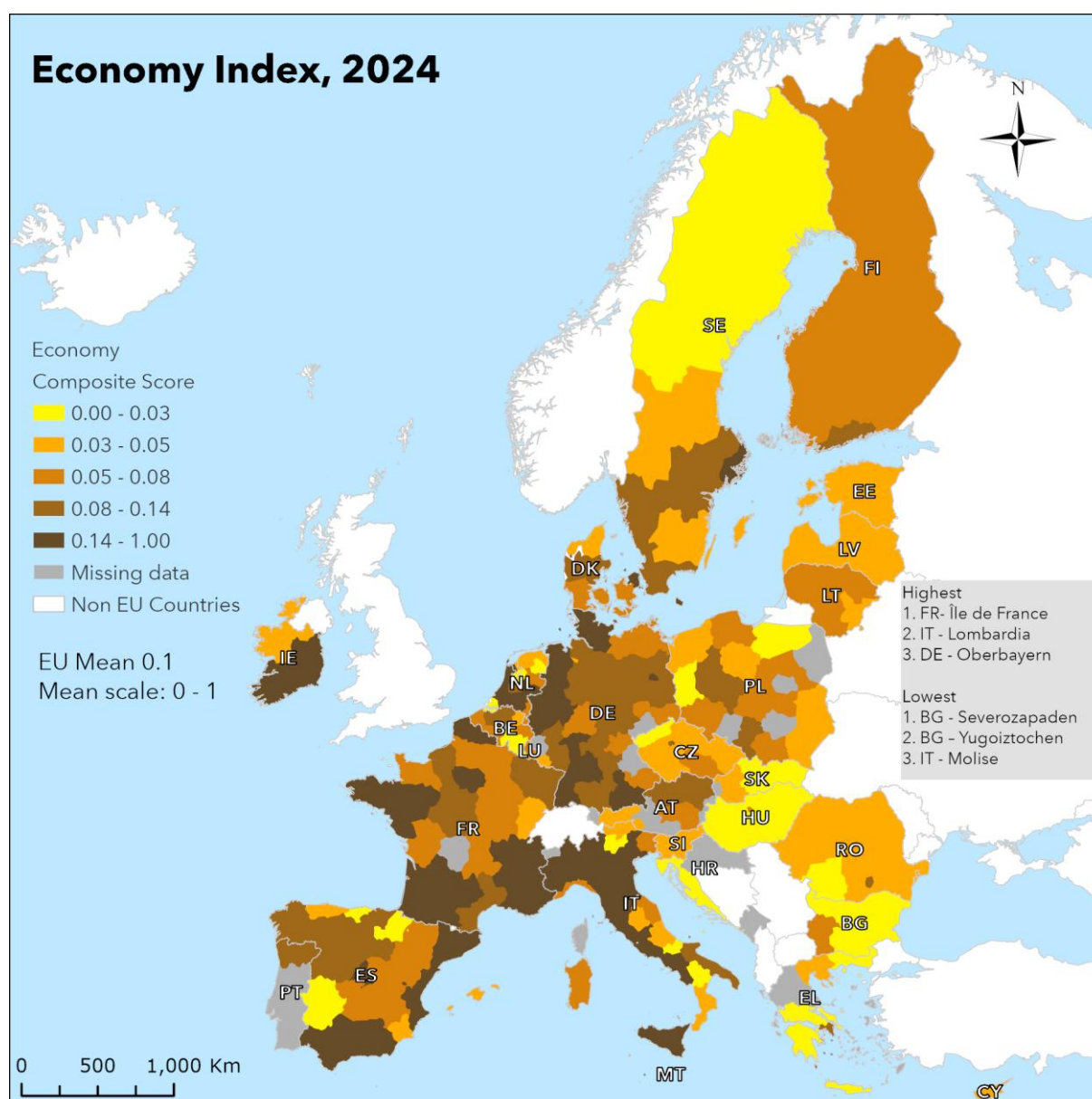
In Western and Central European countries, the situation is more varied, with values no longer solely dependent on the economic factor or on the dominance of highly attractive areas. The map is more complex and subject to multiple interpretations, as the following pages will show.



The bivariate mapping of the Smiley Index across NUTS-2 regions reveals a markedly polarised spatial structure in European regional wellbeing.

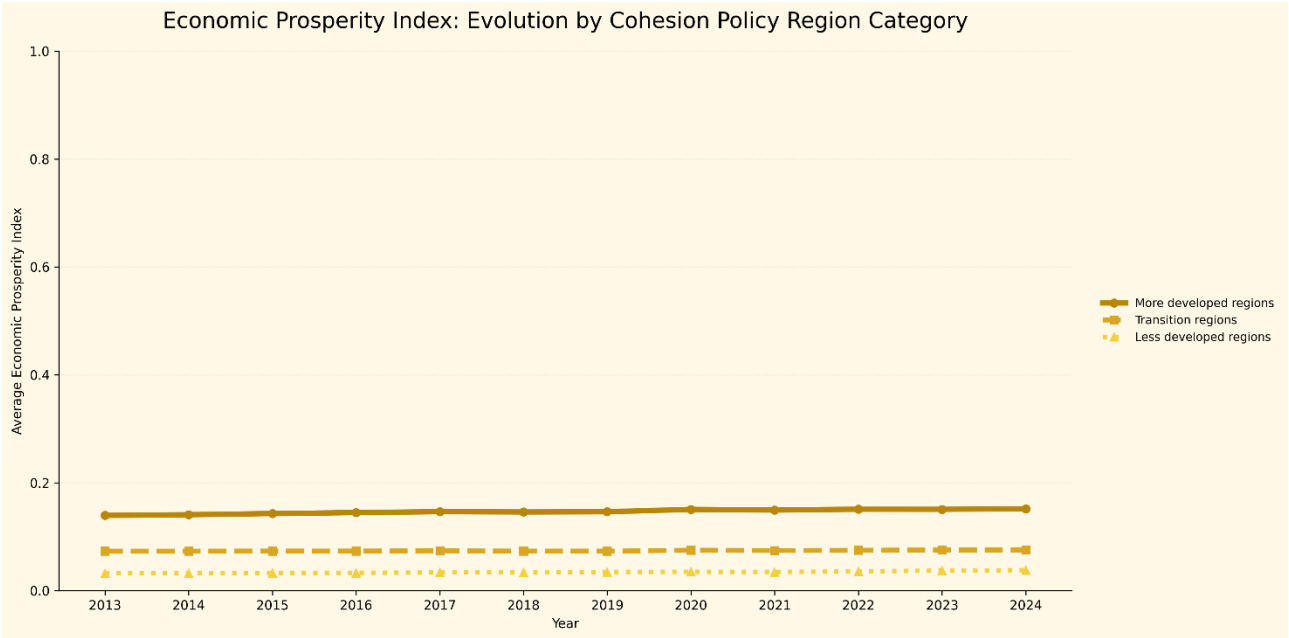
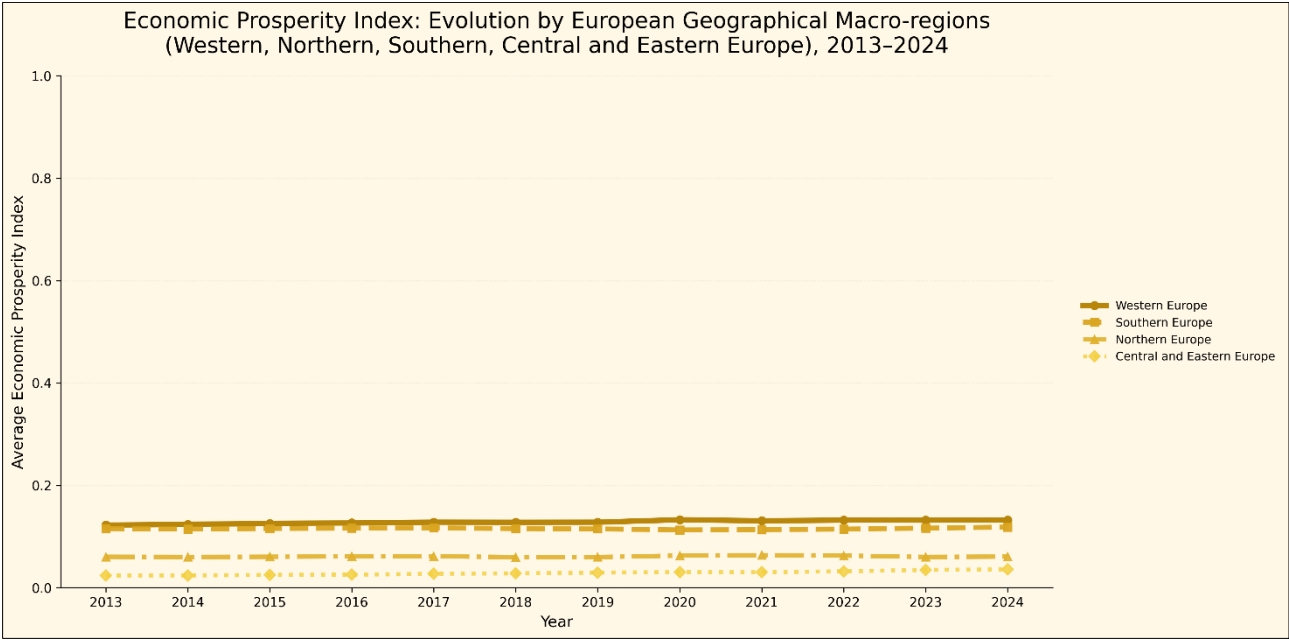
The dominant pattern — encompassing 82 regions (40%) — is stagnation, broadly distributed across Central and Eastern Europe, including large parts of Poland, Czechia, Slovakia, and Italy. These regions display minimal net change in composite wellbeing scores, suggesting structural immobility rather than active convergence or divergence. The second largest class, decline, accounts for 61 regions (30%) and is concentrated in Western and Northern European areas with historically high Smiley Index scores, particularly in Germany, France, the Netherlands, Austria, and Scandinavia. The bivariate intersection of decline with Q3–Q4 level classes is especially prominent: 28 of the 61 declining regions simultaneously rank in the upper half of the 2024 distribution, indicating that erosion of wellbeing — likely driven by rising NEET rates, slowing labour force participation, and weakening knowledge-economy indicators — is disproportionately affecting regions that began the period from a position of strength. Stable and volatile growth classes, comprising 37 (18%) and 25 (12%) regions respectively, are spatially concentrated in South-Eastern and Eastern peripheries — Romania, Bulgaria, Croatia, and the Baltic states — where improvements in employment rates, educational attainment, and GDP per capita have generated measurable upward trajectories. However, these regions remain anchored in Q1–Q2 level classes, confirming that observed progress reflects catching-up dynamics rather than consolidated wellbeing parity with Western counterparts.

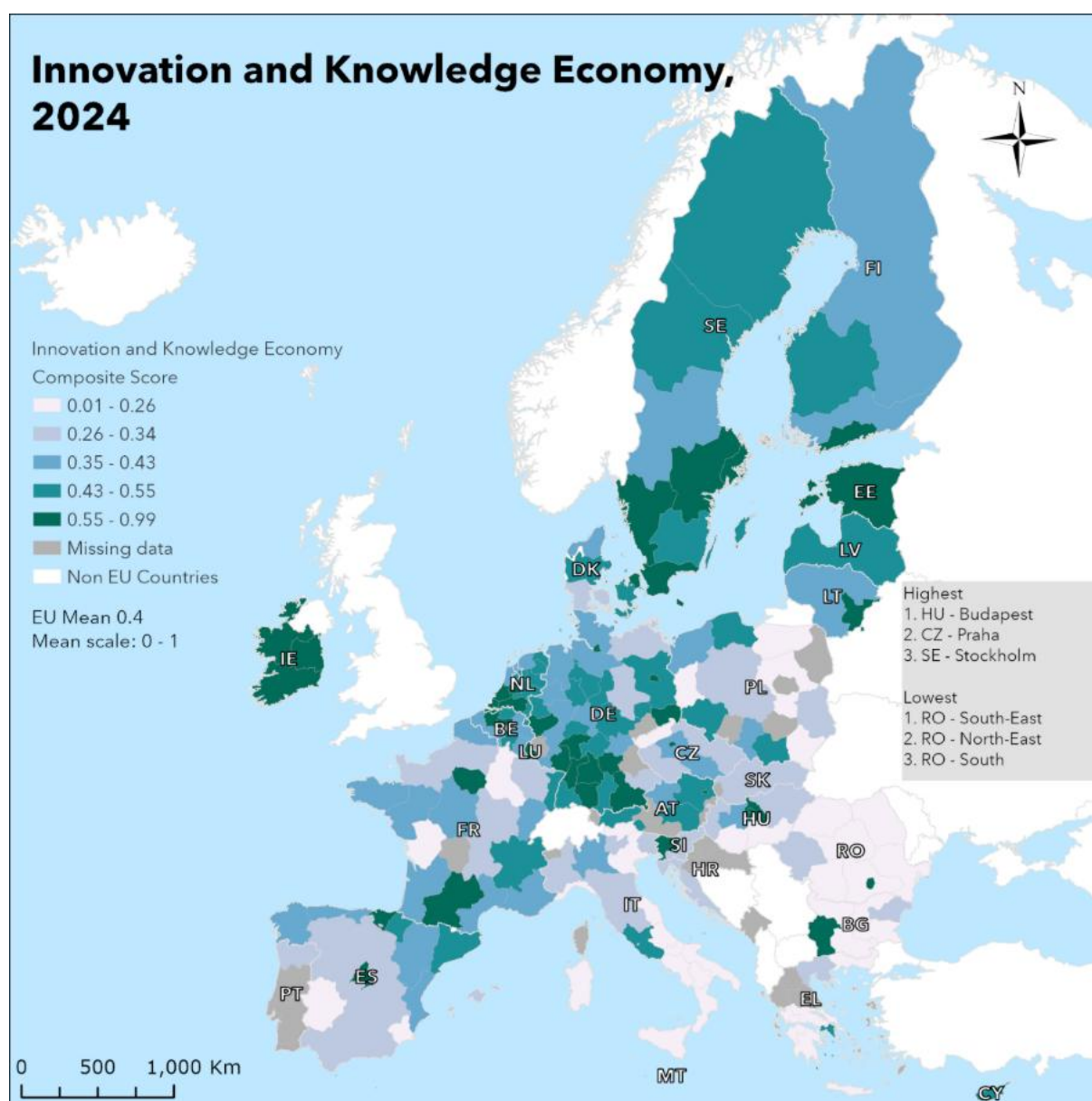




Economic prosperity at regional level (calculated based on GDP and income of households) highlights significant intra-national disparities in most of the countries. The upper quintile includes a wide range of values, to due the high polarization coming from regions that host major financial and innovation centres – Île de France - Paris, Lombardia – Milano, Oberbayern –München. The same class includes most of the capital regions in North and Western Europe and the EU urbanised core - Northern Italy, Western Germany conurbation and Randstad Holland. Lower quintiles are more frequent in the Eastern Europe, but they present too in Southern Greece, Italy, Spain, as well as in advanced economies such as Belgium, Netherlands and Sweden, where peripheral, non-metropolitan regions face economic difficulties.

The evolution of macro-geographical EU regions across the last decade is relatively stable, with a slight decrease in economic development levels in Southern and Northern Europe and a slight increase in Central and Eastern-Europe, due to Foreign Direct Investments (FDI), development of high-tech services and investments in infrastructure via cohesion policy. The same evolution analysed by Cohesion Policy category shows an even more stable pattern, especially for less developed and transition region; a slight increase in prosperity is recorded by the more developed regions. These apparently contradictory evolutions reveal the centralized growth pattern displayed by Central and Eastern European Countries, where national capitals are on the top of growth at EU level (e.g., Warsaw, Prague, Budapest, Bucharest-Ilfov, Bratislava) and represent “islands” of more developed regions, surrounded by transition and less developed regions.

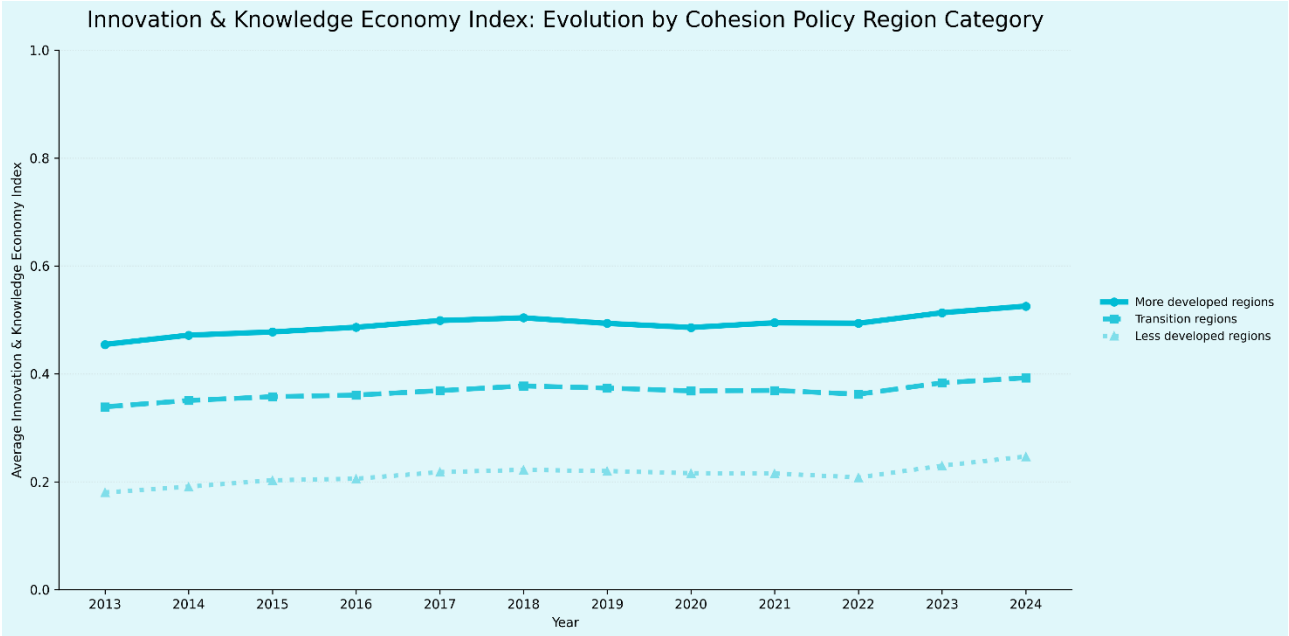
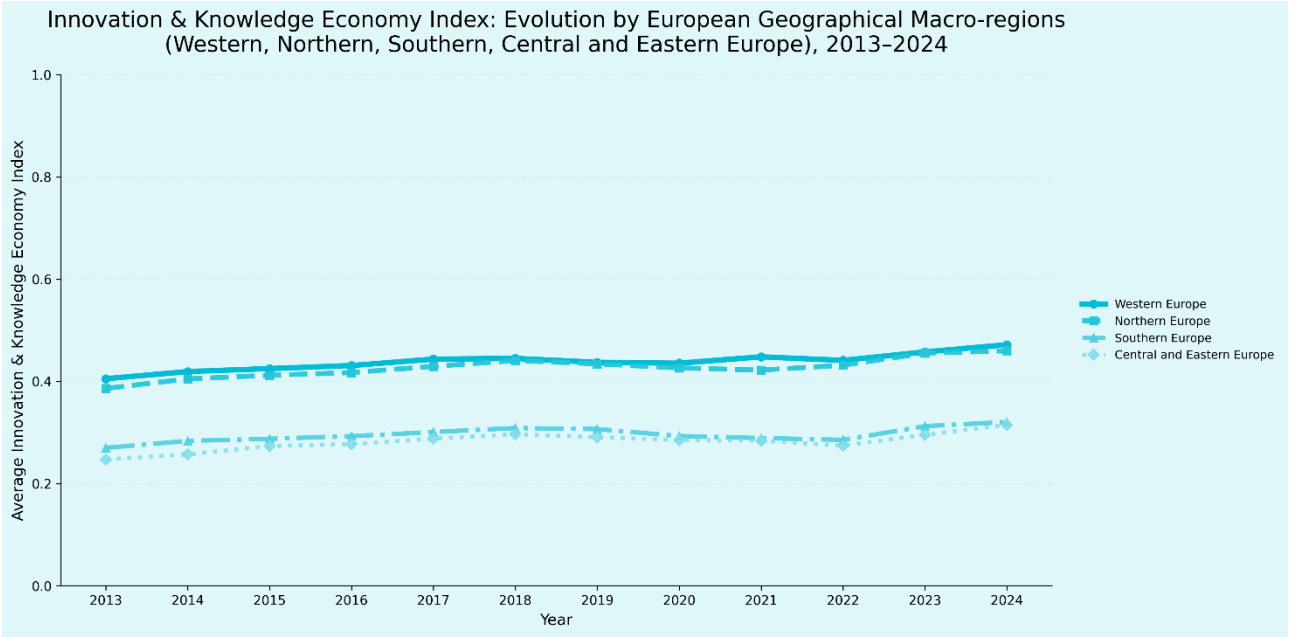


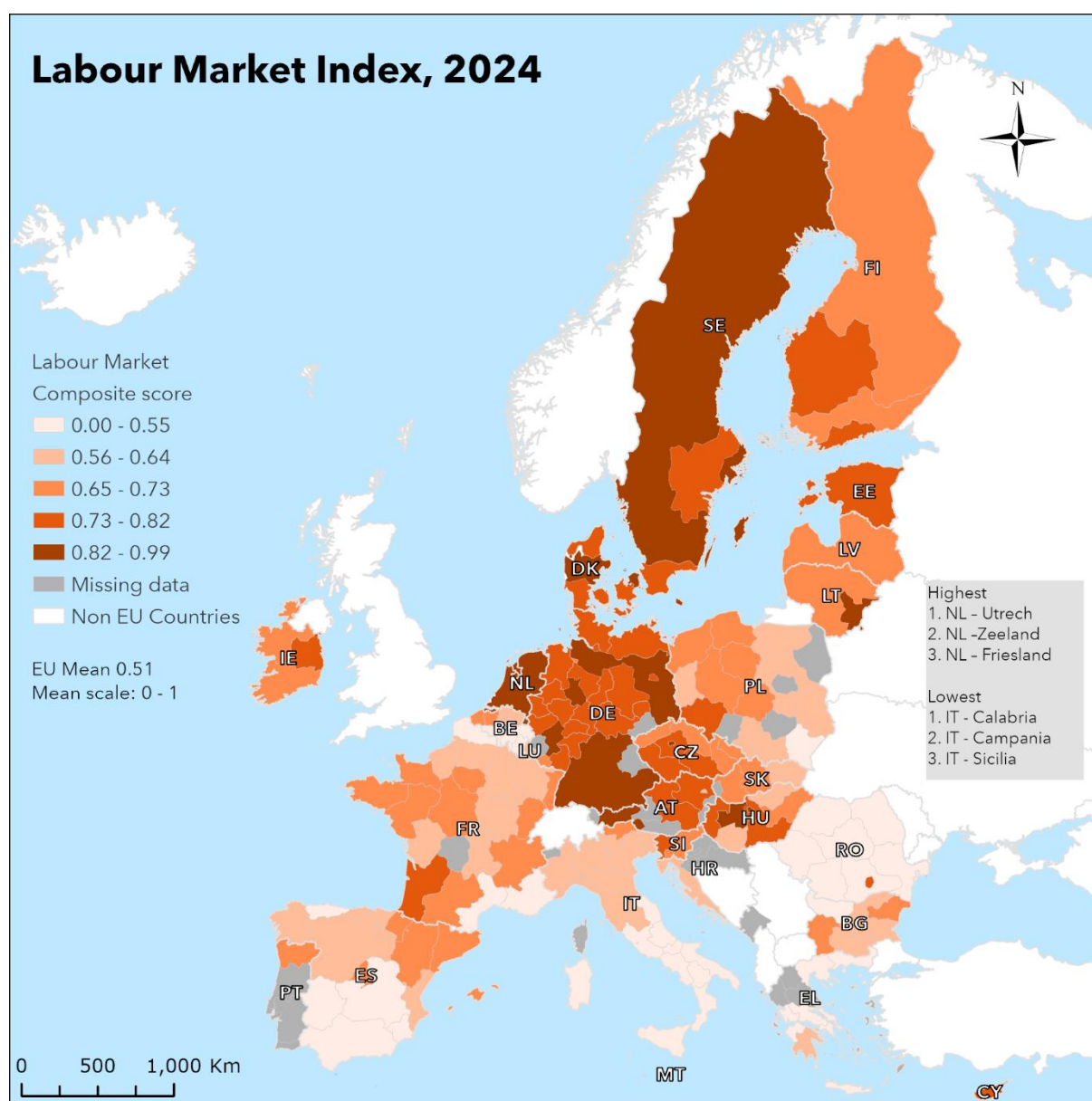


The spatial distribution of the index reflects the varying capacity of European regions to support advanced, knowledge-driven economic development. Regions in Western and Northern Europe significantly outperform most of the regions in Southern, Central and Eastern European countries. Countries such as Sweden, Belgium and Germany present a relatively high degree of internal homogeneity, reflected in a rather uniform spatial pattern of the index, with high or at least medium values across most of their regions. In contrast, Romania, Poland, Bulgaria or Italy display a highly concentrated spatial pattern of the index, where above-average values are largely confined to one or two strongly urbanized regions, while all other regions record considerably lower levels, highlighting significant regional disparities in terms of innovation and knowledge-based development, as well as regarding the overall economic development.

The top-performing regions benefit from strong university and research systems, diversified high-technology industries and substantial investment in education and research. Sweden, for instance, has in recent years been widely regarded as strongly oriented toward a knowledge-based economy, characterized by sustained investment in R&D and a strong emphasis on collaboration between academia, industry and government.

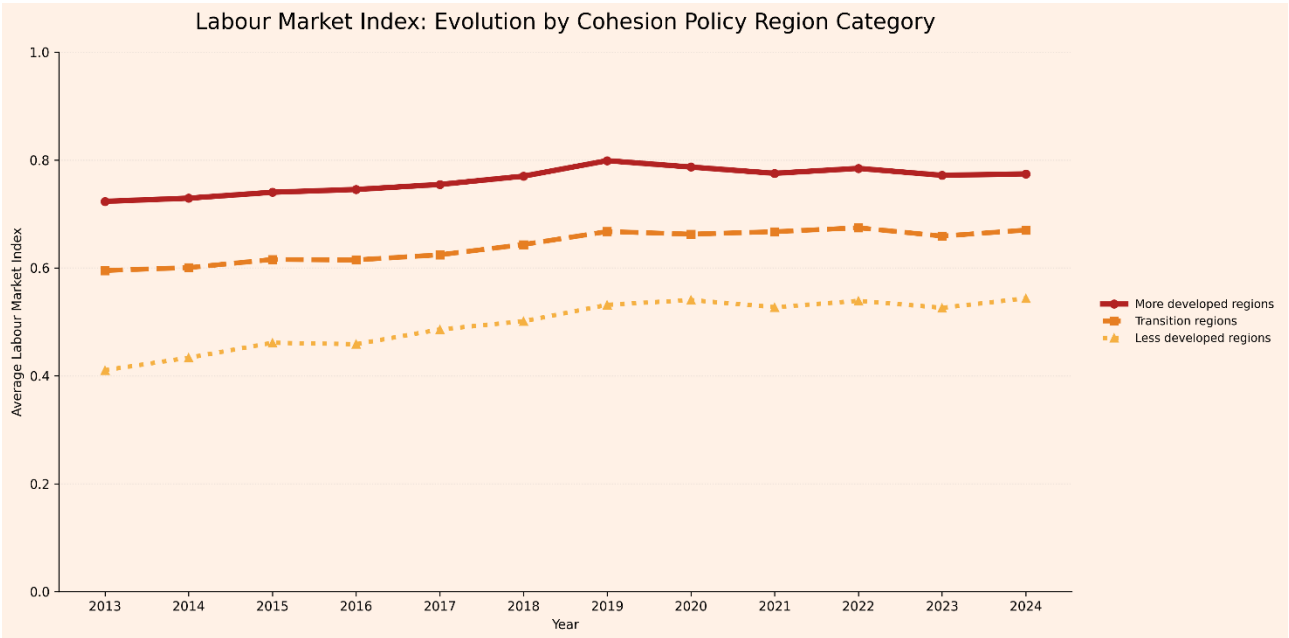
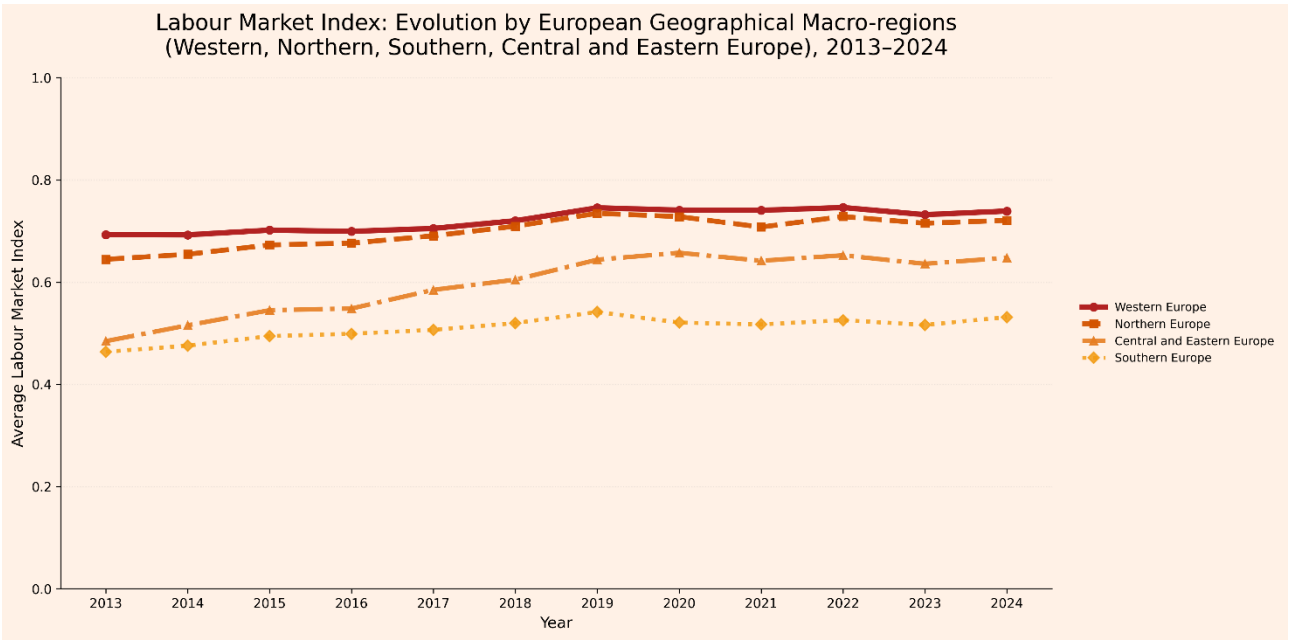
At the opposite end of the spectrum, regions characterized by low levels of innovation and knowledge economic activity are naturally located among the less developed areas of the EU. Although they have experienced growth over the last decade, this progress remains modest and they still lag significantly behind more developed or transition regions.

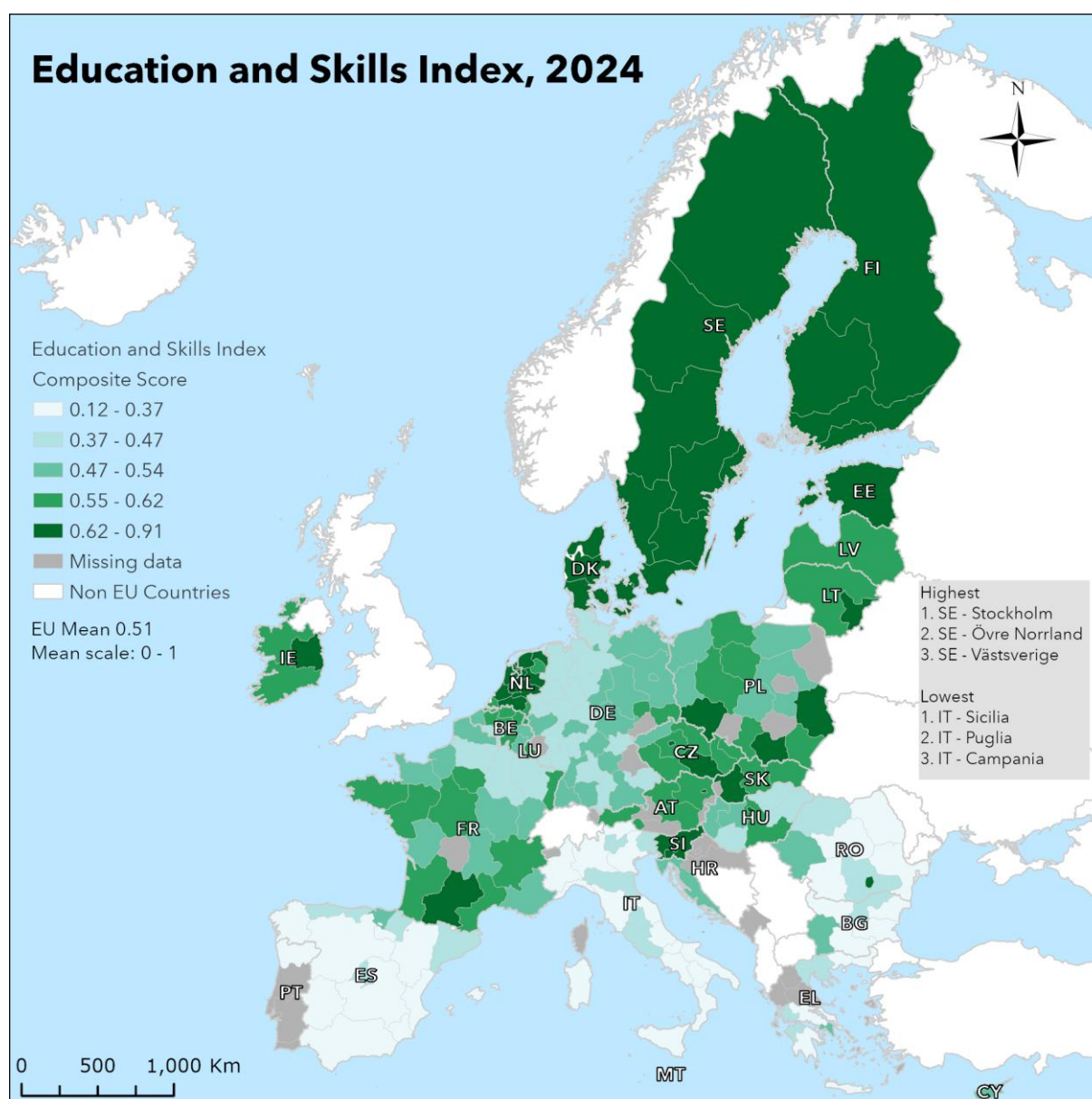




The labour market is based on employment and labour force participation rate. The spatial pattern is heterogeneous at EU level, while at national level there is a diversity of situations. Northern Europe, Germany and Netherlands concentrate high values, with reduced inequalities between regions, due to their effective policies at national level: active labour market policies and universal childcare, resulting in high women participation rate in Nordic countries; flexible approach with part time contracts in the Netherlands and high share of stable manufacturing companies uniformly distributed across the country, accompanied by appropriate vocational training in dual education system, leading to increased youth employment in Germany. The opposite case is in Romania, where all regions (excepting the capital region) have a poor performance, due to the lack of labour policies devoted to youth employment or re-skilling more experienced workers affected by deindustrialization and digitalization and to an important share of informal economy. Southern European regions belong to the lowest quintile too, gathering non-resilient Greek regions weakened by the debt crisis, poor and informal-economy based regions in south Italy or French Riviera, which has a high share of financial elites and retired people in local population.

Despite this North-South divide which persists, the evolution of the last decade is significant and positive for Central and Eastern Europe and for the less developed regions (many situated in Central and Eastern Europe too). However, the evolution for all regions is steadier after 2019, due to the pandemics and increased effects of digitalization.

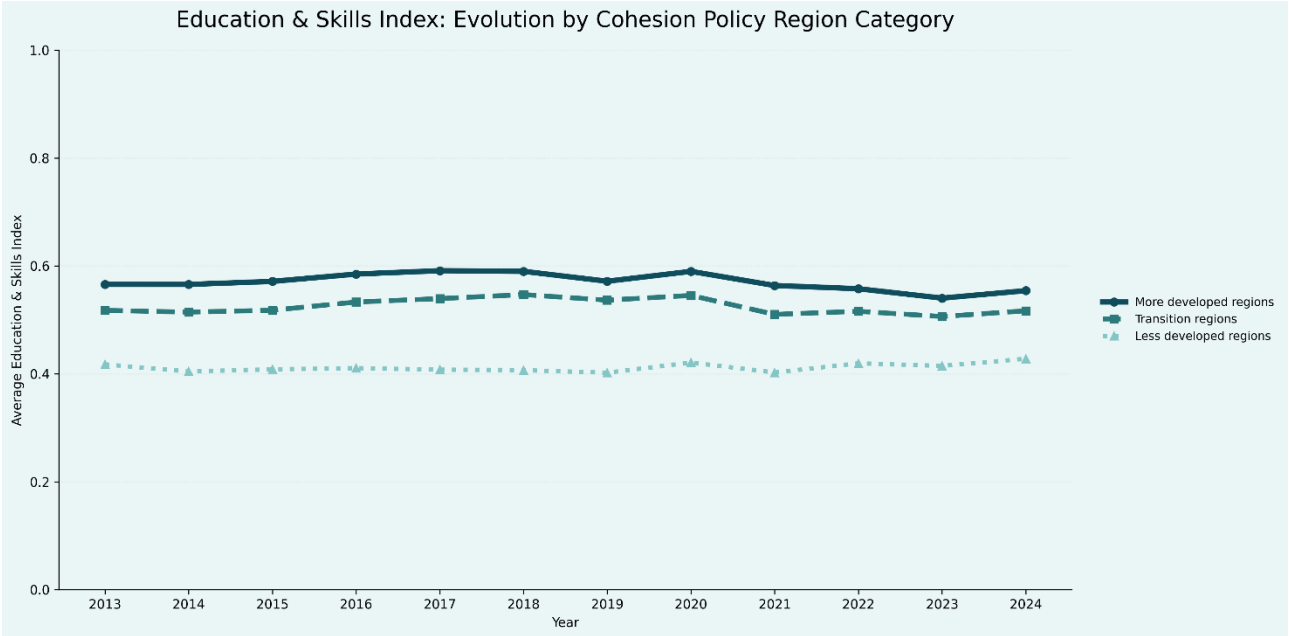
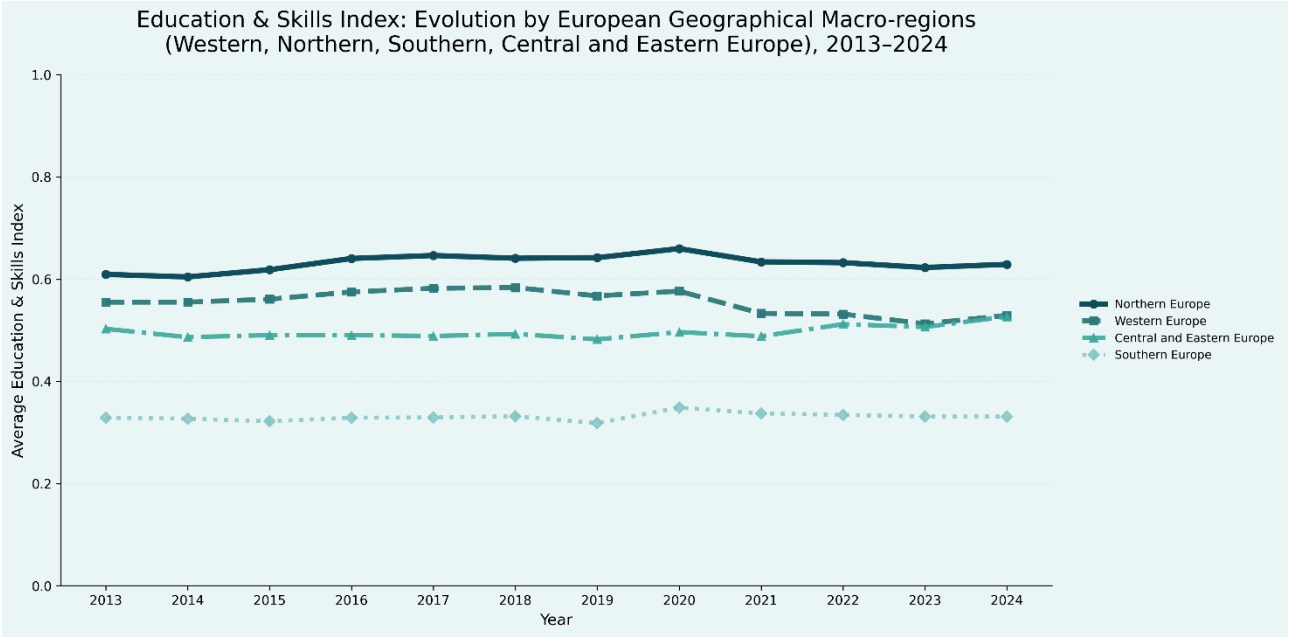


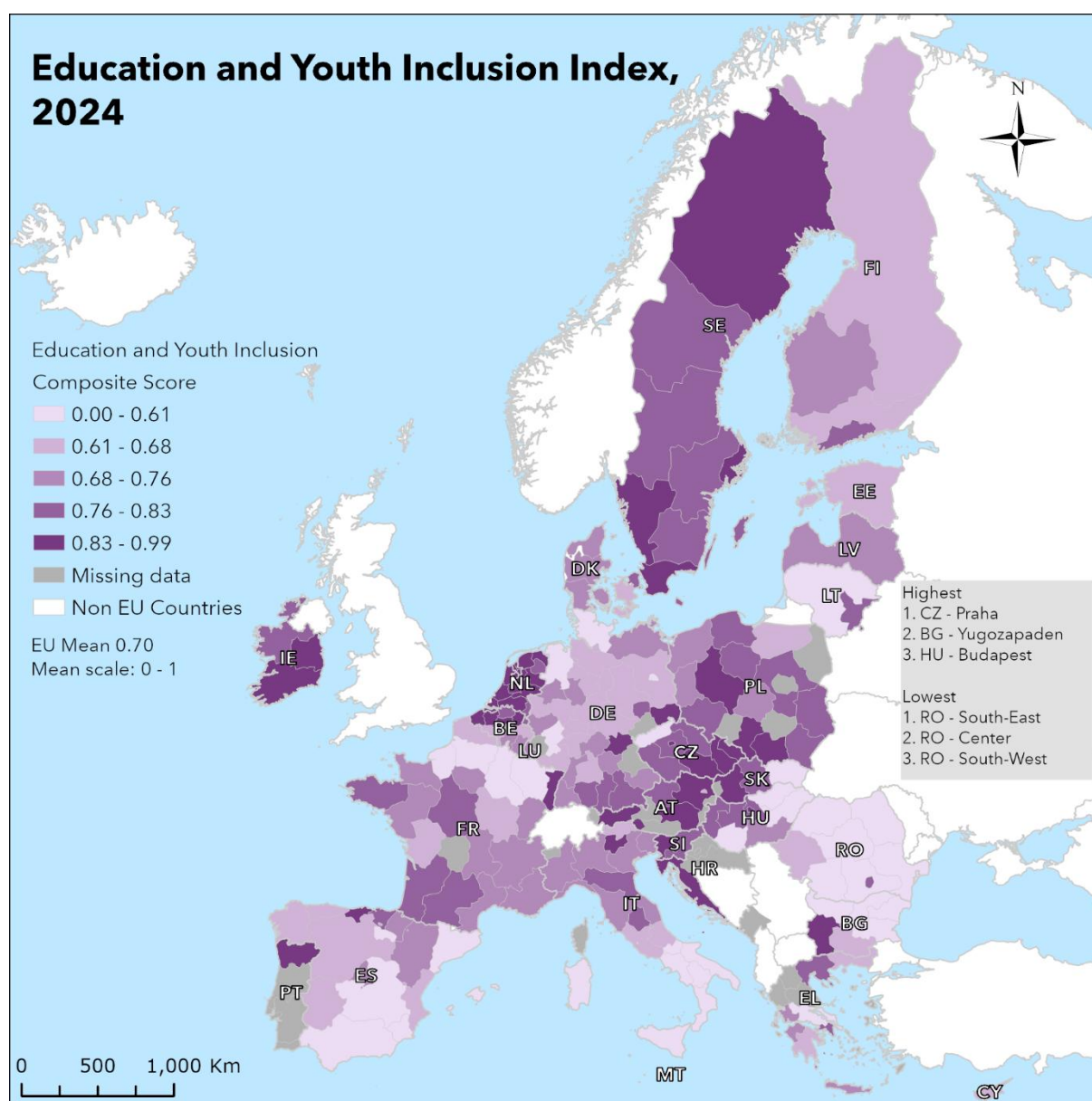


The Education and Skills Index measures regional human capital by combining participation in education and training with the share of the population holding at least upper secondary education. An evident North-South divide is visible on the map, with the highest values corresponding to regions in Northern Europe, which stand out clearly from the rest of the continent, particularly from Southern Europe.

The top-performing regions, located in the Netherlands, Sweden, Finland, are characterized by highly developed educational systems and a strong culture of continuous skill development. It is notable that for the mentioned countries, all regions belong to this category, indicating a high degree of territorial cohesion in education and skills development. Other countries, such as France, Ireland, and Poland, also display regions with high values of the index, although these are generally concentrated in a limited number of regions, or, as is the case of Romania, they are restricted to a single region.

Southern Europe, especially through the case of Italy, and Eastern Europe, through Romania and Bulgaria, stand out due to the spatial concentration of regions with extremely low values. These values reflect lower levels of educational attainment and limited participation in training. The stagnating trend observed in Southern Europe over the last decade indicates the lack of effective policy measures. Although the values in regions from Western Europe are considerably higher than previously discussed cases, recent trends can raise some concerns for this area too, since a mild decline can be observed over the last four years.

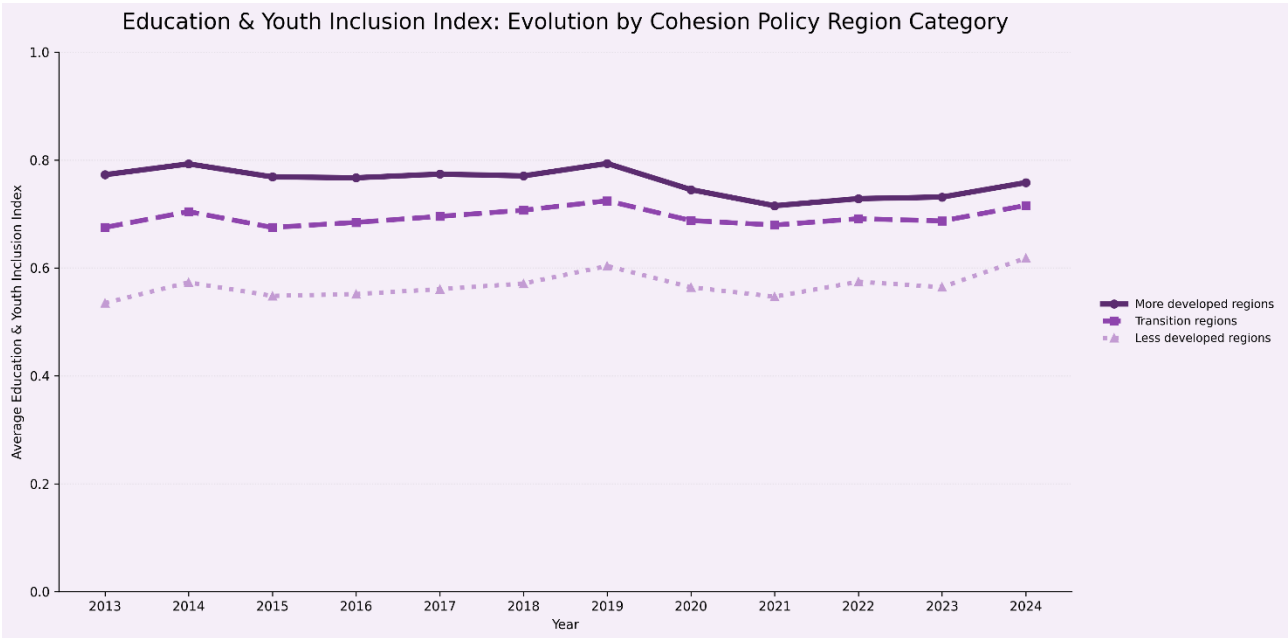
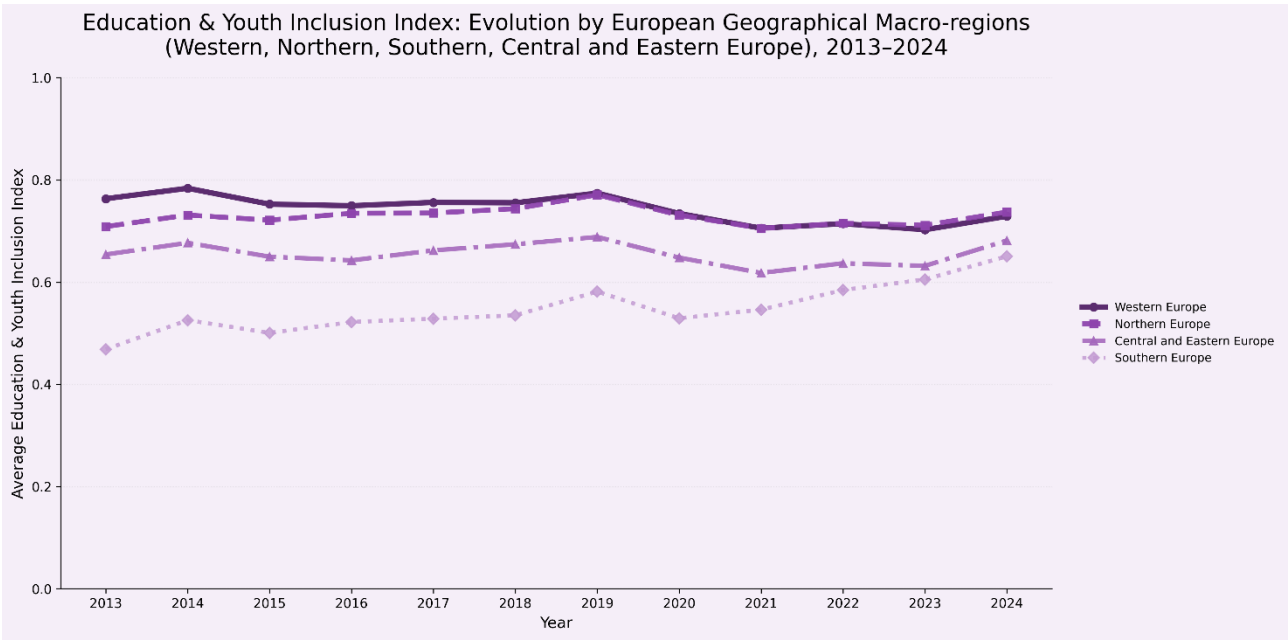




The Education and Youth Inclusion Index exhibits a spatially heterogeneous distribution across the European Union, reflecting pronounced regional disparities. However, recent trends suggest a partial convergence of regions across the European Union, driven by a slight decline followed by stagnation in Western and Northern Europe simultaneously with improvements in Southern, Central, and Eastern European regions.

Spatial concentration patterns can still be noticed, particularly with the highest values clustered in regions of the Netherlands, the Czech Republic and Sweden, while the lowest values are predominantly found in Romania and in southern parts of Spain and Italy. Notably, 7 out of 8 regions in both the Czech Republic and Sweden record above EU-average values, highlighting the absence of internal disparities in these countries. In contrast, only one region in Romania and 3 out of 17 regions in Spain exceed the EU average, underlining pronounced intra-national inequalities in these cases.

Unsurprisingly, economically less developed regions also tend to underperform in this respect, reflecting the close link between lower levels of economic development, weaker educational attainment, and more limited opportunities for youth participation in education, training, and the labour market.



4

At the roots of well-being. Key indicators at regional level

Ema Corodescu-Roşca, Bogdan-Constantin Ibănescu, Lucian Roşu & Daniela-Andreia Damian

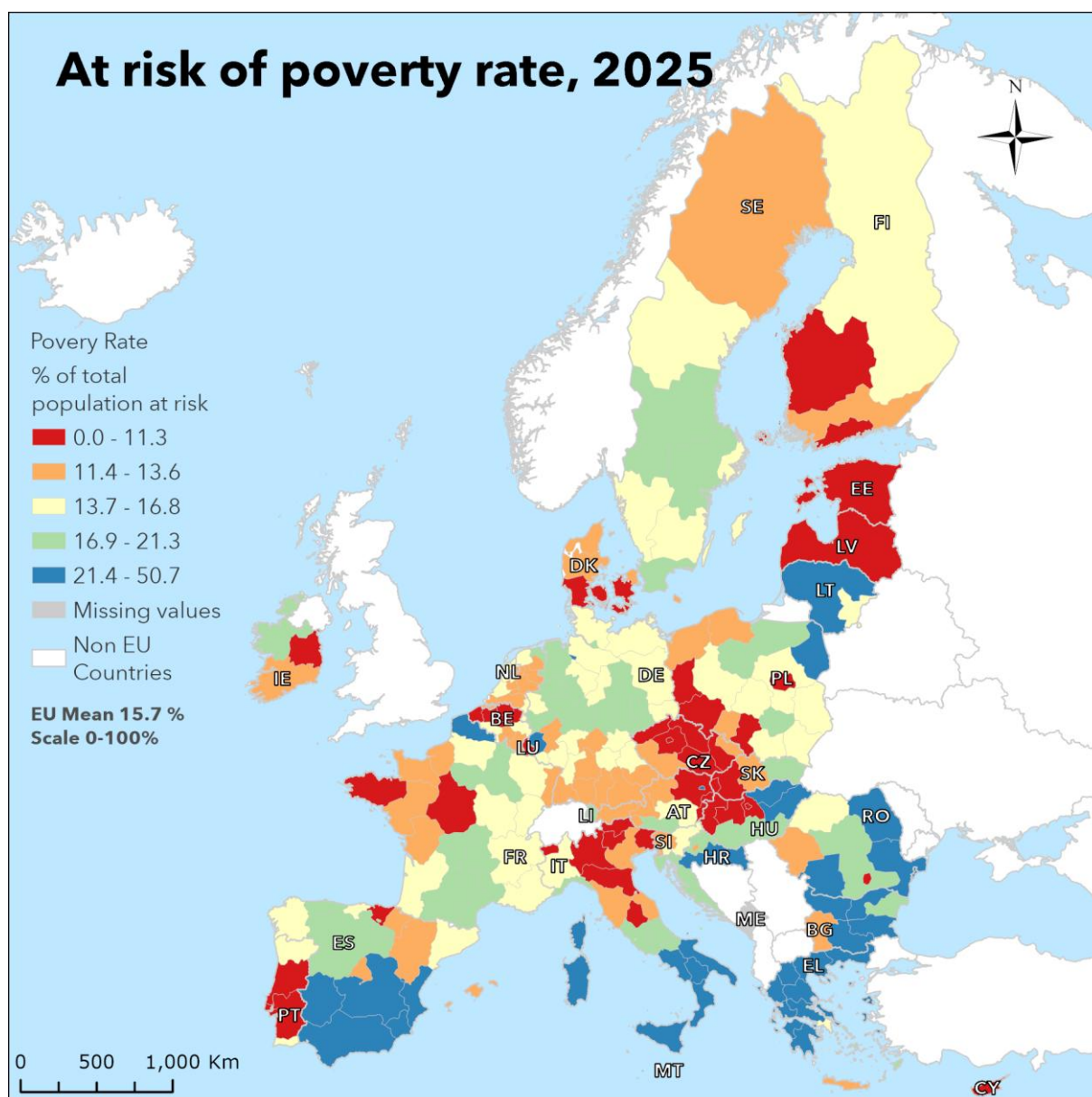
This chapter offers additional insights into well-being indicators at NUTS-2 level, where multi-annual data is not available across the EU.

It includes a map collection with **key indicators** referring to aspects that often lacks from the classical statistics: **economic inequality and different dimensions of subjective (perceived well-being)**.

The first indicator – At risk of poverty rate – indicates economic inequality at regional level, compared to national median. It offers a full picture of intra-country inequalities, focusing on the immediate context of each region, rather than on an EU benchmark.

The second indicator – Inability to face unexpected financial expenses – is a subjective indicator, highlighting perceptions upon the personal financial condition.

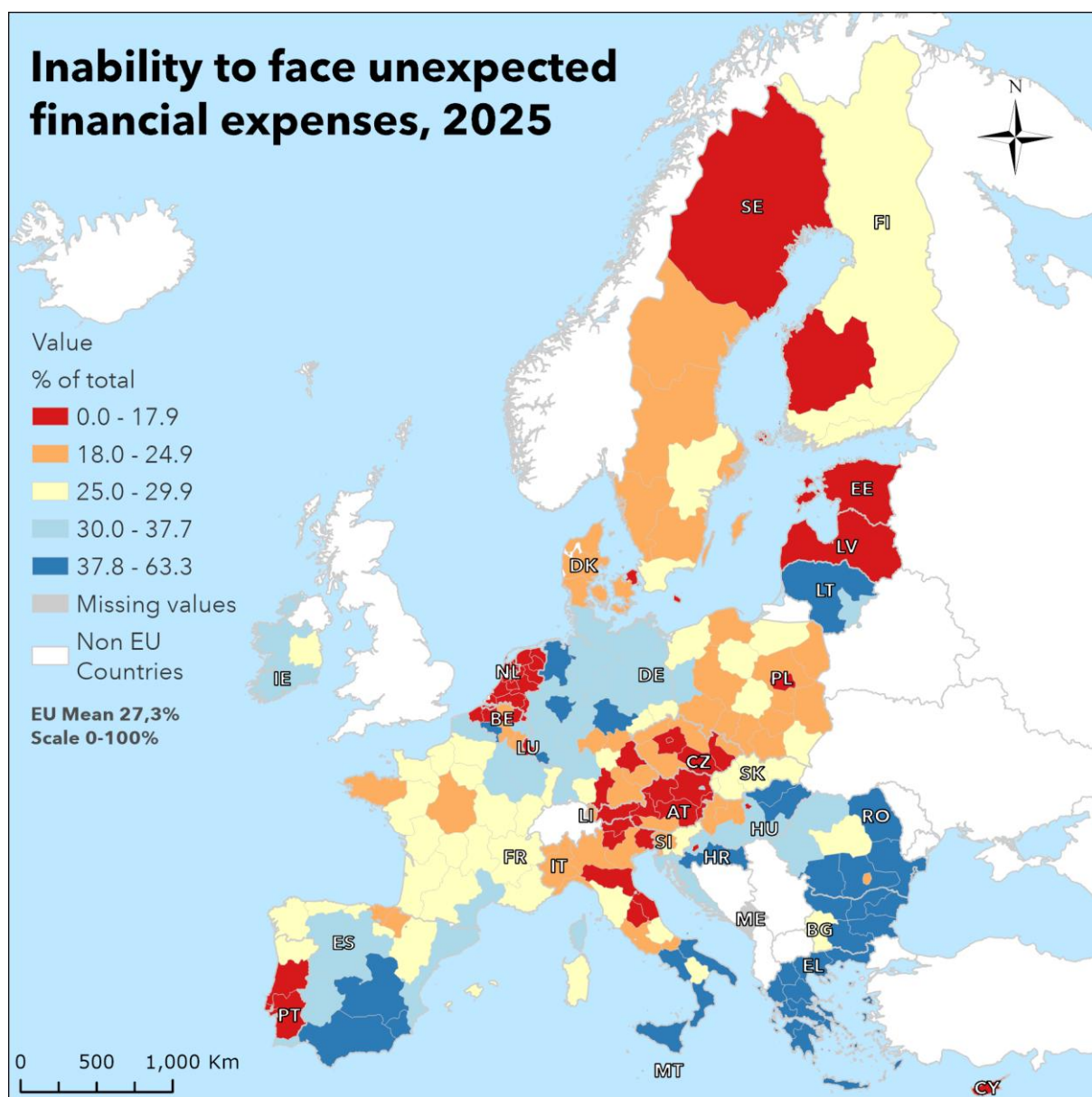
While these two indicators are provided by Eurostat and ensure a full coverage of the EU regions, the following four indicators are available for only a sample of regions, as they are provided by the European Social Survey (ESS). This cross-national survey is conducted across the EU every two years since 2002 and covers various themes. For this atlas section, four indicators focusing on perceived well-being from Round 11 (2023-2024) were chosen for mapping: general happiness, health condition, social life and local safety.



The at-risk-of-poverty rate indicator is highly relevant for mapping well-being, as it expresses rather the level of income inequality within the country, rather than absolute standard of living.

Overall, the map displays a patchwork of high and low values, each country generating its own spatial pattern.

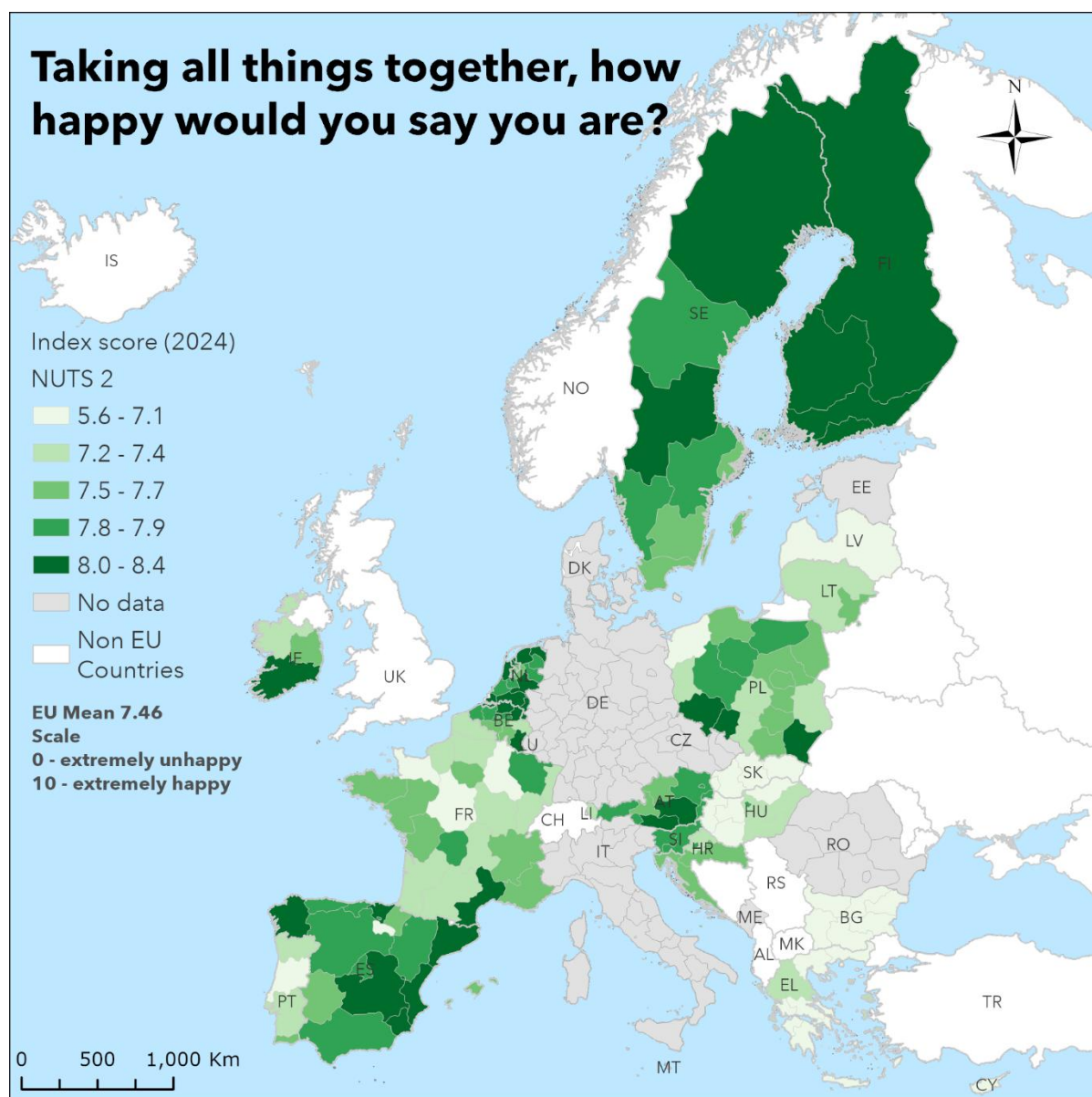
Some countries display a high level of inter-regional homogeneity: Czechia, Slovakia or Slovenia - at low levels of poverty risk or Greece and Bulgaria - at high levels of poverty risk. Other countries face significant faultlines of internal divergence: the industrialized North of Italy vs. the southern Mezzogiorno (Campania, Sicily, Calabria), a pattern reproduced in Spain too; the South, innovative German lands of Bayern and Baden-Wurtemberg vs. the central-north lands with less innovation and economic growth. Nordic countries also display heterogeneous values, but this is related to their high median income which leaves many regions behind the 60% threshold. Nevertheless, the absolute standard of living is high in these countries, due to a powerful welfare state that goes beyond the net income. Also, the capital-regions display different behaviours across countries – while in Central and Eastern European Countries they represent islands of prosperity, growth and job availability, the situation is more heterogeneous in Western Economies, where capitals host sharp education-skills and economic inter-personal inequalities.



This map shows the financial resilience of people, reflecting the capacity to cope with unexpected financial - a more subjective measure related to individual standard of living and expectations combined with the cost of living in different parts of Europe.

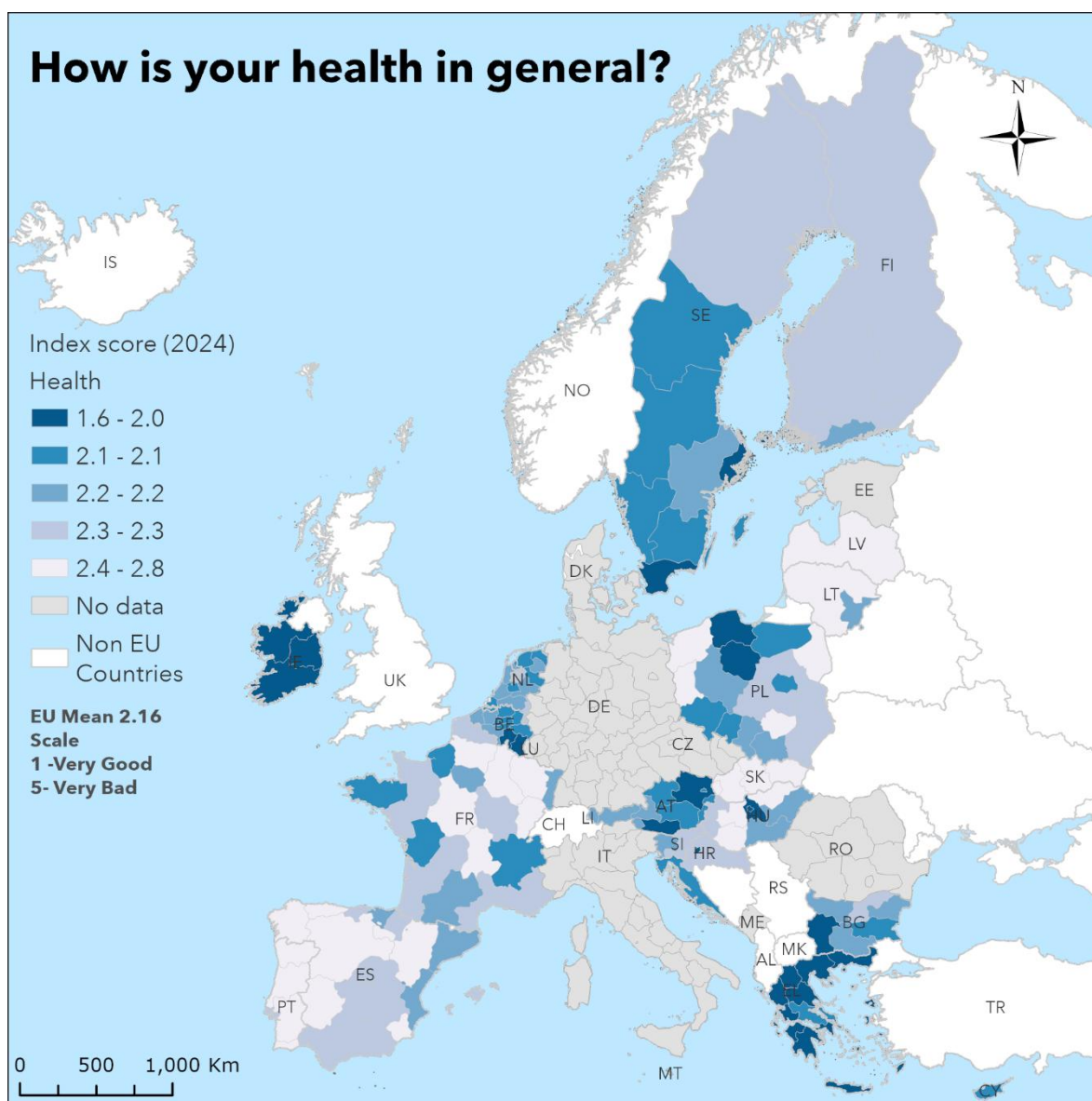
The strongest personal safety nets are concentrated in the central part of Europe – Slovenia, Slovakia, Austria, Czechia, with extensions in Northern Italy, Poland, Latvia and Estonia. In this countries, economic growth seems to have been successfully translated into individual economic welfare, but it may also express a certain cultural pattern of focusing on saving rather on expending in a context of rising incomes. Netherlands, Belgium and Luxemburg are economically powerful countries with a strong capitalist culture of accumulation.

On the contrary, the maps display some extended blue patches of regions where above 30% of people cannot afford unexpected financial expenses: an eastern cluster, including the regions from Croatia, Hungary, Romania, Bulgaria, Greece and Latvia, the Italian Mezzogiorno, but also the largest part of Germany (excepting some regions in Bayern land), Spain and several French regions. These traditional Europe economic engines are confronted with increased inequalities in living standard across regions, creating socio-spatial divides.



The subjective dimension of perceived happiness represents, in all cases, a strong indicator of well-being. Despite missing values for several countries, the map, disaggregated at NUTS 2 level, provides an interesting point of discussion. There is no visible North-South or East-West divergence, but rather a core-periphery split. In this case, however, peripheral areas seem to have the upper hand. Countries such as Sweden, Finland, and Poland display unusually high values in the peripheral regions of their respective territories. For this particular aspect, it is worth taking the map with a pinch of salt. First, the indicator measures happiness, not welfare or well-being, meaning that it is less related to objective sub-variables and more strongly connected to subjective sub-variables. Second, happiness is among the most volatile measures, with variations from one day to another, as well as across different contexts. While this does not mean, in any case, that happiness should be disregarded as a valid indicator, on the contrary, we firmly believe that happiness is an integral part of the well-being equation, it is only a brief reminder that happiness by itself, in a vacuum, can produce territorial patterns that do not necessarily correspond to classical or expected spatial images.

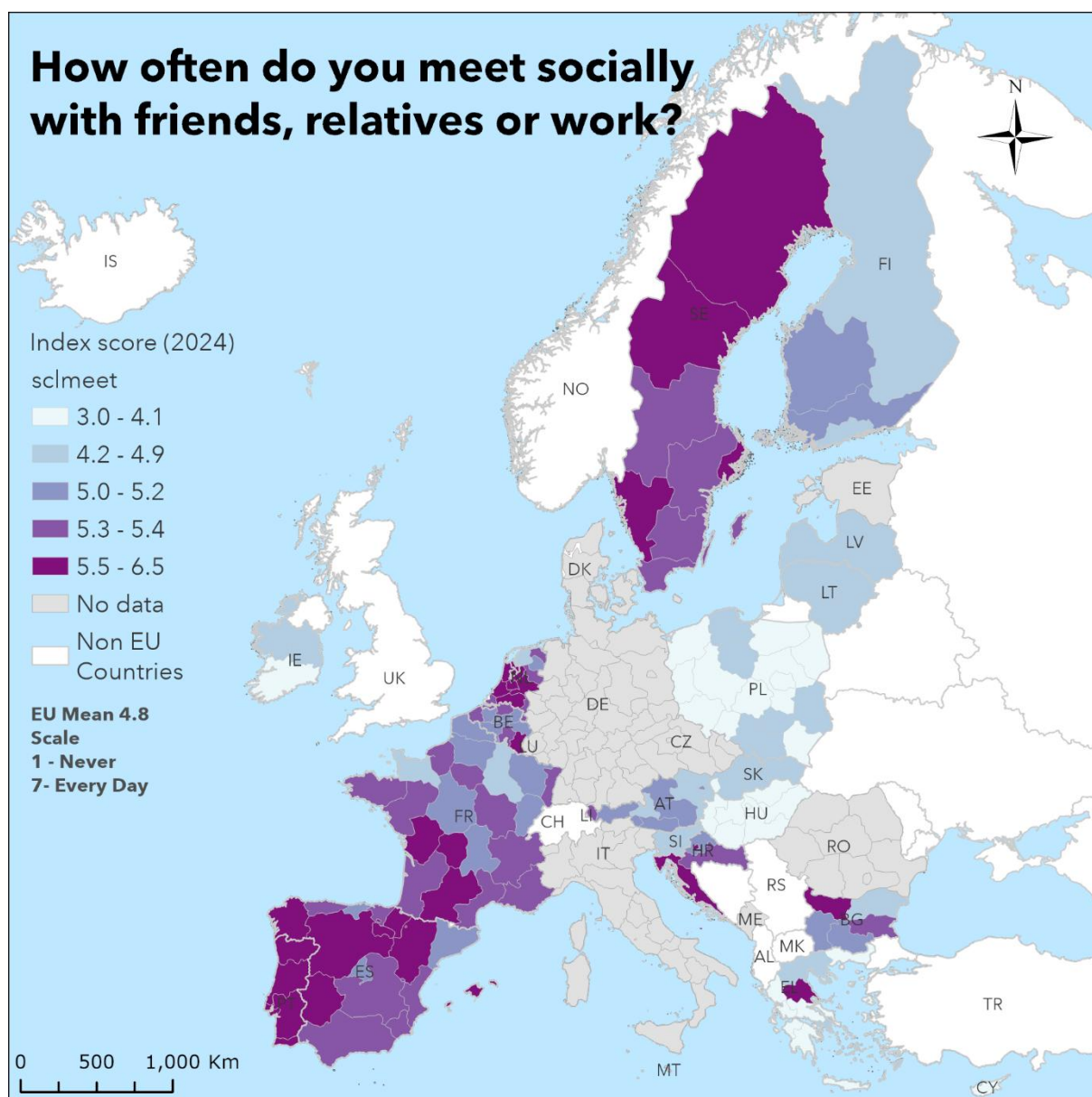
In this case, the higher values recorded in peripheral regions can be seen both as an unusual territorial image and as the reflection of hidden factors that shape a felt and lived experience. Taken together with the previous map, regions such as Murcia or Castilla-La Mancha appear as regions with lower scores regarding the inability to face unexpected financial expenses, but still high scores of perceived happiness. This further illustrates the distinctive nature of the happiness indicator.



The perceived level of health, on the other hand, tells a more territorially dependent story. While it remains influenced by the subjective way in which individuals perceive their own health, which may reflect certain local overestimations, it is also shaped by access to health services. Where such services are available, people can check their health status, treat health issues, and be more optimistic about their chances of resolving them. Conversely, in regions with a less dense network of doctors, health personnel, or practitioners, health issues may persist, as individuals have limited options for addressing them.

The territorial advantages linked to centrality and access to health services are particularly visible in countries such as Bulgaria, where Yugozapaden, the most populated region and the one containing the capital city of Sofia, records lower scores, which in this case indicate more positive perceptions of one's own health. A similar pattern can be observed in Sweden, where the more urbanised southern regions also display better perceptions, as well as in the Warsaw metropolitan area in Poland. Of course, rural-urban differences represent a different, and perhaps even more interesting, story. Nevertheless, even at NUTS 2 level, the discrepancies reveal a perceived health status that is highly dependent on existing services and territorial resources.

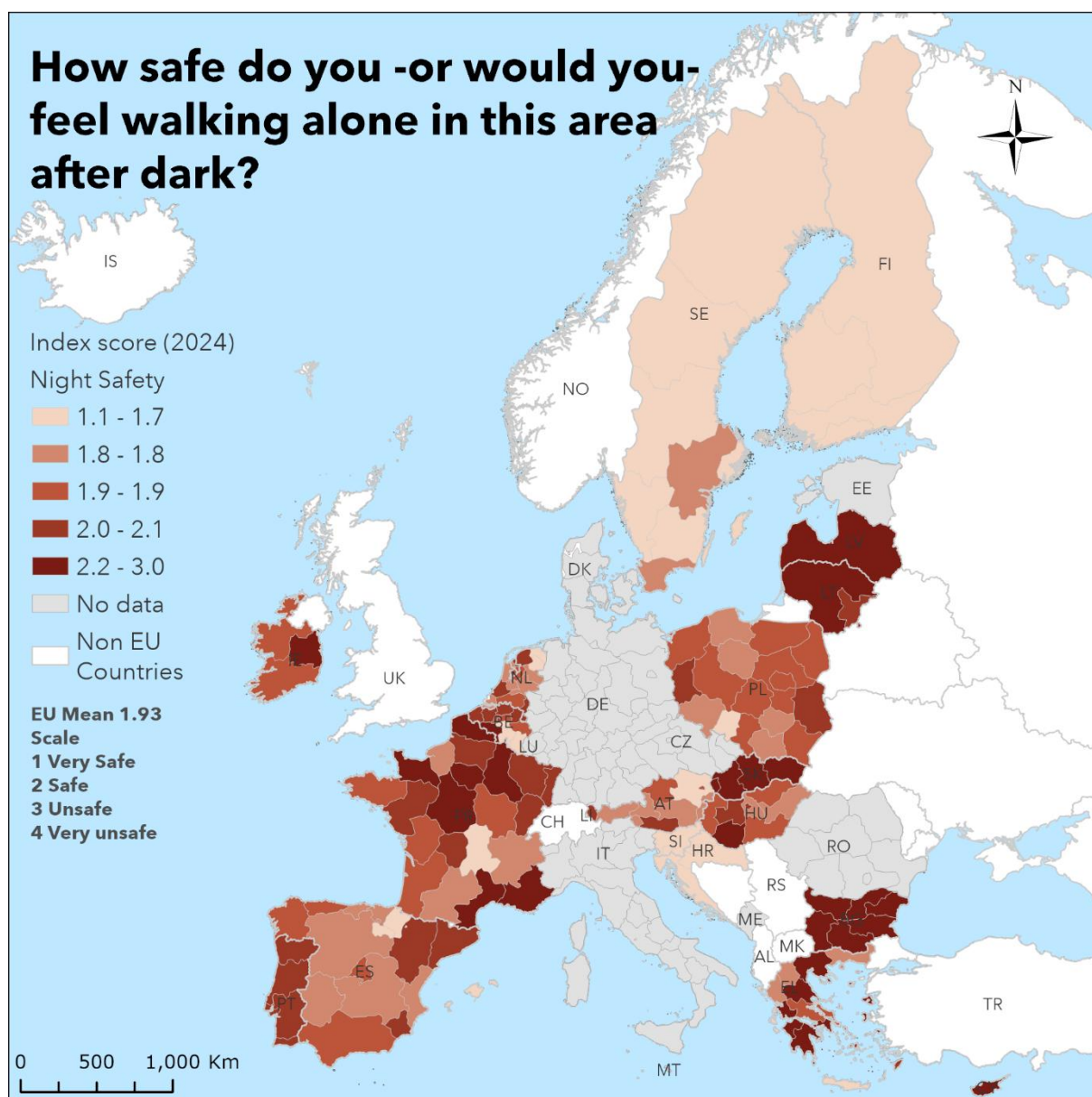
One should also take into consideration that perceived health is an indicator reported through comparison. People answer while comparing their own perceived health with that of the people around them. Therefore, it is also an indicator of how individuals perceive their own health and access to health services within their own community, rather than in comparison with all other inhabitants of the European Union.



The social dimension and the connection with the community represent aspects that, until recently, were frequently overlooked in the well-being equation. Despite missing values, which would complete the picture, especially for the Mediterranean basin through the inclusion of Italy, and for Central Europe through the inclusion of Germany, Czechia, and Denmark, the map shows two distinct aspects.

The first is related to deep cultural values, where social contact, going out with friends, and spending time with family represent central components of individual and collective life or not. We can observe, for instance, how Finland displays a discordant pattern compared with its neighbour, Sweden, or how France shows a North-East to South-West gradient of sociability.

The second reality is more subtle. It reveals a difference between former socialist countries and the rest of Europe. While some higher values can be observed, almost exclusively in the southern part of Europe, most former socialist territories are placed in the first lower quintiles. This is a deeply historically rooted reality. In these countries, social connections and community bonds were profoundly affected by the oppressive nature of communist regimes. The social scars of half a century of communism are visible in lower scores related to social interactions, as well as in lower confidence and trust in communities, social groups, friends, and families.



Perceived safety in the neighbourhood is another subjective and often overlooked, but highly important, variable of well-being. Overall, while the scale ranges from 1 to 4, the maximum average reported values reach only 3, which is encouraging from an overall perspective on the European Union territory.

In Eastern European countries, the feeling tends to be generalised, which points rather to a broadly low level of perceived safety. In some cases, this may go hand in hand with trust in local safety and security services, the police, and related institutions. Countries such as Slovakia and Bulgaria display uniformly high values.

In Western European countries, higher levels of perceived unsafety usually emerge in highly urbanised areas, where the banlieues of large cities or inflows of migrants may be perceived as security risks. This tendency is visible in Sweden, Spain, France, and even Ireland, with lower perceived safety values in capital regions or regions dominated by large cities.

The map seems to suggest that large metropolitan areas do not always manage to project a feeling of security for their inhabitants, and that residents of more rural or peripheral regions may have a certain territorial advantage. However, without a more granular interpretation, this aspect remains open to further analysis.

5

Sub-national Spatial Patterns of Well-being

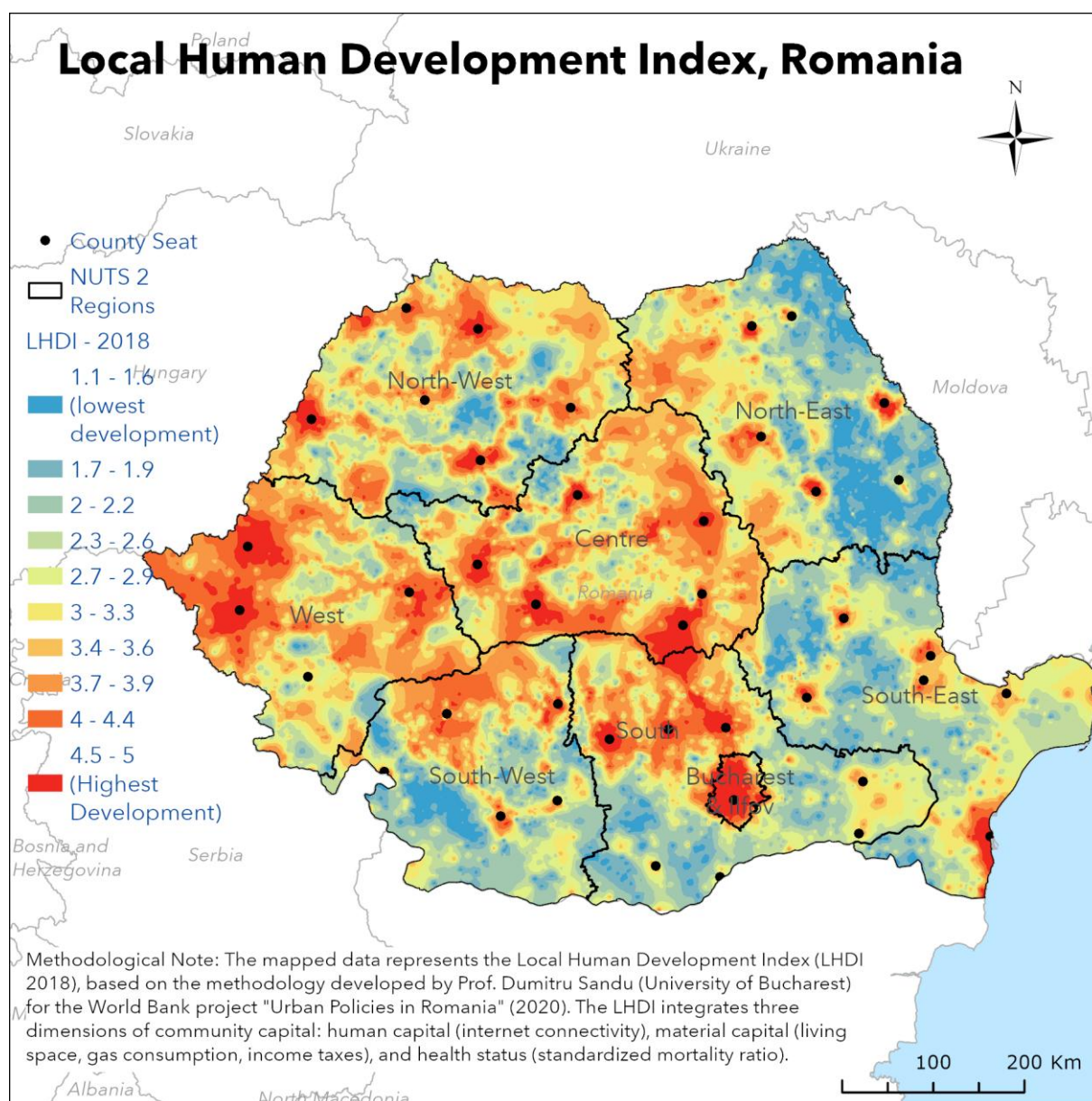
This chapter zooms into spatial patterns of well-being at local, county and regional level in Romania.

It includes two case studies. The first one reflects the objective dimension of well-being, via Local Human Development Index (LHDI) developed by Dumitru Sandu for Romanian LAU2 units. It is based upon three dimensions of the community level capital: human capital, material capital and health status. The second case study presents some results of the survey developed under the SAGES project, focusing on inter-regional, urban-rural and gender inequalities on subjective well-being.

Taken together, these case studies provide strong evidence for designing regional and local policies, taking into consideration spatial inequalities that are invisible at the regional and national scale.

5.1. Local Human Development Index in Romania – hot spots and urban-rural divide

Lucian Roșu & Ema Corodescu-Roșca

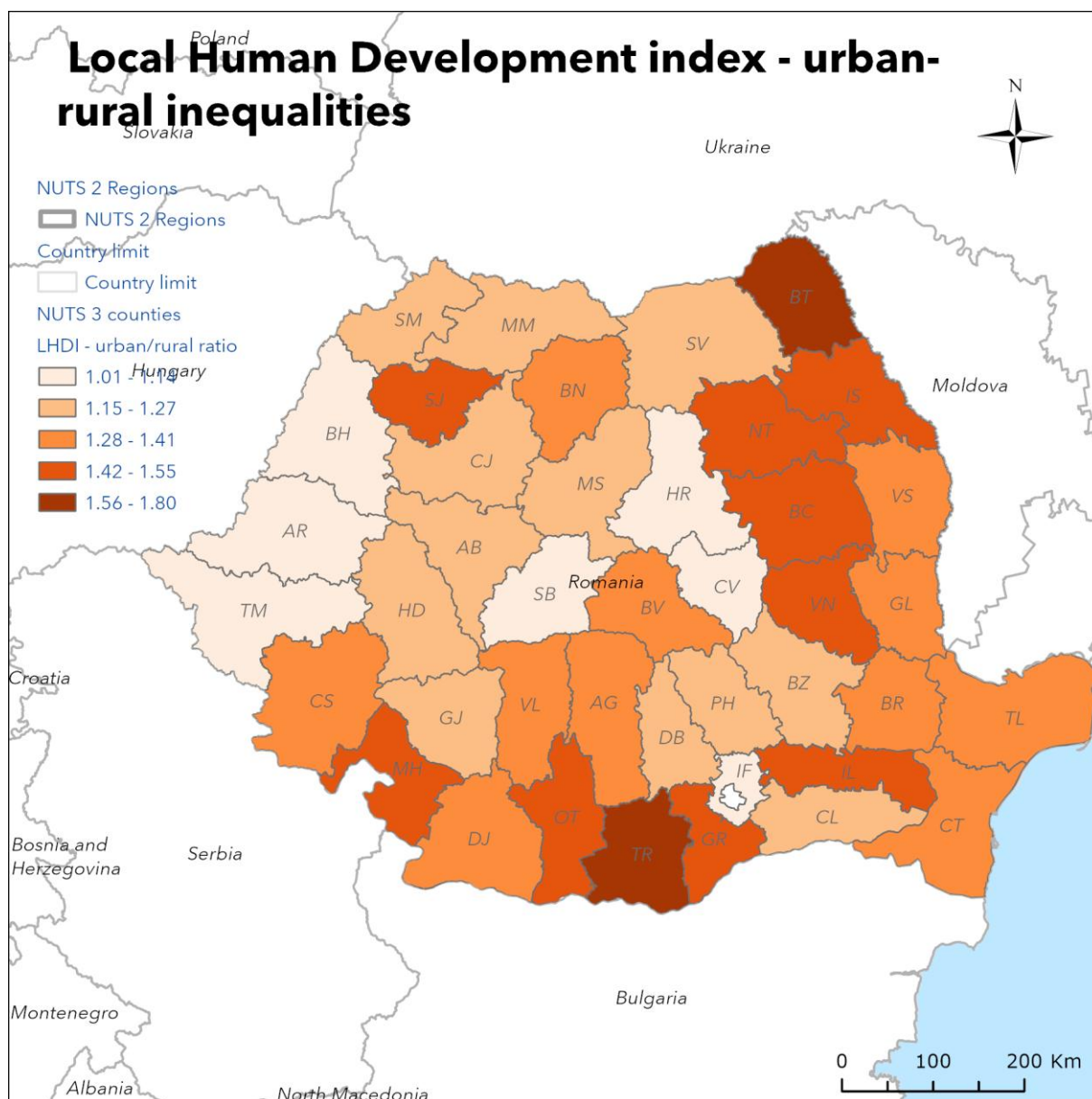


The Local Human Development Index (LDHI) developed by prof. Dumitru Sandu (Sandu, 2020) is the most comprehensive endeavour in measuring objective well-being at a fine-grained level in Romania – locally.

The map of 2018 LHDI illustrates a sharp divide between East and West parts of the country, with the highest values concentrated in West, North-East and Centre Region and in the capital region Bucuresti-Ilfov.

The patches of comprehensive development (dark red) overlap the most important urban centres at national level, while almost all county seats create hot-spots of local development. Exceptions are recorded in the South region of Romania, where Alexandria, Giurgiu, Călărași and Slobozia record the lowest values among the country seats. A notable inter-regional difference refers to the size of spillover effect around the important urban centres: while the West, Nord-West, Centre, northern parts of South-East and South regions and western part of Nord-East region display large, interconnected areas of high local development, in the south of eastern parts of Romania, the local development rather

percolates into the urban centres, which have poor capacity to influence surrounding rural areas. Extended areas of sub-development occur in South-West, South, South-East and North-East region. This difference in spatial configuration can be explained by the historical and cultural differences between Transylvania and extra-Carpathian Romania which created significant cumulative causation advantages for Transylvania, but also by the high difference in connectivity. The ongoing projects for building motor-ways in eastern part of Romania may contribute to increase in development spill-overs around cities and towns.



The urban/rural ratio of LHDI by county, illustrates these inequalities in polarization capacities at NUTS3 administrative levels. The highest urban-rural development inequalities are recorded in Teleorman and Botoșani counties, which are less developed overall and predominately agrarian. Nevertheless, high urban-rural inequalities are also exhibited by a heterogeneous group of counties, including other agrarian counties (ex. Mehedinți, Olt, Giurgiu, Ialomița etc.), but also more developed counties, such as Bacău or Iași, where local development is highly concentrated in the county seat. The pair of two maps can support national and local policies to propose place-based solutions focused on increasing local-development in specific communities, but also on insuring polarization capacity of the most developed towns and cities for the neighbouring zones.

5.2. A deep dive into regional variation in subjective well-being

Alexandra Gheorghiu, Daniela Victoria Zaharia, Oara Prundeanu, Mioara Cristea

Introduction

This case study seeks to provide a deep dive into how variations in well-being manifest. While, at first glance, a certain homogeneity tends to appear, this may be due either to a limited set of data or to the fact that the spatial delineation used covers a highly heterogeneous area in terms of demographic, social, and economic status, while still having to provide a single value.

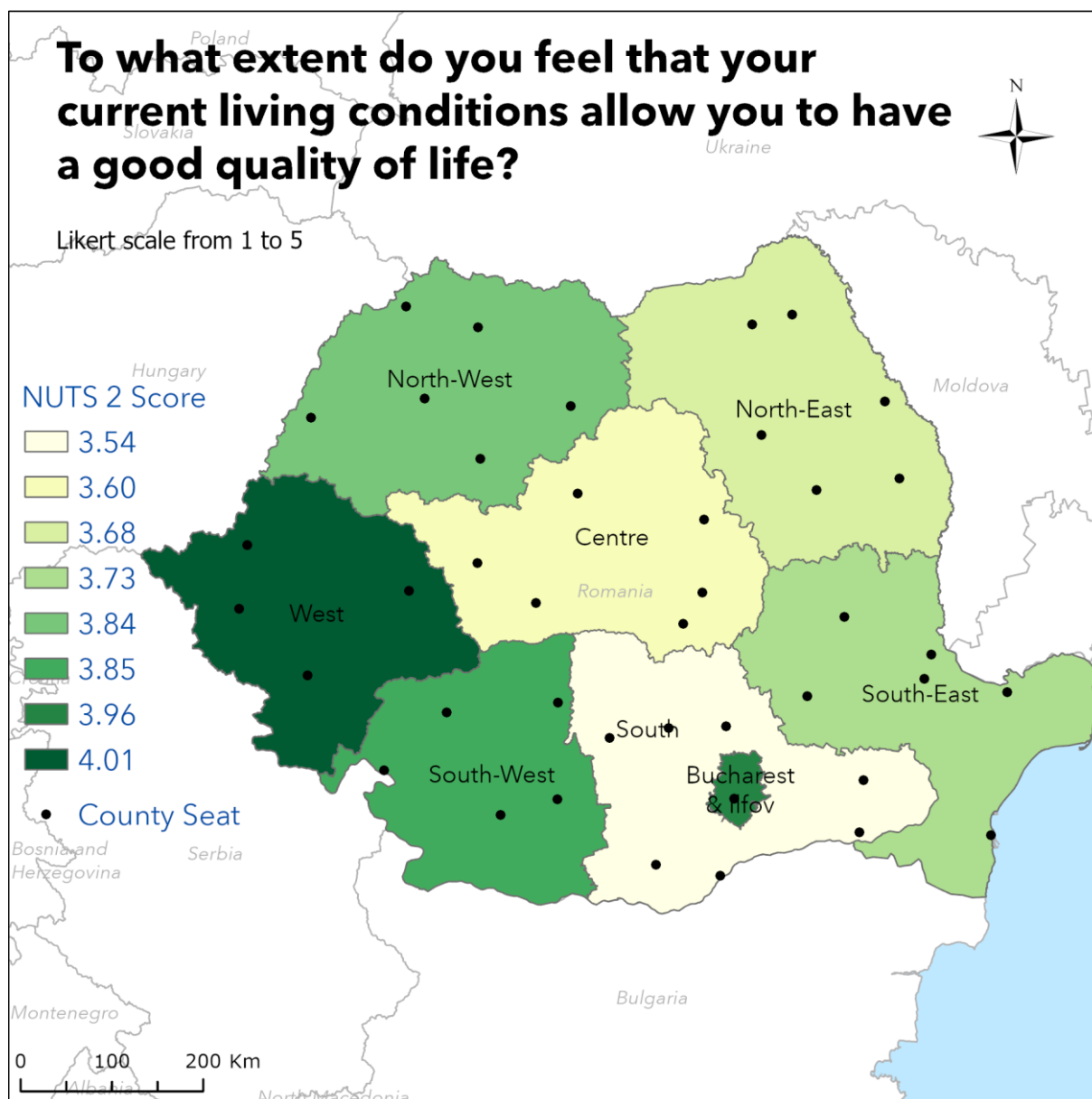
When reading data at a broad spatial level, we tend to categorise the entire territory according to a specific reality. However, at the NUTS 2 level, the territory covers different dynamics and different categories, between which differences exist and may have serious long-term implications. This is why we will try to provide a deep dive into how inequalities in terms of well-being become observable as we move towards a more granular level, and how important a grassroots approach is in observing these differences. The data used in this chapter were collected through CATI (Computer-Assisted Telephone Interviewing) between June and July 2025, on a national sample of 1,006 respondents. The sample was designed to ensure representativeness at the level of Romania's population, while any deviations from the structure of the reference population were corrected through statistical weighting.

The research instrument included items dedicated to measuring subjective well-being. The analysis presented in this chapter uses two items that capture distinct dimensions of well-being: an affective dimension, expressed through the question "How happy did you feel yesterday?", and an evaluative dimension, referring to perceptions of living conditions, measured through the question "To what extent do you feel that your current living conditions allow you to have a good quality of life?". Both items were measured on Likert-type scales ranging from 1 to 5, where 1 means "not at all" and 5 means "very much"; therefore, higher scores reflect more positive assessments of well-being.

At the level of the full sample, the descriptive results indicate a moderately positive assessment of subjective well-being. The mean for happiness felt on the previous day is 3.62, while the mean for the perception that current living conditions allow for a good quality of life is 3.76. The difference between the two values suggests that respondents evaluate their general living conditions slightly more positively than their immediate affective state. The standard deviations, 1.32 for happiness and 1.23 for perceived living conditions, point to substantial variation in responses across the sample. This indicates that, although the average scores are above the midpoint of the scale, perceptions of well-being are not homogeneous among respondents.

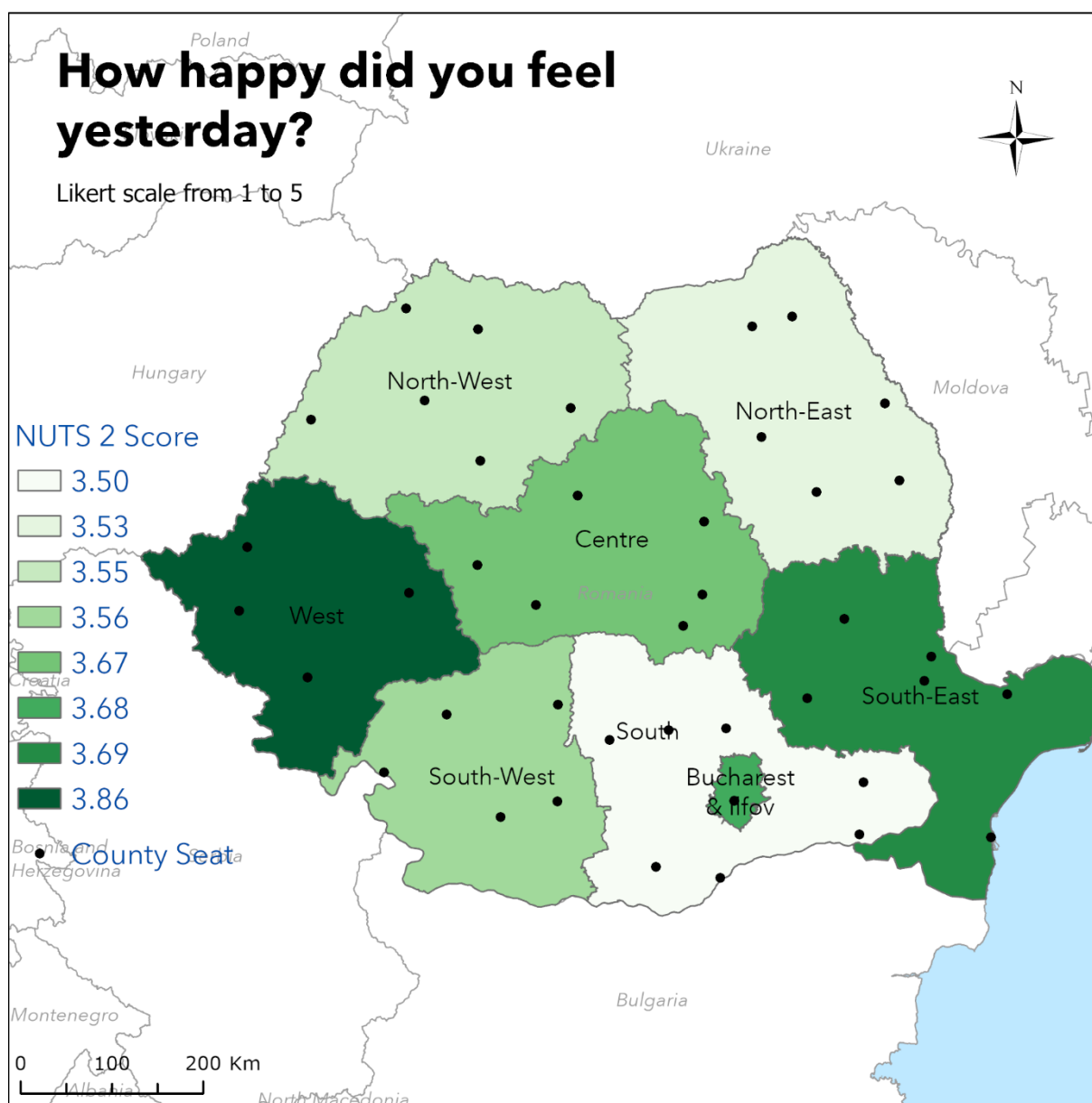
Regional differences in subjective well-being and perceived living conditions

The descriptive analysis by geographical region reveals moderate differences in the assessment of subjective well-being. In the case of happiness felt on the previous day, the highest mean is recorded in the West region, at 3.86, followed by the South-East, at 3.69, and by Bucharest-Ilfov and Centre, both at 3.68. At the opposite end, the lowest values appear in the South, at 3.49, and in the North-East, at 3.53. The dispersion of responses also varies by region. For happiness, variation is more pronounced in the North-East and South-East, where the standard deviation reaches 1.41, and lower in the West, where it is 1.17. This suggests that the West combines a relatively high average level of reported happiness with more clustered responses, while the North-East and South-East show greater internal diversity.



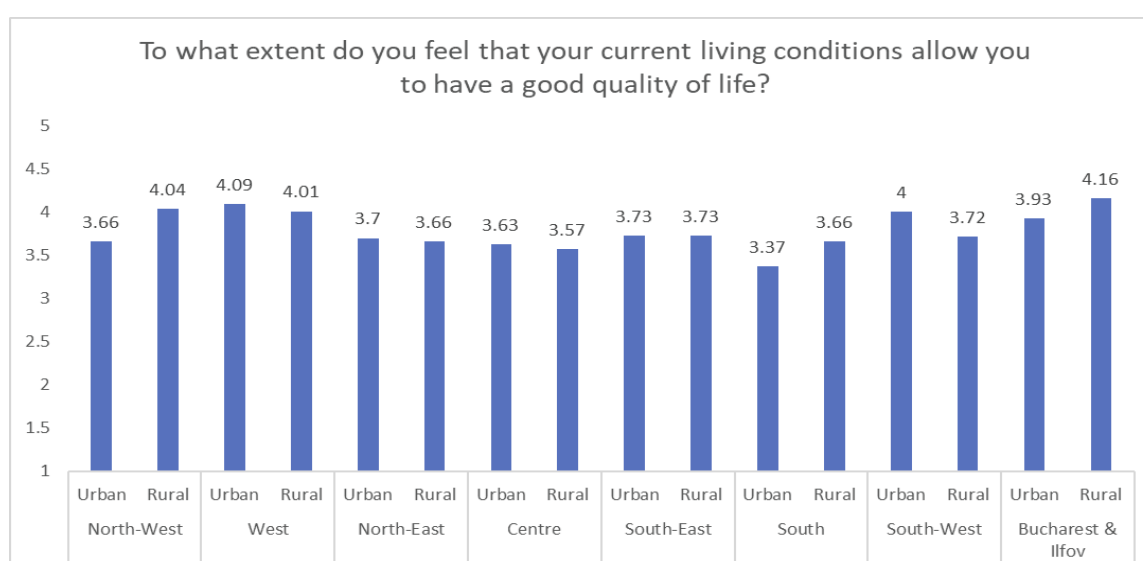
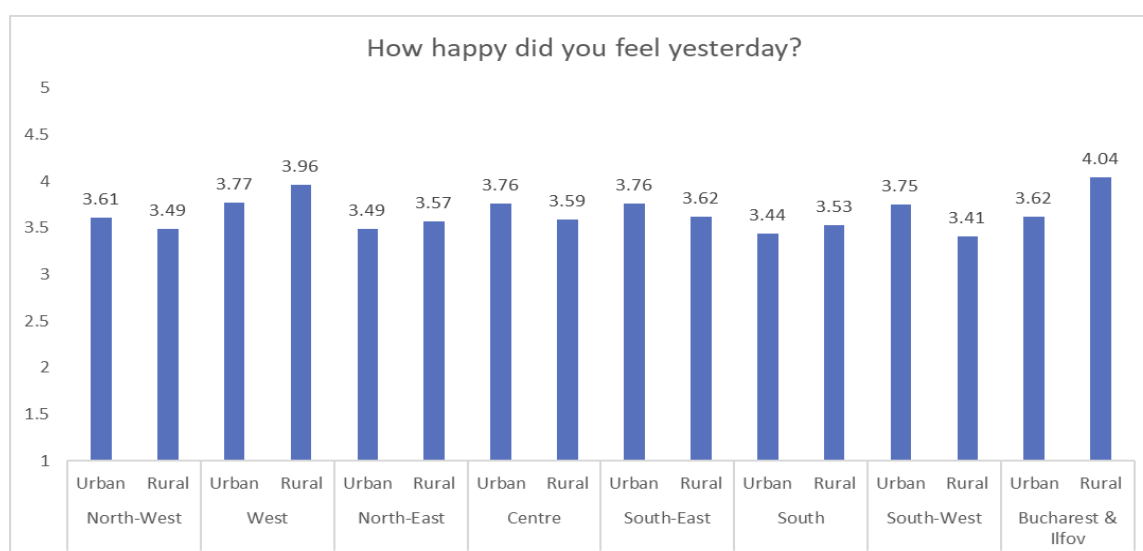
It should be pointed out that the data follow a pattern similar to that observed in other measurements, with a North-West to South-East gradient visible across the Romanian regions. The most surprising aspect may be the fact that the Bucharest-Ilfov region does not display the highest values, as is usually the case when the analysis is based on secondary data.

For the item concerning the extent to which current living conditions allow for a good quality of life, the highest mean is again observed in the West region, at 4.05, followed by Bucharest-Ilfov, at 3.96, and by the North-West and South-West, both at 3.85. The lowest means are recorded in the South, at 3.54, and in the Centre, at 3.60. Compared with the item on happiness, the assessment of living conditions is higher in most regions, which suggests that respondents tend to evaluate their general living circumstances slightly more positively than their immediate affective state. For this indicator, responses are more concentrated in the West and Bucharest-Ilfov, both with standard deviations of 1.08, while the South-West records the highest dispersion, at 1.33.



Regional and residential differences in subjective well-being and perceived living conditions

Introducing area of residence into the regional analysis does not only change the average level of the assessments; it also highlights important internal differences between urban and rural populations within the same region. For the item on happiness felt on the previous day, an urban advantage is not generalised. In the North-West, Centre, South-East and South-West, urban areas record higher values than rural areas, with the difference being most pronounced in the South-West, where the mean is 3.75 in urban areas and 3.41 in rural areas. By contrast, in the West, North-East, South and Bucharest-Ilfov, rural areas show higher means than urban ones. The largest difference in favour of rural areas appears in Bucharest-Ilfov, where the mean for happiness is 4.04 in rural areas, compared with 3.62 in urban areas, followed by the West, where the corresponding values are 3.96 and 3.77.



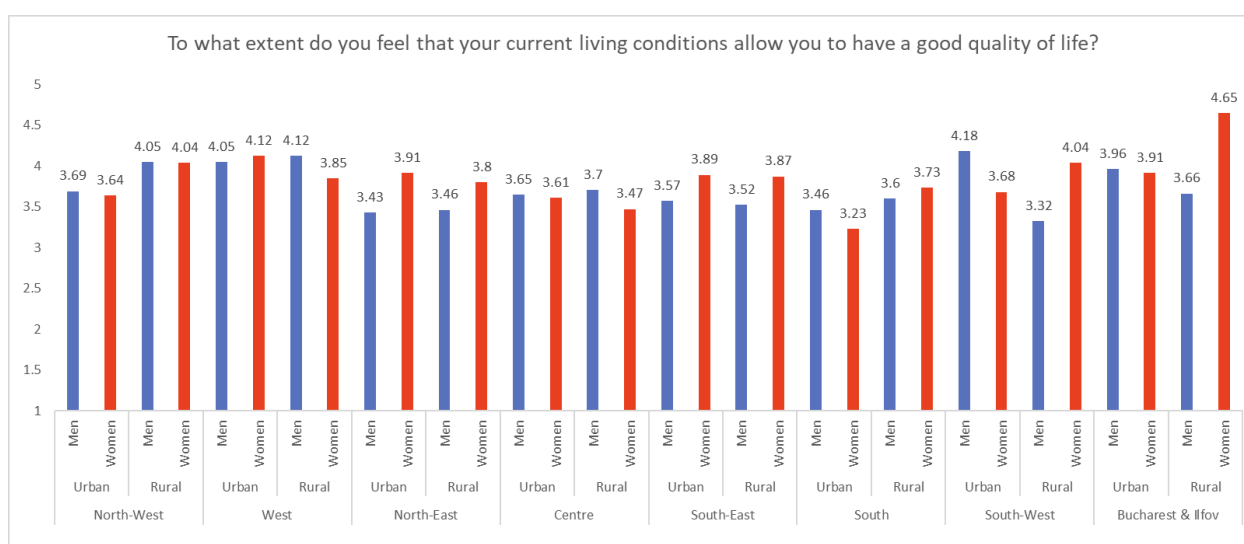
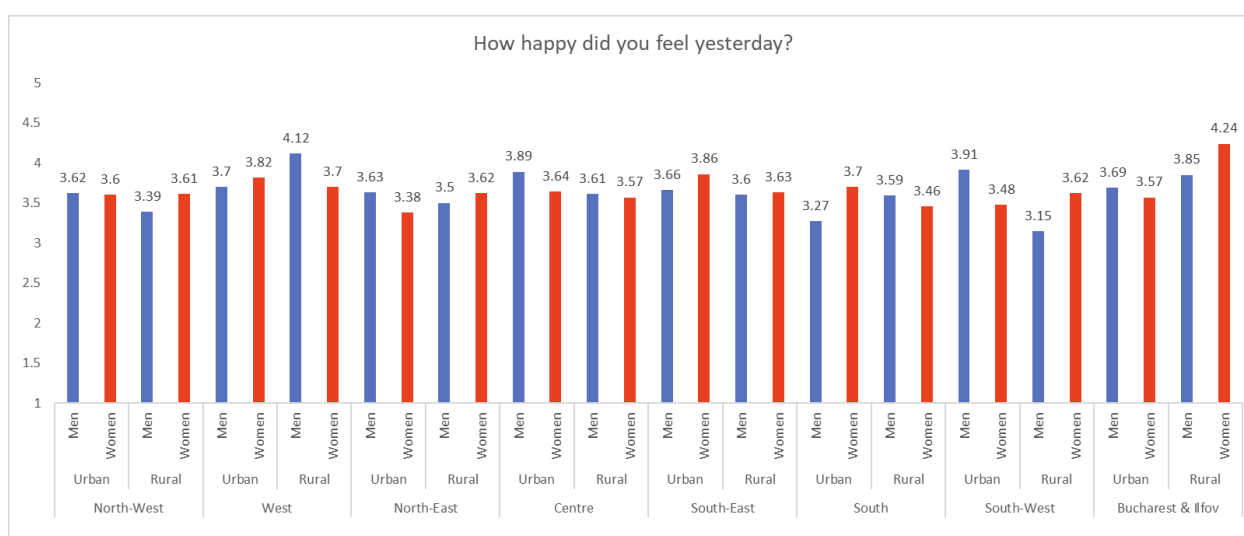
For perceptions of living conditions, the urban–rural differences follow a slightly different configuration. In the West, North-East, Centre and South-West, urban areas have higher means than rural ones, with the clearest difference in the South-West, where the urban mean is 4.00, compared with 3.72 in rural areas. In the North-West, South and Bucharest-Ilfov, assessments are higher in rural areas, with more substantial differences in the North-West, where the rural mean reaches 4.04, compared with 3.66 in urban areas, and in the South, where the value is 3.66 in rural areas, compared with 3.37 in urban areas. In the South-East, the values are identical for urban and rural areas, both with a mean of 3.73, suggesting a similar perception of living conditions across the two areas of residence.

Two major observations should also be addressed. The first is related to the lack of dominance of urban areas in terms of reported well-being, contrary to what might be expected based on secondary data. One explanation could be that urban areas do not entirely fulfil their promises to their inhabitants and still lack certain expected qualities. However, a second aspect related to the administrative-territorial division in Romania should also be mentioned. In Romania, there is only a binary distinction between urban and rural areas, despite considerable variation in demographic characteristics, infrastructure, and living conditions within both categories. Urban status may refer to localities ranging from a few thousand inhabitants to more than 300,000 inhabitants, for example. Similarly, rural areas may include localities in metropolitan areas that are strongly urbanised and have populations predominantly employed in tertiary services, while still being administratively classified as rural. Therefore, the explanation may lie in an administrative classification that is insufficiently adapted to current territorial realities.

Second, the higher values recorded in rural areas in the Bucharest-Ilfov region require further inquiry by regional authorities, as this result contradicts similar findings from other capital cities and their surrounding areas.

Regional, residential and gender differences in subjective well-being and perceived living conditions

The simultaneous introduction of gender, area of residence and geographical region shows that differences in happiness felt on the previous day do not follow a uniform pattern. In some subgroups, men report higher means, while in others women record higher scores, which suggests that gender differences are strongly contextualised territorially and residentially. For example, in rural areas of the West, men have a very high mean for happiness, at 4.12, compared with 3.70 among women, while in rural Bucharest-Ilfov women record the highest value in the entire distribution for this item, with a mean of 4.24. Visible differences in favour of women also appear in urban areas of the South, where the mean is 3.70 for women, compared with 3.27 for men. By contrast, in the South-West, the values indicate a male advantage in both urban and rural areas, with the rural difference being more pronounced: 3.62 for men, compared with 3.15 for women.



For perceptions of living conditions, gender differences are also uneven, but several relevant descriptive contrasts emerge. The highest assessments are observed among women in rural Bucharest-Ilfov, with a mean of 4.65. High values also appear among men in urban South-West, with a mean of 4.18, as well as in the West, where both urban and rural areas remain at high levels for both sexes. At the opposite

end, some of the lowest assessments are found in urban South, especially among women, with a mean of 3.23, and among men in rural South-West, with 3.32.

The lack of dominance of a single gender across regions and areas of residence could be interpreted as encouraging, as it denotes the fact that there is no visible systemic advantage or disadvantage in terms of well-being. A possible explanation for the existing variations could be provided by the dominance of certain economic sectors and jobs in particular areas, with some sectors being more oriented towards male or female employment, which could produce imbalances.

Moreover, a worrying tendency is that in regions with lower overall values of perceived well-being, such as North-East, South, and South-East, we can observe the highest amplitudes between genders. This contrasts with regions such as North-West and West, which record overall higher values and lower amplitudes. This points to serious intra-regional differences and social rifts that are beginning to emerge in territories with lower values. The case of South-West, where the introduction of area of residence and gender creates four distinct categories with significant amplitudes between them, raises questions and calls for deeper investigation.

Conclusion

Taken together, the descriptive results indicate a moderately positive level of subjective well-being, with assessments of current living conditions slightly higher than those of recent happiness. However, the analysis also shows that these perceptions vary across territorial and social categories. The West region stands out through consistently high values, while the South tends to record lower assessments across several levels of disaggregation. At the same time, the breakdown by area of residence and gender shows that neither urban–rural differences nor gender differences operate in a uniform way. Instead, they depend on the specific regional context, suggesting that subjective well-being and perceived quality of life should be interpreted as socially and territorially differentiated phenomena.

6

Conclusion

Sebastien Bourdin & Bogdan-Constantin Ibănescu

It is a difficult task to reduce to several paragraphs what almost 60 pages of maps, tables, graphs, and raw data inputs have shown about the spatial distribution of the Smiley Index across the European Union territory. However, if several key remarks should be extracted, we consider that the following are particularly worth pursuing and transmitting to policymakers, especially because they point to the need for more territorially sensitive, evidence-based and socially grounded wellbeing policies.

The first is that North-South and West-East patterns are still visible. The geography of well-being has not changed substantially at macro level, and the classical lines of delineation remain visible. This is not necessarily a negative constant, as such patterns tend to maintain their dynamics over several years or even decades. However, it shows a certain persistence of existing building blocks of the Smiley Index, which are difficult to change quickly, such as education, health systems, and related structural factors. In this respect, the Atlas reminds us that well-being is shaped by slow-moving territorial assets and constraints. It cannot be transformed solely through short-term policy measures, since many of its components are embedded in long-term development trajectories, institutional capacities and accumulated socio-economic inequalities.

The second observation is that, despite the existence of these rifts, there is a visible trend towards convergence at national level, with countries from the eastern and southern parts of the European Union catching up in terms of well-being. This is, no doubt, partly linked to the positive effect of the European Union's cohesion policies and massive investments, although the Atlas also suggests that domestic reforms, labour-market changes and broader socio-economic transformation processes have contributed to these trajectories. The direction is clear and, while full convergence across the entire territory in the following decades remains rather utopian, one cannot deny the ascending trends recorded by the newest members. However, in many cases, improvements remain fragile, uneven across dimensions, and vulnerable to economic, demographic, or political shocks. The policy challenge is consequently no longer limited to supporting catching-up processes. It also consists in consolidating these gains and preventing new forms of territorial vulnerability from emerging.

The third observation is that the regional level provides an interpretative lens that is extremely beneficial for better understanding grassroots realities. Most countries show clear divides between the economic engines, usually built around capital cities or major metropolitan areas, and the peripheral regions that continue to lag behind. This split is extremely visible in Romania, Bulgaria, and Spain, and somewhat less pronounced in Italy, Sweden, and Denmark. Nevertheless, the discrepancies observed are a strong signal for reimagining well-being-based strategies and shifting them from a national approach, which mainly benefits dominant territories, towards a regionally based approach, where each region can build its strategies according to its own needs and resources. National averages may therefore be useful for broad comparisons, but they can also hide major internal fractures. Regions with similar national contexts may face very different combinations of opportunities and constraints, depending on their economic structure, demographic profile, access to services, innovation capacity and degree of metropolitan integration. This is, once again, an argument supporting the call of various regional actors demanding

that the next Cohesion Policy remain focused on regional needs, instead of being reduced to nationally controlled budgets. A place-based approach to well-being is therefore essential for reasons of territorial justice and because policies designed at the wrong spatial scale risk missing the populations and places most in need of support.

Finally, the Atlas provides further proof, if such proof were still needed, that the correct identification of well-being indicators depends on combining objective secondary data with subjective primary data. This combination offers the best way of observing differences and inequalities for which raw data alone is incapable of providing a detailed picture. Gender, education, and income inequalities in terms of perceived well-being are not only a reality, but also a threatening aspect of our society, where current economic and policy trends tend to favour rifts rather than cohesion movements. Subjective well-being indicators are particularly important because they reveal how people experience their living conditions, their opportunities, and their sense of security or belonging. In some territories, objective indicators may suggest progress, while subjective perceptions reveal dissatisfaction, distrust or a sense of abandonment. These discrepancies should not be treated as statistical noise; they are politically and socially meaningful signals that policymakers must take seriously.

The Atlas succeeds in transmitting to the reader a multiscale and multidisciplinary view of well-being, with the clear hope that the patterns emerging from these pages will be carefully used and considered in the creation of future local, regional, and national policies aimed at improving societal well-being. Its main contribution is to show that well-being is neither a purely individual condition nor a simple national performance indicator. It is a spatially differentiated, multidimensional and politically relevant phenomenon. For this reason, future policies should combine structural investment, regional targeting, social inclusion, environmental quality and stronger attention to citizens' lived experiences. Only through such an integrated approach can well-being become a credible compass for European territorial development.

References

- Atkinson, S., Fuller, S., & Painter, J. (2016). Wellbeing and place. In *Wellbeing and place* (pp. 1-14). Routledge.
- Ballas, D. (2013). What makes a 'happy city'?. *Cities*, 32, S39-S50. <https://doi.org/10.1016/j.cities.2013.04.009>
- Ballas, D., & Tranmer, M. (2012). Happy people or happy places? A multilevel modeling approach to the analysis of happiness and well-being. *International regional science review*, 35(1), 70-102. <https://doi.org/10.1177/0160017611403737>
- Basole, R. C. (2018). On the evolution of service ecosystems: A study of the emerging API economy. In *Handbook of Service Science, Volume II* (pp. 479-495). Cham: Springer International Publishing. https://doi.org/10.1007/978-3-319-98512-1_21
- Baycan-Levent, T., & Nijkamp, P. (2004). Urban green space policies: A comparative study on performance and success conditions in European cities. <https://research.vu.nl/en/publications/urban-green-space-policies-a-comparative-study-on-performance-and/>
- Bourdin, S. (2024). The interplay of politics and space: How elected politicians shape place-based policies and outcomes. *The Geographical Journal*, 190(4), e12591. <https://doi.org/10.1111/geoj.12591>
- Bourdin, S., & Tai, J. (2022). Abstentionist voting—between disengagement and protestation in neglected areas: A spatial analysis of the Paris metropolis. *International Regional Science Review*, 45(3), 263-292.
- Camagni, R., & Capello, R. (2013). Regional competitiveness and territorial capital: a conceptual approach and empirical evidence from the European Union. *Regional studies*, 47(9), 1383-1402. <https://doi.org/10.1080/00343404.2012.681640>
- Capello, R., Caragliu, A., & Nijkamp, P. (2011). Territorial capital and regional growth: increasing returns in knowledge use. *Tijdschrift voor economische en sociale geografie*, 102(4), 385-405. <https://doi.org/10.1111/j.1467-9663.2010.00613.x>
- Capello, R., & Nijkamp, P. (Eds.). (2019). *Handbook of regional growth and development theories: revised and extended second edition*. Edward Elgar Publishing.
- Hennicke, P., Khosla, A., Thakur, M. S., & Wilts, H. (2014). *Decoupling Economic growth from resource consumption*. Berlin: Internationale Zusammenarbeit (GIZ) GmbH. https://www.giz.de/de/downloads/giz2014-en-IGEG_2_decoupling-economic-growth.pdf
- Klinger, S., & Weber, E. (2020). Secondary job holding in Germany. *Applied Economics*, 52(30), 3238-3256. <https://doi.org/10.1080/00036846.2019.1707767>
- Lenzi, C., & Perucca, G. (2016). Life satisfaction across cities: Evidence from Romania. *The Journal of Development Studies*, 52(7), 1062-1077. <https://doi.org/10.1080/00220388.2015.1113265>
- Lenzi, C., & Perucca, G. (2018). Are urbanized areas source of life satisfaction? Evidence from EU regions. *Papers in Regional Science*, 97, S105-S122. <https://doi.org/10.1111/pirs.12232>
- Mouratidis, K. (2021). Urban planning and quality of life: A review of pathways linking the built environment to subjective well-being. *Cities*, 115, 103229. <https://doi.org/10.1016/j.cities.2021.103229>
- Nussbaum, M., & Sen, A. (Eds.). (1993). *The quality of life*. Clarendon press.
- Saez, E. (2019). *Striking it richer: The evolution of top incomes in the United States (updated with 2017 final estimates)*. University of California Berkeley. <https://eml.berkeley.edu/~saez/saez-UStopincomes-2017.pdf>

- Sandu, D. (2020). Actualizarea indicelui dezvoltării umane locale: de ce , cum și cu ce rezultate. Politica Urbană a României - World Bank. <https://documents1.worldbank.org/curated/en/099200003162242116/pdf/P17117607efb0c0f70a14b0c881e0b29210.pdf>
- Sen, A. (1989). Cooperation, inequality, and the family. *Population and development review*, 15, 61-76. <https://doi.org/10.2307/2807922>
- Stiglitz, J. E., Sen, A., & Fitoussi, J. P. (2009). The measurement of economic performance and social progress revisited (Vol. 33, pp. 1-63). France: Ofce. <https://www.raggeduniversity.co.uk/wp-content/uploads/2017/09/1-Measurement-ilovepdf-compressed.pdf>