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On the Tenth Report on economic, social and territorial cohesion

Chapter 1.1 Economic cohesion

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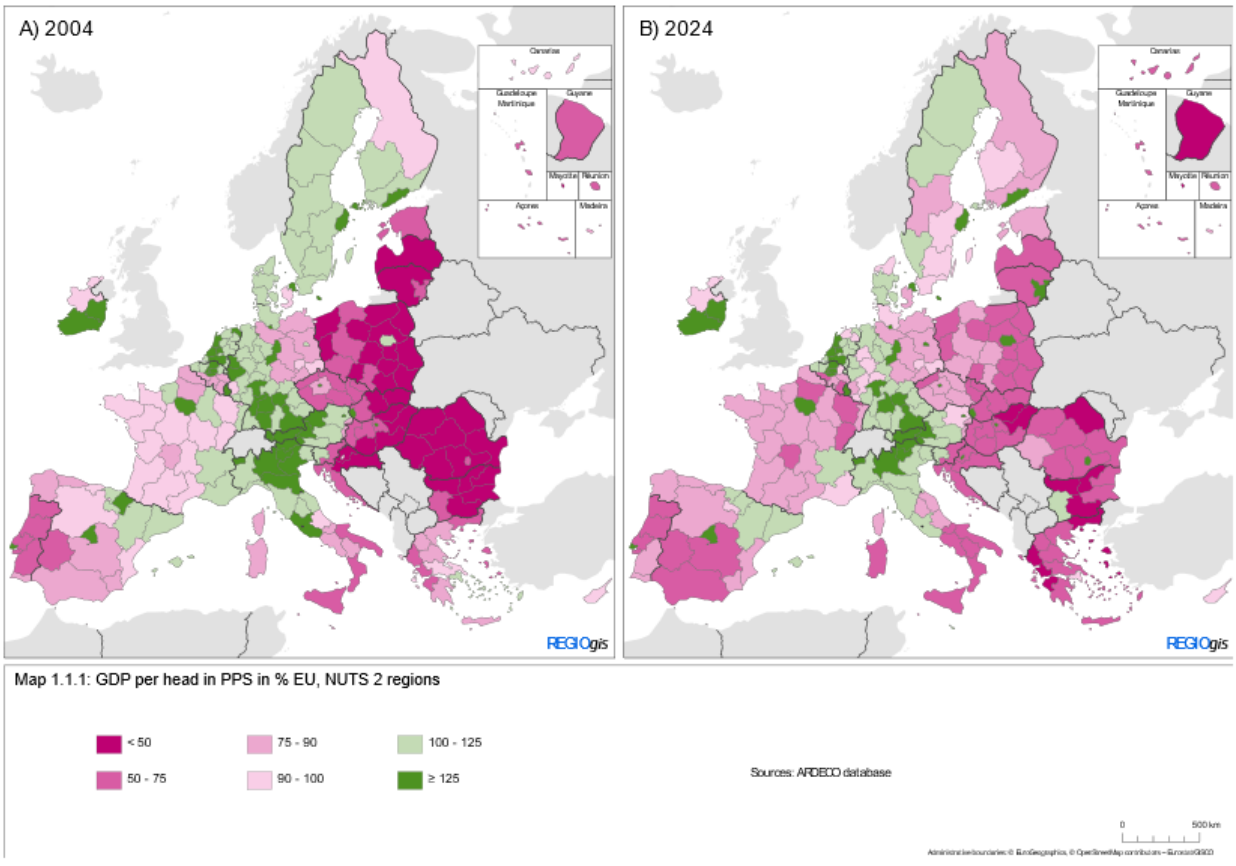
Chapter 1.1
Economic cohesion

1.1.1. Introduction

Promoting economic, social and territorial cohesion is an objective set out in Article 174 of the Treaty on the Functioning of the European Union (TFEU): "In order to promote its overall harmonious development, the Union shall develop and pursue its actions leading to the strengthening of its economic, social and territorial cohesion." Structural economic and social weaknesses prevent poorer and less advantaged regions from realising their productive potential, depriving the EU of the innovation capacity, human capital, and economic output that these regions could otherwise contribute to European competitiveness. Economic and social disparities have implications for both the well-being of our places and their economic growth. Reducing disparities between regions is therefore central to the functioning of the single market and to the EU's broader economic and social model.

Cohesion policy has been one of the main EU funding instruments for advancing this objective. Since its inception, it has facilitated economic, social and territorial integration, supported successive enlargements, and enabled significant structural transformation. Additionally, cohesion is essential for productivity: markets function more efficiently when knowledge and innovation are spread evenly across territories.

Cohesion policy has been instrumental in reducing disparities across the EU, with its contribution most visible in the convergence of regions in the Member States that joined since 2004 (Map 1.1.1); between 2004 and 2024 regions in these Member States **raised their GDP per head in terms of purchasing power parities (PPS) from 52% to 80% of the EU average.** Several regions, for instance metropolitan areas around national capitals, raced well ahead of this average. This trend reflected a significant reconfiguration of the



internal geography of growth, productivity, and well-being across the continent, bringing countries' development closer together, even if internal disparities increased in a substantial number of Member States (European Commission, 2024c); (Gill and Raiser, 2012); (Ridao-Cano and Bodewig, 2018).

Regional disparities in the EU have always evolved in ways that are more complex than a simple convergence/divergence narrative may suggest. While aggregate indicators often point to income convergence between Member States – particularly following enlargement – the evolution of disparities at the regional level reveals a differentiated and multi–layered geography. Within eastern EU countries, for instance, capital regions have pulled sharply ahead of other regions, raising concerns about internal territorial cohesion even as poorer regions continue to grow (see discussion on growth by metropolitan regions in Chapter 2.3).

This chapter examines regional economic convergence and productivity trends across EU regions in the past two decades. It aims to offer a comprehensive assessment of the shifting geography of economic performance in the EU.

1.1.2. The EU as a convergence machine

Over the past two decades, the geography of economic growth in the EU has been shaped above all by the strong convergence of regions in eastern Member States (European Commission, 2024c); (European Commission, 2024a), to the point that the EU has been described as a *convergence machine* (Ridao-Cano and Bodewig, 2018), forming a belt of economic growth stretching from the Baltic to the Black Sea (Map 1.1.2, on the left).

This convergence has been driven, by, among other things, integration into EU value chains, which facilitated trade and investment flows, combined with sustained investment in infrastructure, public services, and the modernisation of domestic enterprises (International Monetary Fund, 2024). Structural reforms to align national legislation with the body of EU laws gradually improved the quality of institutions, while inflows of foreign direct investment promoted market efficiency and accelerated access to EU and global value chains.

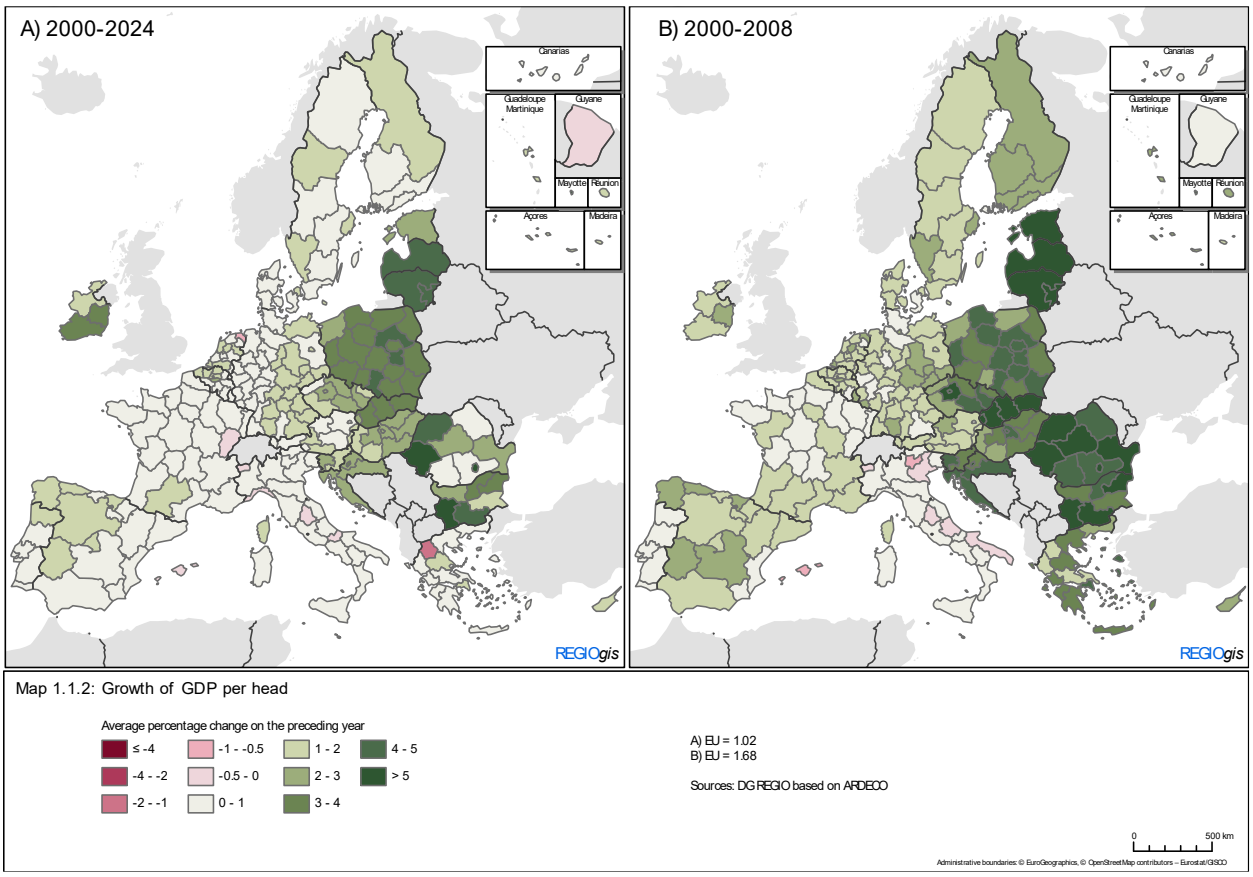
This convergence dynamic was partly disrupted by the 2008 financial crisis and the subsequent sovereign debt crisis (Map 1.1.2, on the left). However, it resumed once financial conditions stabilised and has proven largely resilient to both the COVID-19 shock and the economic consequences of Russia's war of aggression against Ukraine. Still, some eastern EU countries were more heavily affected by the consequences of the war in Ukraine, which included disrupted trade, energy shortages, and inflationary pressures (Map 1.1.3, on the right).([4])

Importantly, convergence has in recent years extended beyond the countries that joined the EU since 2004. During the first decade of the century, also as a consequence of the financial and economic crisis, the economy of many regions in southern EU, notably in Greece, Spain, Italy, Portugal, and parts of France, had largely deteriorated or contracted. They were also severely hit by the twin crises of 2008 and 2013. Since 2013 however, the geography of economic growth has shown a visible shift.

Many southern EU regions have returned to growth and are contributing to convergence after years of falling behind. Nevertheless, most southern EU regions are still growing more slowly than their eastern counterparts, and some, including parts of western and northern Europe, appear caught in a development trap.([5]) Even so, the recovery in growth across much of the southern part of the EU marks an important change in the EU's regional growth map.

([4]) https://economy-finance.ec.europa.eu/cost-eu-member-states-proximity-war_en

([5]) (European Commission, 2024c)



Map 1.1.2: Growth of GDP per head

Average percentage change on the preceding year

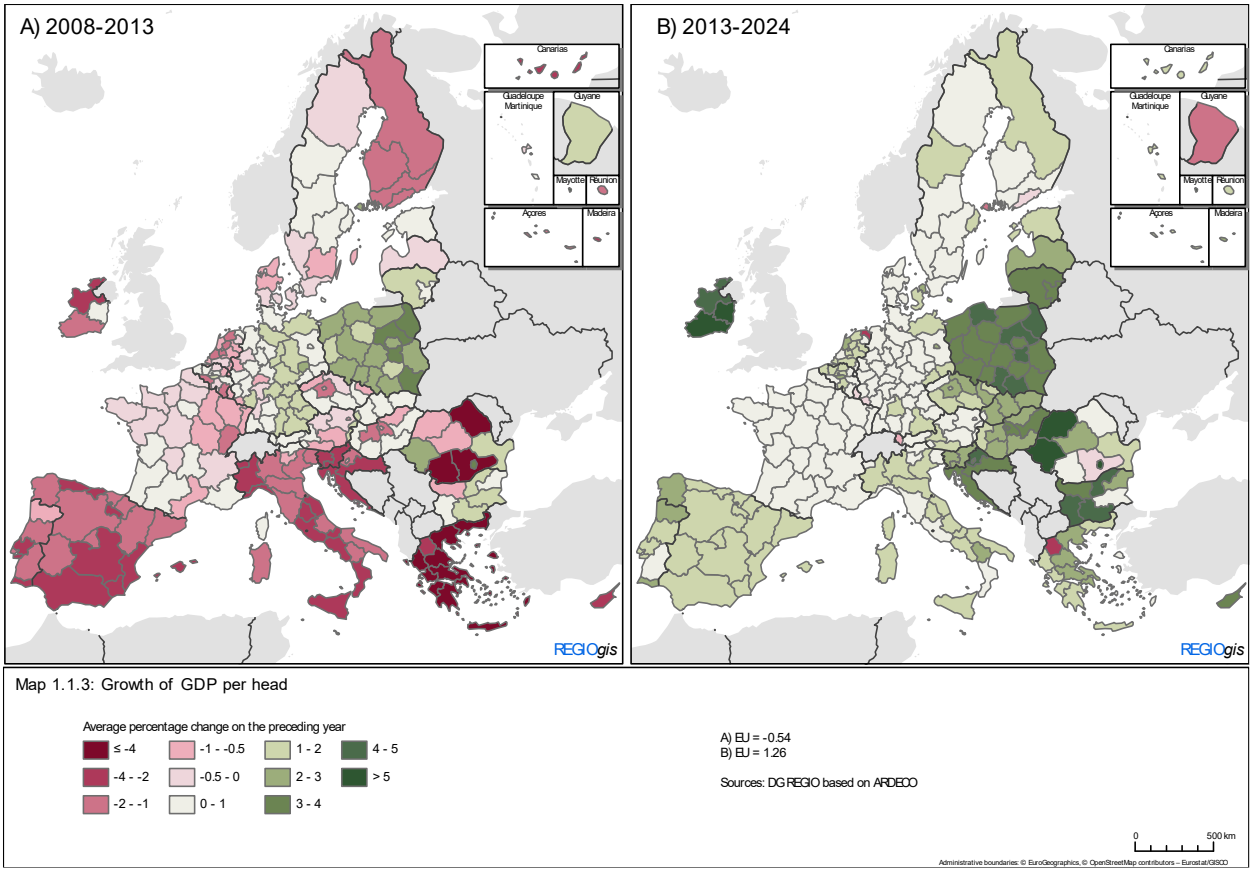
≤ -4	-1 - -0.5	1 - 2	4 - 5
-4 - -2	-0.5 - 0	2 - 3	> 5
-2 - -1	0 - 1	3 - 4	

A) EU = 1.02
B) EU = 1.68

Sources: DG REGIO based on ARDECO

0 500 km

Administrative boundaries: © EuroGeographics, © OpenStreetMap contributors – Eurostat/GISCO



Map 1.1.3: Growth of GDP per head

Average percentage change on the preceding year

≤ -4	-1 - -0.5	1 - 2	4 - 5
-4 - -2	-0.5 - 0	2 - 3	> 5
-2 - -1	0 - 1	3 - 4	

A) EU = -0.54
B) EU = 1.26

Sources: DG REGIO based on ARDECO

0 500 km

Administrative boundaries: © EuroGeographics, © OpenStreetMap contributors – Eurostat/GISCO

Box 1.1.1: Measuring convergence: Sigma and Beta-convergence

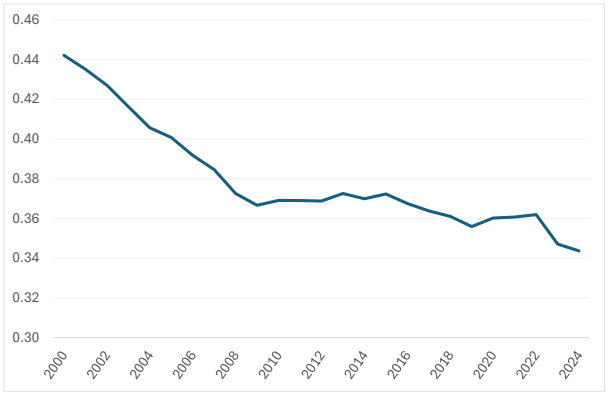
Sigma-convergence measures whether the dispersion of income across regions or countries narrows over time. A declining standard deviation, or coefficient of variation, indicates that disparities are shrinking. Beta-convergence measures whether poorer regions grow faster than richer ones, pointing to a catch-up process. Conditional beta convergence extends this by controlling for structural characteristics, such as investment levels, education, or governance quality, that may affect the speed of convergence independently of initial income levels. It should be noted that Beta-convergence is necessary for Sigma-convergence but not the other way around: if regional economies are subject to large shocks, the tendency of poorer regions to grow faster (Beta-convergence) may not be sufficient to guarantee a reduction of regional disparities (Sigma-convergence).

For more details, see (Monfort, 2020)

Reduced disparities and convergence are captured by two complementary measures: Sigma- and absolute Beta-convergence. (see Box 1.1.1) Sigma-convergence measures the reduction in the dispersion of GDP (per head) across regions over time (Figure 1.1.1), while absolute Beta-convergence describes the tendency for poorer regions to grow faster than richer ones (Figure 1.1.2). Both were pronounced in the pre-crisis period: by 2008, numerous regions from Member States that had joined since 2004 had significantly narrowed the gap between their GDP per head and the EU average.

This overall picture of convergence hides divergence at a finer geographic level. While across the EU less wealthy NUTS2 regions are catching up with richer ones (convergence *between* regions), disparities *within* each NUTS2 region (for example between its cities and rural areas or between its NUTS3 regions) is increasing. Over the past two decades, strong convergence between EU (NUTS2) regions has indeed been accompanied by growing regional divergence within Member States, in particular in eastern EU countries (Figure 1.1.3).([6])

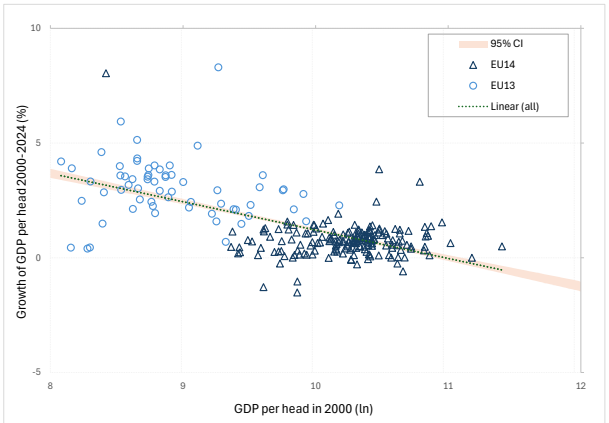
Figure 1.1.1: Reducing disparities. Sigma-convergence across EU NUTS2 regions, 2000-2024



(1) Dispersion measured by the (population-weighted) coefficient of variation of GDP per head between EU NUTS2 regions (2000 to 2024)

Source: DG REGIO based on ARDECO

Figure 1.1.2: The convergence machine. Absolute Beta-convergence across EU NUTS2 regions, 2000-2024

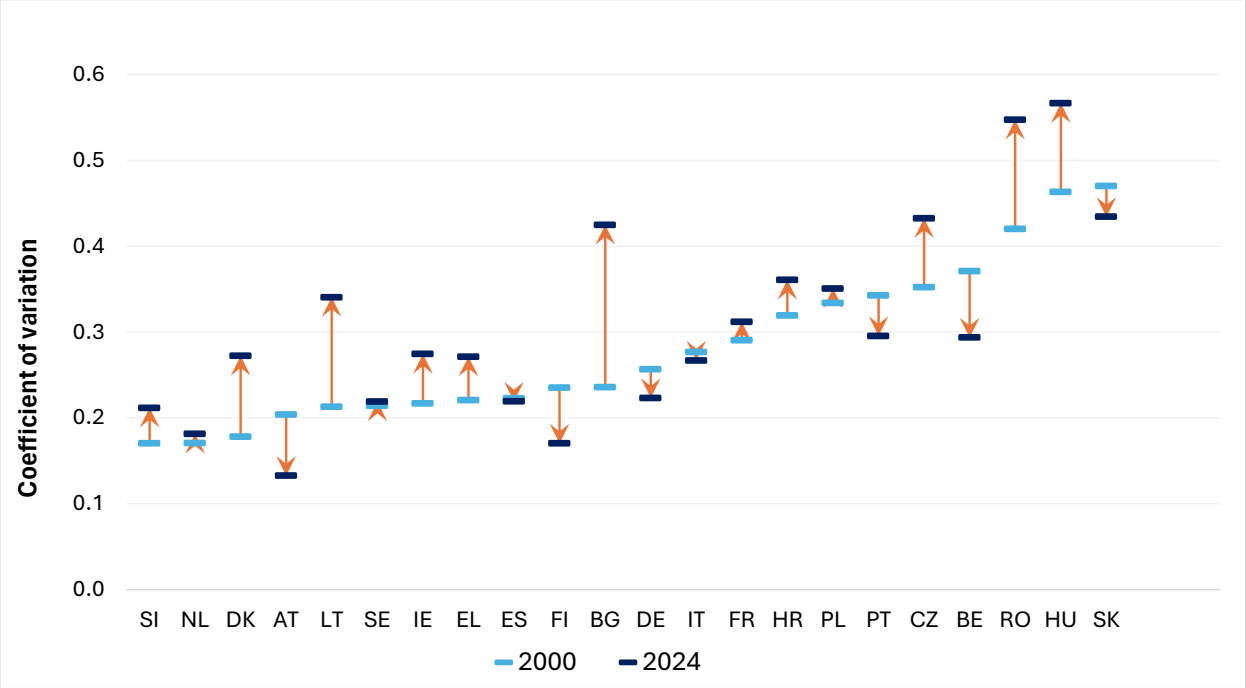


(1) Beta-convergence means poorer regions grow faster than richer ones; the scatterplot shows on the horizontal axis GDP per head in the initial year and on the vertical axis the growth rates of GDP per head over the period under consideration; dark blue is for EU14 regions (Member States joining before 2004), light blue is for EU13 regions (Member States joining since 2004).

Source: DG REGIO based on ARDECO

([6]) Here measured by the population-weighted coefficient of variation. Note that measures of regional dispersion are sensitive to how territory is partitioned. Fewer, larger regions mask internal disparities. This makes cross-country comparisons of the indicator meaningless. Only comparisons over time within the same country are meaningful.

Figure 1.1.3: Regional disparities within EU countries, NUTS2 regions, 2000 and 2024



(1) Coefficient of variation of GDP per head. Only for Member States with at least two NUTS2 regions.
Source: DG REGIO based on ARDECO

In order to shed light on disparities at a finer territorial level, overall disparities in GDP per head across NUTS3 regions in the EU are decomposed below into disparities across NUTS2 regions in the same country, or across NUTS3 regions within NUTS2 regions (using the Theil index as a measure of regional disparities). ([7])

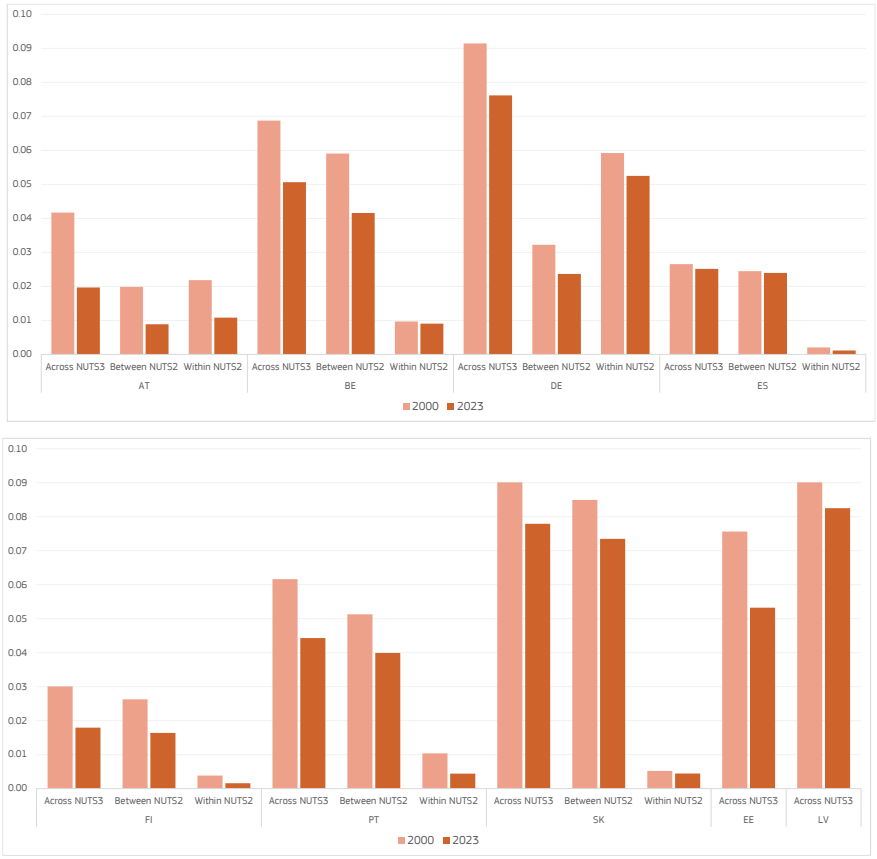
Between 2000 and 2023, overall disparities across NUTS3 regions declined at EU level, driven mainly by declining disparities between NUTS2 regions. During the same period, both less developed and transition regions (the main target of cohesion policy), have seen disparities between NUTS2 regions strongly reduced, although at the expense of a moderate increase in disparities within them. In contrast, in more developed regions, disparities within NUTS2 regions have slightly increased, a sign of growing internal divergence (Figure 1.1.5). A more granular look at what happens within countries shows what lies beyond simple averages and identifies **a first group of Member States** where, in the years between 2000 and 2023, **disparities both across and within NUTS3 regions have decreased** (Figure 1.1.4), pointing to **broad-based territorial development** in which **growth benefits have spread beyond the main economic hubs**. In contrast, **a second group of Member States** ([8]) have experienced **rising disparities between NUTS3 regions**, with growing gaps both between and within NUTS2 regions (Figure 1.1.6). This may signal **uneven sub-national growth, and a deepening of internal divides**.

Together, these trends signal a shift in where and how EU regional disparities manifest: interregional gaps are narrowing, (although not in all Member States), but intraregional inequality is rising. **This dual dynamic adds a new dimension to cohesion policy, as progress in reducing disparities across EU regions now depends in part also on developments within countries.**

([7]) The Theil index is an entropy-based inequality measure that is additively decomposable. Total disparities across NUTS3 regions can therefore be split into a "between" component, capturing differences across NUTS2 regions within the same country and a "within" component, capturing differences among the NUTS3 regions inside each NUTS2 region.

([8]) Though Hungary and Croatia experienced, between 2000 and 2023 a decrease in the disparities within NUTS2.

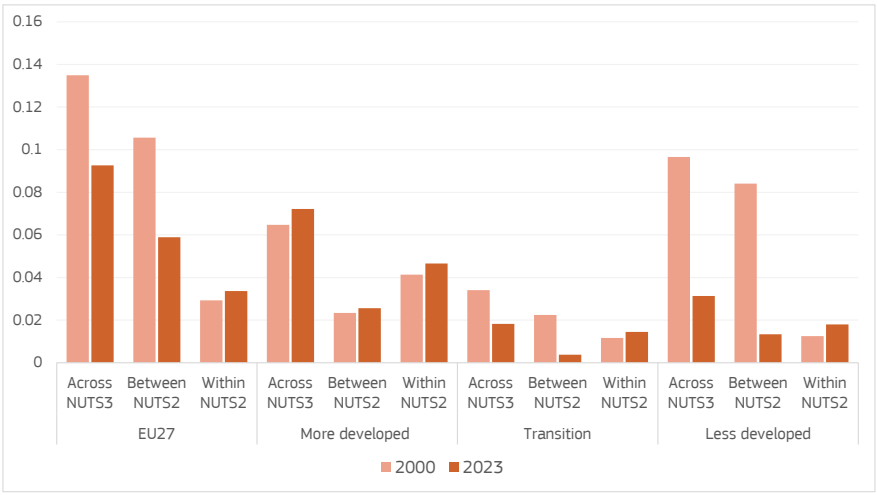
Figure 1.1.4: Decreasing within-country disparities between NUTS3: Theil index in 2000 and 2023



(1) Decomposition of total regional dispersion across NUTS3 regions in dispersion between NUTS2 regions and within dispersion. The Theil index is computed separately for each Member State across its NUTS3 regions. As its value is sensitive to the number of units in the distribution, comparisons of absolute values across Member States with different numbers of regions are not meaningful. This indicator should therefore be interpreted strictly as a measure of intra-national regional dispersion, enabling trend comparisons within a given Member State over time only.

Source: DG REGIO, based on ARDECO

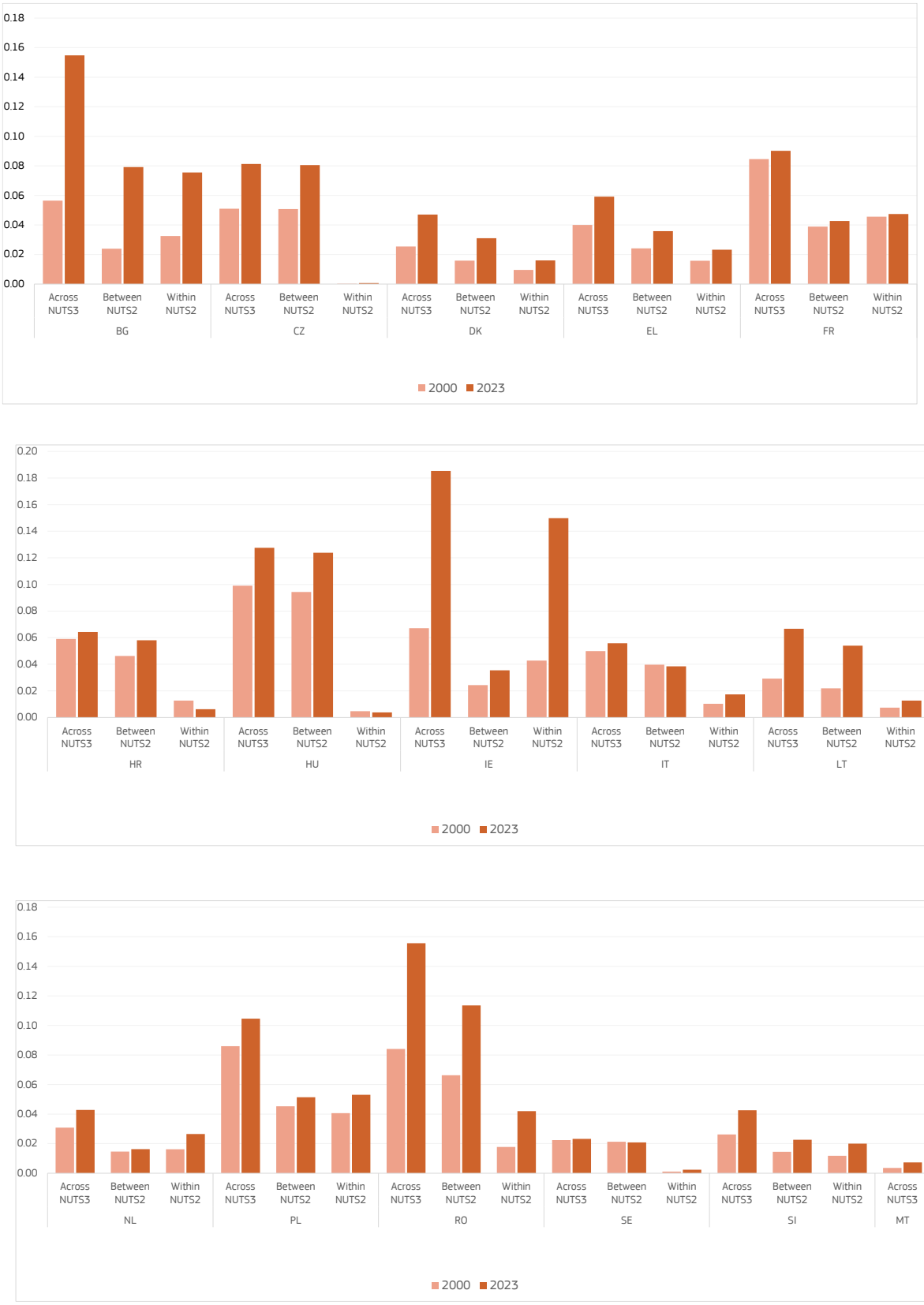
Figure 1.1.5: Regional disparities. Theil index for EU regions by level of development



(1) Decomposition of total regional dispersion across NUTS3 regions in dispersion between NUTS2 regions and within dispersion. The Theil index is computed separately for each Member State across its NUTS3 regions. As its value is sensitive to the number of units in the distribution, comparisons of absolute values across Member States with different numbers of regions are not meaningful. This indicator should therefore be interpreted strictly as a measure of intra-national regional dispersion, enabling trend comparisons within a given Member State over time only.

Source: DG REGIO based on ARDECO

Figure 1.1.6: Increasing within-country disparities between NUTS3: Theil index 2002-2023



(1) Decomposition of total regional dispersion across NUTS3 regions in dispersion between NUTS2 regions and within dispersion. The Theil index is computed separately for each Member State across its NUTS3 regions. As its value is sensitive to the number of units in the distribution, comparisons of absolute values across Member States with different numbers of regions are not meaningful. This indicator should therefore be interpreted strictly as a measure of intra-national regional dispersion, enabling trend comparisons within a given Member State over time only.

Source: DG REGIO, based on ARDECO

Box 1.1.2: Intermediate cities regions: Bridging gaps for internal and EU-wide convergence.

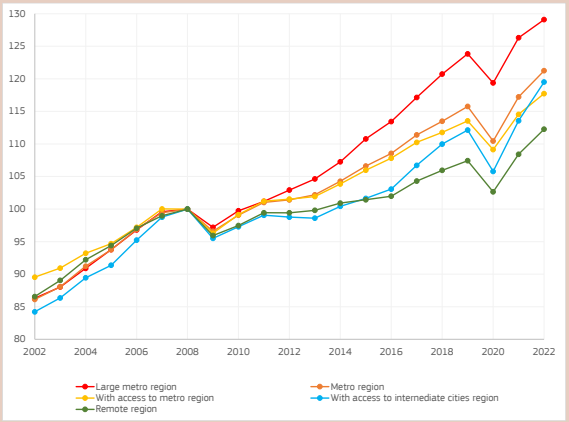
Intermediate cities regions are able to play a pivotal role in reducing internal disparities within EU countries and fostering both national and EU-wide convergence. By acting as economic bridges between high-productivity metropolitan hubs and regions with untapped potential, these regions facilitate productivity spillovers, labour mobility, and the diffusion of innovation-key mechanisms.

Empirical evidence shows that proximity to urban agglomerations is a decisive factor in regional economic performance. Between 2001 and 2021, rural and intermediate regions close to cities in the EU experienced a 10 percentage point increase in GDP per head relative to the EU average, while remote regions stood still or declined (European Commission, 2024).

Between 2002 and 2022, OECD regions experienced growing regional divergence, driven by the strengthening performance of large metropolitan areas. This trend was particularly pronounced after the 2008 global financial crisis, when large metropolitan regions consistently outpaced others in GDP growth. Since 2015, however, a different pattern has emerged: non-metropolitan regions with access to intermediate cities have begun to catch up, suggesting that intermediate cities act as a pulling factor for the non-metropolitan areas close to them (Figure B.1).

This pattern underscores that the **economic dynamism in non-metropolitan areas is strongly linked to functional connectivity with urban centres.** Such connectivity not only supports within-country convergence but also contributes to broader EU cohesion by reducing disparities between Member States' regions of different type.

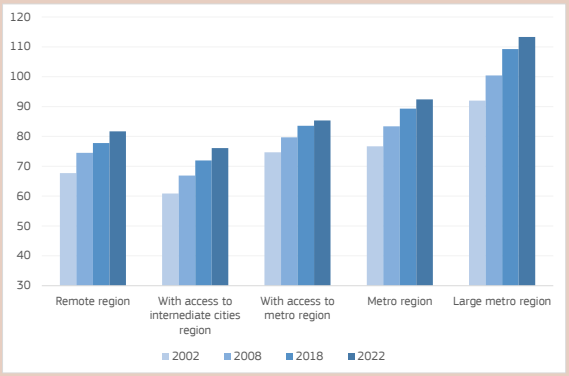
GDP by OECD regional type, 2002-2022 (2008=100)



Source: DG REGIO elaboration, based on (Oliveira Martins, 2026)

Across the OECD, there is a persistent trend across regional types: labour productivity rises systematically from remote regions to large metropolitan areas (Figure B.2). This trend, driven by agglomeration economies - such as denser labour markets, thicker input markets, and faster knowledge spillovers - remained stable over time, reinforcing the productivity advantage of urban regions.

Productivity levels by OECD region type, selected years



Source: DG REGIO elaboration, based on (Oliveira Martins, 2026)

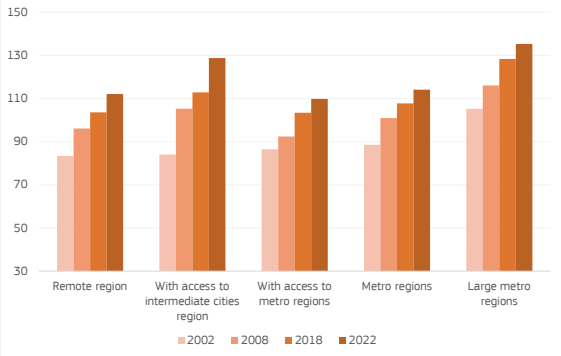
A comparison between the US and the EU reveals a key difference in regional dynamics. In the Eurozone, between 2002 and 2022 the productivity hierarchy remained largely unchanged, with each regional type improving at a similar pace. In contrast, the US saw a notable rebound in regions with access to intermediate cities regions (Figure B.3 and Figure B.4). This suggests that the US spatial economy has a greater capacity for re-ranking, allowing previously low performing regions - particularly those with access to small to medium urban centres - to surge ahead. Post-2020, US

(Continued on the next page)

Box (continued)

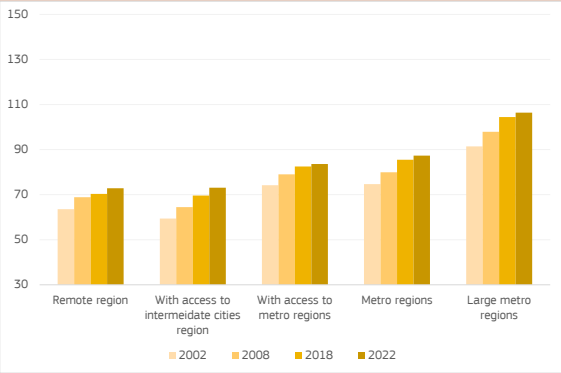
regions with access to intermediate cities regions accelerated visibly, narrowing their gap with large-metro frontiers, while the Eurozone's regional hierarchy remained rigid.

Productivity levels in the US, by OECD regional type and selected years



Source: DG REGIO elaboration, based on (Oliveira Martins, 2026)

Productivity levels in the EU, by OECD regional type and selected years



(1) No data for CY in the OECD dataset

Source: DG REGIO elaboration, based on (Oliveira Martins, 2026)

In addition, Europe's intermediate cities often lack the critical mass found in the US, where second-tier metros function as independent growth hubs. A big difference between the regional structures in the Eurozone and the US is that, despite similar population sizes, the US displays a much more concentrated pattern. The primary regions (New-York and LA metro areas) have approximately twice as many inhabitants than the European primary region: the metropolitan area of Paris. The US is also characterised by a number of second-tier city regions with a significant population size. It is this missing group of second-tier cities (6-10M inhabitants) that may be critically lacking in Europe, rather than a need for very big or mega-cities.

Methodological note: OECD regional typology

Based on the TL3 (NUTS3 for the EU) classification, regions can be further classified into metropolitan and non-metropolitan regions as follows:

- **Large metro regions**
- **Metro regions**
- **Non-metropolitan regions with access to a metro region**
- **Non-metropolitan regions with access to an intermediate (small/medium size) city region**
- **Remote regions**

For more details on the underying methodology (Fadic et al., 2019)

1.1.3. Regions in or at risk of economic stagnation: from southern recovery to emerging vulnerabilities

Regions in economic stagnation, defined here as those growing more slowly than the EU and/or national average, pose three risks if left unaddressed: (i) deepening territorial inequalities; (ii) leaving competitiveness potential untapped; and (iii) undermining the convergence that cohesion policy seeks to promote. The below maps examine these questions across EU NUTS2 regions, drawing on growth dynamics both in the long run (2004-2024) and in more recent years (2014-2024), before combining them with GDP per head levels to distinguish between structurally distinct forms of relative regional underperformance.

Over the longer period 2004-2024, a substantial share of EU regions shows signs of stagnation or is at risk of it (Map 1.1.4, on the left). Stagnating regions are particularly concentrated in Spain and Portugal, in parts of France and in Italy, and in Nordic EU countries. By contrast, regions in central and eastern EU, including Germany, Estonia, Poland and Romania, largely avoid stagnation, thereby reflecting stronger relative growth performance over this period.

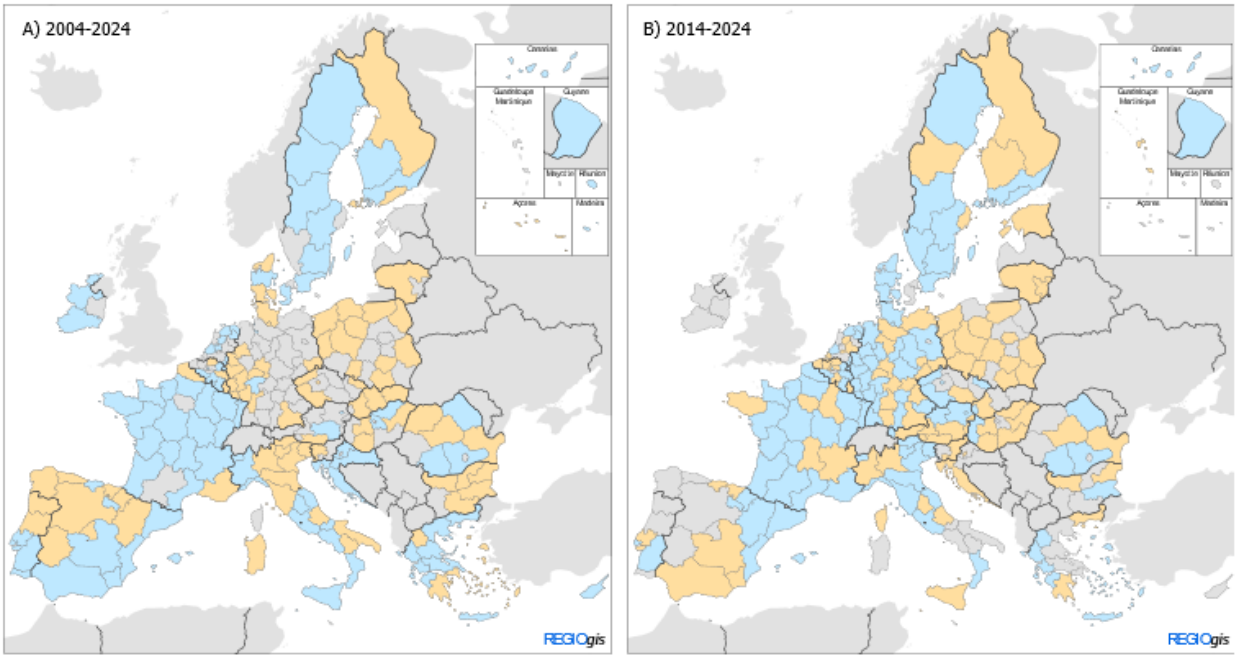
When the observation window is shortened to 2014–2024 (Map 1.1.4, on the right), the picture shifts markedly. Many regions in Germany and Estonia that do not appear as stagnating over the full period of analysis (Map 1.1.4, on the left) do appear as stagnating when only the last decade is considered (Map 1.1.4, on the right), suggesting that their earlier growth advantage may be deteriorating. Conversely, a number of regions in Spain, southern Italy, and Portugal that stagnated over the longer period moved out of that category in the more recent decade, pointing to a degree of recovery from the prolonged effects of the 2008 financial and sovereign debt crises.

Stagnation is therefore not a static condition: an emerging divergence sees some traditionally lagging southern regions showing renewed dynamism, while previously dynamic regions in the north and east of the EU begin to lose momentum.

Assessing stagnation through growth rates alone, however, is not enough. In regional development terms, it matters greatly whether underperformance occurs from a position of prosperity or of economic weakness. A region stagnating at high income levels faces a fundamentally different challenge than one stagnating while its GDP per head remains below EU or national averages. In the latter case, slow growth means that there is a risk that gaps in living standards and economic opportunity become structural.

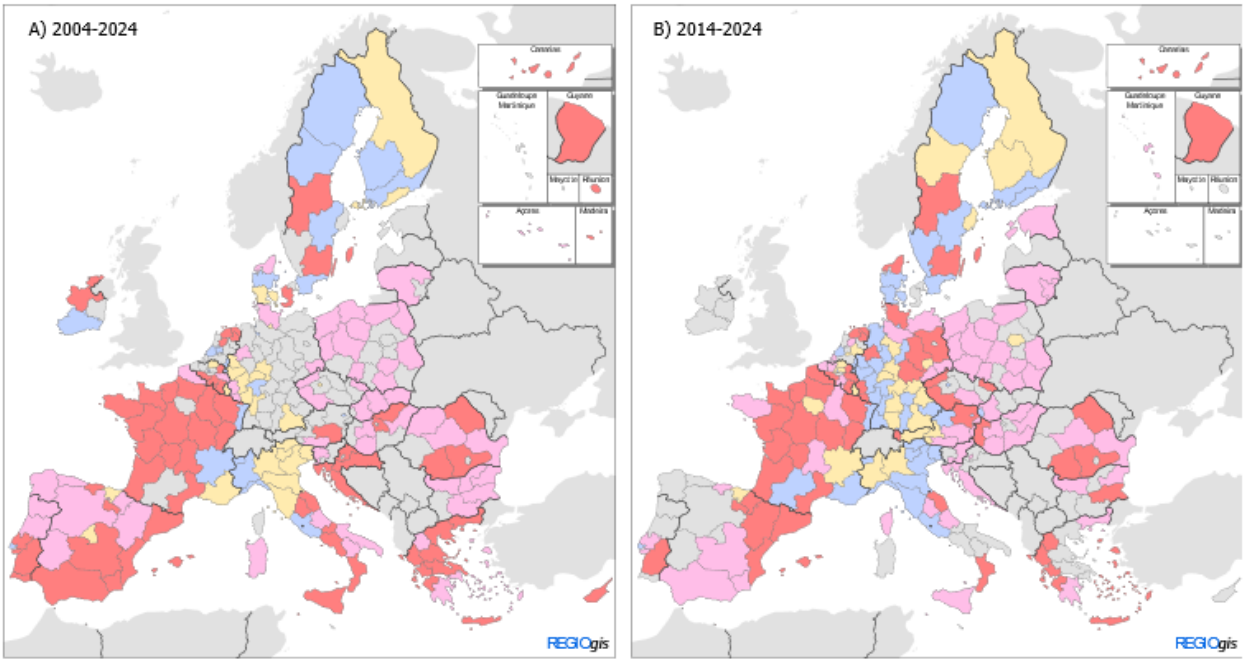
Factoring in the level of regional GDP per head reveals this distinction across EU regions (Maps 1.1.5). Over the years 2004-2024, most stagnating regions were also lagging in terns if income. They are concentrated in Spain, Portugal, southern Italy, Greece and the French outermost regions. Stagnating non-lagging regions, decelerating from a prosperous base, appear mainly in Finland and a few other western EU regions. In the last decade (Map 1.1.5, on the right), several regions in Spain, Portugal and in southern Italy moved out of stagnation, reflecting both improved growth and a gradual rise in relative levels of GDP per head, a tentative sign that some of the EU's most persistently lagging territories may be beginning to converge. Nevertheless, the *at-risk and lagging* category remains the most widespread, covering much of southern and south-eastern EU, while the emergence of German and central EU regions in this group signals that stagnation pressures have broadened geographically in recent years.

The geography of stagnation mapped here is, at its core, a geography of untapped potential. Regions that stagnate at low levels of GDP per head are not merely underperforming relative to their benchmarks, they are under-mobilising the productive capacity, human capital, and innovation potential they possess. This matters not only for those regions' own populations, but also for the EU economy as a whole: growth missed in lagging regions represents a permanent loss to aggregate EU output and competitiveness. By channelling investment into infrastructure, skills, education, research and innovation, and institutional capacity in regions where market forces alone have proved insufficient, cohesion policy aims at unlocking the latent productive potential that stagnation leaves dormant. The persistence of stagnation, and its geographical broadening in recent years, demonstrates the continued relevance of a place-based policy instrument designed to support regions where untapped potential is greatest.

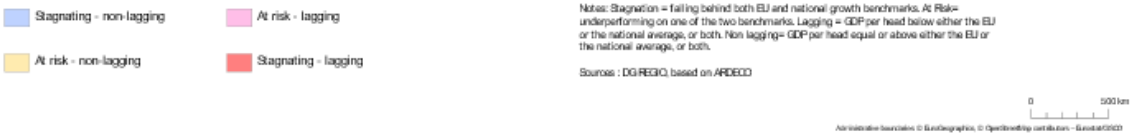


Map 1.1.4: Regions in or at risk of stagnation based on GDP growth





Map 1.1.5: Regions in or at risk of stagnation based on GDP per head (in PPS) in 2024 and GDP growth



Box 1.1.3: Identifying EU regions in stagnation or at risk-of

A region is considered as stagnating when it fails to grow relative to relevant benchmarks over a period, assessed jointly along two dimensions: GDP growth (benchmarked to the EU and national average) and GDP per head levels (benchmarked to the EU and national average).

Four indicators are computed for each NUTS2 region *r*, in country *c*.

1. Relative Growth Gap vs EU (GR_*r* − GR_EU); negative values indicate the region is falling behind the EU growth pace.
2. Relative Growth Gap vs National Average (growth_r − growth_c); negative values indicate the region is falling behind its own country's growth pace.
3. GDP Level vs EU (GDP_*r* / GDP_EU).
4. GDP Level vs National Average (GDP_*r* / GDP_*c*).

Values below 1 of indicators 3 and 4 indicate the region is falling behind the EU or its own country's GDP.

2-category classification: Regions are classified based solely on the basis of the two growth gap indicators. GDP level indicators are not taken into account for this classification.

1. Stagnating: both growth rates are below the benchmarks (EU and national).
2. At risk of stagnation: only one growth rate is below the benchmark (EU or national).

4-category classification: by adding GDP per head levels, regions are further distinguished between lagging and non-lagging, yielding four categories.

1. *Stagnating and lagging*: both growth rates are below the benchmarks (EU and national) and GDP per head below either EU, national or both.
2. *Stagnating and non-lagging:* both growth rates are below the benchmarks (EU and national) and GDP per head above or equal to either EU, national or both.
3. *At risk of stagnation and lagging:* only one growth rate is below the benchmark (EU or national) and GDP per head below either EU, national or both.
4. *At risk of stagnation and non-lagging:* both growth rates are below the benchmarks (EU and national) and GDP per head above or equal to either EU, national or both.

1.1.4. The geography of productivity

Regional productivity ([9]) matters beyond questions of economic, social and territorial equity. The 2024 Draghi Report on EU Competitiveness([10]) identified the EU–US productivity gap as an existential challenge: EU labour productivity, which was 95% of the US level by 1995, has since fallen below 80%. As is also the case for declining industries, this shortfall is not evenly distributed across the EU's territory. It is often concentrated in lagging regions, particularly in the southern and eastern EU, where weaknesses in investment, innovation, and institutional quality reinforce one another, despite recent signs of a productivity revival in the south.

The 2024 Letta Report ([11]) raised a related concern: the single market (although historically a driver of regional convergence through trade, cohesion transfers, and labour mobility) risks deepening territorial inequality if: (i) its productivity benefits remain unevenly distributed and (ii) if barriers to knowledge-intensive activities persist and are not addressed through targeted policies to ensure broader distribution.

The single market supports regional productivity through three main channels: (i) by enabling specialisation and economies of scale through

([9]) Labour productivity is in what follows measured as GDP per hour worked. Throughout the chapter, the terms *productivity* and *labour productivity* are used interchangeably.

([10]) (Draghi, 2024)

([11]) (Letta, 2024)

market integration; (ii) by facilitating technology diffusion, though peripheral regions absorb frontier technologies more slowly; and (iii) through the integration of services and digital sectors, where incomplete integration constrains gains precisely where regional disparities are sharpest. Understanding regional productivity patterns is therefore central to EU competitiveness, not merely to territorial equity.

The 2026 European Semester spring Communication (European Commission, 2026a) provides an outline of ongoing key actions in various Member States strengthening the single market and points to the importance of enhancing economic, social and territorial cohesion.([12])

Productivity growth: A divided landscape

Labour productivity growth across EU regions over the past two decades has been deeply uneven and closely mirror the changes in GDP discussed earlier in this chapter.([13]) Between 2014 and 2024, eastern EU regions broadly outperformed the EU average, benefiting from market integration, inflows of foreign direct investment, and structural reforms that allowed them to unlock their catch-up potential (Map 1.1.6). Germany's eastern regions displayed a similar dynamic, continuing to close the gap with their western counterparts. Regions in Greece, Spain, Italy, and Portugal have resumed productivity growth but with pockets of persistent underperformance in regions that may be held back by structural rigidities, low investment rates, limited industrial dynamism and low levels of investment in human capital.

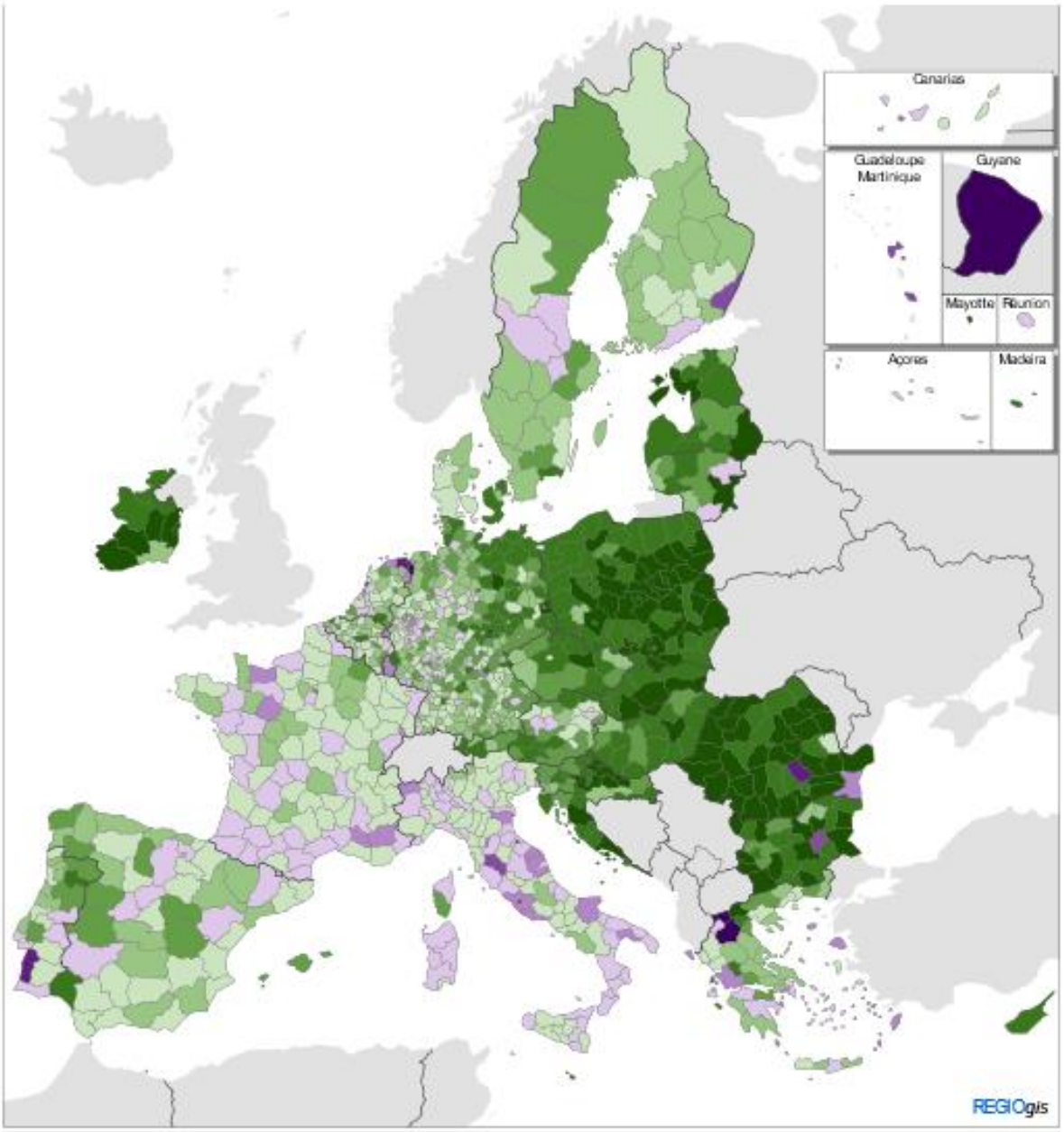
Labour productivity ([14]) in 2023 (Figure 1.1.7) shows that decades of differentiated growth are reflected in substantial and durable productivity gaps, both between and within countries. Capital regions stand out almost universally above their national averages, often by a wide margin, reflecting the wide availability of high-value services, headquarter functions, and skilled labour. Many regions outside national capitals, even in otherwise high-productivity Member States, remain well below both their national and EU benchmarks. The within-country spread of regional values is notable and may suggest significant structural disparities.

This within-country dispersion varies considerably across Member States. The widest gaps between the best and weakest performing regions are found in several northern and central Member States, such as Belgium, Denmark, Ireland, France, and Germany. In many southern and eastern Member States, by contrast, regional values are more closely clustered at low levels, with the capital region often the only one close to or above the EU average, while national productivity remains low overall.

([12]) (European Commission, 2025a)

([13]) More recently, it remained weak in the EU constrained by high energy prices, sluggish innovation and investment, fragmented markets, skill mismatches and labour shortages. (European Commission, 2026f)

([14]) Measured as GDP per hour worked in PPS (EU=100).



Map 1.1.6: Productivity growth, 2014-2024

Growth of real GDP per hour worked (average annual % change)

< -2.5	0 - 0.5
-2.5 - -1.5	0.5 - 1
-1.5 - -1	1 - 1.5
-1 - -0.5	1.5 - 2.5
-0.5 - 0	≥ 2.5

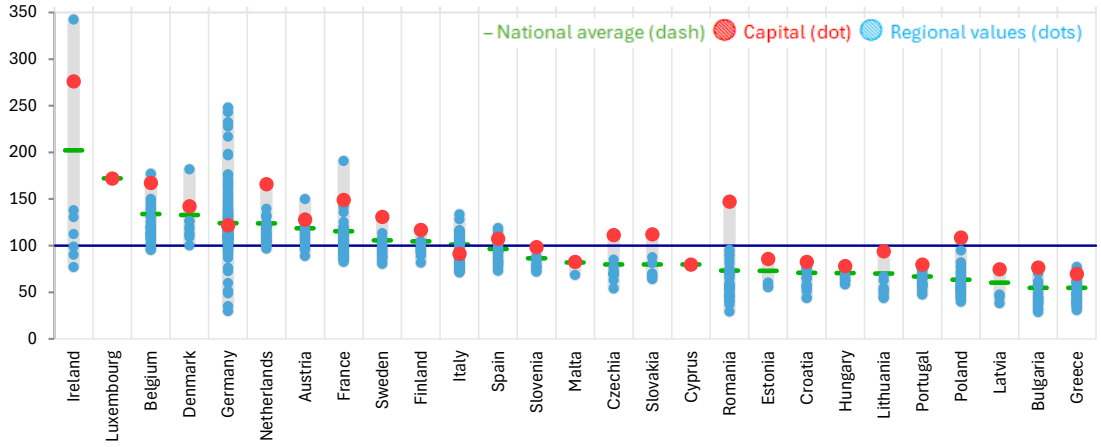
Note: Data for 2024 for NUTS3 regions is a pastcast (downscaling) from Eurostat data for NUTS2 regions

Sources: ARDECO database

0 500 km

© EuroGeographics Association for the administrative boundaries

Figure 1.1.7: Regional productivity (EU=100) in NUTS3 regions, 2023



(1) Measured as GDP per hours worked. GDP per hour worked is shown for 2023, the latest year for which data on hours worked were available at NUTS 3 level at the time of drafting of this report.

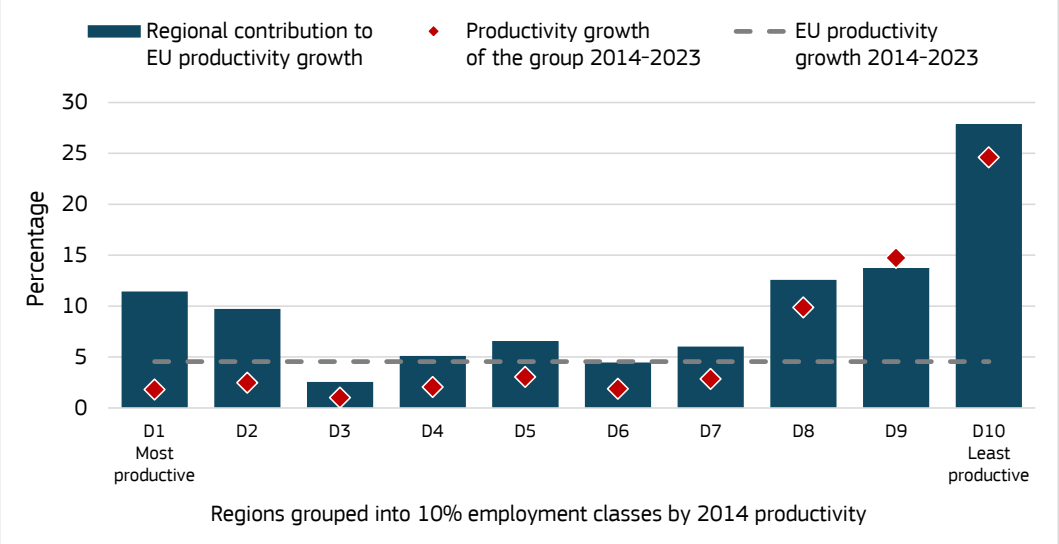
Source: DG REGIO based on ARDECO

Productivity growth in the EU is driven by its least productive regions

Between 2014 and 2023, EU-26 labour productivity ([15]) rose by 4.5%. Most of that growth came from the less productive regions catching up, not from the richest ones. **The least productive regions** (that occupy the 8th, 9th and 10th decile in Figure 1.1.8) generated 55% of the total growth. The **most productive regions** contributed about 21%. And by only looking at the very lowest group (10th decile), productivity grew by 25% and alone accounted for 28% of the EU's growth, the largest share of any group. Productivity growth between 2014 and 2023 was thus driven largely by catching up in the least productive regions. **Looking ahead, EU competitiveness depends significantly on raising productivity in all its regions, not only in the most productive ones.**

([15]) Here measured as GVA per worker. Irish GDP/GVA is strongly affected by multinational enterprise activities. Including Ireland would heavily skew the cross-regional distribution.

Figure 1.1.8: Productivity growth and contribution to EU-26 productivity growth by 2014 productivity class, NUTS 3 regions, 2014–2023



(1) The horizontal axis shows NUTS 3 regions ranked by 2014 productivity (GVA per worker) and grouped into ten classes of 10% of EU employment each, from decile 1 (D1: most productive) to decile 10 (D10: least productive). The vertical axis is in % and shows three measures: bars give each class's share of EU productivity growth 2014–2023 (adding up to 100%); diamonds give the productivity growth of the class over the same period; the dotted line gives EU productivity growth 2013-2024.

Source: JRC calculations based on ARDECO (SOVGE, SNETD)

Most regions are moving closer to the productivity frontier, but not all

Standard convergence analysis shows whether regions are becoming more similar over time, or whether poorer ones grow faster than richer ones, but this is only part of the story. A complementary question is whether low-performing regions are closing the gap with the best-performing economies – not merely with the EU average – a concept often called "catching-up to the frontier".([16]) This distinction matters: a region can converge towards the EU mean while still falling further behind the frontier, if advanced regions grow even faster. To measure this, each EU NUTS3 region is compared each year with the top 20% of regions by productivity level. A narrowing gap signals progress; a widening gap signals stagnation or divergence from the best performers.

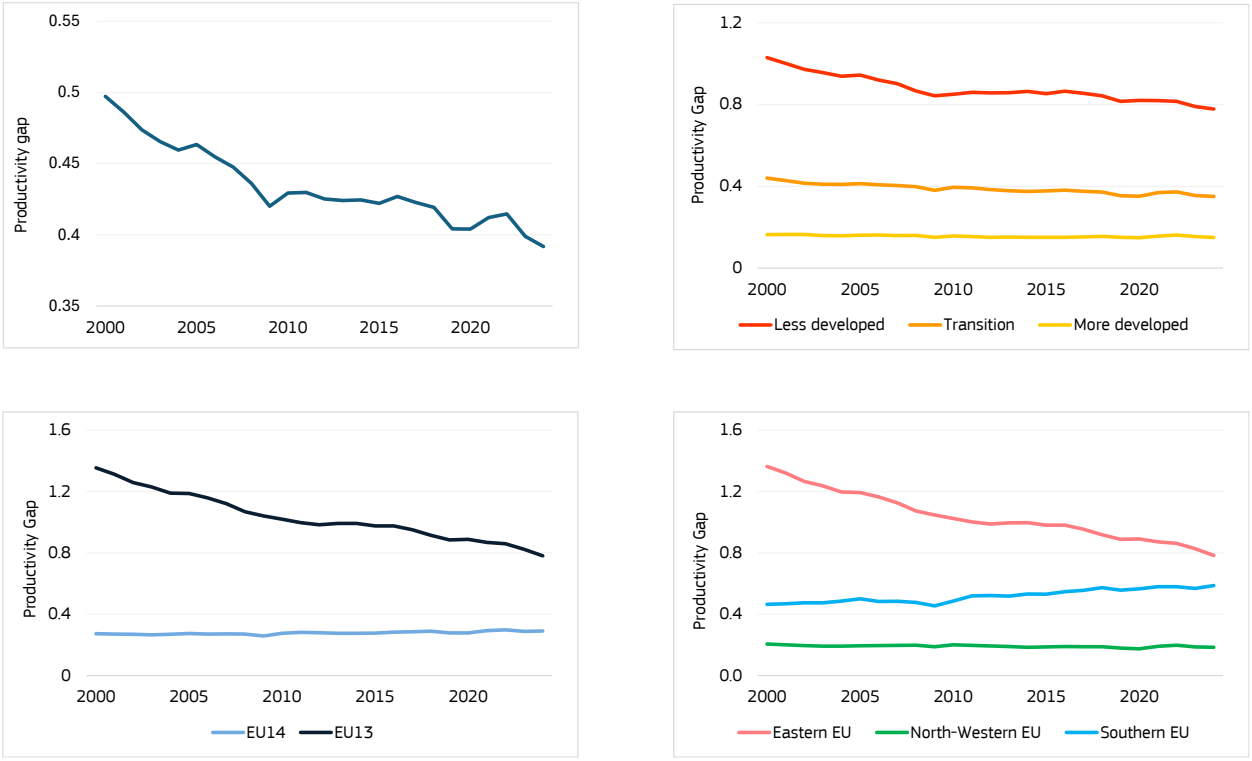
The results point to broad but uneven catching-up to the frontier across EU regions over 2000–2024 (Figure 1.1.9, (top-left quadrant)). Most regions have reduced their distance from the productivity frontier, though the pace of convergence has slowed over time. The productivity gap with the frontier was closing steadily before halting after the 2008 global financial crisis. It began narrowing again as the recovery progressed, widened temporarily during the COVID-19 pandemic, and has narrowed steeply again in more recent years. Improvement has been concentrated in less developed regions, and in particular in regions belonging to the EU13 Member States (Figure 1.1.9, top-right and bottom-left), where strong productivity catch-up has translated into a visible narrowing of the frontier gap. Southern EU regions followed a markedly different path: productivity gaps relative to the frontier were already stabilising or widening during the 2000s and deteriorated further from 2008 onwards as the sovereign debt crisis compounded pre-existing structural weaknesses (Figure 1.1.9, bottom-right).

What sets high-productivity regions apart: employment, economic structure, and demography

Regions at different productivity levels display distinct economic, labour market and demographic profiles. The indicators examined in this section aim at capturing key dimensions that can profile regional productivity: (i) the employment rate reflects how effectively a region mobilises its labour force; (ii) average hours worked helps distinguish whether productivity differences stem from variations in working time

([16]) (OECD, 2018b)

Figure 1.1.9: Productivity gap relative to top-performing regions, 2000–2024, by NUTS3 regions and selected groups of regions



(1) EU13: regions joining EU since 2004; EU14: otherwise.
Source: DG REGIO based on ARDECO

or in underlying efficiency; (iii) the sectoral composition of employment reflects economic structure; and (iv) the old-age dependency ratio captures demographic pressures, since ageing populations can constrain labour supply and weigh on economic performance.

The findings in Tables 1.1.1 and 1.1.2 reveal a clear pattern.([17]) Low-productivity regions typically combine lower employment rates, longer working hours, and an above-average reliance on agriculture and low-value-added industry, while advanced and public services remain underdeveloped. In low-to-middle productivity regions, patterns are more varied: some continue to struggle with low employment and dependence on low-skilled services, while others, closer to the middle of the distribution, lean more heavily on public, education and training, and care sectors, and tend to face greater demographic ageing. At the top of the productivity distribution, regions display higher employment rates, shorter working hours, a larger share of employment in advanced services, and comparatively mild demographic pressure. The share of industrial employment appears broadly similar across all productivity quintiles. This average, however, likely conceals important differences in the composition of industrial activity, notably in the technological sophistication and value added of manufacturing, that aggregate employment shares do not capture.([18])

([17]) This analysis investigates productivity differences across EU NUTS3 regions by classifying them into five quantile levels, from the lowest to the highest performer. Such a distributional approach facilitates a more nuanced comparison of regional disparities and highlights structural patterns that may not be visible in aggregate measures.

([18]) These associations should be interpreted with caution. The patterns documented here are best understood as mutually reinforcing characteristics of regions with low or high productivity, rather than as a clean hierarchy of causes and effects. More fundamentally, they suggest that policy aimed at improving productivity need to consider the specific characteristics of different types of regions, as national productivity policies can often lead to asymmetric effects across regions. For example, in low-productivity regions, workers tend to compensate for lower hourly remuneration by working longer hours. On the other hand, the concentration of advanced services in high-productivity regions reflects both the

Table 1.1.1: Key characteristics of NUTS3 regions across productivity levels, 2023: summary of the results.

	Regional productivity				
	Low	**Low to middle**	**Middle**	**Middle to high**	**High**
Employment rate	Low	Low	Moderate	Moderate –high	High
Average hours worked	Long	Long	Moderate	Moderate -low	Low
Agricultural employment share	High	Moderate	Low–moderate	Low	Low
Industrial employment share	Average	Average	Average	Average	Average
Low-skilled services share	Moderate	High	Moderate -high	Low-moderate	Low
Advanced services share	Lowest	Low	Moderate	Moderate –high	High
Public/education/care services share	Low	Moderate	Moderate	High	Moderate
Old-age dependency ratio	Low	Moderate	High	Moderate	Low

(1) Quintiles rank regions from lowest (Q1) to highest (Q5) productivity. Higher values are more favourable for all indicators, except agricultural employment and old-age dependency, where lower is better.

Source: DG REGIO based on ARDECO

premium those sectors generate and the tendency of high-productivity environments to attract knowledge-intensive activities. And demographic ageing, while it can weigh on productivity through labour supply constraints, is also accelerated by the emigration of younger workers from persistently underperforming regions (see Chapters 2.1 and 2.2).

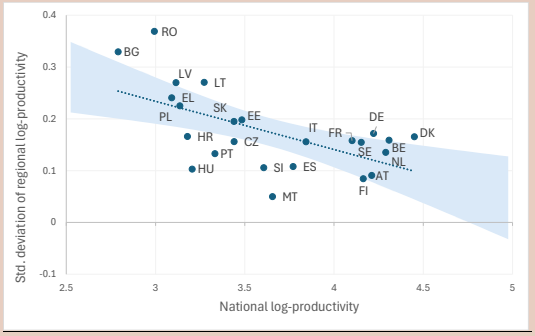
Box 1.1.4: Regional Productivity Dispersion in EU Manufacturing and Economic Development

While some productivity disparities within and between territories in a common market are inevitable, the problem arises when these gaps grow so large that they undermine allocative efficiency, hinder regional convergence, and distort the functioning of the European Single Market, by creating uneven competitive conditions. Left unaddressed, such divergences risk stifling overall growth and impeding the efficient allocation of resources.

Recently, using World Bank Enterprise Surveys from approximately 100 countries, it was demonstrated that productivity disparities between the most and least productive firms tend to be more pronounced in developing countries (Restuccia, 2025).

This Box examines whether the same relationship applies to regions within the EU. First, it draws on national and regional Eurostat data, and then on more detailed firm-level data. Eurostat data reveals that more productive Member States tend to have smaller productivity gaps between their regions than less productive countries. This relationship is statistically significant (Spearman's rho = -0.55, p = 0.01).([1])

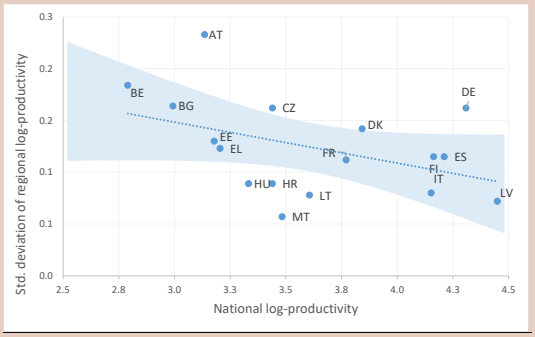
Regional productivity dispersion and economic development, 2024



(1) Regional Productivity Dispersion and Economic Development

Source: DG REGIO based on ARDECO

National productivity and within-country regional disparities, based on firm level data for the manufacturing sector, average 2022-2024



(1) The vertical axis shows how much regional productivity varies within a country (a higher value means bigger gaps between regions), based on firm-level data. The horizontal axis shows national productivity (GDP per worker, log scale), using ARDECO, based on Eurostat data.

Source: The vertical axis shows how much regional productivity varies within a country (a higher value means bigger gaps between regions), based on manufacturing firm-level data. The horizontal axis shows national productivity (GDP per worker, log scale), using ARDECO, based on Eurostat data.

This finding remains consistent when using detailed firm-level data on individual companies across EU regions (Graph 2). This analysis draws on data from the ORBIS database (Bureau van Dijk) covering 165 932 manufacturing firms across 17 Member States from 2022 to 2024.([2]) The firm-level data confirms previous findings that countries with higher productivity tend to have smaller regional productivity gaps.

Furthermore, when comparing within-region productivity disparities and regional development levels as proxied by GDP per capita in purchasing power standards (PPS) at the NUTS3 level, the negative relationship becomes even more apparent (Spearman's rho = -0.35, p < 0.01). This result supports the long-held economic theory (Williamson, 1965) that economic development and the narrowing of regional disparities are linked, and is consistent with well-established European research (Lessmann, 2014); (Iammarino, Rodríguez-Pose and Storper, 2019).

([1]) Cyprus and Luxembourg are excluded from this analysis due to no variation (only one NUTS-3), and Ireland for outlying values.
([2]) Countries with poor data coverage in the ORBIS database were excluded from the analysis due to concerns regarding the regional representativeness of the data.

Table 1.1.2: Key characteristics of NUTS3 regions across productivity quintiles, 2023: detailed table.

	Regional productivity				
Indicator	**Low**	**Low to middle**	**Middle**	**Middle to high**	**High**
Productivity growth 2013-23 (%)	2.28	0.68	0.88	0.61	0.51
Employment rate (%)	72.54	71.54	76.04	78.32	79.30
Hours worked per employed	1856.79	1689.92	1490.73	1450.65	1413.04
Empl share Agriculture (A)	0.14	0.07	0.04	0.02	0.01
Empl share Industry (B-E)	0.23	0.14	0.17	0.19	0.16
Empl share low service (G-I)	0.22	0.27	0.22	0.22	0.22
Empl share ICT service (J)	0.02	0.02	0.02	0.02	0.03
Empl share advanced service (K-N)	0.08	0.12	0.13	0.15	0.18
Empl share public, edu and care services (O-Q)	0.19	0.24	0.28	0.27	0.27
Old age dependency ratio	37.15	41.46	43.50	39.12	36.15

(1) Quintiles rank regions from lowest (Q1) to highest (Q5) productivity. Higher values are more favourable for all indicators, except agricultural employment and old-age dependency, where lower is better.

Source: DG REGIO based on ARDECO

1.1.5. Conclusions

The past two decades have reshaped the economic geography of the European Union in fundamental ways. The accession of eastern European countries was accompanied by a sustained convergence process that has significantly narrowed the GDP per head and productivity gap between new and old Member States, a level of transformation without precedent in the EU's history. However, this success has been uneven in both time and space. The 2008 financial crisis abruptly interrupted convergence, exposing the fragility of growth models in the southern EU that had relied on capital inflows and non-tradable sectors for their growth, rather than on productivity gains. From 2013 onwards, convergence resumed, and regions in the southern EU began posting genuine productivity improvements, but the gap with the EU's most dynamic regions has not closed yet.

Beneath these broad national trends, the internal geography of growth and productivity has become more unequal. Although disparities *between* EU (NUTS2) regions have generally declined, divergence *within* them has increased. This shift signals that while interregional gaps are narrowing intraregional disparities are widening.

In eastern Member States, capital regions have pulled sharply ahead of the rest of their countries, capturing a disproportionate share of productivity gains and foreign investment. In southern EU countries, large regional disparities in productivity persist, with the distance from the productivity frontier widening. **The cohesion agenda has not narrowed but expanded, reaching**

beyond gaps between Member States to those within them.

These productivity gaps can be read as an indication of untapped potential. The regions furthest behind the most productive ones do not necessarily lack productive assets. Many have valuable human capital, a favourable geographic position and natural resources that remain underused because of insufficient investment, weak connectivity or limited access to knowledge networks (see the following chapters). Closing these gaps is not merely an equity objective: it is a precondition for raising EU-wide productivity and competitiveness in the context of the challenges identified in the Draghi Report.

Examining what distinguishes high- from low-productivity regions points to structural features that are slow to change: industrial structure, and the quality, not merely the quantity, of industrial activity. This requires policies that take account of these differences. Addressing these disparities requires sustained investment in human capital, innovation capacity, and institutional quality that take account of the diversity of EU regions.

Regions in development traps tend to show a stronger sense of being left behind and lower trust in the EU (European Commission, 2024c). Research also suggests EU funds can strengthen that trust when they help promote tangible improvements in local economic opportunities (Crescenzi, Di Cataldo and Giua, 2020)

The 2026 country-specific recommendations (CSRs) reflect these territorial challenges. The Council recommended that Croatia foster investment in research and innovation 'while considering regional disparities', Belgium 'address regional disparities" and Austria tackle "regional mismatches". Czechia is called upon to strengthen administrative capacity "both in central government and disadvantaged regions", and France to promote diversification and employment in 'regions affected by industrial transition'. (Council of the European Union, 2026)

Cohesion policy can help to turn this untapped potential into economic performance, through its investments in productive infrastructure, innovation ecosystems, people, education and skills. This is particularly relevant in less developed regions, where market mechanisms alone may not deliver the necessary transformation.