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EUROPEAN RESEARCH PROJECT //

Collecting and analysing data for the post-27 INTERREG (Core-IB)

Greece-Bulgaria

Border profile

March 2026

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1 Introduction

1.1 Context and objective of the border profile

The ESPON Core-IB project (Collecting and analysing data for the post-27 INTERREG) provides evidence-based, non-binding analytical work to support the next generation of Interreg programmes post-2027. By collecting and analysing harmonised territorial data, the project highlights key socio-economic characteristics, cross-border interactions, and governance structures. Its spatial focus covers 48 cross-border cooperation areas (40 land and 8 maritime), including all EU internal border regions and those bordering Liechtenstein, Switzerland, and Norway. The findings are analytical and informative; they do not create regulatory or policy obligations for Member States, the European Commission, or programme authorities. Each border profile serves as a comparable knowledge base for policymakers at EU, national, and regional levels, supporting dialogue and reflection rather than prescribing policy choices. The profiles aim to provide consistent, data-driven territorial evidence that can inform strategic discussions about future cross-border cooperation and contribute to the preparation of Interreg programmes post-2027.

The Core-IB border profiles are designed to support the upcoming steps in the Interreg programming process with analyses based on data that is available at the European scale, including ESPON, Eurostat, DG REGIO, JRC, and Interreg databases. Their main purpose is to ensure comparability of data analyses and to provide programme areas with access to recent harmonised data at high geographical resolution (NUTS3 level or finer). Member States may hold additional or more detailed data which can further enrich or contextualise the findings beyond the Core-IB project. These national sources are essential for refining and validating territorial evidence in policymaking processes, including additional regional, fine-scale information and insights from political processes related to prioritisation and objective setting. All border profiles follow a systematic and methodologically robust approach. They provide territorial evidence, structured along 6 thematic dimensions, offering insights into the geographic, economic, environmental, socio-economic, border security and governance characteristics of the border region. Quantitative data and qualitative analyses are combined to ensure meaningful insights into all 48 border areas. Due to methodological constraints and limited resources, local studies and national datasets falling outside the European data framework could not be included. Visualisations, such as maps and charts based on descriptive statistics, facilitate understanding and support evidence-based policymaking. The profiles analyse the border region as a whole at NUTS3 (2021) level (corresponding to the current Interreg VI-A programme area)[1] and position it within a broader European context. For comparative purposes, several reference categories are applied:

- European averages (EU27 + Norway, Switzerland and Liechtenstein, depending on data availability)
- National averages
- National border region averages
- Aggregated border region averages

To complement the quantitative evidence, the profiles also draw on strategic and qualitative sources, including:

- Strategic documents from the Interreg Programme 2021-2027
- Border Orientation Papers from the 2021-2027 programming period
- Information from the keep.eu database on cross-border cooperation activities
- Information from the Cohesion Open Data platform
- Information from the b-solutions initiative
- Information from recent ESPON Projects (i.e., CROSSGOV, House4All, PROFECY Update, CPS 2.0)

[1] As defined by Annex 1, Commission Implementing Decision (EU) 2022/74 of 17 January 2022, as amended by Commission Implementing Decision (EU) 2023/1638 of 14 August 2023 (OJ L204, 17.8.2023, p. 9): https://eur-lex.europa.eu/eli/dec_impl/2022/75/oj/eng

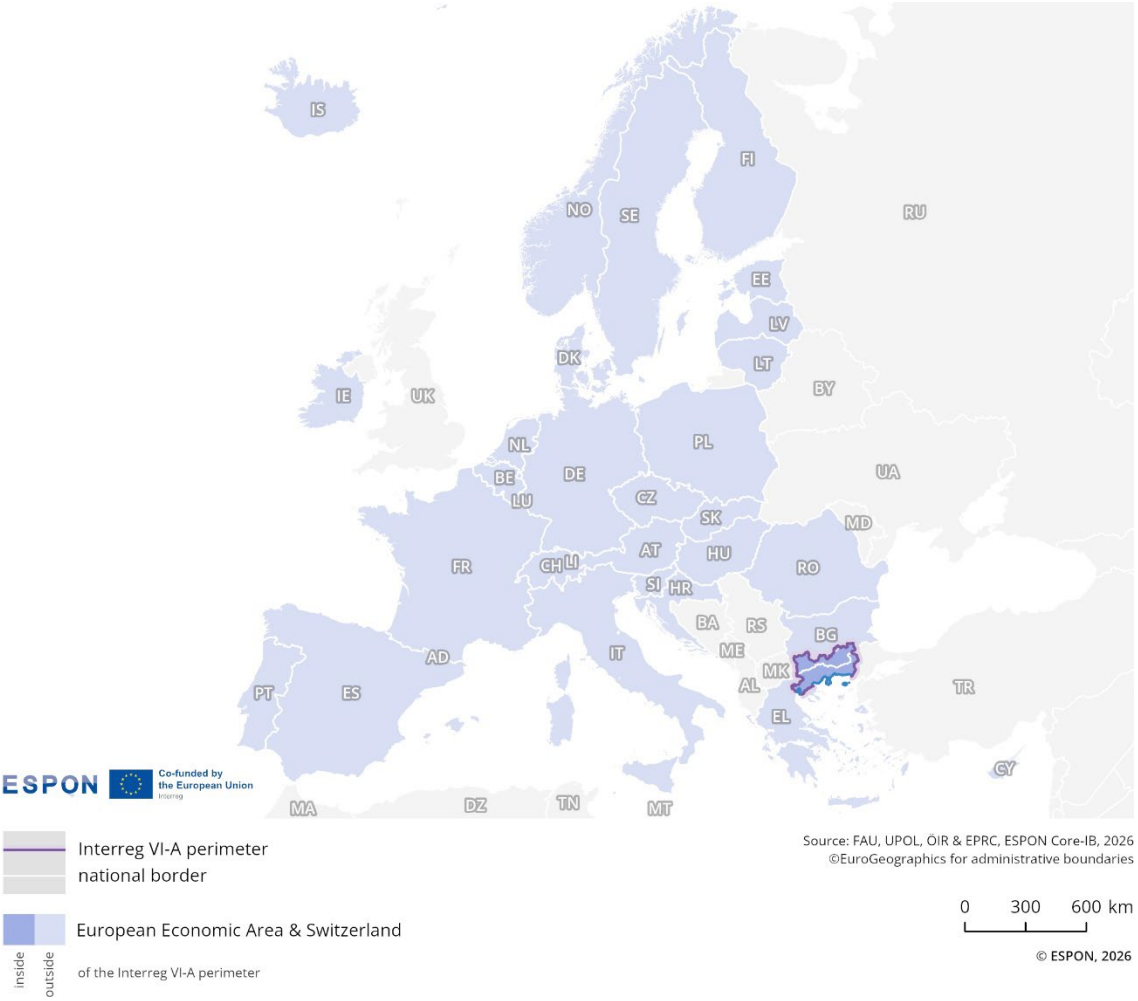
Within the ESPON framework, the CROSSGOV project (Governance mechanisms for cross-border functional areas) has been implemented in parallel to Core-IB. The CROSSGOV hub[2] provides a comprehensive platform for interactive data exploration, and selected data have been incorporated into this study.

Additional project-related information can be explored separately in the Core-IB **Final Report**. Further technical information on this border profile can be found in a separate **Technical Annex** providing an overview of data and methods.

1.2 Presentation of the border area

The INTERREG VI-A border region 'Greece-Bulgaria' covers the area between north-eastern Greece and southern Bulgaria (see Figure 1.1). In Greece, the programme area includes all NUTS3 regions of Eastern Macedonia and Thrace, as well as 2 NUTS3 regions of Central Macedonia, bringing the total to 7 eligible NUTS3 regions (Drama, Evros, Rodopi, Thassos/Kavala, Xanthi, Thessaloniki and Serres). In Bulgaria, it covers parts of the Southwestern and South Central NUTS2 regions, encompassing a total of 4 NUTS3 regions (Blagoevgrad, Haskovo, Kardzhali, Smolyan).

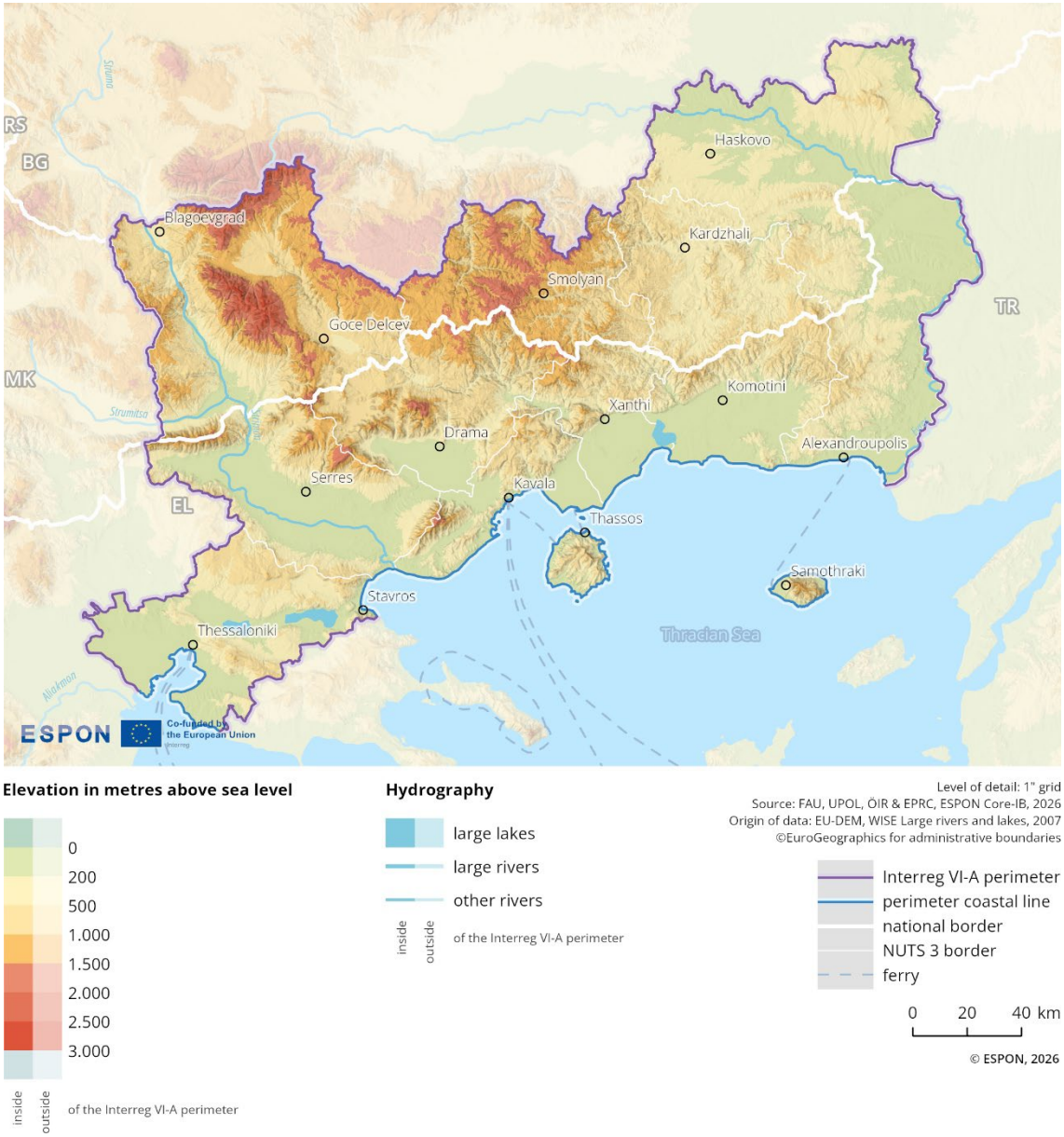
Figure 1.1: Overview map



[2] ESPON CROSSGOV Hub: https://gis-portal.espon.eu/arcgis/apps/experiencebuilder/experience/?id=27e3b86ef44441b08793a2239c370607

Figure 1.2 shows the region's geomorphological features and the perimeter of the current INTERREG VI-A programme area. The border region extends along the entire 475-kilometre length of the Greek-Bulgarian border. The border stretches from west to east, beginning at the tri-border point between Greece, Bulgaria, and North Macedonia and ending at the tri-border junction between Greece, Bulgaria, and Turkey. The majority of the border runs along the Rhodope Mountains.

Figure 1.2: Geographical features and characteristics[3]



The programme area is characterised by a diverse topography that transitions from rugged mountains in the west to hilly and flat lowlands in the east. The Rhodope and Pirin Mountains dominate the western and central sections of the border area with their forested valleys and steep ridges, while the eastern part opens into the plains of Thrace and the Maritsa/Evros River valleys. The area also includes parts of the Mesta/Nestos and Struma/Strymonas river basins.

[3] The selection of displayed settlements is based on factors such as size, administrative or cultural importance, transport links, regional coverage and cartographic clarity. This is part of a standard cartographic generalisation process with no pre-set thresholds, and the main aim is to provide orientation.

In the south, the programme area extends to the Aegean coast and includes islands such as Thassos and Samothraki. The land–sea interface adds to the geographical diversity. The coastal and near-coastal zones accommodate plains mainly used for agriculture, contrasting with the forested and mountainous hinterlands.

The settlement structure reflects these geomorphological contrasts. In the mountainous and rural areas, settlements are smaller and more dispersed. In contrast, towns and cities in the plains and coastal zones are more densely populated and economically active. Key cities in the programme area include Thessaloniki, Serres, Drama, Komotini, and Alexandroupoli on the Greek side, and Blagoevgrad, Smolyan, Kardzhali and Haskovo on the Bulgarian side.

2 Cross-border analysis

2.1 Territorial dimension

The territorial dimension refers to the spatial characteristics and dynamics of a border region. It specifically depicts how factors such as population density, demographic trends, changes in settlement areas and accessibility influence and reflect cross-border integration.

2.1.1 Population and settlements

This sub-dimension illustrates the population characteristics and land use dynamics of the border region, based on analysed indicators. It examines population density, population development by age groups, and changes in settlement areas. The analysis highlights whether the border functions as a catalyst for integration or as a barrier. Comparisons with the respective countries and the EU average provide context for understanding the region's dynamics.

2.1.1.1 Population density

Indicator description

Population density refers to the number of residents per km². This indicator shows the number of inhabitants per square kilometre in a 1x1 km grid. It therefore provides information on the distribution and concentration of population across the region and allows to identify agglomerations of high density. In particular agglomerations at or close to the border area of key interest.

- **Source**: Eurostat
- **Temporal coverage**: 2021
- **Unit**: Inhabitants/km^2

Please refer to the technical annex for more information.

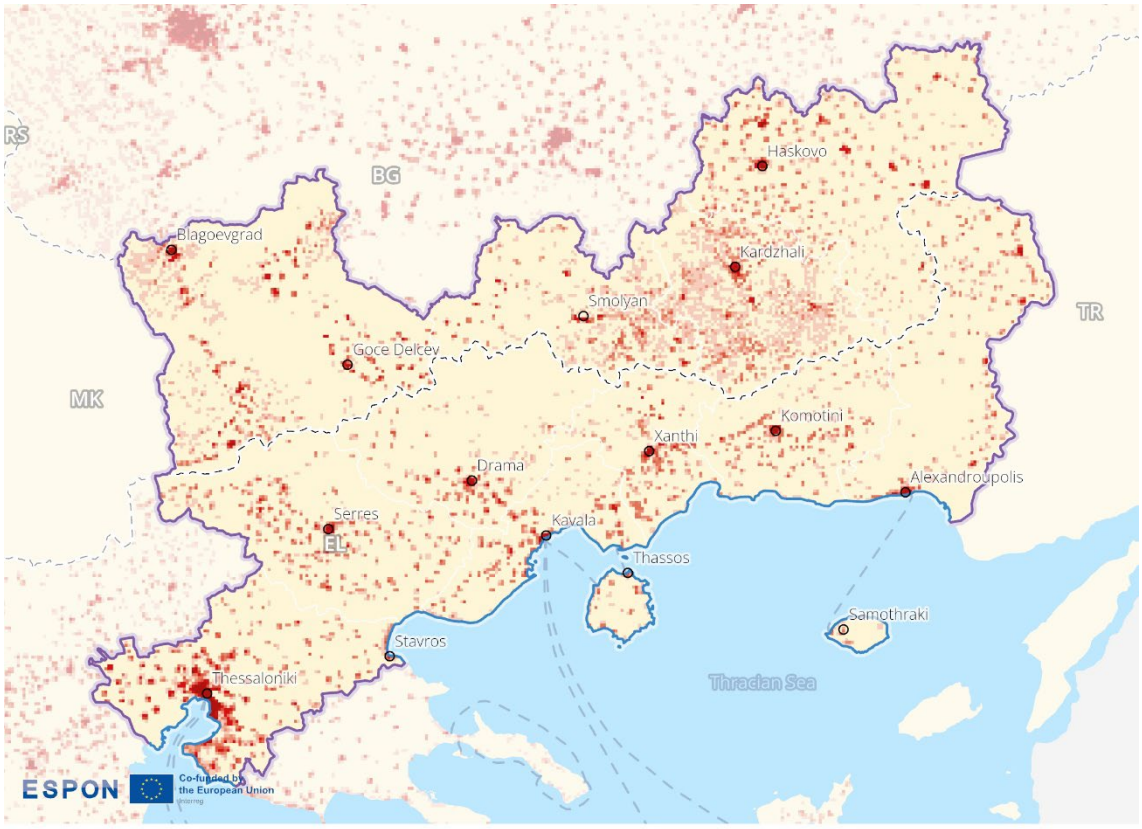
Figure 2.1 illustrates that population density varies within the cross-border region. On the Bulgarian side, the eastern area encompassing Haskovo, Kardzhali, and Smolyan stands out for having both a relatively high population density and a more evenly distributed settlement pattern, as evident from the dense and consistent red-dot clusters on the figure. This contrasts with other parts of the region, where sparsely populated mountainous areas and isolated urban centres dominate the landscape. The most populous urban centre in the region is located on the Greek side – the port of Thessaloniki (over 300,000 inhabitants) in the south-west. Overall, the border region includes 15 urban centres with a population exceeding 30,000 inhabitants.

The population density in the Greece-Bulgaria border region is 61 inhabitants/km², which is lower than the EU average of 109 inhabitants/km² (according to Eurostat), and the aggregated average of all EU evaluated border regions, which is 125 inhabitants/km².

The part of the border region in Bulgaria has an average population density of around 38 inhabitants/km². It is lower than the national average population density in Bulgaria (57 inhabitants/km²).

The part of the border region in Greece has an average population density of around 78 inhabitants/km². It marginally exceeds the national average population density in Greece (73 inhabitants/km²).

Figure 2.1: Spatial patterns of population distribution



Number of inhabitants/km² (2021)

- 1–50
- 51–100
- 101–200
- 201–500
- 501–1,000
- 1,001–5,000
- 5,001–56,158
- no population

inside / outside of the Interreg VI-A perimeter

Twin cities (2025)

cities/towns with 10,000+ inhabitants not further than 5km from another one accross a country border

Border cities (2025)

other cities/towns with 10,000+ inhabitants not further than 10km from another one accross a country border

Level of detail: 1km grid
Source: FAU, UPOL, ÖIR & EPRC, ESPON Core-IB, 2026
Origin of data: GISCO Population Grid (version 1.3), 2021
OpenStreetMap, 2025
©EuroGeographics for administrative boundaries

- Interreg VI-A perimeter
- perimeter coastal line
- national border
- NUTS 3 border
- ferry

0 20 40 km

2.1.1.2 Population development (by age groups)

Indicator description

Population development refers to the percentage change in population at regional level between 2014 and 2024. The data reflects on the total population, as well as on the age groups 0-14, 15-64 and 65+.

- **Source**: Annual Regional Database of the European Commission (ARDECO)
- **Temporal coverage**: 2014-2024
- **Unit**: Change in %

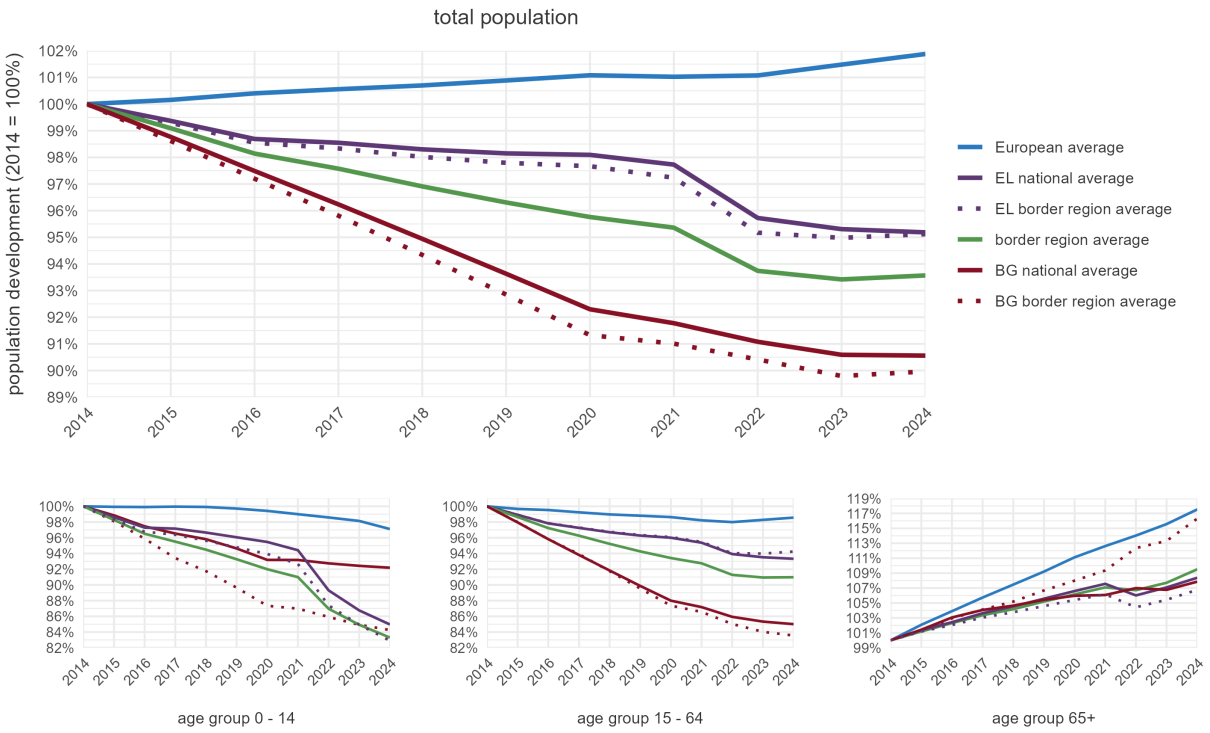
Please refer to the technical annex for more information.

Population in the Greece–Bulgaria border region in 2024 (Eurostat) includes 2.5 million inhabitants, of which:

- 28.9% in the Bulgarian border territory (0.73 million inhabitants)
- 71.1% in the Greek border territory (1.8 million inhabitants)
- The NUTS3 region, within the border region, with the highest population decrease since 2014 is Smolyan (BG424) experiencing decrease of -19.7%.

Figure 2.2 illustrates the population change in the Greece–Bulgaria border region between 2014 and 2024. Over this period, the region experienced a moderate decline of -6.4%, which is in contrast with the European average showing a population increase of 1.5%. Notably, the population decrease was a more pronounced on the Bulgarian side of the border (-9.4%), compared to -4.8% on the Greek side. Population changes on both sides of the border generally follow national trends.

Figure 2.2: Population development (2014=100)



In terms of the population development within individual age groups, the population aged 0–14 experienced a sharp decrease of -16.7%, while the working-age population (15–64) showed a marked decrease of -9.0%. The population aged 65 and over underwent a notable increase of 9.5%.

2.1.1.3 Change in settlement areas

Indicator description

The indicator shows the relative change in settlement areas per LAU in the border region. It considers changes in land cover, from non-artificial areas (such as agricultural, forest and seminatural areas, wetlands and water bodies) to artificial areas (such as urban, industrial, construction sites) between 2012 and 2018. This indicator has to be viewed alongside population development in particular.

- **Source/method of retrieval**: The indicator is retrieved via processing of raster data from CORINE Land cover. The raster information is crossed with Local Administrative Units (LAU) to calculate a change in %.
- **Temporal coverage**: 2012-2018
- **Unit**: Change in %

Please refer to the technical annex for more information.

Figure 2.3 illustrates the change in settlement areas at municipal level between 2012 and 2018. Overall, the figure shows similar patterns of change in settlement areas on both sides of the Greek-Bulgarian border. Changes are evident in particular around the urban centres of Haskovo, Kardzhali , Komotini and Alexandroupolis. Other urban centres, such as Blagoevgrad, Smolyan, Thessaloniki, Serres, Drama, Kavala and Xanthi, show no significant changes during this period. High expansion of settlement areas is particularly evident in Komotini and along the Xanthi coast. Close to the national borders, an increase in settlement areas is observed in the valley between Komotini and Kirkowo as well as around Xanthi and Marikostinovo. The figure also reflects the topographical characteristics of the border region, with hardly any changes in settlement areas visible in steep, mountainous areas.

Figure 2.3: Settlement area dynamics

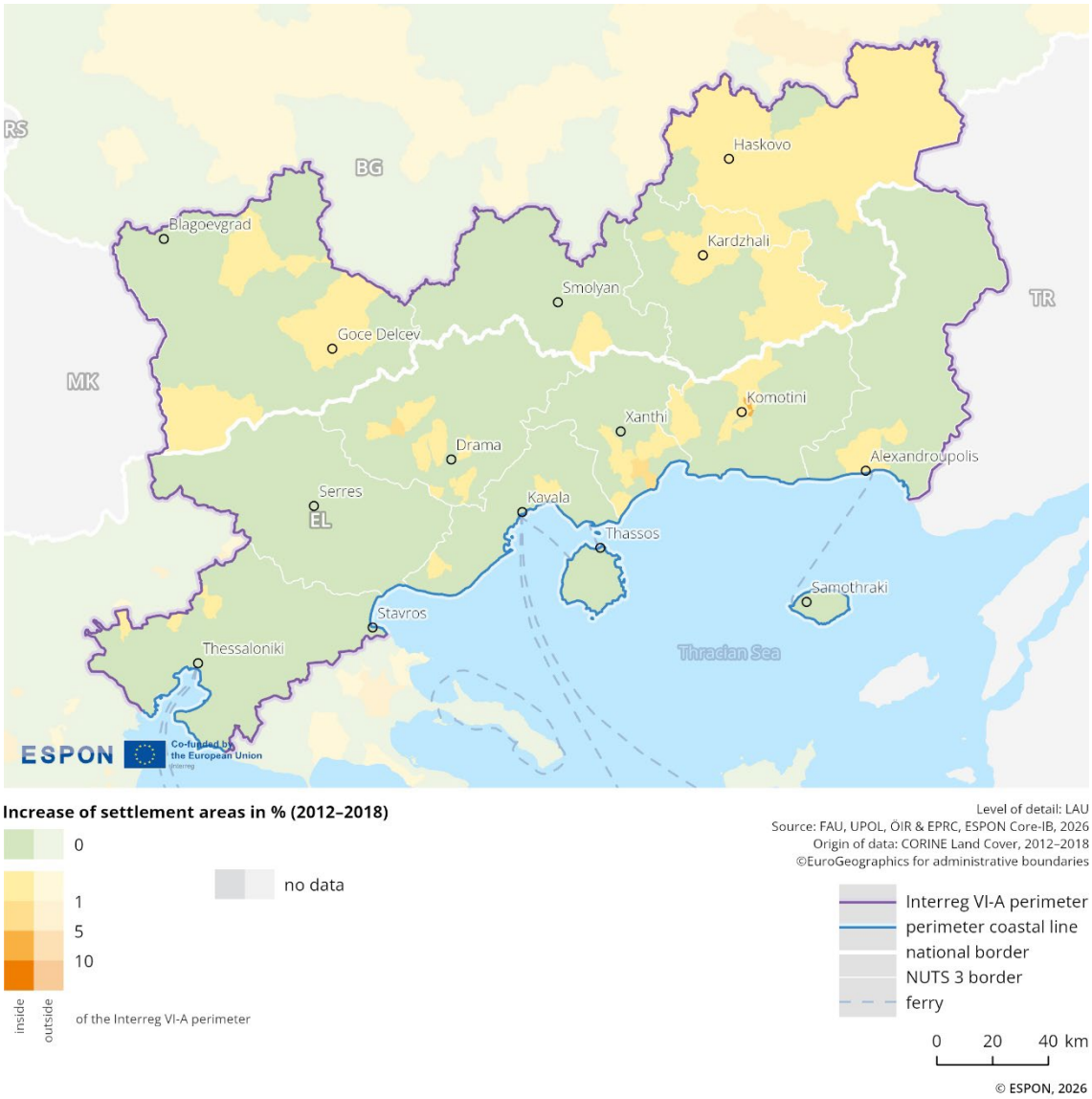
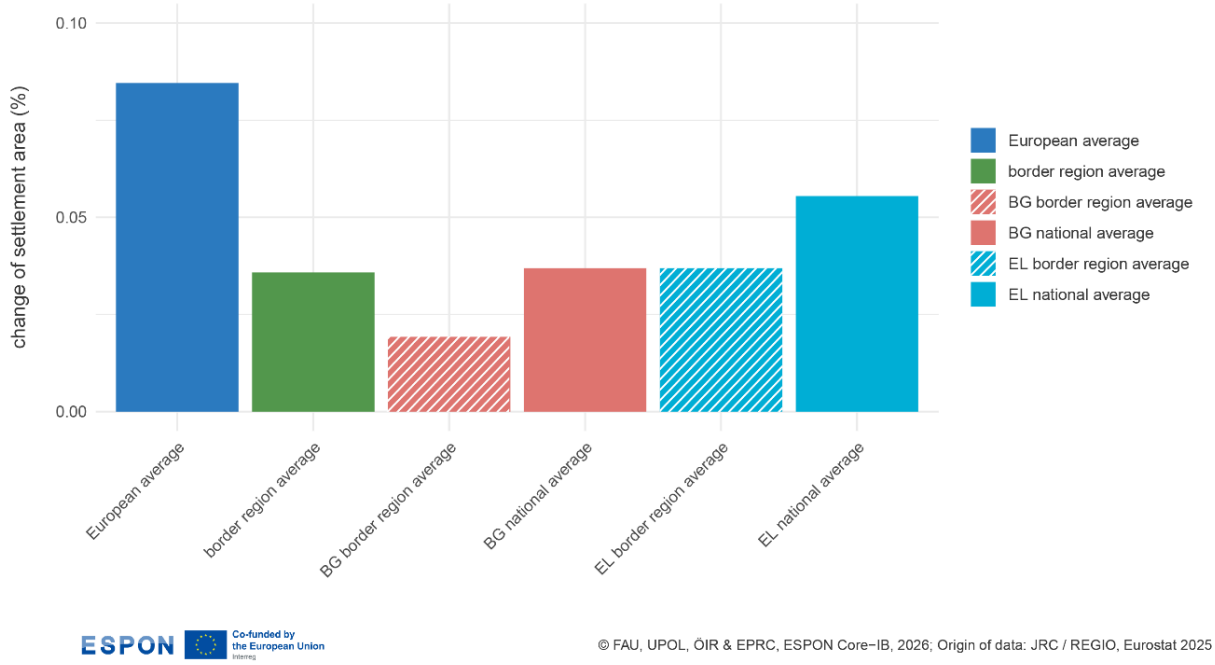


Figure 2.4 presents the change in settlement areas from a comparative perspective. The average for the Greece-Bulgaria programme area is lower than the overall European average, which encompasses both EU member states and the EFTA countries of Switzerland, Liechtenstein, and Norway. The Greek national and border region average values are higher than the corresponding Bulgarian values. Within both national contexts, the border region average is lower than the national average.

Figure 2.4: Change in settlement areas (2012-2018) (comparison)



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2.1.2 Accessibility of the border area

This sub-dimension illustrates the functional travel connections that already exist in the border region. It examines average cross-border travel times for different modes of transport and cross-border catchment areas based on mobility flows. It also considers travel times to and from border crossings. The analysis shows whether mobility flows are integrated between border regions or if the border hampers mobility.

2.1.2.1 Comparative quality of selected cross-border connections

Indicator description

The indicator presents a comparative perspective for different modes of transport (public and private) and their average travel speed (so-called space-time-lines). As such it helps to understand and interpret accessibility patterns along the border and highlights the comparative quality of selected cross-border connections.

- **Source/method of retrieval**: Average number and speed of rail connections/ferries, average speed of car connections between selected cities and towns in border regions using Rail Travel Sites, Google Maps, luftlinie.org, Direct Ferries, local ferry companies
- **Temporal coverage**: 2025 (first quarter)
- **Unit**: km/h

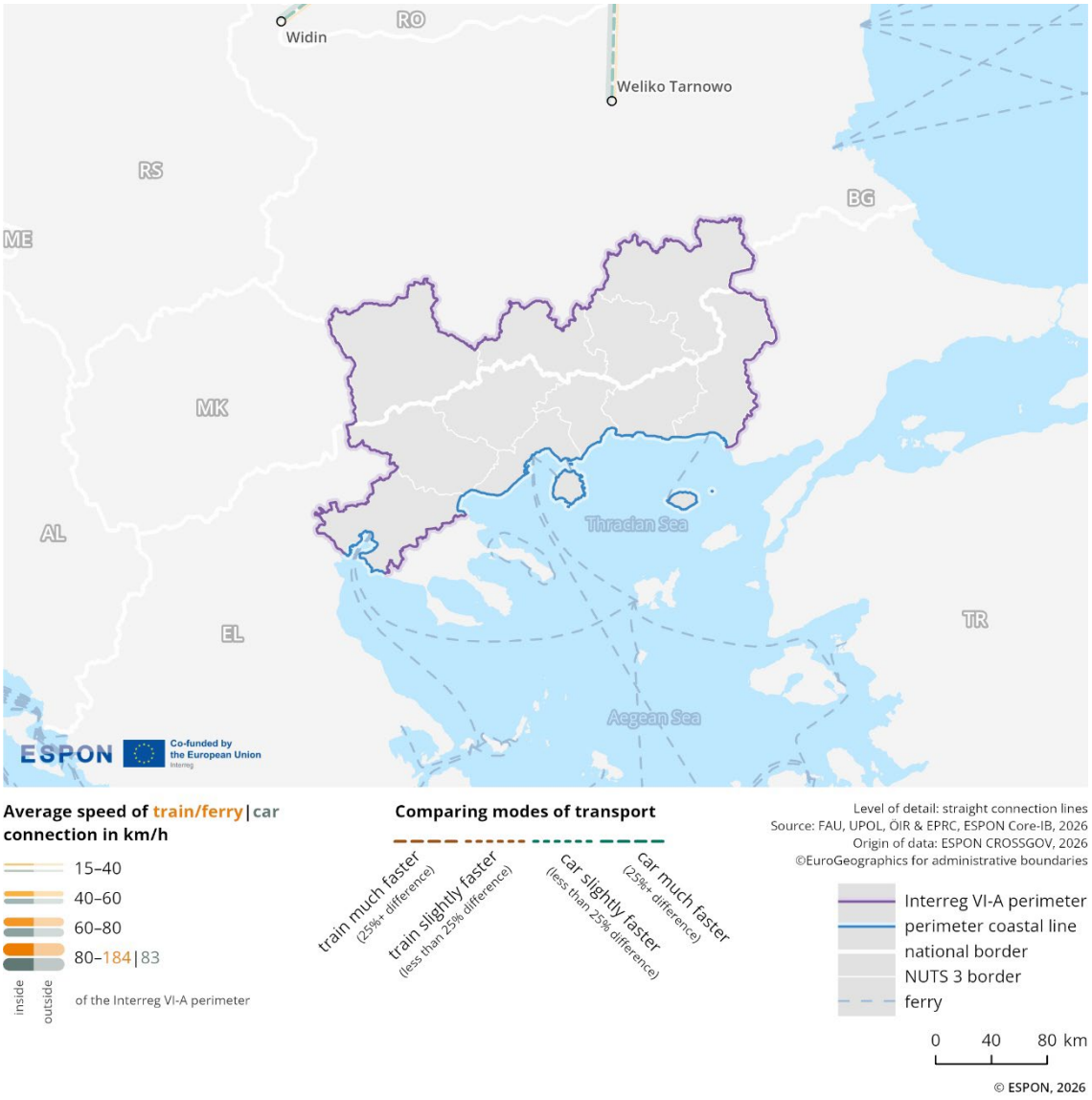
Please refer to the technical annex for more information.

Cross-border accessibility shapes cross-border interactions. Figure 2.5 illustrates this using a "space-time-line" map, which shows parts of a European overview of car, train, and ferry travel times in the Greece–Bulgaria border region. The selection of cities and connections covered is based on a set of

criteria applied throughout Europe within the ESPON CROSSGOV project.[4] These criteria include the presence of a railway station, population size, distance to the border, node hub and functionality.

The absence of visualised space-time lines on Figure 2.5 reflects that the methodological conditions and thresholds applied in the study are not met. This should not be interpreted as an absence of cross-border infrastructure or connections, but rather that existing connections fall outside the specific thresholds used in this analysis.

Figure 2.5: Comparative quality of selected cross-border connections



Notably, the region is crossed by the TEN-T Orient/East-Med Corridor. It represents core network axis connecting Central Europe with Bulgaria and Greece, linking Sofia, Thessaloniki and Aegean ports through key cross-border nodes such as Kulata–Promachonas. This TEN-T network corridor focuses upon fostering the development of ports as major multimodal logistics platforms and provides access to central Europe with modernised, multimodal connections. In the context of this border profile and,

[4] ESPON CROSSGOV Atlas, see Storymap on 'Space-time-lines': https://gis-portal.espon.eu/arcgis/apps/storymaps/collections/345c978adf784ad-fac30c16b90219d35?item=4

it should be noted that the axis has an imbalanced position to the cross-border area, as it is located at the western side.

2.1.2.2 Cross-border catchment area based on mobility flows

Indicator description

This indicator measures the movement of people across borders. The density of cross-border movements by Twitter/X users is displayed on a grid cell covering an area of 20x20 km. The indicator does not differentiate between reasons for movement.

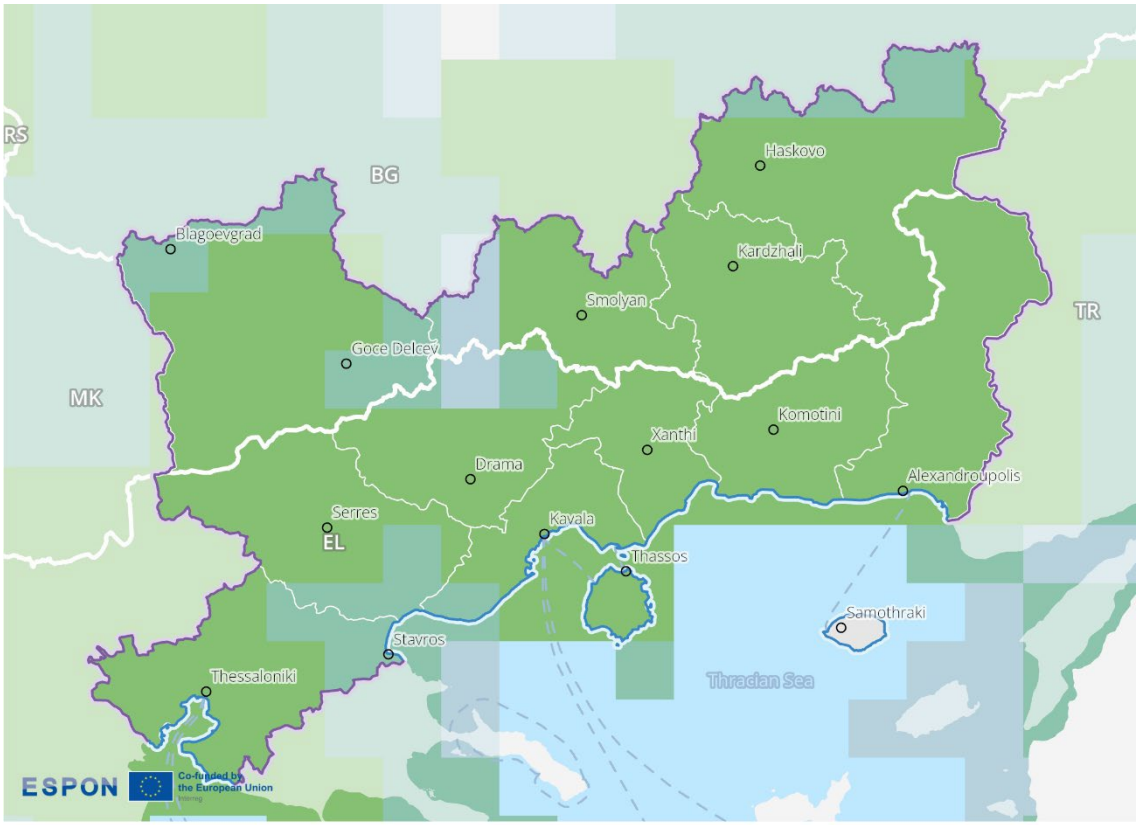
- **Source/method of retrieval**: The indicator is calculated based on Twitter (currently X) data. The digital footprint of individual users provides information about physical mobility flows and is used to calculate cross-border catchment areas of different intensity.
- **Temporal coverage**: 2013-2023
- **Unit**: n/a

Please refer to the technical annex for more information.

Figure 2.6 shows the cross-border catchment area in the border region based on mobility flows from 2013 to 2023, highlighting estimated cross-border mobility intensity across 3 different quartiles. The first quartile represents the 25% highest mobility intensity shown in dark green, the second quartile represents 25-50% coloured in green-blue, and the third quartile represents 50-75% in light blue.

The intensity of cross-border mobility of people within this cross-border region is relatively homogeneous. High levels of mobility intensity are recorded across most of the region's territory. Moderate to low intensity values are observed to the west of Smolyan, to the south of Serres, to the north of Haskovo, and around Blagoevgrad.

Figure 2.6: Cross-border mobility intensity



2.1.2.3 Cross-border travel-time accessibility

Indicator description

The indicator shows the time it takes to travel from any location within a region to the next border crossing, using grid data and subsequent categorisations into accessibility groups of 30, 60 and 90 minutes. It reflects the accessibility in cross-border areas, considering road transport. The indicator can describe the quality and speed of road connections and thus spatial reach of the cross-border services.

- **Source/method of retrieval**: Based on the OpenStreetMap road network, the travel time to the border is calculated for a grid of the border are. Based on this, areas are calculated within which border crossings can be reached below thresholds of 30, 60 and 90 minutes. As additional visual element, key services pharmacies, doctors, hospitals and shops (retrieved from the ESPON PROFECY project) are displayed and categorised into the accessibility groups.
- **Temporal coverage**: 2025 (first quarter, for accessibility data), 2021 (for service facility data)
- **Unit**: Minutes

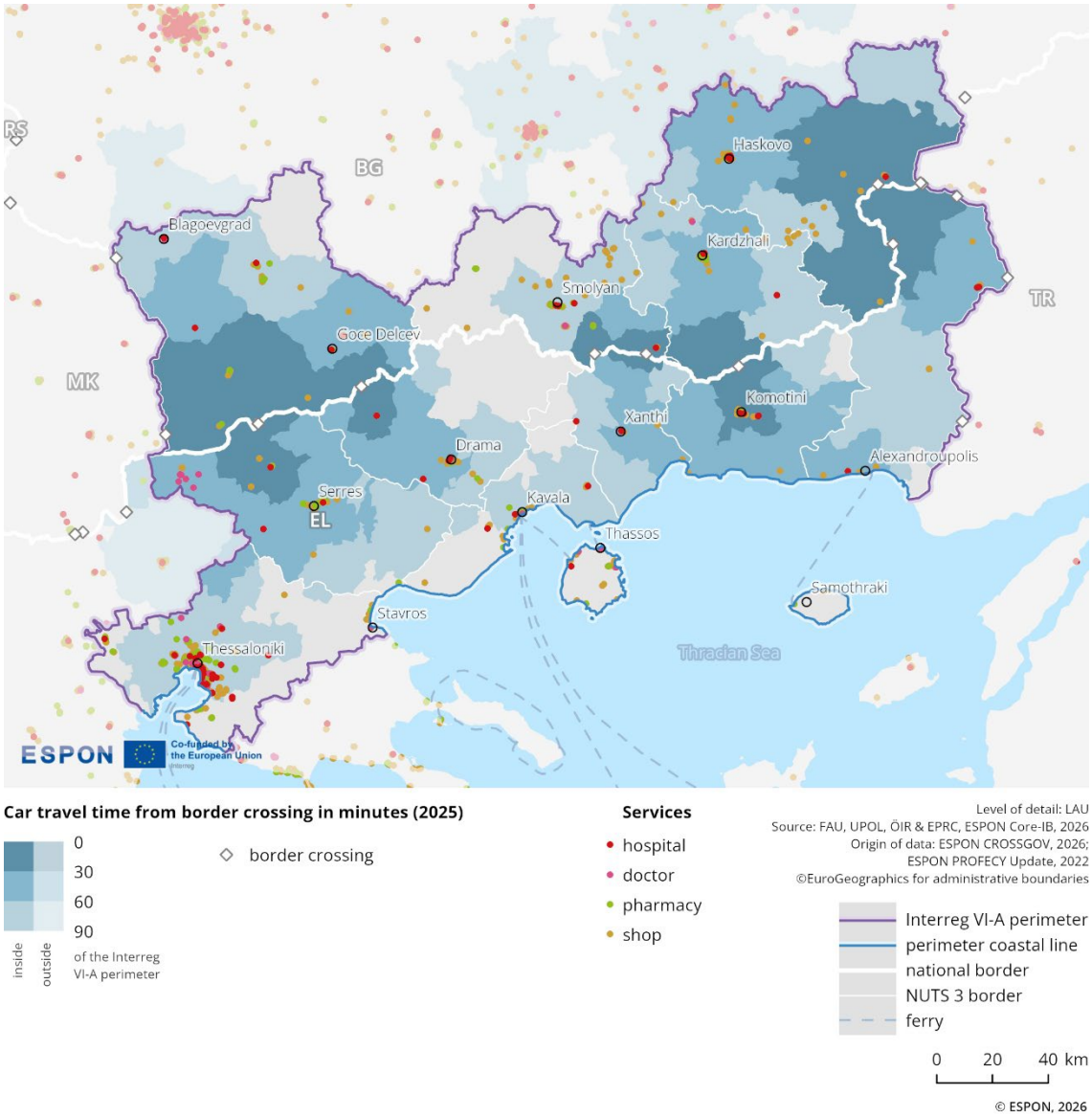
Please refer to the technical annex for more information.

Figure 2.7 illustrates cross-border travel time accessibility in the Interreg area, showing the time distance from the national border in 2025. The legend indicates 3 travel time categories in minutes (30, 60, 90) represented by different shades of blue. In addition, it marks the location of services, including hospitals, doctors (general practitioners), pharmacies, and shops (supermarkets and conventient stores), with distinct coloured symbols.

The map shows spatial disparities in accessibility to border crossings. The easternmost and westernmost areas on both sides of the border benefit from short travel times of under 30 minutes, indicating good road connectivity. In contrast, travel times in the central part of the border exceed 90 minutes on both sides, reflecting structural constraints on connectivity. These are linked to the mountainous terrain of the Rhodope Range and restrictions on infrastructure within protected areas such as the Rhodope National Park. Overall, the area within 30-minute reach of a crossing is larger on the Bulgarian side than on the Greek side. Accessibility patterns form a fragmented mosaic rather than a continuous belt, highlighting uneven road connectivity across the border region. Many of the key urban centres are located within the 60-minute (Haskovo, Kardzhali, Xanthi, Drama, Serres, Alexandroupolis) or 90-minute (Smolyan, Blagoevgrad, Kavala, Thessaloniki) travel zones.

Services such as shops, hospitals, doctors and pharmacies are scarce. Central mountainous, where travel times for crossing borders are long, also have sparse access to services, which compounds accessibility challenges. There is an evident cluster of services in Thessaloniki, which is within a 90-minute travel zone of the border.

Figure 2.7: Travel-time accessibility from border crossings



2.1.3 Key messages on the territorial dimension

The Greece–Bulgaria border region has diverse topography. Mountainous landscapes prevail in the western (particularly on the Bulgarian side) and central parts, while the east consists of relatively flat lowlands. This shapes settlement, population and mobility patterns. The eastern Bulgarian side, around Haskovo, Kardzhali, and Smolyan, has the most even and dense population in the region. By contrast, sparsely populated areas occur along the central border, influenced by the high Rhodope peaks (e.g., Golyam Perelik, west of Smolyan) and the Rhodope National Park on the Greek side, as well as further inland, such as around Pirin National Park in western Bulgaria.

The border region has a lower population density than the EU average for border regions. However, when compared to national averages, an asymmetry emerges: population density in the Greek border area (average 78 inhabitants/km²) slightly exceeds the national average, whereas in the Bulgarian border area (average 38 inhabitants/km²), it falls below. This can be partly attributed to the higher number of large urban centres and populations within them on the Greek side, notably Thessaloniki with over 300,000 inhabitants, compared to the Bulgarian side. Overall, the border region includes 15 urban centres with population of over 30,000 inhabitants.

The border region has experienced a moderate population decline of -6.4% over a period of 10 year (2014-2024), a trend that has been more pronounced on the Bulgarian side. The sharpest reduction was among young people aged 0–14 (-16.7%), while the share of elderly aged over 65 grew substantially. These dynamics highlight important challenges regarding the youth retention, labour market vitality, and care provision for an aging population. Despite the overall population decline, modest settlement growth is visible on both sides, particularly around the urban centres with a higher population density, such as Haskovo, Kardzhali, Komotini and Alexandroupolis. This suggests some ongoing potential for localised growth, although not all urban centres follow this pattern. On average, the increase in settlement areas is lower than the national and EU average benchmarks, reflecting more limited urban growth in the border region.

A comparative examination of average cross-border travel times for rail and road modes of transport was not possible within the methodological thresholds applied in this analysis. This does not imply the absence of cross-border connections, such as the core TEN-T Orient/East-Med Corridor, which crosses the western part of the region and is important for both passenger mobility and commercial connections. The data rather indicate that there is potential to work on connectivity, including improved access to TEN-T and wider modernisation of infrastructure. Mobility intensity is notably higher and more homogenous across the region when examining Twitter data, although lower and more moderate intensity is evident in the mountainous zones. As it can be expected, high-peak mountainous areas and those within the Rhodope National Park (in the central part of the border region) have lower travel-time accessibility, while most eastern and western sections at the border perform better. Nevertheless, scattered pockets of low accessibility remain on both sides, indicating ongoing connectivity challenges.

2.2 Economic dimension

The economic dimension includes analyses of gross domestic product, labour market conditions, competitiveness, and key infrastructure and housing indicators. The aim is to illustrate the impact of the border on economic performance, whether it acts as a barrier or a bridge, and the extent to which integration is supported by labour mobility, remote working, and infrastructure connectivity.

2.2.1 Gross Domestic Product

This sub-dimension illustrates the economic situation of the border region by analysing gross domestic product (GDP). It shows economic development within the border region and how this has changed over time. Comparisons with the respective countries and the EU average provide important context for understanding the region's dynamics.

2.2.1.1 Gross domestic product per capita at current market prices

Indicator description

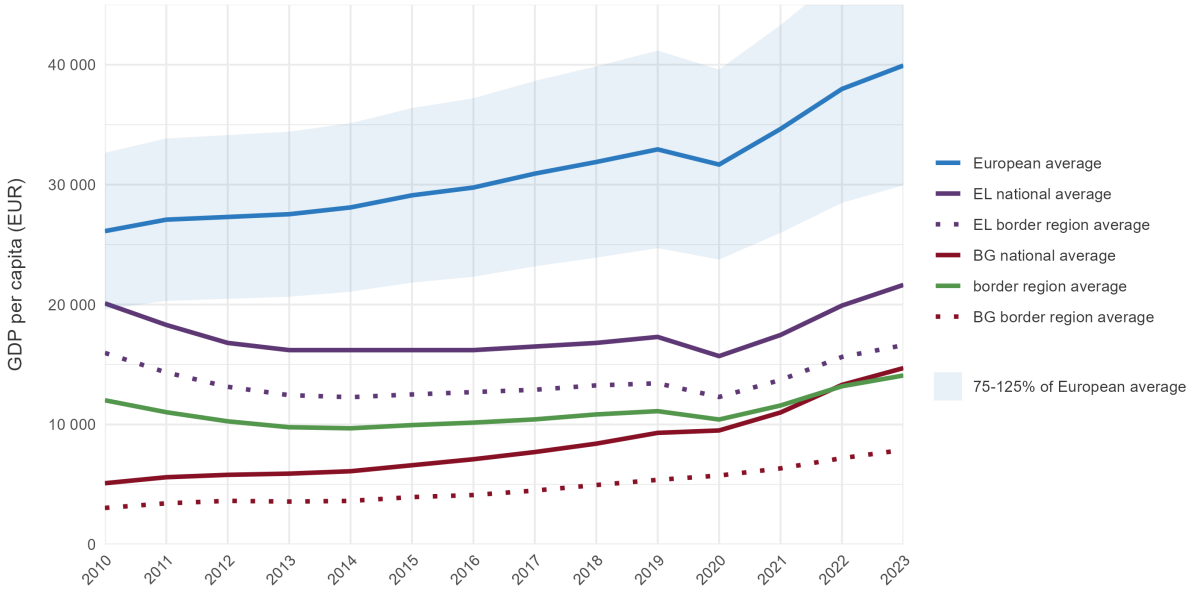
The indicator shows the regional GDP/capita in current prices and its development over the past years. It highlights structural differences and similarities between the border region and the respective national figures as well as the European average. Furthermore, it highlights patterns within the border region, although has to be interpreted with care in the case of a strong presence of commuters.

- **Source**: Eurostat, Annual Regional Database of the European Commission (ARDECO)
- **Temporal coverage**: 2010-2023
- **Unit**: Euro per capita

Please refer to the technical annex for more information.

The region shows a GDP per capita value of 36.3% of the EU average in 2022 and 36.8% of the average in European border regions in general. The region marks a 36.7% increase of GDP per capita in the border region between 2014 and 2022[5]. This corresponds to a 1.0 percentage points higher increase of GDP per capita in the border region compared to the EU average. Furthermore, this corresponds to 1.5 percentage points higher increase of GDP per capita in the border region compared to the average of European border regions. However, a considerable decrease can be seen between 2010 and 2014, mainly due to decreasing values in Greece. While the Greek GDP per capita stagnated and even decreased in both in the border region and nationally from 2010 to 2020, Bulgaria experienced a dynamic economic development. Nationwide, the GDP per capita increased by 219.7%, and by 198.2% in the border region, since 2014. However, the GDP per capita remains one of the lowest in the EU.

Figure 2.8: Gross domestic product at current market prices (per capita)



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[5] Percentage changes are calculated using Eurostat data to ensure harmonised statistics from official sources. The latest year for which full coverage of all European regions is available on Eurostat is 2022. For visualisation purposes, ARDECO data has been used to enable longer time series to be visualised by filling the official dataset's existing gaps with model-based estimates. Therefore, slight deviations between the calculation and visualisation are possible.

2.2.2 Labour market and commuting

This sub-dimension highlights the existing and potential functional links within the labour market of the border region. It examines the employment situation and commuting patterns, as well as the role of telework agreements, and considers developments over time based on analysed indicators. The analysis identifies factors that facilitate or hamper cross-border labour market integration.[6]

2.2.2.1 Share of employment

Indicator description

This indicator shows the share of employees in the population aged 15 to 64. Although it does not fully capture entrepreneurs, marginal employees, or civil servants, this is an important statistic for understanding general labour market patterns. It covers 2 aspects: first, high values can result from a high proportion of the resident population being employed. Second, high values can result from a high number of incoming commuters (from other NUTS3 regions within the country or from neighbouring countries). The same arguments apply to low values: they may indicate low levels of employment, or they may result from high shares of outgoing commuters. Values of more than 100% are possible, since the number of incoming commuters can exceed the number of inhabitants aged 15 to 64 (including both domestic and cross-border commuters).

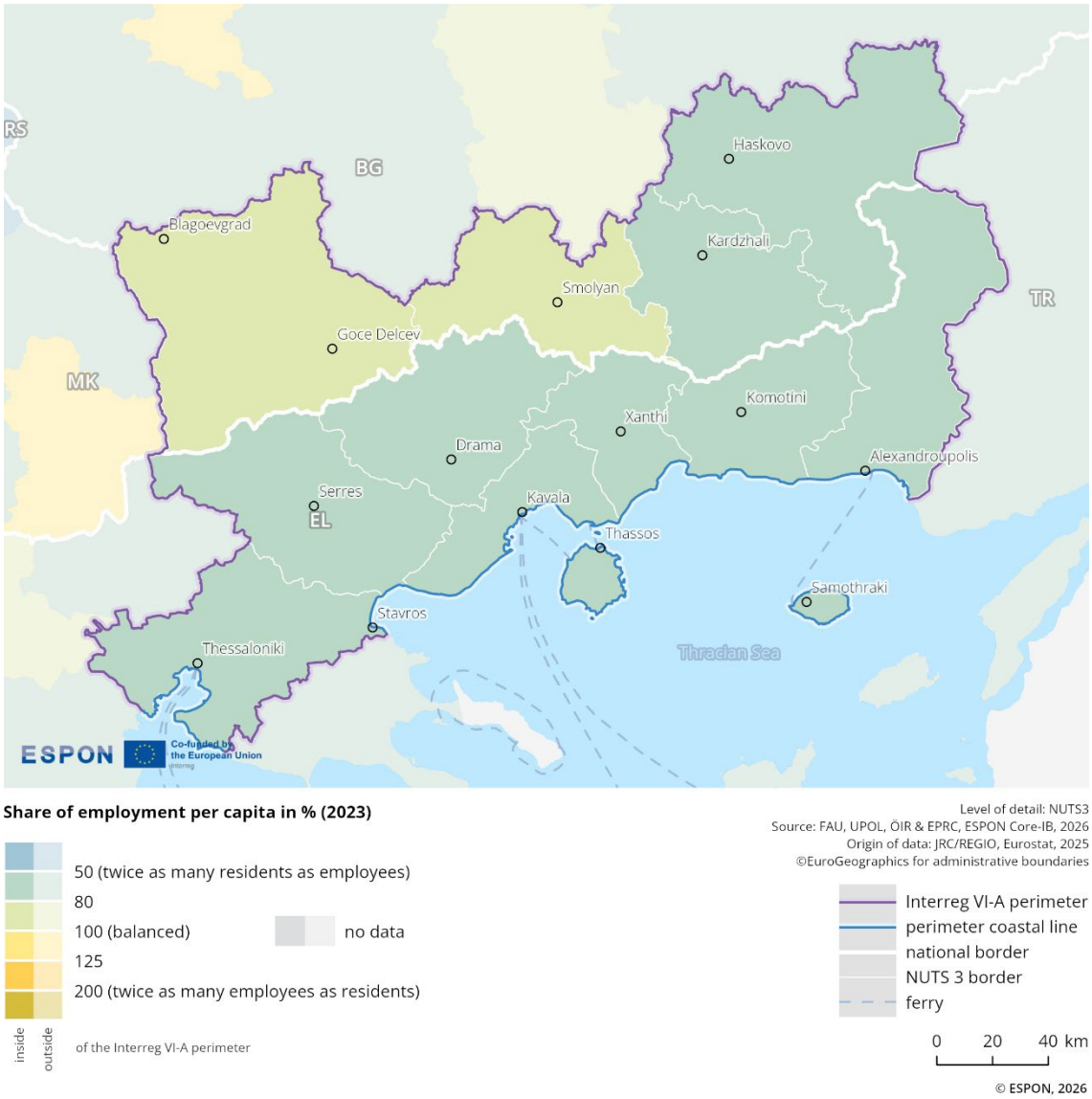
- **Source**: Eurostat, Annual Regional Database of the European Commission (ARDECO)
- **Temporal coverage**: 2014-2023
- **Unit**: Share in %

Please refer to the technical annex for more information.

Figure 2.9 illustrates the share of employment per capita in the population aged 15 to 64 in 2023. The data are categorised into ranges from below 50% (twice as many residents aged 15 to 64 as employees) to above 200% (twice as many employees as residents aged 15 to 64), with 100% representing a balanced ratio. Blue or green-coloured regions indicate more residents aged 15 to 64 than employees, while yellow regions indicate more employees than residents aged 15 to 64.

[6] See also: European Commission 2024: Cross-Border Regional Labour Market Analysis, https://op.europa.eu/s/AazM

Figure 2.9: Employment share[7]



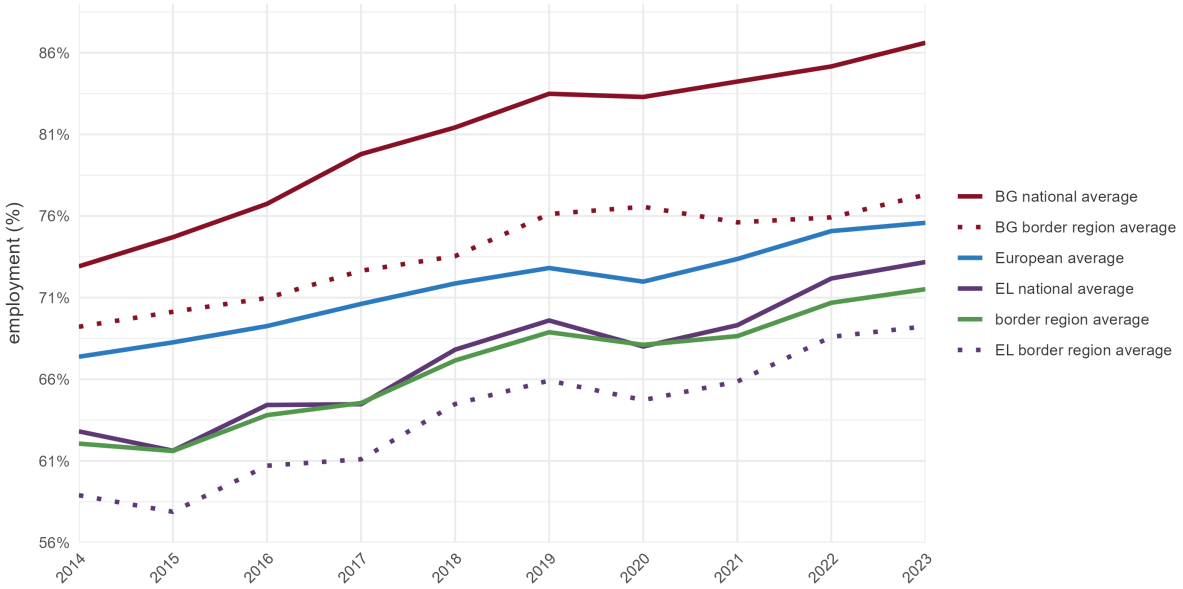
The share of employment in this border region has remained relatively stable, with the regional average reaching 71.5% in 2023, representing an increase of 9.5 percentage points since 2014. In most areas, values range from 50% to 80%, with the exception of the north-western part of the Bulgarian region, where values range from 80% to 100%. When comparing the share of employment in this border region with different averages, the following can be observed (see Figure 2.10):

- Compared to the European average, the values in the cross-border region are lower by 4.1 percentage points; in 2014, the difference was 5.3 percentage points.
- Compared to the national average of Greece, the cross-border region is 1.7 percentage points lower; in 2014, the difference was 0.8 percentage points lower.
- Compared to the national average of Bulgaria, the values are 15.1 percentage points lower; in 2014, the difference was 10.9 percentage points lower.
- The Greek part of the border region records values 4 percentage points below the Greek national average, while the Bulgarian part is 9.3 percentage points below the Bulgarian national average.

[7] Note: In this map, 'residents' refers to the population aged 15 to 64.

› Compared to the average of all cross-border regions, this region's share of employment is lower by approximately 2.9 percentage points; in 2014, the difference was 4.2 percentage points lower.

Figure 2.10: Employment share over time (comparison)



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2.2.2.2 Share of working-age population

Indicator description

This indicator shows the share of people aged 15 to 64 in the total population, reflecting the potential working-age population. The population counted includes all residents who live in the country permanently, excluding foreign students and military personnel. Using the 15–64 age range is a standard European statistical proxy, since differences in retirement age or labour participation across countries cannot be captured systematically. It allows for regional differentiation of potential workforce throughout the border region.

- **Source**: Eurostat, Annual Regional Database of the European Commission (ARDECO)
- **Temporal coverage**: 2014-2023
- **Unit**: Share in %

Please refer to the technical annex for more information.

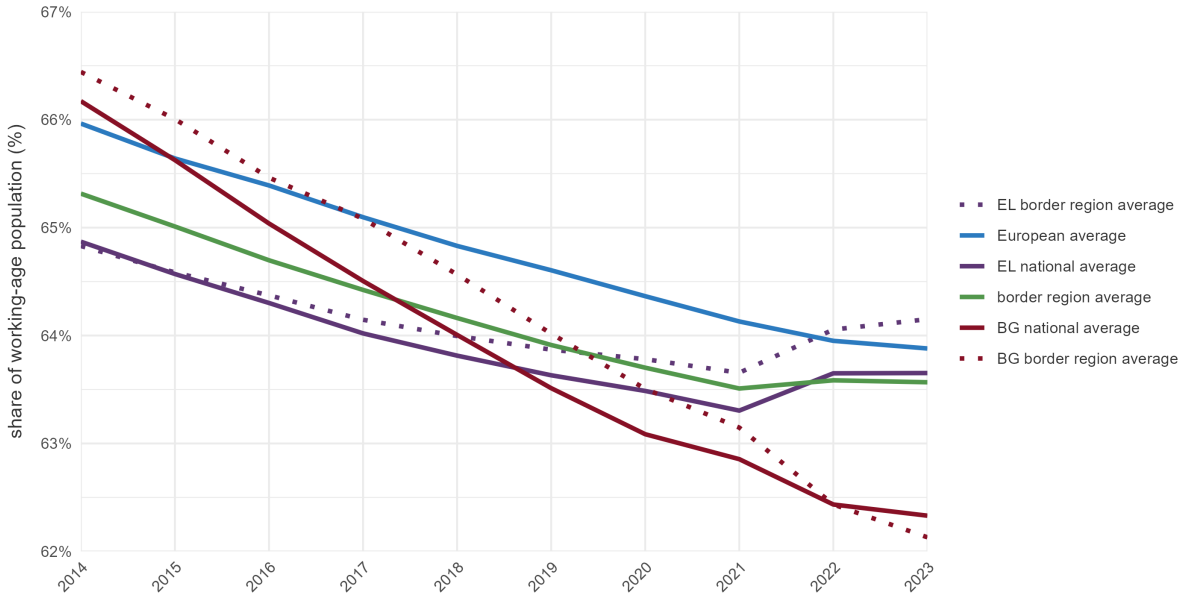
Figure 2.11 illustrates the evolution of the share of the working-age population in the Greece–Bulgaria cross-border region between 2014 and 2023. In 2023, the region shows an average working-age population share of 63.6%, compared to the European average of 63.9% and 63.7% for the average of all cross-border regions.

The share of the working-age population in the whole cross-border region is slightly lower than the Greek border average (64.2%), but slightly higher than the Bulgarian border average (62.1%). In comparison to national averages, the regional value is very similar to the Greek national average (63.7%) and slightly higher than the Bulgarian national average (62.3%).

The region experienced a slight 1.7 percentage point decrease in the share of working-age population between 2014 (65.3%) and 2023 (63.6%). This decline is somewhat slower than the European average, which dropped by 2.1 percentage points over the same period. Both countries recorded a decline, with Bulgaria experiencing a more pronounced decrease (-4.3 percentage points at the border and -3.9 percentage points at the national level) than Greece (-0.6 percentage points at the border and -1.2 percentage points at the national level).

Between 2014 and 2023, the Greece–Bulgaria cross-border region experienced a slight overall decline in the share of the working-age population. By 2023, the region remained close to both the EU and cross-border averages, with a more pronounced decline observed in Bulgaria.

Figure 2.11: Share of working-age population over time (comparison)



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2.2.2.3 Employment by sector

Indicator description

The indicator differentiates the number of jobs in a region by sector. This indicator focuses on workplace-based employment, providing insight into the employment landscape of a region. The dataset can be disaggregated according to "10-sector" NACE (Nomenclature statistique des activités économiques dans la Communauté européenne) classifications, allowing for detailed analysis of employment distribution across various industries.

- **Source**: Eurostat, Annual Regional Database of the European Commission (ARDECO)
- **Temporal coverage**: 2014-2023
- **Unit**: Share in %

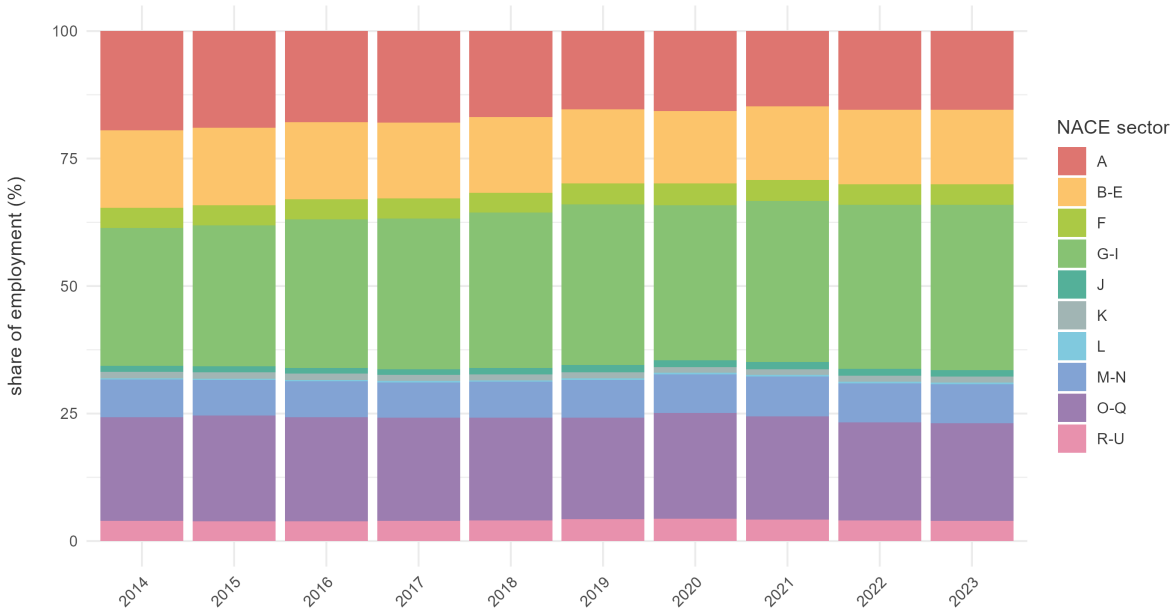
Please refer to the technical annex for more information.

Figure 2.12 illustrates the relative number of jobs in the border area, categorised by sector. It shows the location of jobs (rather than where employed persons live). This workplace-based indicator provides an insight into the employment structure of a region.

The dataset uses a '10-sector' classification based on NACE categories. The sectoral breakdown is as follows:

- A: Agriculture, forestry and fishing
- B-E: Mining and quarrying (B), Manufacturing (C), Electricity, gas, steam and air conditioning supply (D), Water supply; sewerage, waste management and remediation activities (E)
- F: Construction
- G-I: Wholesale and retail trade; repair of motor vehicles and motorcycles (G), Transportation and storage (H), Accommodation and food service activities (I)
- J: Information and communication
- K: Financial and insurance activities
- L: Real estate activities
- M-N: Professional, scientific and technical activities (M), Administrative and support service activities (N)
- O-Q: Education (O), Human health and social work activities (Q)
- R-U: Arts, entertainment and recreation R), Other service activities (S), Activities of households as employers; undifferentiated goods- and services-producing activities of households for own use (T), Activities of extraterritorial organisations and bodies (U)

Figure 2.12: Employment by sector (comparison)



A: Agriculture, forestry and fishing
B-E: Mining and quarrying (B), Manufacturing (C), Electricity, gas, steam and air conditioning supply (D), Water supply; sewerage, waste management and remediation activities (E)
F: Construction
G-I: Wholesale and retail trade; repair of motor vehicles and motorcycles (G), Transportation and storage (H), Accommodation and food service activities (I)
J: Information and communication
K: Financial and insurance activities
L: Real estate activities
M-N: Professional, scientific and technical activities (M), Administrative and support service activities (N)
O-Q: Education (O), Human health and social work activities (Q)
R-U: Arts, entertainment and recreation (R), Other service activities (S), Activities of households as employers; undifferentiated goods- and services-producing activities of households for own use (T), Activities of extraterritorial organisations and bodies (U)

Between 2014 and 2023, the share of jobs in the different sectors remains fairly stable. There is a slight decline in the share of employment in agriculture, forestry and fishing (A), education (O) and human health and social work activities (Q). Conversely, there is a modest increase in the number of jobs in wholesale and retail trade; repair of motor vehicles and motorcycles (G), transportation and storage (H) and accommodation and food service activities (I).

Over the entire period, the sectors with the highest share of jobs are 'B-E' (mining, quarrying, manufacturing, electricity, gas, steam and air conditioning supply, water supply; sewerage, waste management and remediation activities, 'G-I' (wholesale and retail trade; repair of motor vehicles and motorcycles, transportation and storage, accommodation and food service activities), 'O-Q' (education, human health and social work activities) and ´A´ (agriculture, forestry and fishing).

2.2.2.4 Outgoing cross-border commuters

Indicator description

The indicator shows outgoing cross-border commuting dynamics at NUTS3 level. Even though no origin-destination information can be provided, it is assumed that commuters primarily travel across the nearest border. Spatial, economic and population arguments are combined to calculate the number of outgoing cross-border commuters.

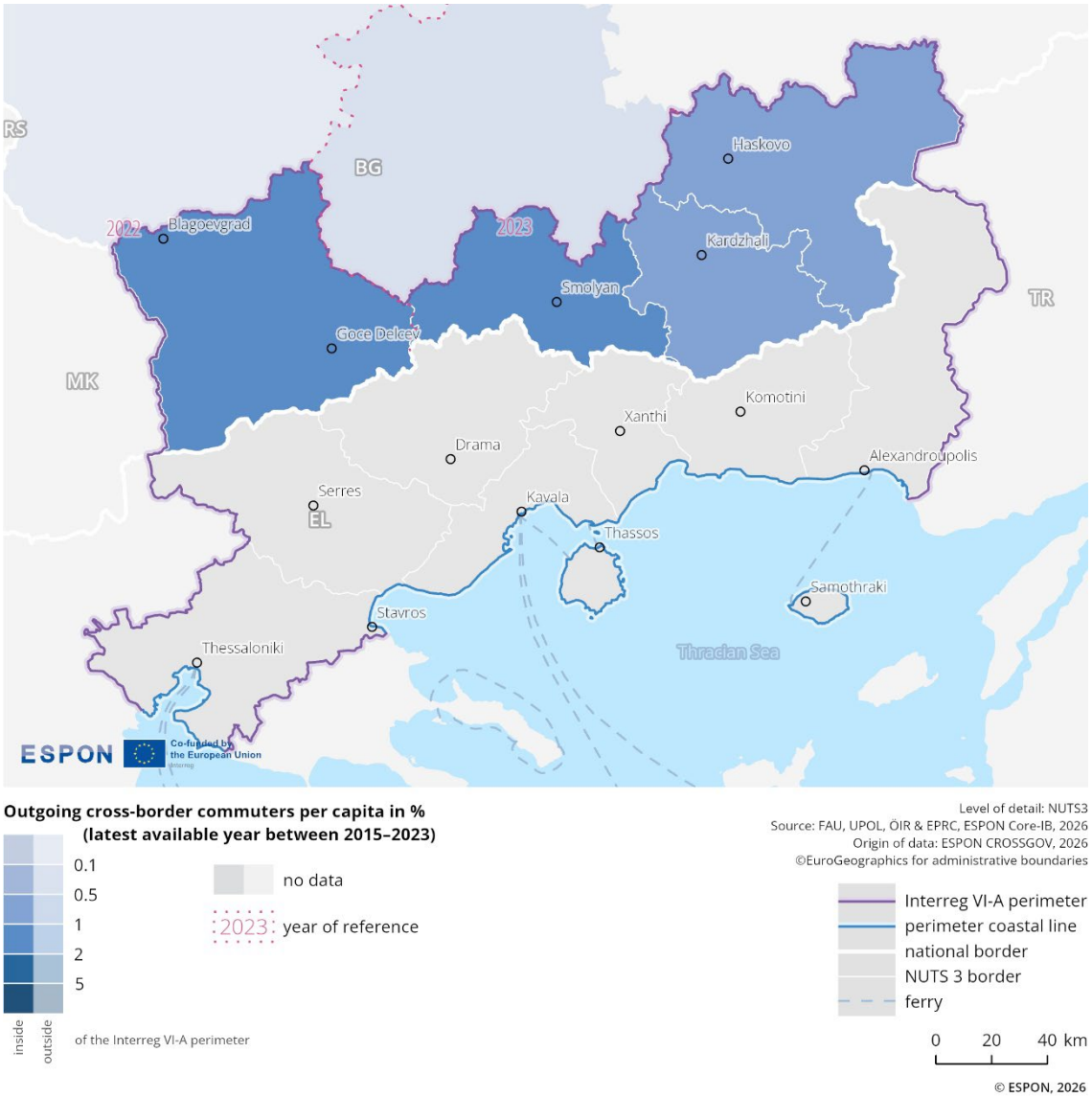
- **Source/method of retrieval**: Eurostat/LFS data on outgoing commuters currently available on NUTS2 level has been regionalised for NUTS3 by means of weighting by border length, NUTS3 population-weighted centroid distance to border, population per NUTS3 region (15–64 years old) and real compensation per employee
- **Temporal coverage**: 2015-2023
- **Unit**: Share in %

Please refer to the technical annex for more information.

Commuting is one of the most relevant cross-border flows to identify functional linkages. Figure 2.13 illustrates the share of outgoing commuters per capita for each NUTS3 region (more concretely speaking the share of outgoing commuters among the residential population of the age group 15-64 years old, resembling the potential labour force). Origin-destination information cannot be provided, but the share of outgoing commuters in regions close to the border indicates the relevance of commuting. It highlights functional relations in the labour market within the cross-border region.

Figure 2.13 illustrates the share of cross-border commuters, based on the most recent available year of data. It shows fairly even cross-border commuting activity on the Bulgarian side. The Bulgarian regions of Blagoewgrad and Smolyan stand out, with the highest levels of outgoing cross-border commuters per capita. For Greece, no data is available.

Figure 2.13: Outgoing cross-border commuting patterns



2.2.2.5 Cross-border telework agreements

Indicator description

The indicator shows what kind of legal framework for cross-border telework is enacted.

- **Source/method of retrieval**: The indicator is based on information about the legal framework for social security regarding cross-border teleworking, categorised by border pair.
- **Temporal coverage**: Status as of March 2025
- **Unit**: n/a

Please refer to the technical annex for more information.

Neither of the 2 countries signed the 2023 Framework Agreement on Cross-Border Telework. Therefore, the 2 countries apply the standard rules under Article 13 of Regulation (EC) No. 883/2004. This means that cross-border telework is generally limited to 25% of the total working time, beyond which social security affiliation may shift to the country of residence.

2.2.3 Competitiveness

This sub-dimension illustrates the competitiveness of the border region by analysing the main industry sectors that contribute to its economic development. It assesses gross value added (GVA) at basic prices by sector, as well as nominal compensation per hour worked, in order to understand productivity levels and sectoral strengths.

2.2.3.1 Gross value added at basic prices by sector

Indicator description

The indicator shows the gross value added (GVA), which is a measure of the contribution of a country or region to the economy. Regional GVA represents the value generated by all units involved in the production of goods and services within a specific area. This indicator can be disaggregated by industry and service sector, allowing for a detailed analysis of economic contributions across different fields. Additionally, the sum of GVA across all industries or sectors, combined with taxes on products and minus subsidies on products, yields the gross domestic product (GDP) of the region. The dataset is available in “10-sector” NACE classifications, facilitating comprehensive evaluations of the regional economy.

- **Source**: Annual Regional Database of the European Commission (ARDECO)
- **Temporal coverage**: 2014-2023
- **Unit**: Million purchasing power standards (PPS)

Please refer to the technical annex for more information.

Figure 2.14 visualises gross value added (GVA), which is an important indicator of economic activity. GVA measures the value created by all economic activities involved in producing goods and services in a given area. It is differentiated by sectors to provide detailed insights into the economic contributions of different fields.

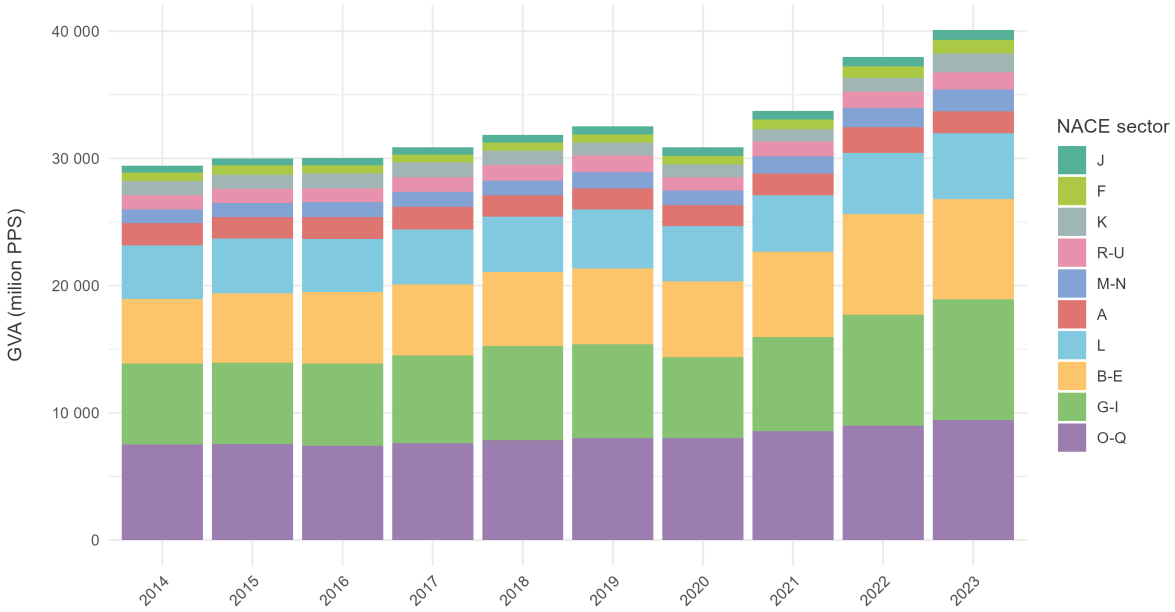
The dataset uses a '10-sector' classification based on NACE categories. The sectoral breakdown is as follows:

- A: Agriculture, forestry and fishing
- B-E: Mining and quarrying (B), Manufacturing (C), Electricity, gas, steam and air conditioning supply (D), Water supply; sewerage, waste management and remediation activities (E)
- F: Construction
- G-I: Wholesale and retail trade; repair of motor vehicles and motorcycles (G), Transportation and storage (H), Accommodation and food service activities (I)
- J: Information and communication
- K: Financial and insurance activities
- L: Real estate activities
- M-N: Professional, scientific and technical activities (M), Administrative and support service activities (N)
- O-Q: Education (O), Human health and social work activities (Q)

› R-U: Arts, entertainment and recreation R), Other service activities (S), Activities of households as employers; undifferentiated goods- and services-producing activities of households for own use (T), Activities of extraterritorial organisations and bodies (U)

Between 2014 and 2023, the GVA in the border area of Greece-Bulgaria increased from 29,407 million purchasing power standards (PPS) to 40,083 million PPS, a growth of 36%. Sector groups B–E, G–I, and O–Q together make up over half of the total GVA, highlighting their significant contribution to the regional, also blue, economy within the border area. The sector groups G–I contributed the largest share, with a total of 9,489 million PPS in 2023. This underlines the importance of sectors such as wholesale and retail trade; repair of motor vehicles and motorcycles (G), transportation and storage (H), accommodation and food service activities (I) in Greece-Bulgaria border region. The constantly growing and substantial share of real estate activities (L) can also be attributed to maritime tourism.

Figure 2.14: Gross value added at basic prices by sector (comparison)



A: Agriculture, forestry and fishing
B-E: Mining and quarrying (B), Manufacturing (C), Electricity, gas, steam and air conditioning supply (D), Water supply; sewerage, waste management and remediation activities (E)
F: Construction
G-I: Wholesale and retail trade; repair of motor vehicles and motorcycles (G), Transportation and storage (H), Accommodation and food service activities (I)
J: Information and communication
K: Financial and insurance activities
L: Real estate activities
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O-Q: Education (O), Human health and social work activities (Q)
R-U: Arts, entertainment and recreation (R), Other service activities (S), Activities of households as employers; undifferentiated goods- and services-producing activities of households for own use (T), Activities of extraterritorial organisations and bodies (U)

2.2.3.2 Nominal compensation per hour worked

Indicator description

The indicator shows the average income paid for each hour worked, known as compensation per hour worked. This measure is calculated by dividing the "compensation of employees at current prices" by the total number of "hours worked (employees)." Employees, in this context, are defined as individuals engaged by contract in productive activities for a resident unit, receiving remuneration irrespective of their place of residence. The total hours worked is considered the most appropriate measure of labour input, representing the aggregate number of hours actually worked by employees. This indicator provides valuable insights into labour productivity and wage dynamics within the economy.

- **Source**: Annual Regional Database of the European Commission (ARDECO)
- **Temporal coverage**: 2023 (missing data from 2023 in Switzerland were supplemented by values from 2022)
- **Unit**: Euro

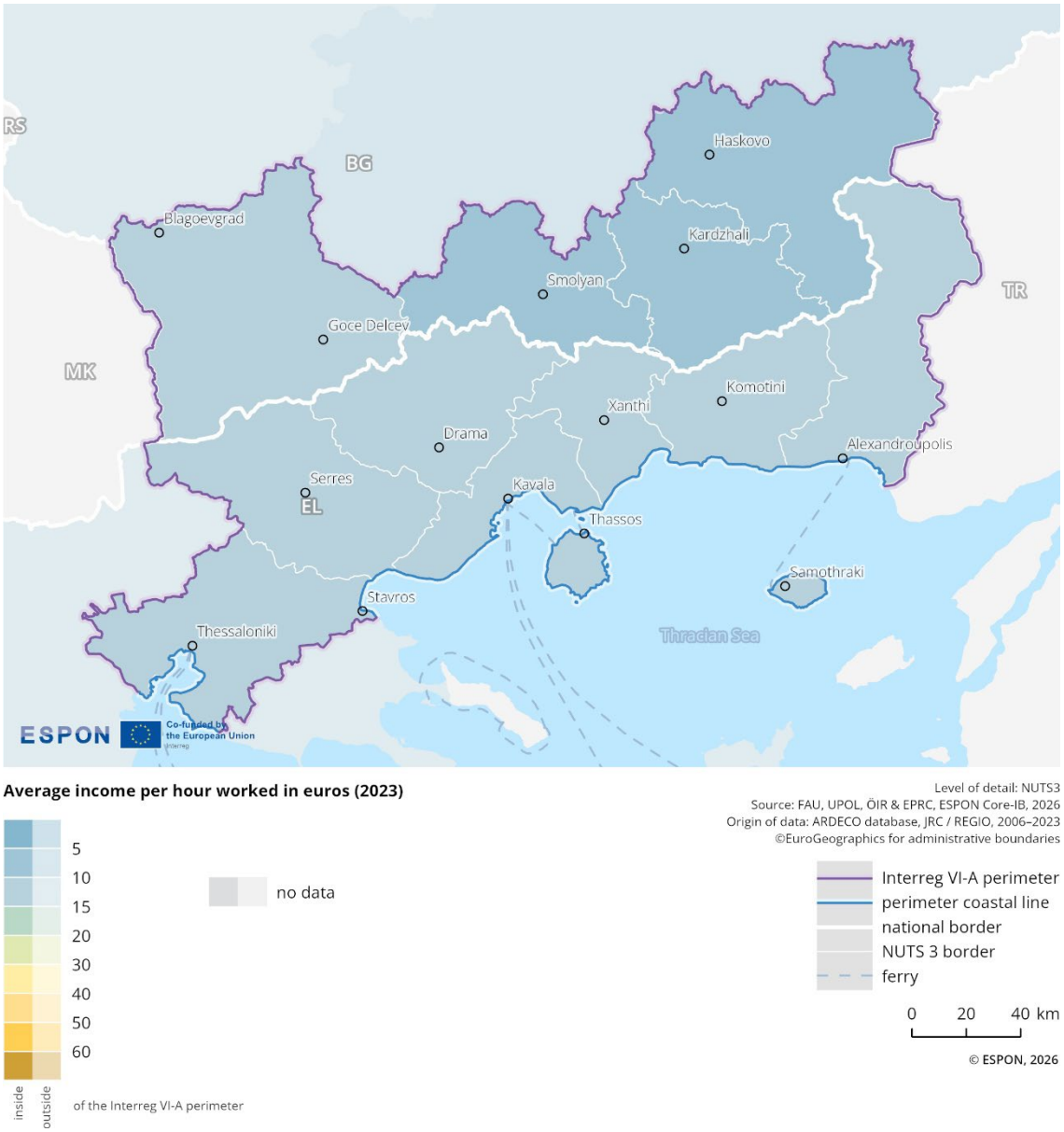
Please refer to the technical annex for more information.

Figure 2.15 shows the average values for the 'compensation per hour worked'. This indicator is calculated by dividing the total compensation of employees (at current prices) by the total number of hours worked by those employees. In this context, 'employees' are defined as individuals engaged in productive activities by contract. The data is available for the place of work, regardless of the place of residence. Total hours worked represent the actual number of hours worked by employees and are considered the most accurate measure of labour input. For reference, the national average nominal compensation per hour worked was approximately €11.60 in Greece and €8.40 in Bulgaria in 2023.

In 2023, the nominal compensation per hour worked in the Greece–Bulgaria border region appears to be relatively evenly distributed. In most areas, the average hourly income ranges between €10 and €15. Some Bulgarian NUTS3 regions report slightly lower values: Smolyan, Kardzhali, and Haskovo (all €9).

Cross-border wage differences can encourage labour migration from lower-wage areas to neighbouring regions with a more prosperous economy, creating both opportunities and challenges for local labour markets and social systems. However, in this particular border region, the wage differences do not appear to be especially pronounced.

Figure 2.15: Average income per hour



2.2.4 Infrastructure and housing

This sub-dimension shows the impact of the border on infrastructure and housing in the region. It assesses housing prices and average internet speed in order to identify cross-border effects, including potential price spillovers and disparities. The analysis reveals whether infrastructure and housing markets facilitate integration or expose structural challenges that are specific to the border area.

2.2.4.1 Advertised sales prices

Indicator description

The indicator shows the advertised sales price per square meter for houses/appartements as retrieved from commercial real estate websites at national level. In the cross-border region, local differences between average sales prices are highlighted and the "cutting" effect of the border and its influence on price levels is visualised.

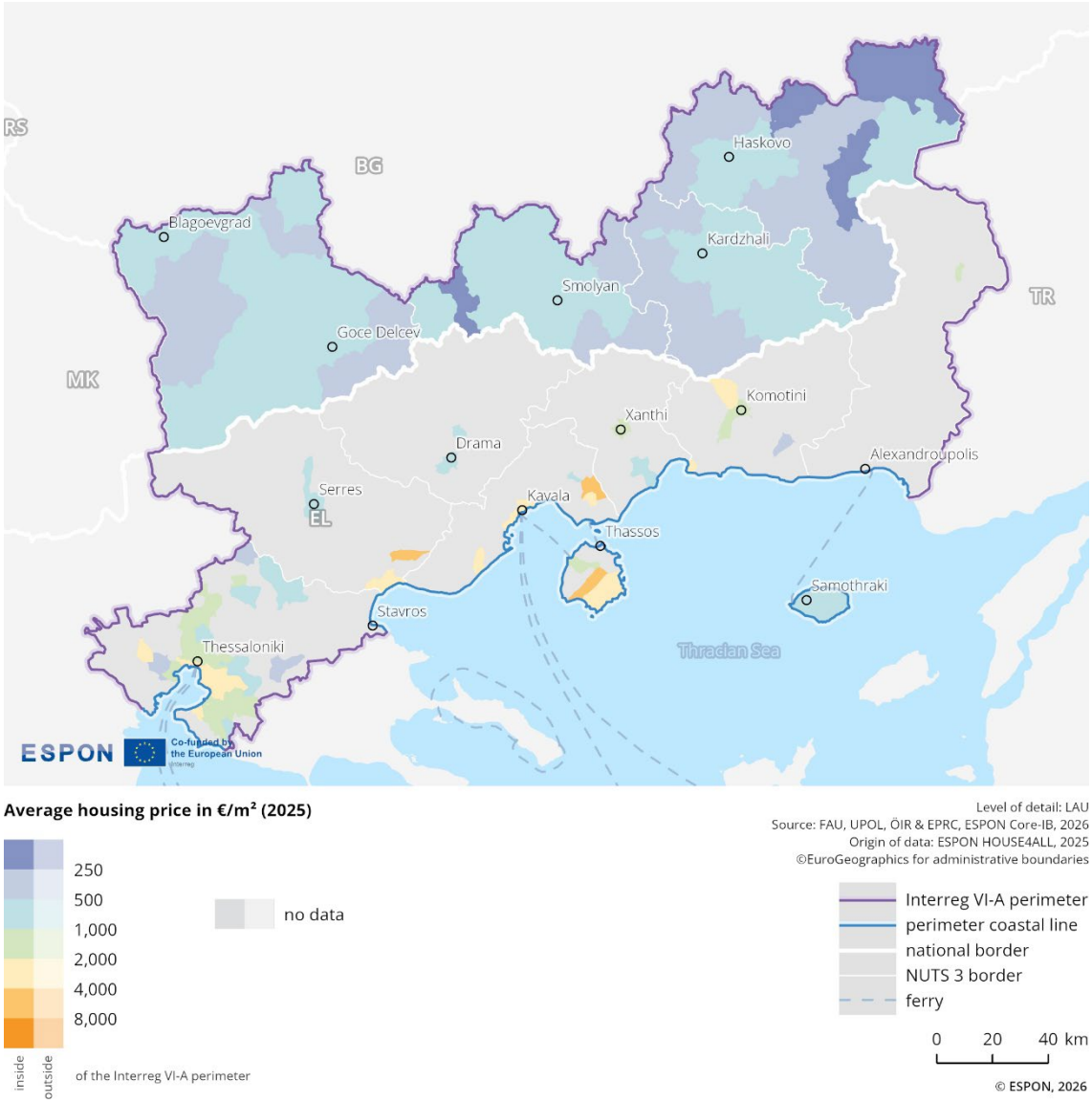
- **Source/method of retrieval**: Processed ESPON House4all data. The original data is collected via web-scraping of national listing websites over a one-year period.
- **Temporal coverage**: 2024/2025
- **Unit**: Average price per square meter (€/m^2)

Please refer to the technical annex for more information.

Figure 2.16 illustrates the advertised sales price of housing in 2025 across the border region. The data are categorised into ranges of average housing price per square metre, from below 250 €/m² up to more than 8,000 €/m², shown in colours ranging from purple and blue to green, yellow and orange.

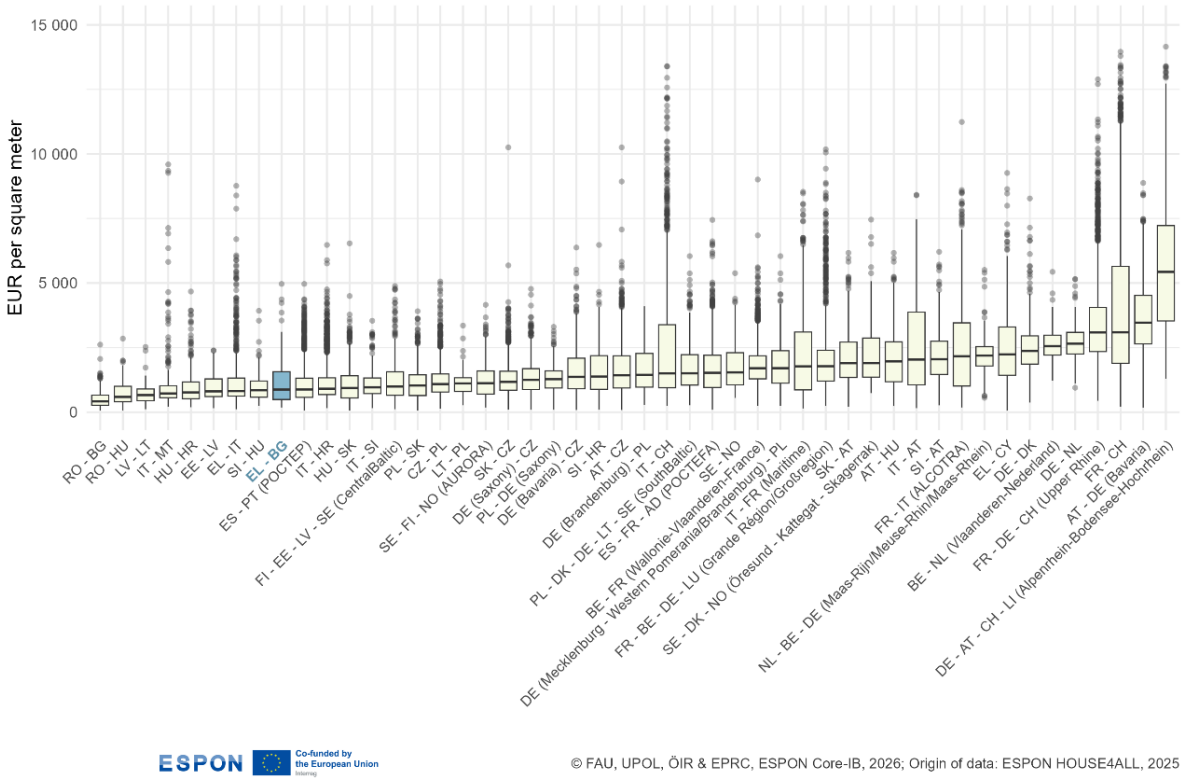
The map shows disparities in advertised sales prices across the Bulgarian border area. Prices vary within regions with eastmost areas of the Haskovo and Smolyan regions recording prices in the lowest category, up to €250/m². Other parts fall in the subsequent categories, ranging between €250 and €1000/m². In the Greek part, information is only available from more populated areas, and there is no information on prices in areas near the mountainous border with Bulgaria. The highest prices in Greece are in the vicinity of Thessaloniki and Kavala (prices above €2,000/m²), with higher average prices also found on the island of Thassos. Other Greek inland cities that fall into the lower price category of €1,000 to €2,000/m² are Xanthi and Komotini. The 2 parts of the cross-border region are not entirely comparable, and the higher average advertised price in Greece are largely driven by costal location.

Figure 2.16: Advertised housing prices



The Greek side of the border region reports an average advertised residential sales price of approximately €1,655 per square metre, while the Bulgarian side records a substantially lower average price of about €467 per square metre. Taken together, the average advertised sales price across the entire border region amounts to €1,205 per square metre. This figure remains below the average for all EU-evaluated border regions, estimated at €1,900 per square metre, and is also considerably lower than the European average of approximately €5,600 per square metre.

Figure 2.17: Advertised housing prices (comparison)



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2.2.4.2 Average internet speed

Indicator description

The indicator shows the population weighted average internet speed available at municipal level. It highlights differences in the "digital preparedness". In border regions, this indicator is particularly relevant for identifying digital infrastructure gaps that may hamper balanced development and cross-border integration.

- **Source/method of retrieval**: Processing of data provided by Speedtest by Ookla Global Fixed and Mobile Network Performance Maps, based on Ookla's analysis of Speedtest Intelligence data.
- **Temporal coverage**: 2022
- **Unit**: Download speed in Mbps

Please refer to the technical annex for more information.

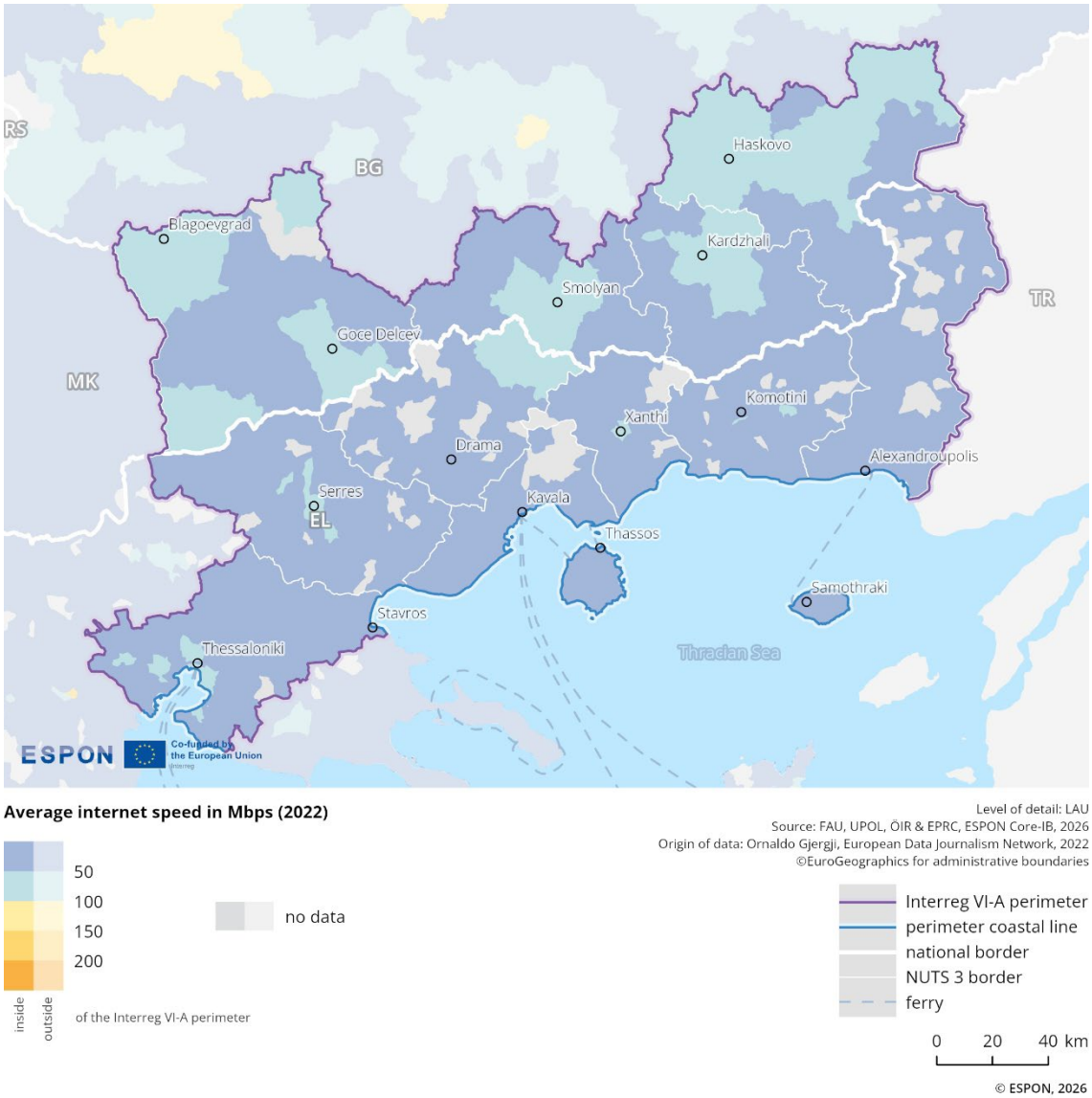
Digitalisation is a highly relevant issue in European border regions, with the overarching objective of ensuring appropriate digital access. It is widely recognised as a key precondition for successful regional and economic development. A major challenge in this process is preventing 'digital divides', i.e., avoiding significant disparities in economic, social, and spatial terms.

Average internet speed is an important indicator of such disparities, highlighting differences in 'digital preparedness' at the local level. Figure 2.18 shows the average download speed at the municipality level. The colour scheme ranges from dark blue (very slow speeds) to orange (very fast speeds). The

data, prepared by OBC Transeuropa for EDJNet, is based on Speedtest Intelligence data from Speedtest/Ookla's Global Fixed and Mobile Network Performance Maps for the first quarter of 2022. The average download speeds are expressed in megabits per second (Mbps) and should not be confused with megabytes per second (MBps).

Figure 2.18 highlights disparities in average internet speeds between urban and rural areas. Rural areas typically have speeds of 50 Mbps, whereas urban areas (e.g., Blagoevgrad, Smolyan, Haskovo, Kardzhali, Serres, Xanthi, and Thessaloniki) have speeds of at 100 Mbps. However, both values remain far from the midpoint (150 Mbps) and maximum (250 Mbps) of the scale. The generally low average internet speeds across the programme area could be due to the mountainous terrains on both sides of the border, which makes providing high-speed internet challenging.

Figure 2.18: Average internet download speed



2.2.5 Key messages on the economic dimension

GDP per capita trends within the border region (2010–2023) indicate gradual convergence with the EU, although substantial gaps remain. Both nationally and in the border area, GDP per capita has been more dynamic on the Bulgarian side, while the Greek side experienced stronger fluctuations, including a prolonged stagnation and a decrease over the period 2010–2020.

At the same time, employment rates show no major disparities within the Greece–Bulgaria border region, although the western and central Bulgarian regions (Blagoevgrad and Smolyan) record higher rates than the rest of the border area. Looking at the time-period 2014-2023, the gap in the average employment rate between the national and border-area levels has increased in Bulgaria, while there is no significant change in this dynamic in the Greek context.

The share of working-age population in the Greece-Bulgaria border region is close to the aggregate EU average for all border regions, and the decline in this indicator over the period 2014-2023 was slightly lower than at the EU level. Comparing the 2 sides of the border: the decline is higher on the Bulgarian side compared to its Greek counterpart.

Commuting flows from the Bulgarian side are highest in the region of Smolyan, while lower levels are recorded in other regions, particularly in the east. Commuting flows indicate the potential presence of economic functional linkages in the border area. Cross-border comparison is, however, not possible due to a lack of statistical data on the Greek side. While wages in the regions, composing the border area, are similar, several Greek NUTS3 regions record slightly higher values, which may be a trigger for the labour market migration.

Comparative spatial evidence on housing-price divergence is limited. Housing prices are higher in certain Greek urban centres, especially those with seaports like Thessaloniki and Kavala. In comparison, prices on the Bulgarian side are lower and more evenly distributed across regions.

Sectors of trade, transport, accommodation, and food services (G-I) dominate the economic structure and contribute the largest share of GVA increase in the period 2014-2023. Social pubic services (education, health, social work O–Q), mining, manufacturing, and utilities (B-E) and agriculture also form a major employment group, although their share is declining.

Internet speed in the border region is overall low, and while urban centres on both sides score better on this indicator, the spatial coverage around these urban centres is significantly higher in the Bulgarian side compared to the Greek side. Opportunities for cross-border telework to boost the attractiveness of cross-border employment are limited, as neither country is a signatory to the 2023 Framework Agreement on Cross-Border Telework.

2.3 Green dimension

The green dimension highlights the environmental characteristics, vulnerabilities and sustainability-related interactions within the border region. The analysis provides insight into the environmental interdependence of border regions. Additionally, the spatial distribution of renewable and conventional energy infrastructure, alongside indicators of resources and the circular economy, reveals whether the border facilitates collaborative transitions towards sustainability.

2.3.1 Nature protection and pollution

This sub-dimension investigates cross-border functional links in protected areas and areas affected by air and water pollution. It analyses the presence of protected areas in order to identify cross-border ecological links and conservation efforts. It also highlights the extent to which air and water pollution affects people living in border regions.

2.3.1.1 Protected areas

Indicator description

The indicator shows the presence and territorial coverage of protected areas based on the combination of 3 data sources, i.e., Nationally designated areas, Natura 2000 Network and Emerald Network.

- **Source/method of retrieval**: The indicator represents a combination of nationally designated areas, Natura 2000 and Emerald network provided by EEA (European Environment Agency) Geospatial data catalogue.
- **Temporal coverage**: 2024
- **Unit**: n/a

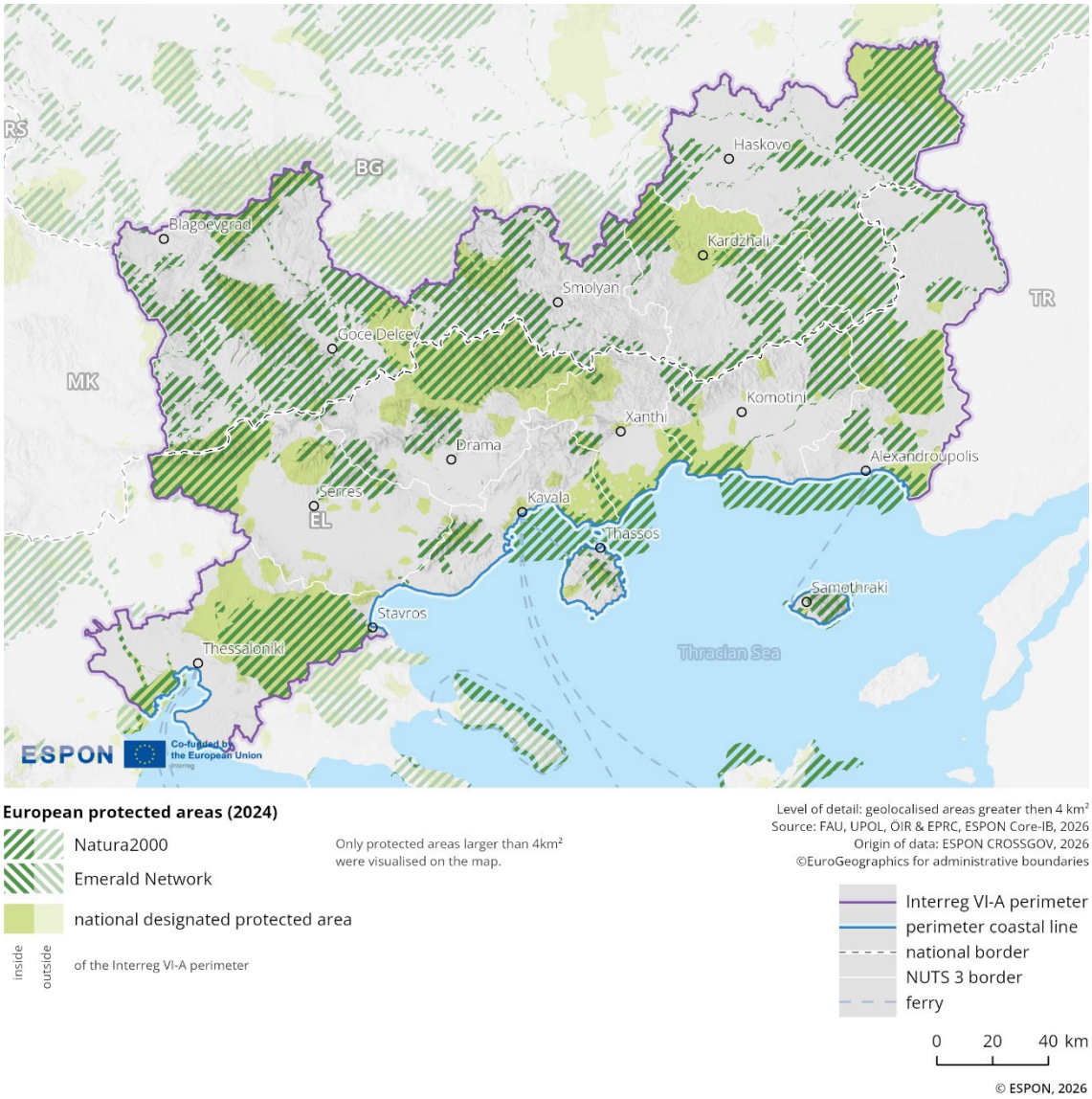
Please refer to the technical annex for more information.

Figure 2.19 illustrates the distribution of protected areas across the border region in 2024. The data differentiates between Natura 2000 sites, the Emerald Network, and nationally designated protected areas, displaying only those larger than 4 km² displayed.

Within this cross-border region, protected areas are densely concentrated along the mountain ranges and coastal zones, particularly near Thessaloniki, around Alexandroupolis, west of Smolyan and Kardzhali, where Natura 2000 and national designations make a larger share of the overall territory. Larger contiguous maritime zones are located at the coast near Alexandroupolis and Kavala. Central parts around Drama and Serres show smaller and more fragmented protected areas.

The majority of protected areas form clear cross-border counterparts, especially in the mountainous border zone between Greece and Bulgaria. Overall protected areas are widely spread and well interlinked across the entire cross-border region.

Figure 2.19: Nature protected areas



2.3.1.2 Air pollution

Indicator description

The indicator shows the air pollution from fine particulates (PM2.5) at NUTS3 level. The data shows the population-weighted average air pollution level (µg/m³), providing an indication of the extent to which the regional population is affected by air pollution.

- **Source/method of retrieval**: Processing and analysis of European Environment Agency data
- **Temporal coverage**: 2022
- **Unit**: Population weighted average of µg/m³

Please refer to the technical annex for more information.

This graph illustrates PM2.5 concentrations (in µg/m³) across NUTS3 regions in Greece and Bulgaria. Each small dot represents an individual measurement, while the black crosses indicate the average PM2.5 concentration for each NUTS3 region[8]. The regions are aligned along the x-axis, with Bulgarian regions on the left (in red) and Greek regions on the right (in blue).

PM2.5 values in both countries span a wide range. Overall, Greek regions show higher individual peaks in PM2.5 concentrations than Bulgarian regions. Bulgarian NUTS3 averages cluster below 12,5 µg/m³. Bulgarian NUTS3 averages display more variability and several exceed 15 µg/m³.

Greece's national average is slightly below 10 µg/m³, with the border region average being slightly higher. In contrast, Bulgaria's national average is around 10 µg/m³, which is higher than its border region average and closely aligned with the cross-border average.

The European average is around 7 µg/m³, which is lower than both the Greece and Bulgarian values. The cross-border average is slightly around 10 µg/m³, making it higher than the European and Greek national average. This cross-border average reflects the higher PM2.5 values in the Greece border region and the lower values in the Bulgarian border region.

Figure 2.20: Air pollution

[8] See Eurostat Statistical Atlas for NUTS3 (2021) regions: https://ec.europa.eu/statistical-atlas/viewer/?config=typologies.json&ch=NUTS&mids=BKGCNT,NUTS2021L3,CNTOVL&o=1,1,0.7&center=49.69576,14.3332,4&lcis=NUTS2021L3&

2.3.1.3 Water pollution

Indicator description

The indicator shows the ecological status or potential for coastal and river water bodies. It is based on an assessment of biological, hydro-morphological, chemical and physico-chemical quality elements.

- **Source/method of retrieval**: Processing and analysis of European Environment Agency data
- **Temporal coverage**: 2022 (supplemented by 2016 data)
- **Unit**: n/a

Please refer to the technical annex for more information.

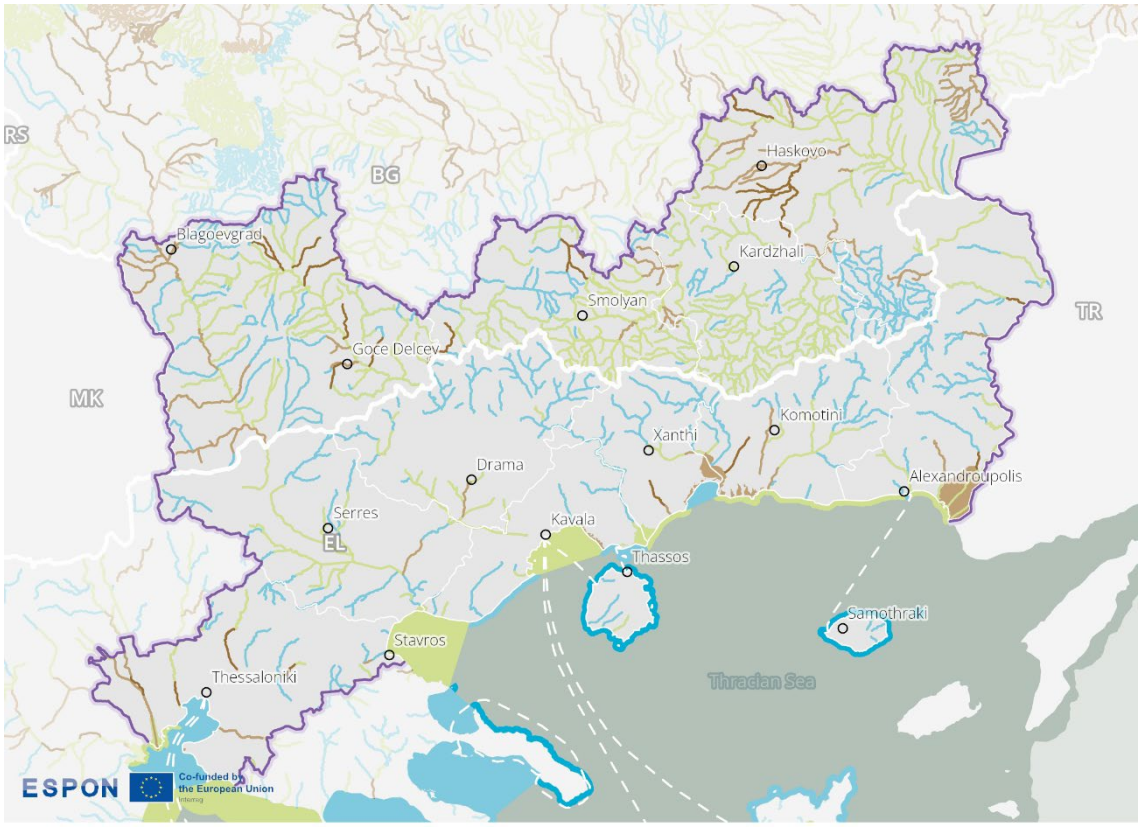
Figure 2.21 illustrates water pollution levels in the Greece–Bulgaria Interreg region in 2022. Water quality is represented using 6 colour-coded categories, ranging from "bad" to "high", including an "unknown" category.[9]

In the Greek part of the Interreg region, water bodies near the border and the south are rated as “good”, with some stretches classified as “moderate”. Rivers near the cities of Thessaloniki, Komotini and Drama are rated as “poor”.

In the Bulgarian part of the Interreg region, the water quality of rivers is mixed, with many stretches rated as “moderate” or “good” and rivers near Blagoevgrad or Haskovo that are rated as “poor”.

[9] For more information see the Water Framework Directive Reporting Guidance (2022): https://cdr.eionet.europa.eu/help/WFD/WFD_715_2022

Figure 2.21: Water quality patterns



2.3.2 Climate risks and resilience

This sub-dimension examines cross-border functional links relating to climate risks and resilience. It analyses exposure to natural hazards, such as landslides, earthquakes, droughts and floods in order to identify vulnerabilities and risks.

2.3.2.1 Natural hazard risks

Indicator description

The indicator shows the risk the border region is facing in relation to natural hazards (floods, droughts, landslides and earthquakes). The map highlights potential cross-border affectedness and allows to judge the relative relevance of each risk for the cross-border region.

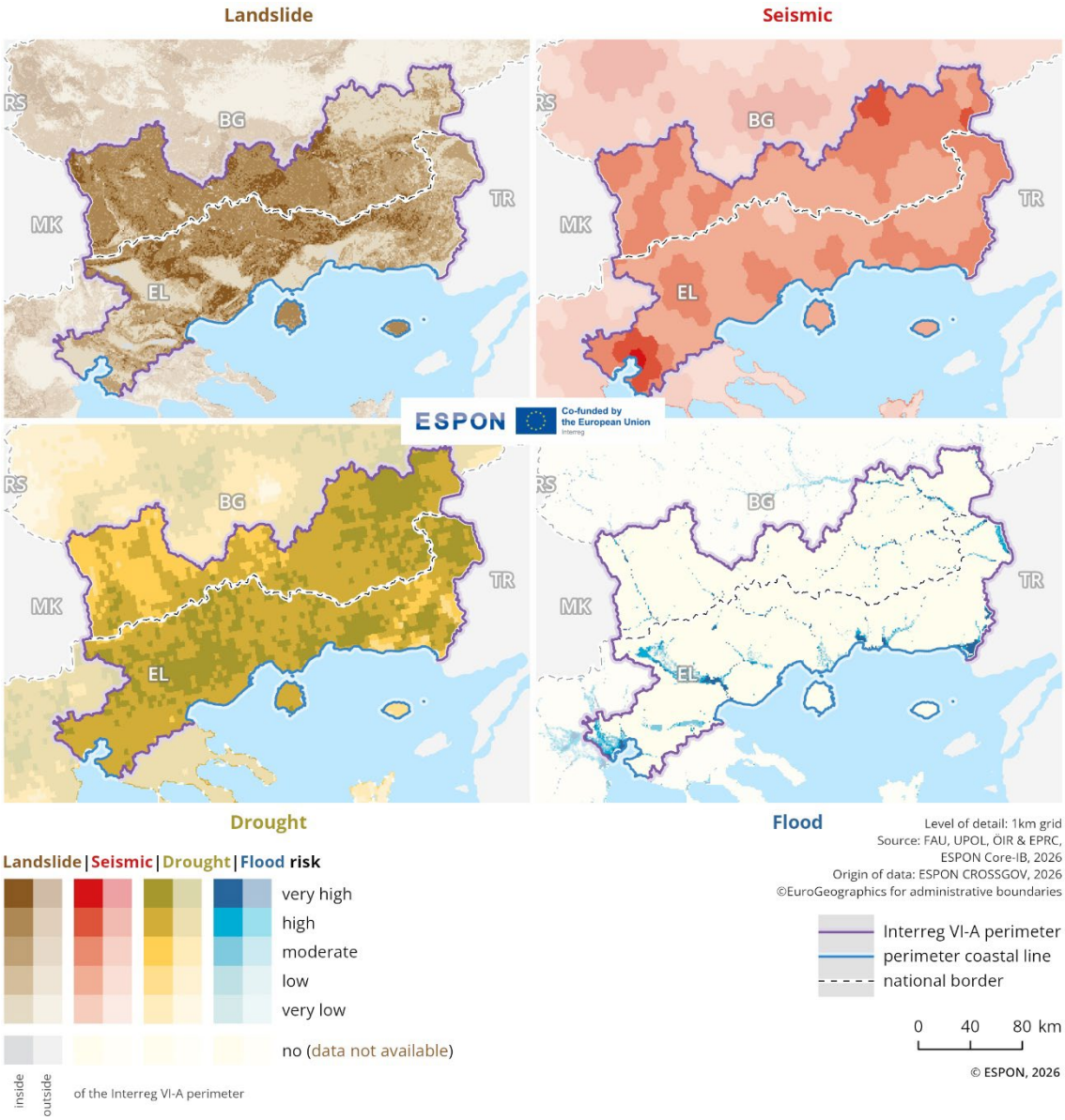
- **Source/method of retrieval**: The indicator is based on geodata from the Disaster Management Risk Knowledge Centre/JRC. It provides the likelihood of specific natural hazard events at grid level.
- **Temporal coverage**: 2024
- **Unit**: n/a

Please refer to the technical annex for more information.

Figure 2.22 illustrate the spatial distribution of natural hazards in the Greece-Bulgaria region, highlighting areas where risks are shared across national boundaries and where risks are not necessarily cross-border relevant.

Droughts pose a serious threat throughout the entire region. Moreover, many areas are at risk of landslides. As the Rhodope Mountains are situated alongside the border, landslides often occur near the border. There is a high risk of earthquakes around Thessaloniki in Greece and Haskovo in Bulgaria. Both areas are not located near the shared border. Flood risks are mostly situated on the Greek side of the border. Coming mostly from the Varda River and Struma River in the west and the Maritsa River om the east. Although not mapped, fire risk is becoming an increasingly important concern in the area. This is due to the large, forested areas on both sides combined with rising temperatures, especially during the summer months.

Figure 2.22: Natural hazard risks



2.3.3 (Renewable) Energy and energy infrastructure

This sub-dimension assesses cross-border functional links in energy supply and infrastructure, focusing on existing connections and missing links. The distribution of power lines, energy infrastructure and power stations is analysed to identify supply patterns and potential integration gaps. The analysis reveals whether the border facilitates energy cooperation and connectivity, or if infrastructural differences create barriers.[10]

2.3.3.1 Power lines and energy infrastructure

Indicator description

The indicator shows the distribution of power lines and energy infrastructures in the cross-border region. The geodata highlights the existing links and gaps in the cross-border interconnections of the energy transmission network.

- **Source/method of retrieval**: Geodata on high-voltage energy infrastructure (100 kV and above) has been collected and processed from OpenStreetMap.
- **Temporal coverage**: 2025
- **Unit**: kV

Please refer to the technical annex for more information.

Figure 2.23 illustrates the distribution of power lines and cables in 2025 across the border region. The data distinguish between overhead and underground power lies, further classified into high-voltage (100-230 kV), extra high-voltage (230-1,000 kV), and ultra-high voltage (above 1,000 kV).

The cross-border region of Greece-Bulgaria features high- and extra-high-voltage energy infrastructure which is denser in the Greek part of the region. 2 important extra-high-voltage lines on Bulgarian territory run north-south towards Greece. Both lines also serve as direct links between the 2 countries in terms of energy infrastructure. On the Greek side, there is a very dense network around Thessaloniki in the south-west of the territory, from where it cuts diagonally across the entire remaining area of Greece towards the north-east.

[10] See also: European Commission 2025: Handbook on Cross-border Energy Communities, https://ec.europa.eu/regional_policy/sources/studies/2025/Handbook_on_Cross-border_Energy_Communities.pdf

Figure 2.23: High-voltage transmission infrastructure

Overhead power lines (2025)

- High Voltage (100–230 kV)
- Extra High Voltage (230–1.000 kV)
- Ultra High Voltage (1.000 kV+)

Underground power cables (2025)

- High Voltage (100–230 kV)
- Extra High Voltage (230–1.000 kV)
- Ultra High Voltage (1.000 kV+)

inside / outside of the Interreg VI-A perimeter

ANSI Standard C84.1 was used for classification of power lines.

Level of detail: geolocated lines
Source: FAU, UPOL, ÖIR & EPRC, ESPON Core-IB, 2026
Origin of data: ESPON CROSSGOV, 2026
©EuroGeographics for administrative boundaries

- Interreg VI-A perimeter
- perimeter coastal line
- national border
- NUTS 3 border
- ferry

0 20 40 km

© ESPON, 2026

2.3.3.2 Power stations

Indicator description

The indicator shows the location of power stations by type and energy production levels (coal, gas and oil, nuclear, hydro). It can indicate differences and complementarities in the national energy supply systems as well as highlight potential supply-demand links when viewed in conjunction with power lines infrastructure.

- **Source**: OpenStreetMap, Global Energy Monitor, JRC Hydro-power plants database
- **Temporal coverage**: 2025
- **Unit**: MW

Please refer to the technical annex for more information.

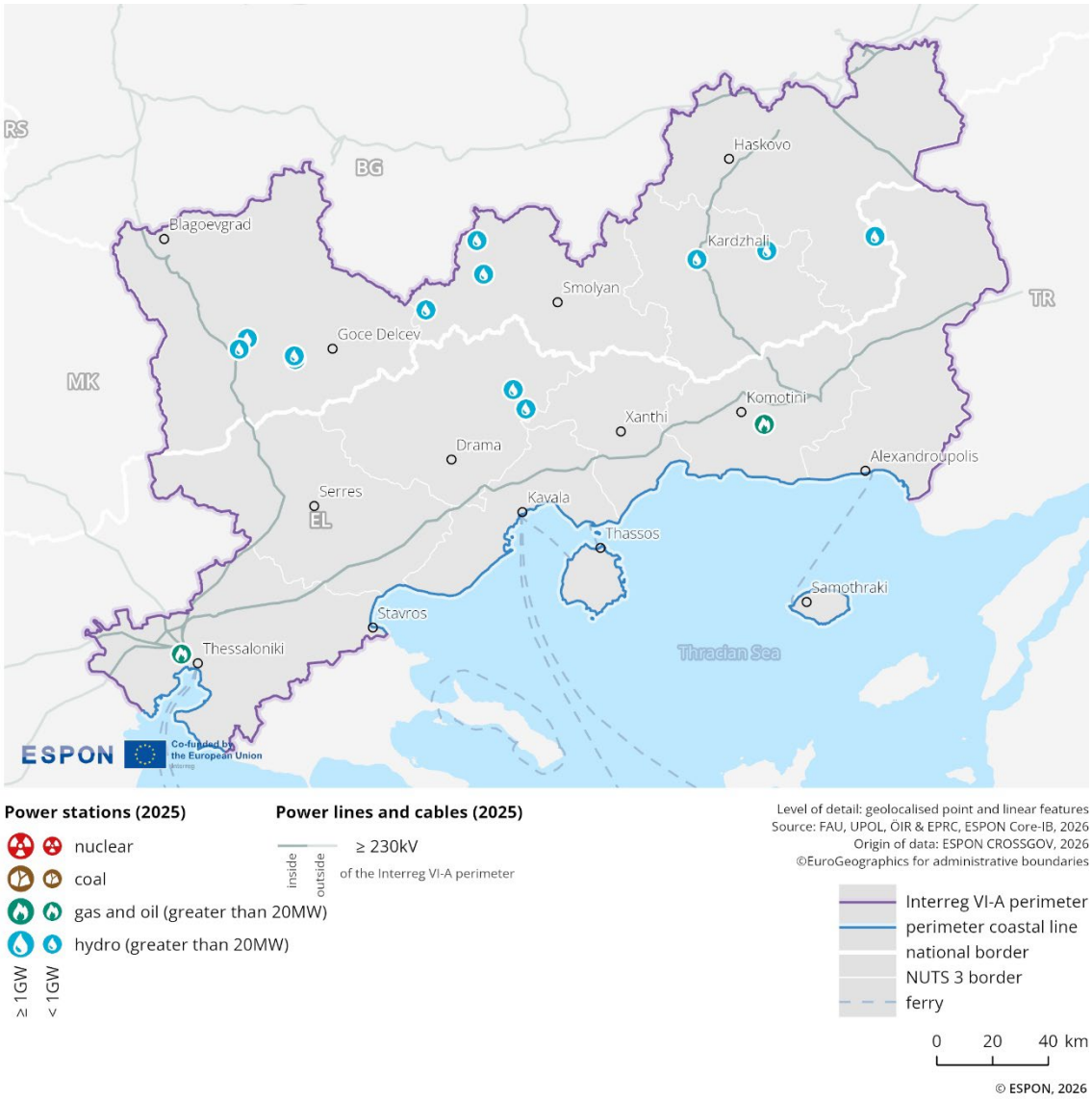
In the Greece-Bulgaria cross-border region, in total, there are 14 power station locations, while the majority is represented by hydroelectric power stations (12 in total) (see Table 1).

Table 1: Number and type of power stations

Power stations/plants	Less than 1GW	1GW and up
Nuclear	/	/
Coal	/	/
Gas and oil	2	/
Hydro	12	/

10 hydroelectric power stations are located in Bulgaria, basically evenly distributed throughout the entire length of its territory (see Figure 2.24). The remaining 2 are placed in Greece in the middle part of the region. Both gas and oil power stations are operated in Greece, one in the southwest near Thessaloniki, the other in the eastern part of Greece. No nuclear power plant or coal power stations are present in the whole region.

Figure 2.24: Power stations infrastructure



2.3.4 Resources and circular economy

This sub-dimension focuses on resource use patterns in the border region and their implications for circular economy practices. It analyses resource productivity and waste generation in order to evaluate the efficiency and sustainability of resource utilisation across the border.

2.3.4.1 Resource productivity

Indicator description

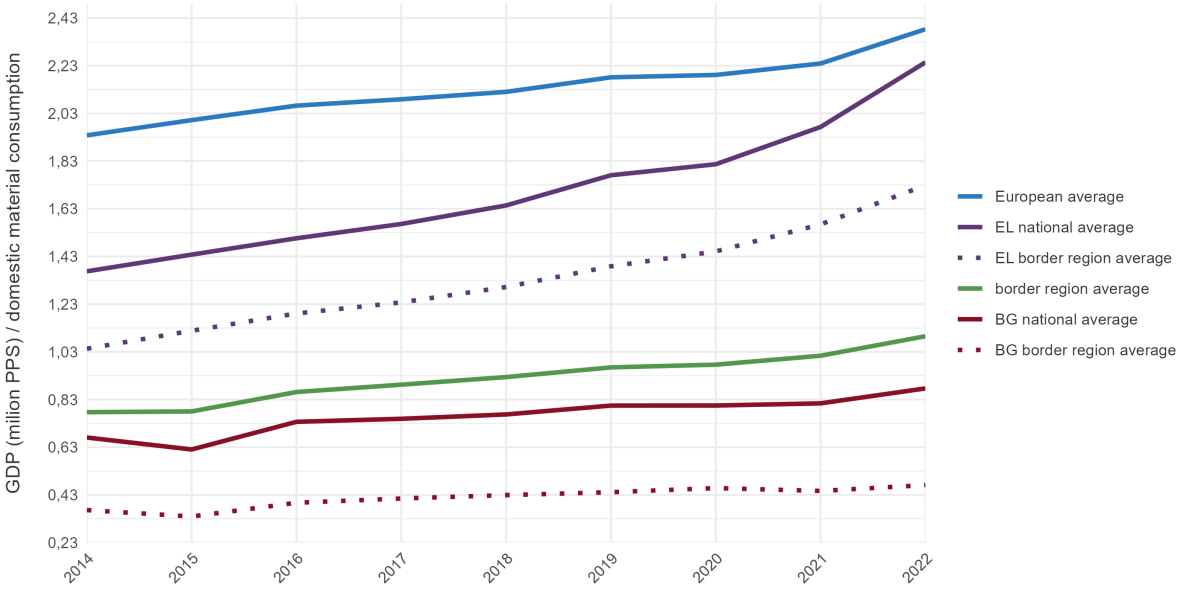
The indicator shows the economic value generated per unit of material consumed for each region within the cross-border area. Developments over time provide insights if the decoupling of productivity from resource use is progressing on regional level.

- **Source/method of retrieval**: Processing of Eurostat and ESPON CIRCTER (Circular Economy and Territorial Consequences) Update data
- **Temporal coverage**: 2014-2022
- **Unit**: PPS/tons

Please refer to the technical annex for more information.

Figure 2.25 illustrates the development of GDP per unit of domestic material consumption in million PPS/DMC (purchasing power standards per domestic material consumption) between 2014 and 2022. The data compare the national averages, the averages of their respective border regions, and the overall border regional average with the European average.

Figure 2.25: Resource productivity



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The chart shows that Greece has made more substantial progress in resource productivity, measured in millions of purchasing power standards per unit of domestic material consumption (PPS/DMC), compared to its Bulgarian counterparts in both the national and border contexts. The Bulgarian national average shows a moderate increase between 2014-2022, reaching around 0.83 million PPS/DMC at the

end of the period. The Bulgarian border region average follows a similar trajectory but continues to lag behind the national average, highlighting persistent regional disparities. The Greek national average shows an upward trend over the same period and is significantly higher than the Bulgarian values. The Greek border region average follows a similar pattern but remains notably below the Greek national average, reaching around 1.73 million PPS/DMC in 2022.

The disparities between national and border region average values of resource productivity in Greece and Bulgaria highlights untapped potential for further development. This is also evident when looking at a comparison with wider trends. The European average lies significantly above the Greek and Bulgarian values. The border region average lies between the higher Greek values and the lower Bulgarian values, reaching approximately 1.13 million PPS/DMC in 2022.

2.3.4.2 Generation of waste per GDP

Indicator description

The indicator shows the regional distribution of waste creation in relation to the GDP development. Comparing waste generated to GDP reflects the waste intensity of the economy and provides a measure of "eco-efficiency". Observation of its change from year to year permits to assess whether the economy is able to produce more wealth while at same time generating less waste.

- **Source/method of retrieval**: Processing of Eurostat and ESPON CIRCTER Update data
- **Temporal coverage**: 2014-2022
- **Unit**: Tons/PPS

Please refer to the technical annex for more information.

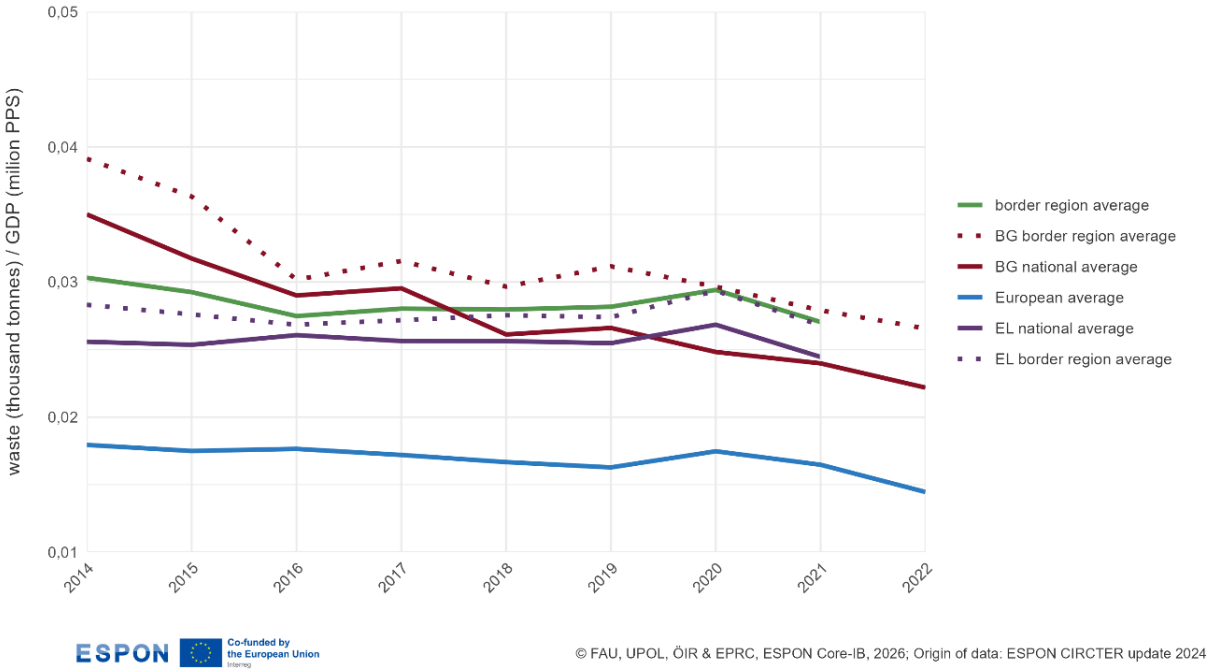
Figure 2.26 illustrates the trend in waste generation relative to economic output, measured in tonnes of waste per million PPS (Purchasing Power Standard) of GDP in Greece, Bulgaria and their Interreg border region from 2014 to 2022.

Greece's national average remains relatively stable throughout the observed period, at a level of approximately 0.025 tonnes of waste per million PPS. A slight increase is recorded in 2020, followed by a subsequent decline. A similar trend can be observed in the Greek border region, although its values are slightly higher than the national average. In contrast, both the Bulgarian national and border region averages show a marked decline. The Bulgarian national average decreases from approximately 0.035 tonnes of waste per million PPS in 2014 to around 0.022 tonnes in 2022. Until 2019, the Bulgarian national average remains higher than the Greek national average; however, from 2020 onwards, it falls below, although the 2 values converge over time. The Bulgarian border region follows a similar trend, with some fluctuations, and consistently records higher values than the Bulgarian national average.

The European average gradually declines from around 0.018 tonnes in 2014 to approximately 0.015 tonnes per million PPS in 2022. It represents the lowest line in the graph and remains well below both Greek and Bulgarian values throughout the period.

The cross-border regional average remains significantly above the European average and lies between the higher values of Bulgaria's border region and the slightly lower values of Greece's border region. From 2018 onward, the border region values of both countries begin to converge. In 2022, the cross-border average reaches approximately 0.026 tonnes of waste per million PPS.

Figure 2.26: Waste generation per GDP



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2.3.5 Key messages on the green dimension

The Greece-Bulgaria border region is characterised by clearly defined functional links in protected areas, particularly around mountain ranges and related national parks.

Air pollution, measured in PM2.5 concentrations (in µg/m³), is generally higher and more variable on the Greek side of the border. The highest values are recorded in adjacent NUTS 3 regions of Smolyan (BG422) and Drama (EL522), pointing to shared exposure to air quality challenges. This pattern suggests possible spillover effects and underscores the need for a coordinated cross-border response. These challenges may be linked not only to local settlement and transport infrastructure, but also to the sources of energy production in and around the region and the degree of energy connectivity across the border.

Energy production within the border area is dominated by hydroelectric power (12 stations, mostly on the Bulgarian side), which has generally a low impact on air quality. However, coal-fired stations located just outside the border area on the Bulgarian side may contribute to elevated PM2.5 levels, while the Greek side relies more on gas and oil power plants. While energy infrastructure is interconnected at 2 border points (east and west), the network is more dispersed in the central section, particularly on the Bulgarian side, which may limit cross-border energy flows.

Exposure to natural hazards is relatively high and largely shared across the Greece–Bulgaria border region, with some variations. Droughts represent the most pronounced common risk, followed by landslides in mountainous areas and earthquakes, which occur on both sides but in a more dispersed pattern. Flood risks are particularly prominent on the Greek side, though they are closely linked to rivers shared with Bulgaria, such as the Varda, Struma, and Maritsa.

In the context of transitions towards sustainability, resource productivity and waste management remain shared challenges. The border average for resource productivity is significantly below the EU level, while waste generation is notably above it. Time-series data (2014–2022) show gradual improvements on both sides of the border, with a more dynamic upward trend in resource productivity in Greece, while Bulgaria has achieved a steeper reduction in waste generation. These complementary trends suggest scope for cross-border learning and joint initiatives on circular economy approaches.

2.4 Socio-economic dimension

The socio-economic dimension examines patterns of social integration, tourism, and access to public services in the border region. It identifies how socio-cultural links, visitor flows and essential services influence development in the cross-border area. By examining interpersonal interactions via social media, language similarities, tourism intensity, and the accessibility of facilities such as secondary schools, grocery shops, hospitals, doctors, pharmacies and cinemas this dimension highlights both functional integration and potential socio-spatial differences.

2.4.1 Social integration

This sub-dimension evaluates the level of social integration in the border region by identifying areas with low or high cross-border interactions. It analyses cross-border connectivity in social media and language similarities across and along national borders to evaluate the potential for cultural and social integration.

2.4.1.1 Cross-border connectivity in social media

Indicator description

The indicator refers to the existing connections between users of META social media (in particular Facebook) across the border. It aims at giving an overview of the degree of personal connectivity between inhabitants of the border area. Even though not all these internet connections will relate to real communication exchanges but sometimes just "following" content from other users, they give an overview of interpersonal and cultural knowledge of the social media landscape from across the border.

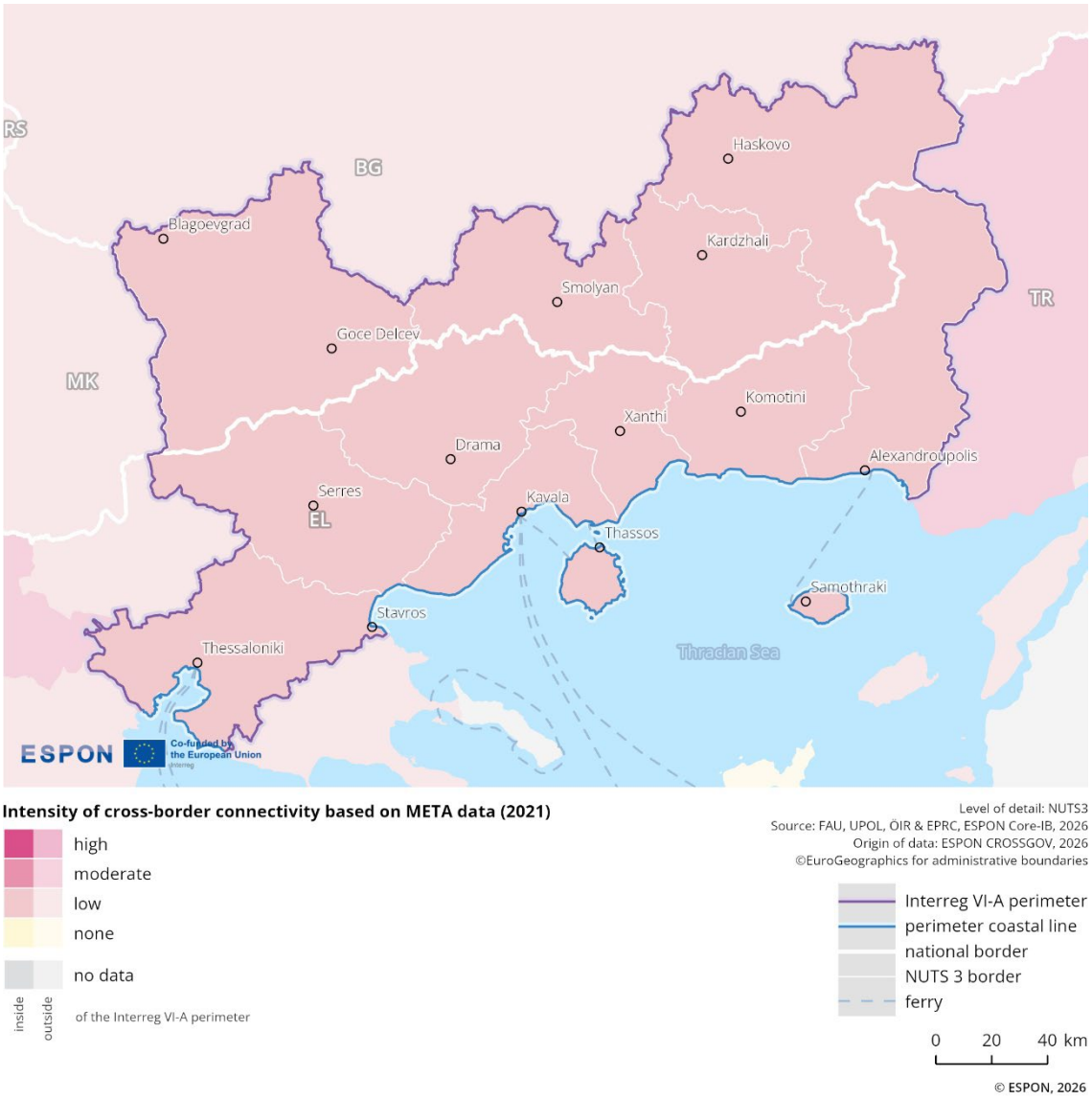
- **Source/method of retrieval**: Processing Facebook data on existing connections across the border (data for Good Meta)
- **Temporal coverage**: 2021
- **Unit**: n/a

Please refer to the technical annex for more information.

Figure 2.27 illustrates the spatial distribution of cross-border connectivity in social media based on Facebook information in the border area. The different shades of pink indicate varying intensities of interaction, ranging from low to high, with darker tones representing stronger intensity of cross-border connectivity in social media.

The map demonstrates that the intensity of cross-border connectivity, measured in existing connections between users of META social media platforms, is relatively low and evenly distributed among residents of this border region.

Figure 2.27: Cross-border connectivity in social media



2.4.1.2 Language similarities along national borders

Indicator description

The indicator specifies whether the language is the same across the border, whether the respective national languages have commonalities, whether while different, there are local linguistic commonalities, and whether the language is different.

- **Source/method of retrieval**: ESPON cross-border public services (CPS) 2.0 database along border segments
- **Temporal coverage**: 2022
- **Unit**: n/a

Please refer to the technical annex for more information.

2 different languages characterise the border region, with no similarities and no widespread knowledge of the neighbouring regions language recorded.

2.4.2 Tourism

This sub-dimension identifies key tourism hotspots in the border region to highlight tourism dynamics. It analyses the number of nights spent in tourist accommodation establishments in order to evaluate the attractiveness of, and developments in, the tourism sector. Comparisons with the respective countries and the EU average provide context for understanding the region's dynamics.

2.4.2.1 Nights spent at tourist accommodation establishments

Indicator description

The indicator shows the number of nights a guest or tourist actually spends in a tourist accommodation establishment or non-rented accommodation (overnight stays). This may reveal the tourism attractiveness of a region and shed light on the role of tourism in the local economy, i.e., tourists/guests staying overnight may spend more in the region than one-day visitors.

- **Source**: Eurostat
- **Temporal coverage**: 2020-2023
- **Unit**: Nights per capita

Please refer to the technical annex for more information.

The spatial distribution of overnight stays highlights the importance of key tourist destinations in border areas. Tourism contributes significantly to regional income, infrastructure development and employment, and thereby supports regional prosperity. At the same time, it affects environmental and living conditions, which may reduce local acceptance despite its economic benefits. This is in particular the case in places of overtourism, seasonal pressures, and increasing land-use conflicts.

Figure 2.28 shows the number of overnight stays per capita at tourist accommodation establishments in 2023. It includes hotels, holiday and other short-stay accommodation, as well as campsites, caravan and trailer parks. The figure uses a colour gradient, with darker shades indicating a higher number of nights spent per capita in 2023. It also shows the cumulative number of overnight stays from 2020 to 2023.

In 2023, the Greek NUTS3 regions Thassos, Kavala shows 20 to 40 nights per capita. In the other regions of the programme areas, the per capita figures are somewhat lower with only 2 Bulgarian NUTS3 regions (Blagoevgrad and Smolyan) showing 5 to 10 nights spent per capita. In terms of total overnight stays over the 3-year period, the leading tourism regions are located in Greece: Thessaloniki (approx. 3.9 million) and Thassos, Kavala (approx. 2.8 million). With the Paleochristian and Byzantine Monuments of Thessalonika, there is a particularly high number of popular UNESCO heritage sites located in Thessaloniki.

Figure 2.28: Overnight stays in tourism

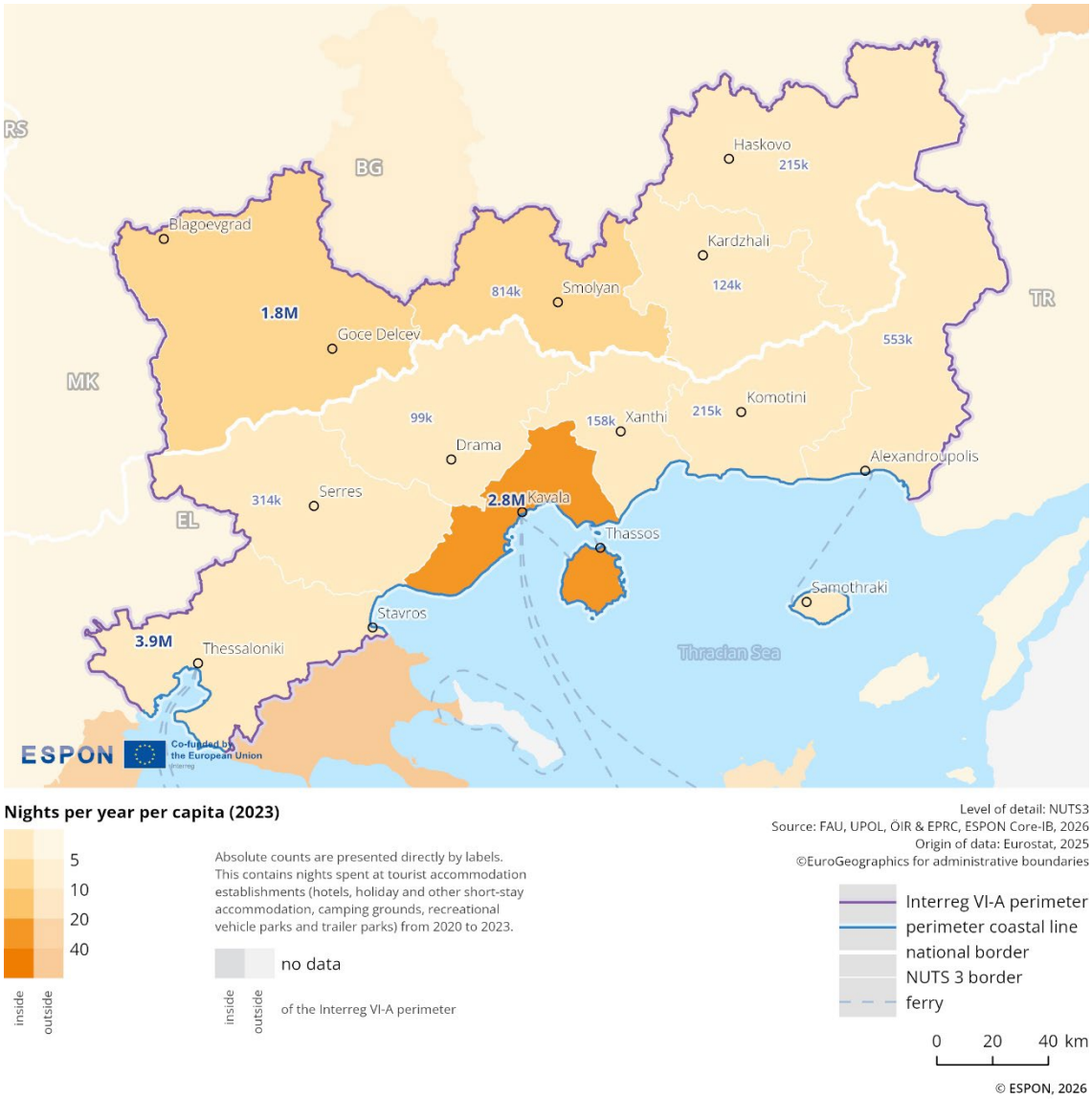
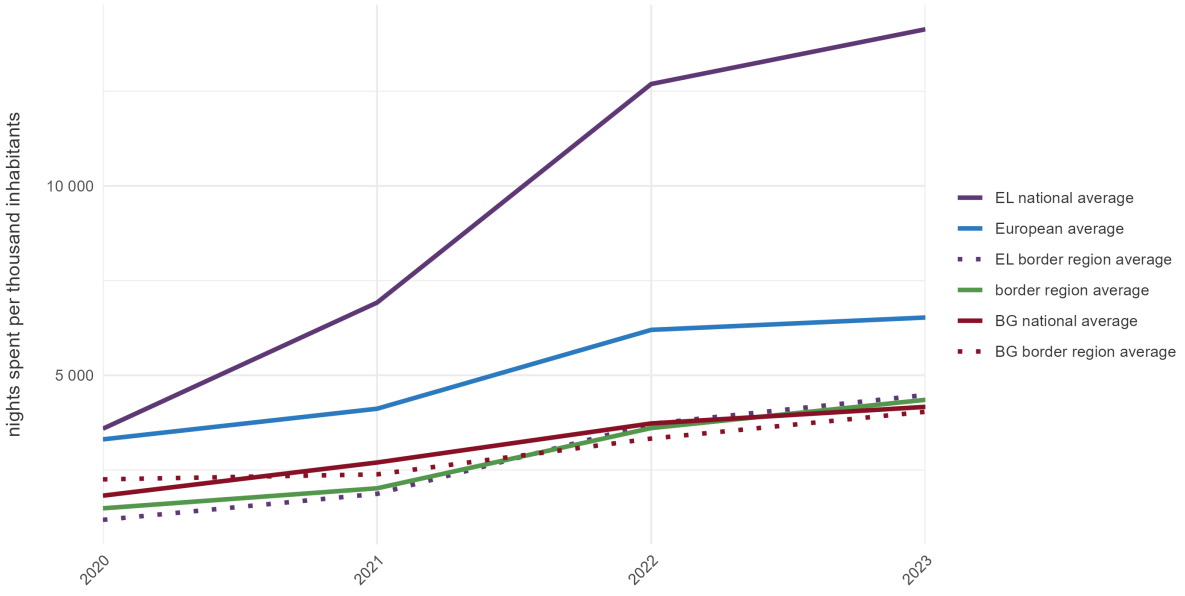


Figure 2.29 illustrates the development of nights spent at tourist establishments per thousand inhabitants from 2020 to 2023. Over the entire period, the average for the Greece-Bulgaria programme area is lower than the overall European average, which includes EU member states and the EFTA countries of Iceland, Liechtenstein, Switzerland and Norway. In 2023, the border regional averages of both countries are lower than their respective national averages. While the border region average in Greece is significantly lower than the national average for all 4 years, the Bulgarian border region average is mostly quite similar to the national average. Additionally, since 2022, the region average for the Greece border area is slightly higher than that for the Bulgarian.

Tourist patterns have a series of implications for spatial development. First, transport infrastructure must be able to accommodate seasonal peaks. Second, while tourism may represent an untapped potential for the economic development of the region, it needs to be balanced with preserving socio-cultural and environmental heritage, which can present challenges.

Figure 2.29: Overnight stays in tourism (comparison)



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2.4.3 Services of general interest

This sub-dimension looks at how accessible services of general interest (SGIs) are in the border region, identifying areas that are well-served and those that are more difficult to access. It analyses access to essential services such as secondary schools, grocery shops, hospitals, doctors, pharmacies and cinemas.

2.4.3.1 Accessibility to services of general interest

Indicator description

The indicator shows, for the below listed facilities and services, the average driving time to the nearest facility of a series of services of general interest.

- **Source/method of retrieval**: Processing and analysis of standardised travel-time accessibility to secondary schools, grocery shops, hospitals, doctors, pharmacies and cinemas available in the ESPON PROFECY Update (2022)
- **Temporal coverage**: 2021
- **Unit**: Minutes (in 2.5 x 2.5 km grid)

Please refer to the technical annex for more information.

Figures 2.30 to 2.35 visualise average car travel times to services of general interest within the programme area. The maps display accessibility to:

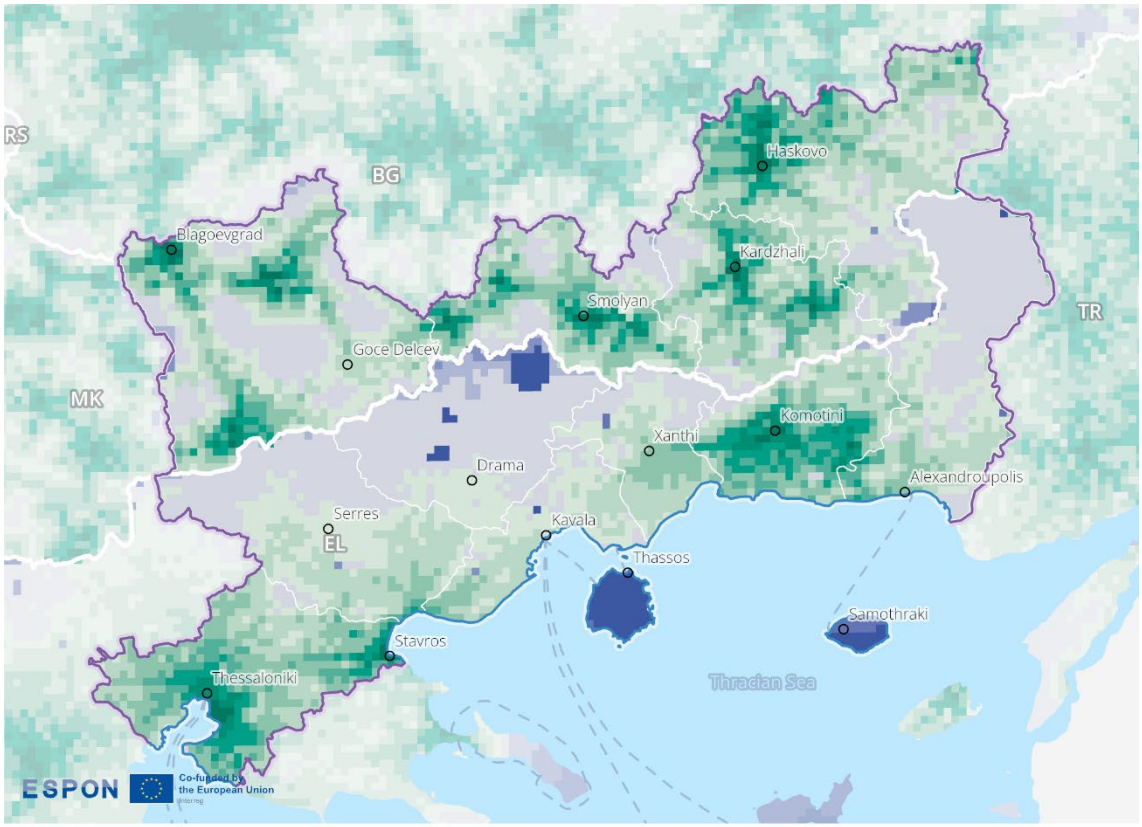
- Secondary schools (Figure 2.30)
- Grocery shops (Figure 2.31)
- Hospitals (Figure 2.32)
- Doctors (Figure 2.33)
- Pharmacies (Figure 2.34)
- Cinemas (Figure 2.35)

These indicators show how long, on average, it takes to reach the nearest facility by car. The data comes from the ESPON PROFECY Update project (2022) and is visualized based on a 2.5-kilometer grid.

In the Greece–Bulgaria border area, essential services such as hospitals, doctors, pharmacies, schools, grocery shops, and cinemas are mainly located in cities and more densely populated areas. This results in an urban–rural gradient, with shorter travel times in and near urban centres and longer travel times in rural or remote regions. In large parts of the programme area, travel times exceed one hour.

Travel times to schools are longest near the national border, with the longest times in the midwestern and eastern regions of Greece. Travel times to grocery shops and hospitals are longest in the central regions of Greece, while travel times to doctors are longest in the western regions of Bulgaria and the central and eastern regions of Greece. Travel times to pharmacies are longest in the central Greek regions and the eastern Greek and Bulgarian regions.

Figure 2.30: Travel time to secondary schools



Car travel time to the nearest secondary school (2021)

5min
10min
15min
20min
30min
45min
1h
2h
3h
4h
6h
12h

inside outside of the Interreg VI-A perimeter

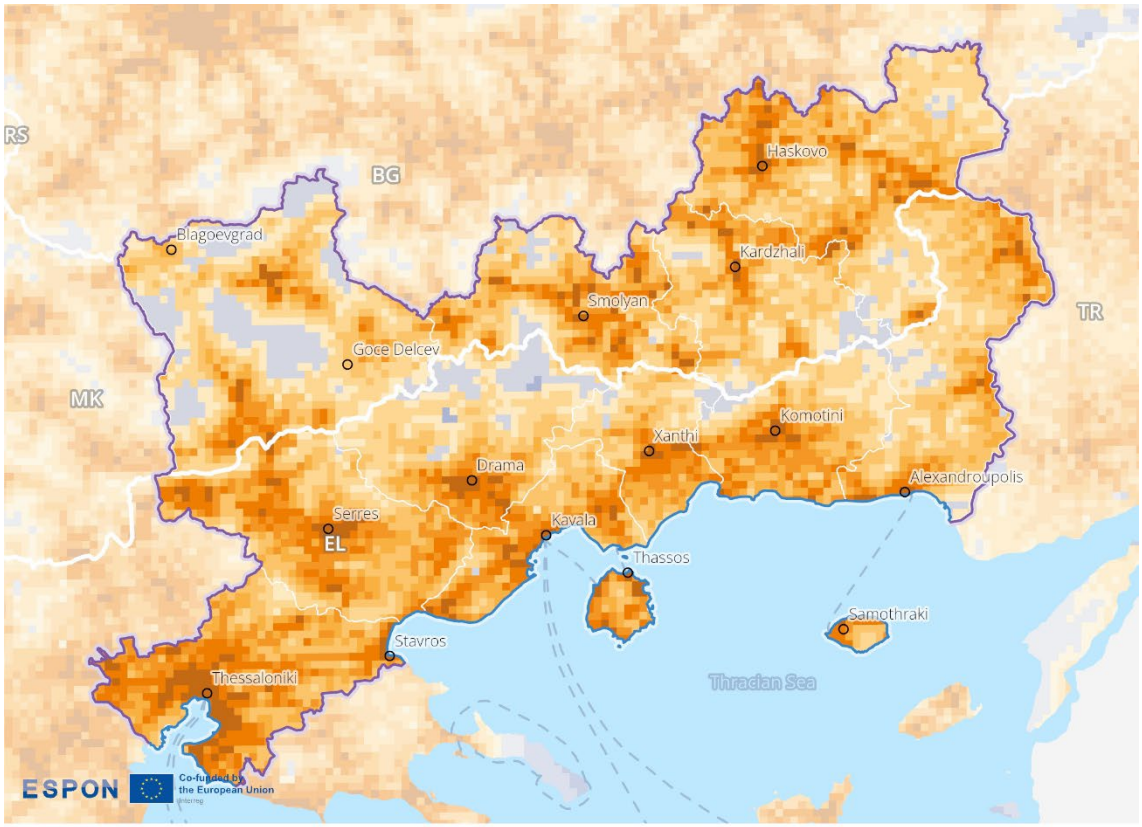
Level of detail: 2.5km grid
Source: FAU, UPOL, ÖIR & EPRC, ESPON Core-IB, 2026
Origin of data: ESPON PROFECY Update, 2022
©EuroGeographics for administrative boundaries

Interreg VI-A perimeter
perimeter coastal line
national border
NUTS 3 border
ferry

0 20 40 km

© ESPON, 2026

Figure 2.31: Travel time to grocery shops



Car travel time to the nearest shop (2021)

5min
10min
15min
20min
30min
45min
1h
2h
3h
4h
6h
12h

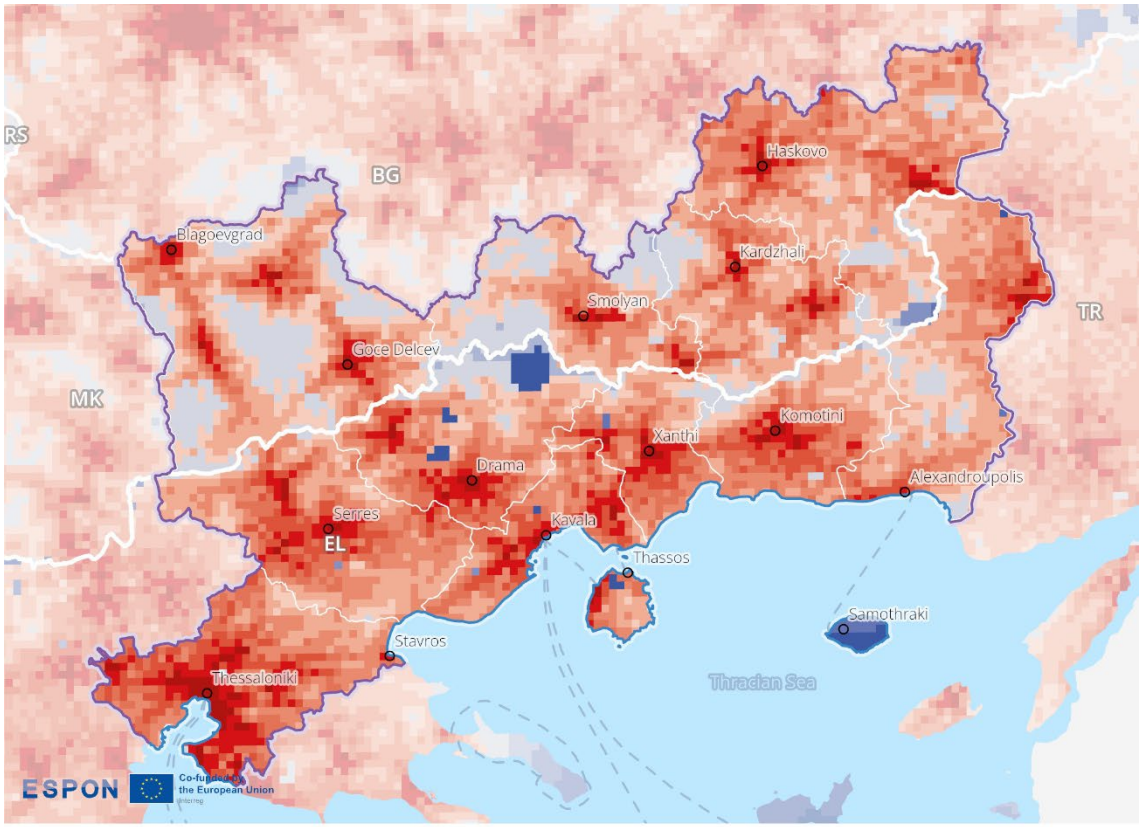
inside outside of the Interreg VI-A perimeter

Level of detail: 2.5km grid
Source: FAU, UPOL, ÖIR & EPRC, ESPON Core-IB, 2026
Origin of data: ESPON PROFECY Update, 2022
©EuroGeographics for administrative boundaries

Interreg VI-A perimeter
perimeter coastal line
national border
NUTS 3 border
ferry

0 20 40 km

Figure 2.32: Travel time to hospitals



Car travel time to the nearest hospital (2021)

5min
10min
15min
20min
30min
45min
1h
2h
3h
4h
6h
12h

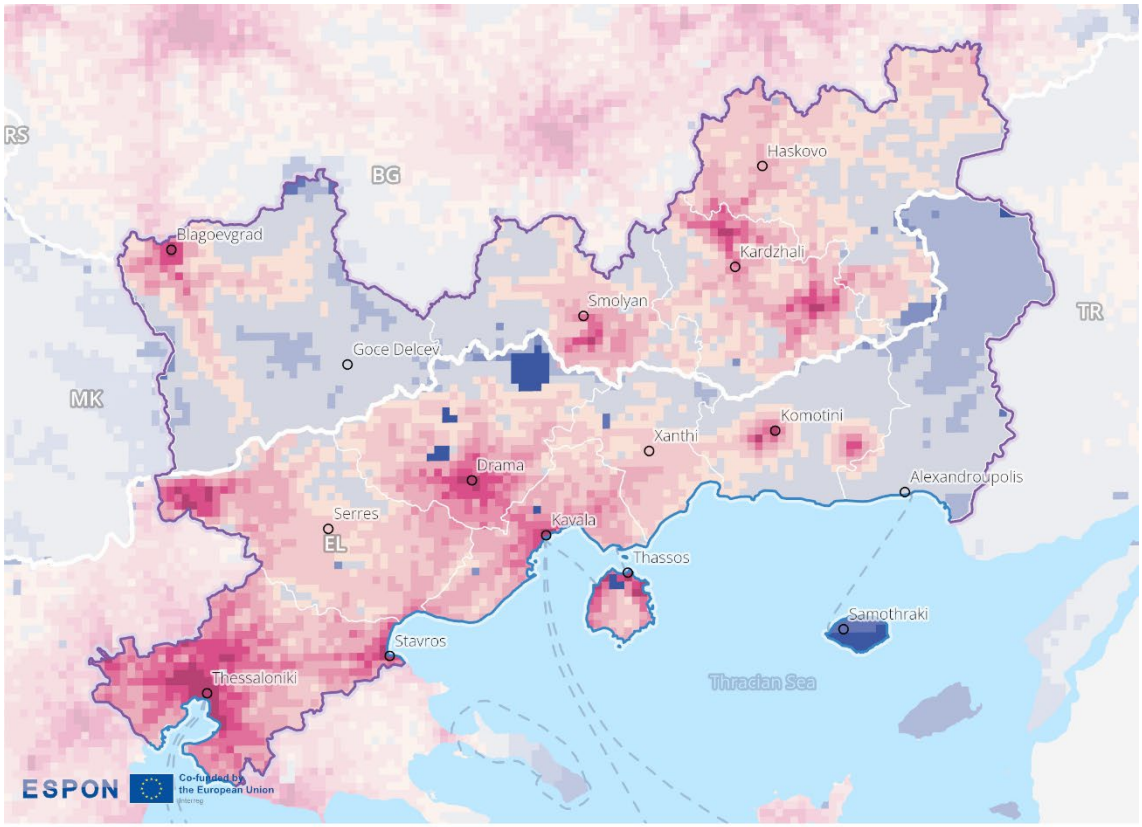
inside outside of the Interreg VI-A perimeter

Level of detail: 2.5km grid
Source: FAU, UPOL, ÖIR & EPRC, ESPON Core-IB, 2026
Origin of data: ESPON PROFECY Update, 2022
©EuroGeographics for administrative boundaries

Interreg VI-A perimeter
perimeter coastal line
national border
NUTS 3 border
ferry

0 20 40 km

Figure 2.33: Travel time to doctors



Car travel time to the nearest doctor (2021)

5min
10min
15min
20min
30min
45min
1h
2h
3h
4h
6h
12h

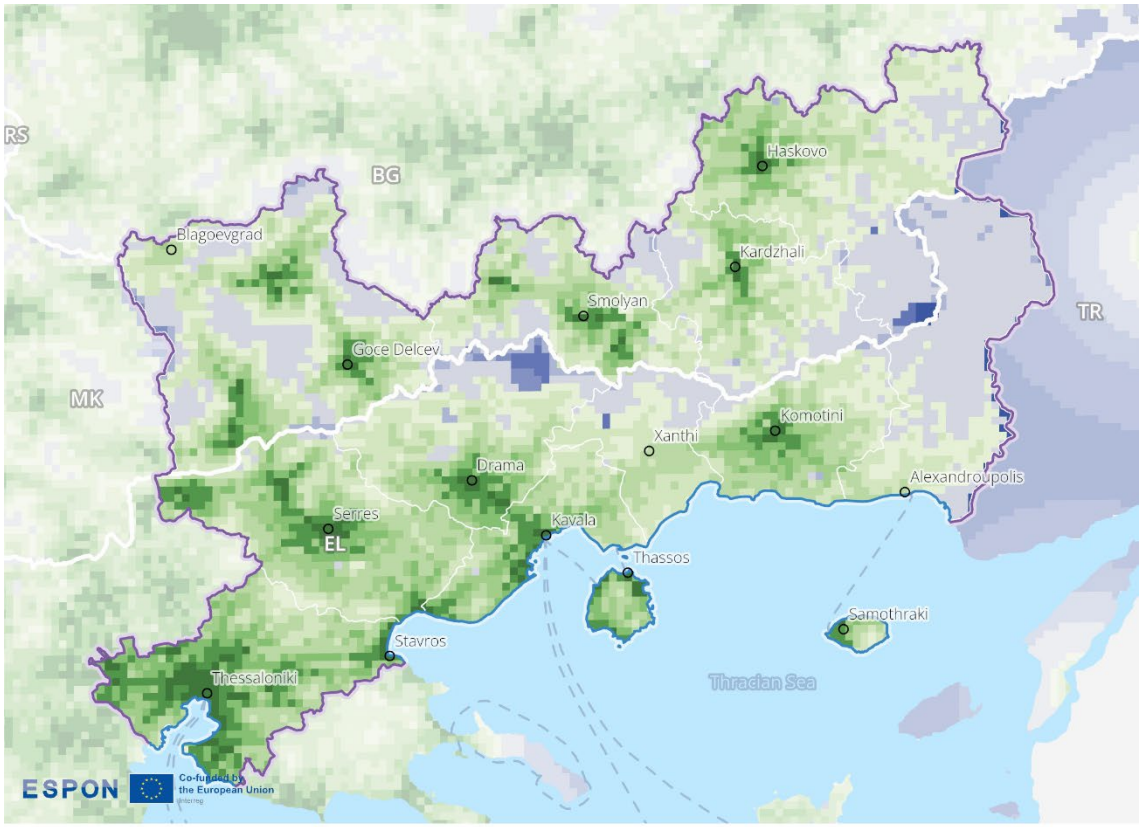
inside outside of the Interreg VI-A perimeter

Level of detail: 2.5km grid
Source: FAU, UPOL, ÖIR & EPRC, ESPON Core-IB, 2026
Origin of data: ESPON PROFECY Update, 2022
©EuroGeographics for administrative boundaries

Interreg VI-A perimeter
perimeter coastal line
national border
NUTS 3 border
ferry

0 20 40 km

Figure 2.34: Travel time to pharmacies



Car travel time to the nearest pharmacy (2021)

5min
10min
15min
20min
30min
45min
1h
2h
3h
4h
6h
12h

inside outside of the Interreg VI-A perimeter

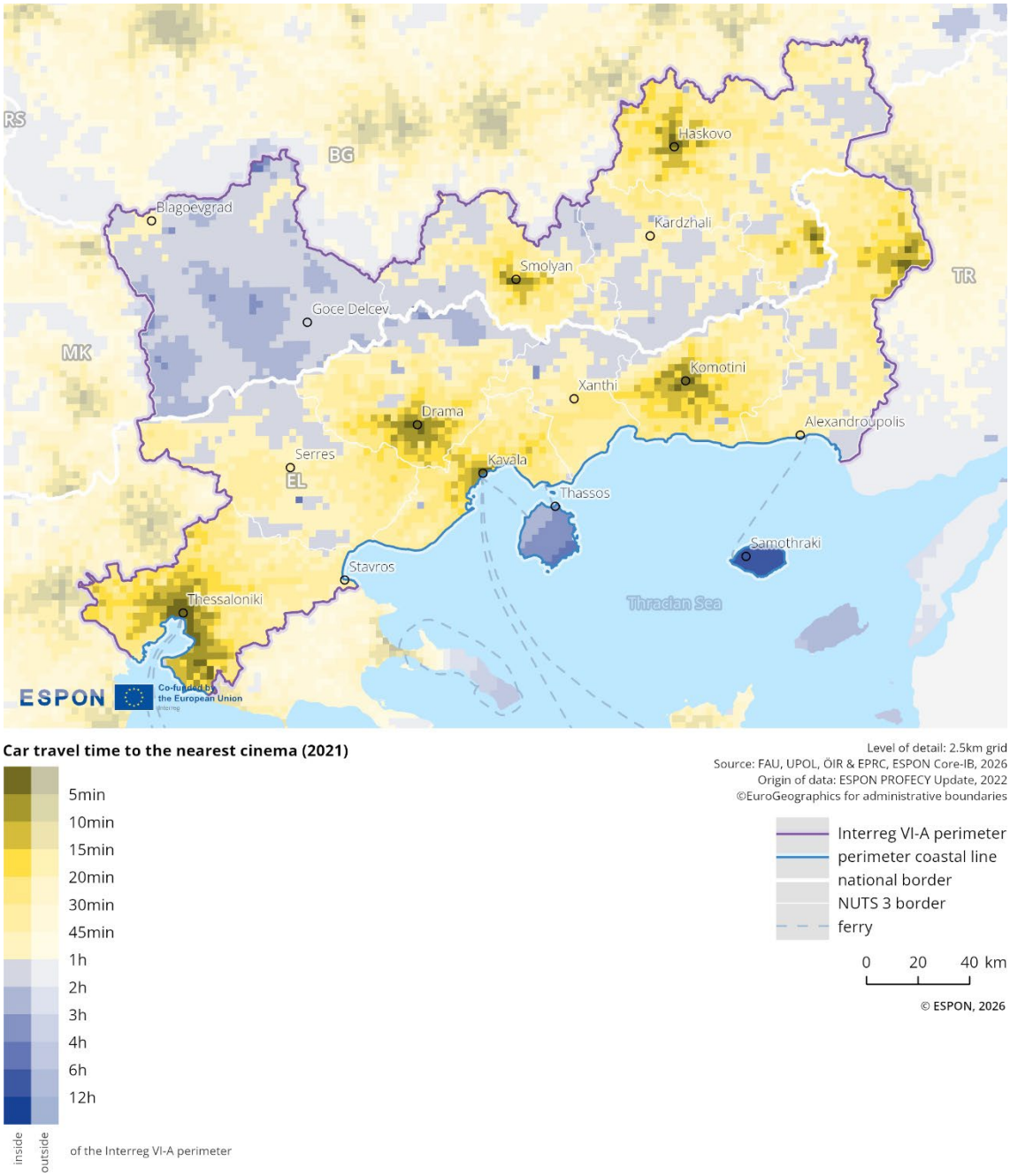
Level of detail: 2.5km grid
Source: FAU, UPOL, ÖIR & EPRC, ESPON Core-IB, 2026
Origin of data: ESPON PROFECY Update, 2022
©EuroGeographics for administrative boundaries

Interreg VI-A perimeter
perimeter coastal line
national border
NUTS 3 border
ferry

0 20 40 km

© ESPON, 2026

Figure 2.35: Travel time to cinemas



2.4.4 Key messages on the socio-economic dimension

Cross-border connectivity in the border region, measured in terms of connections among users of META social media platforms, appears limited, with low intensity recorded across all NUTS3 regions of the cross-border area. This may be due to the increasingly ageing population, with older generations less active on social media, combined with limited linguistic similarity, which reduces opportunities for informal social exchange, especially on social media.

Measured by nights spent per capita in tourist accommodation, tourism activity differs across the 2 sides of the border region. Within the border area, tourism is more prominent on the Greek side, particularly around Kavala, likely reflecting access to the Aegean Sea. When compared to national benchmarks, different patterns emerge. In the Bulgarian border area, the average number of nights spent per capita during 2020–2023 was close to the national average. In contrast, the Greek border region

recorded significantly lower values than the national average, indicating that, despite stronger tourism activity relative to the Bulgarian side, tourism development in the Greek border area remains below the national level. Overall, tourism activity in the border region remains below the EU average, suggesting that existing efforts and investment priorities have yet to translate into stronger integrated cross-border tourism outcomes. There is potential to expand upon the tourism-related activities already undertaken by the Greece-Bulgaria Interreg programme, such as the cross-border eco-tourism cluster of projects in the Rhodopes–Smolyan–Komotini area, focusing on sustainability and seasonal balance.

Data on services of general interest reveal disparities between urban and rural areas on both sides of the border, with shorter travel times in cities and more densely populated areas. Travel times exceeding one hour for various services are recorded in dispersed areas, particularly in proximity to the Pirin Mountains on the Bulgarian side and the Rhodope National Park and Dadia-Lefkimi-Soufli Forest National Park on the Greek side. Looking at specific services, larger areas with travel time exceeding one hour are evident for doctors in western Bulgaria and eastern Greece, and for secondary schools in several Greek border regions, with the notable exception of Rodopi region. These patterns highlight potential service-related challenges and suggest opportunities for cooperation in improving access.

2.5 Border security and safety

This dimension shows the security and safety conditions in border regions. It analyses the number of days on which border control is temporarily reintroduced at internal borders, using this as an indicator of security concerns and restrictions on cross-border movement.

2.5.1 Temporary reintroduction of border controls at internal borders

Indicator description

The indicator shows the number of days of temporary reintroduction of border control at internal borders, including the official reasons behind. The reintroduction of border control at the internal borders must be applied as a last resort measure, in exceptional situations, and must respect the principle of proportionality. The scope and duration of reintroduced border control should be restricted to the bare minimum needed to respond to the threat in question.

- **Source/method of retrieval**: Processing and analysis data of European Commission information pursuant to Article 25 and 28 et seq. of the Schengen Borders Code
- **Temporal coverage**: 2006-2025 (cut-off: 08 May 2025, in order to allow data treatment before work package completion)
- **Unit**: Days per year

Please refer to the technical annex for more information.

Border controls tend to have a tangible effect on the smooth functioning of cross-border flows, especially commuting and logistics, as they introduce delays and unpredictability. Greece had already been part of the Schengen Area by 2006, while Bulgaria joined in 2024 for air borders and in 2025 for land borders. Between 2024 and 2025 (cut-off: 08 May 2025), neither Greece nor Bulgaria reintroduced border controls between the 2 countries.

2.5.2 Key messages on the border security dimension

Bulgaria became a full member of the Schengen Area (land and air) in January 2025, making the indicator on the temporary reintroduction of border controls less relevant at this stage. In the applicable time period, there have been no security concerns to trigger the mechanism for temporary border controls.

2.6 Governance dimension

Territorial cooperation in the Greece–Bulgaria cross-border programme area is supported by a few instruments and frameworks, including institutional structures established under Interreg. Since 2017, the area has been covered by a shared Euroregion, which offers a stable platform for collaboration. In addition, 2 permanent agreements and project-based training activities are in place for disaster risk management, particularly addressing flood and wildfire risks. The local authorities on both sides of the border are mainly small and medium-sized towns, with Thessaloniki being the only medium-sized city in the cross-border area according to EU/OECD classifications. This urban structure has implications for governance capacity, particularly in terms of available resources and administrative expertise. A recent development that may support further cooperation is Bulgaria's full accession to the Schengen Area as of 1 January 2025. Strategically, the programme area is also part of 2 different Macro-Regional Strategies: the Danube Strategy on the Bulgarian side and the Adriatic-Ionian Strategy on the Greek side. There are some overlaps in the key objectives of these strategies, particularly in the areas of connectivity and environmental protection.

2.6.1 Cross-border cooperation

This sub-dimension identifies the extent of cross-border cooperation in the border region. It illustrates areas of high cooperation intensity and identifies functional links in governance structures across borders. It also identifies areas with high awareness of obstacles and the willingness and support services to overcome them, as well as areas where Interreg cooperation intensity is already strong.

2.6.1.1 Cross-border governance structures

Indicator description

The indicator shows active institutionalised cooperation that act as cross-border entities. It includes cooperation formats such as Eurocities, Euroregions, EGTC, cross-border associations, cross-border councils, etc.

- **Source/method of retrieval**: Localisation and categorising of cross-border cooperation formats (Eurocities, Euroregions, EGTC, cross-border associations, cross-border councils, conferences, working communities), based on desktop research.
- **Temporal coverage**: Status as of October 2025
- **Unit**: n/a

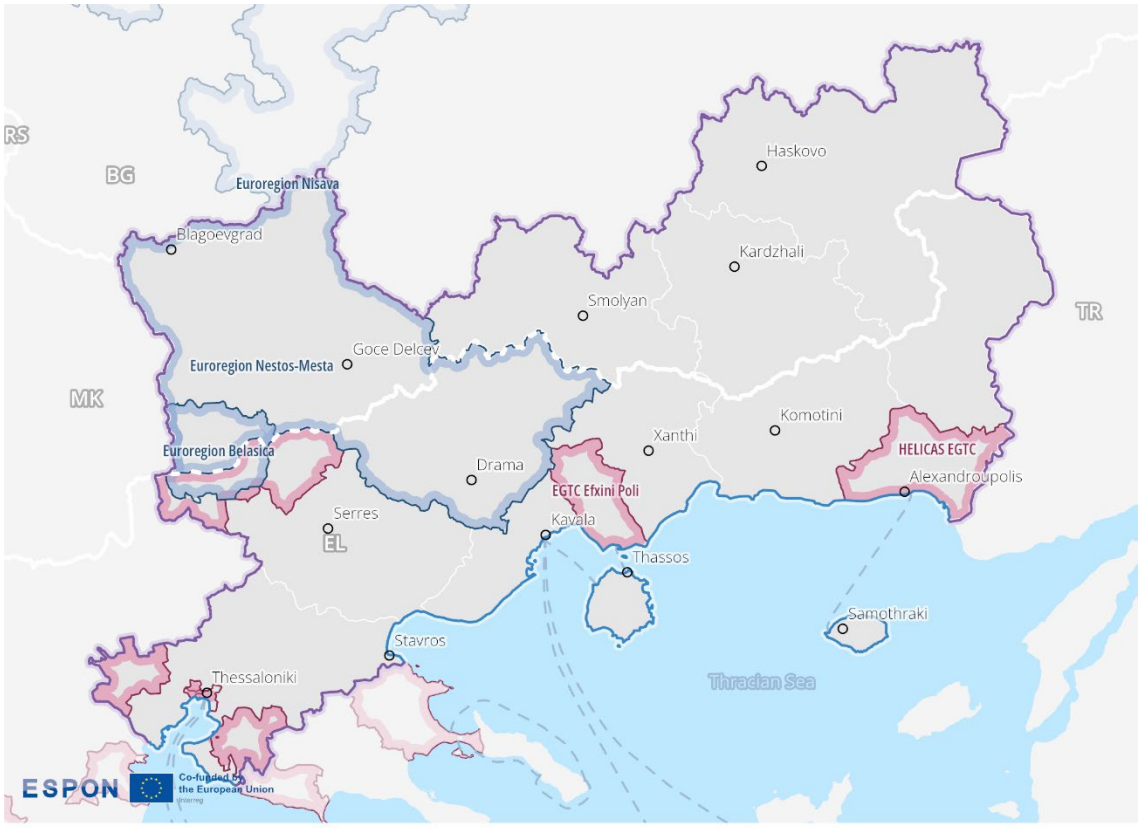
Please refer to the technical annex for more information.

Figure 2.36 shows the different types of institutionalised cooperation. These governance structures either function as cross-border entities or bring together stakeholders from the cross-border region around shared topics. The governance structures covered include Eurocities, Euroregions, European Groupings of Territorial Cooperation (EGTCs), cross-border associations and councils. Project-based cooperation is not included.

The coloured markings on the map indicate different types of institutionalisations: EGTCs are shown in red, Eurocities in yellow, Euroregions/Euregios/Europaregions/Eurodistricts in blue, and other formats in grey.

The governance structure in this programme area shows spatial coverage along the borders, with some areas not addressed by cross-border cooperation formats. Overall, the region exhibits a high level of institutionalised cooperation at the Euroregional level along the national border, particularly in the western part of the area.

Figure 2.36: Cross-border governance structures



Format of cooperation

EGTC

Euroregion / Euregio / Europaregion / Eurodistrict

inside / outside of the Interreg VI-A perimeter

Level of detail: NUTS3
Source: FAU, UPOL, ÖIR & EPRC, ESPON Core-IB, 2026
Origin of data: ESPON CROSSGOV, 2026
©EuroGeographics for administrative boundaries

Interreg VI-A perimeter
perimeter coastal line
national border
NUTS 3 border
ferry

0 20 40 km

© ESPON, 2026

2.6.1.2 Cross-border public services

Indicator description

The indicator shows different services specialised on cross-border challenges and development potential, including their domain of operation. As a specific form of services of general interest, cross-border public services (CPS) address joint problems or development potentials of border regions that are located on different sides of one or more national borders.

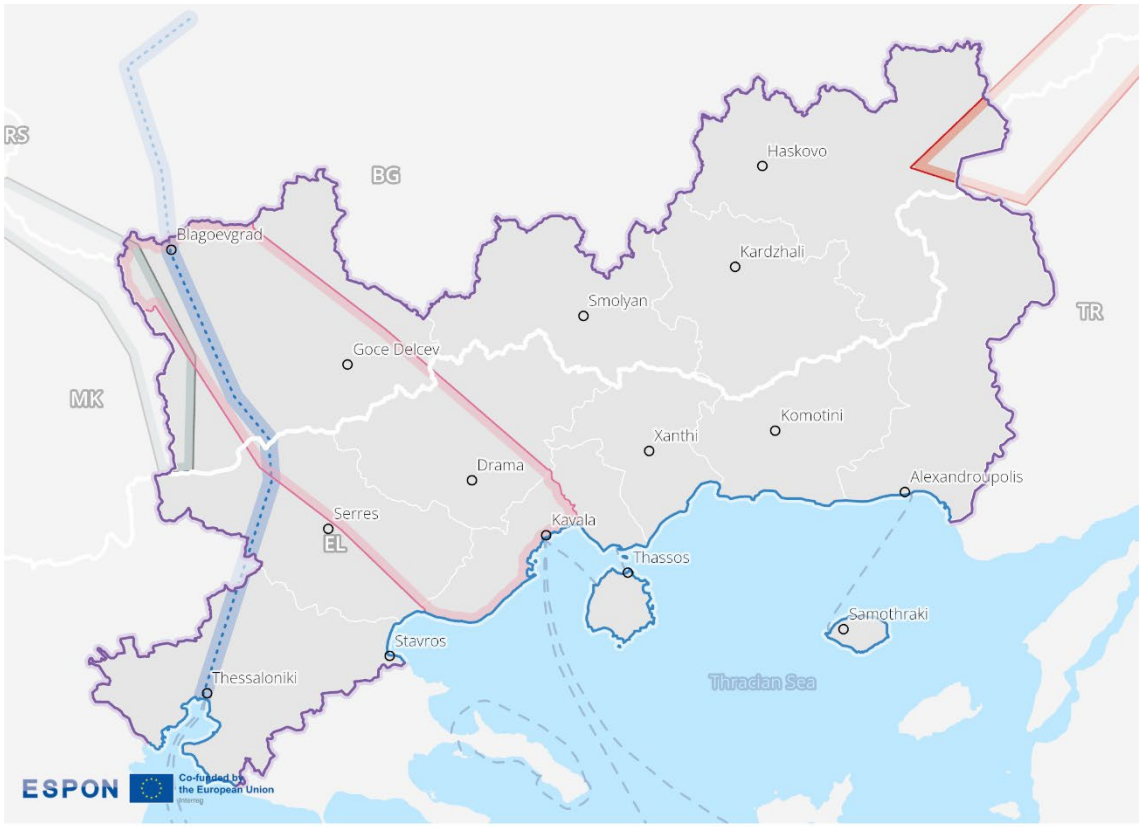
- **Source**: ESPON cross-border public services (CPS) 2.0 database
- **Temporal coverage**: 2022
- **Unit**: n/a

Please refer to the technical annex for more information.

Figure 2.37 depicts the geographical extent of cross-border public services in the border area in 2022. Different thematic areas are represented by distinct symbols and colours, indicating services such as disaster management, health care, transportation, education, environment, energy, job placement, and culture. The visualisation highlights where these services operate across the national boundary.

In the context of the Greece-Bulgaria border region, cross-border public services remain limited and spatially fragmented. The Struma motorway provides a major linear transport connection through Blagoevgrad linking Sofia and Thessaloniki. An area of healthcare provision extends from the Greek coast (Kavala; Drama) to Bulgaria (Goce Delcev; Blagoevgrad) until the northern Interreg border. A disaster risk management zone is visible only along the Bulgaria - Turkey border area. An area of "other" services appears along the Bulgaria–North Macedonia border, which does not extend to the Greek part of the border region.

Figure 2.37: Cross-border public services



Geographical extent of cross-border public service themes (2022)

areal linear character of the service

- Disaster management
- Health care
- Transportation
- Tourism & information
- Education & research
- Environment & water
- Heating & energy
- Job placement
- Culture

inside outside inside outside of the Interreg VI-A perimeter

Cross-border public services covering more than one theme have been assigned only to one. Furthermore, some polygons have been excluded because they were only approximately and not accurately spatially defined.

Level of detail: geolocalised lines and areas
Source: FAU, UPOL, ÖIR & EPRC, ESPON Core-IB, 2026
Origin of data: ESPON CPS, 2022
©EuroGeographics for administrative boundaries

- Interreg VI-A perimeter
- perimeter coastal line
- national border
- NUTS 3 border
- ferry

0 20 40 km

2.6.1.3 Perceived cross-border obstacles in b-solutions

Indicator description

The indicator shows cases of legal or administrative obstacles selected in the framework of the b-solutions initiative. This indicator lists the number, location and nature of suggested solution of cases in the b-solutions initiative, including the topic and parties involved.

- **Source/method of retrieval**: Processing and analysis of the b-solutions initiative data
- **Temporal coverage**: 2018-2025 (first quarter)
- **Unit**: n/a

Please refer to the technical annex for more information.

The b-solutions initiative is a European Union project that supports the resolution of legal, operational and administrative cross-border obstacles. It offers funding for pilot actions and legal expert advice in border regions. A high level of cross-border integration often reveals strong barriers of cross-border functioning. In order to exploit the cross-border potentials, these obstacles have to be overcome or at least addressed. Both the number of reported obstacles and the general interest in solutions serve as important indicators of cross-border interaction.

As part of the ESPON CROSSGOV project, all b-solutions initiatives were analysed to deepen the understanding of the thematic focus of the perceived cross-border obstacles across different border regions and the suggested solution, in particular from the European perspective.

In the border area of Bulgaria–Greece, 2 b-solutions pilot actions were identified. These include initiatives focused on fostering cross-border business development and addressing infrastructure and transport challenges at the Nymfaia–Makaza Pass (mountain crossing in the Eastern Rhodopes of high importance). Applications for these pilots were mainly submitted by public/public-equivalent bodies.

In this border area, in the field of labour markets and education, issues relate to entrepreneurship, tax harmonisation, EGTC establishment, and administrative procedures to support cross-border business initiatives. Public services challenges focus on infrastructure improvements, road and bus transport, tourism facilitation, and digitisation efforts to enhance mobility and cross-border cooperation.

The solutions proposed in the pilot actions are predominantly hybrid in nature, combining administrative, legal, and operational measures. For instance, the business development initiative included administrative steps such as creating an EGTC, legal actions involving EU tax initiatives and mutual agreements for harmonisation with specific legal derogations for the cross-border context, and operational activities like joint business initiatives, information campaigns, and establishing an online platform. The transport infrastructure case involved operational updates to existing infrastructure, fostering collaboration through technology tools, and administrative measures including setting up a taskforce to harmonise regulations and processes between the countries.

2.6.1.4 Institutionalised advice centres for cross-border issues

Indicator description

The indicator shows where institutionalised advice centres on cross-border issues are located, including their thematic focus and geographical perimeter.

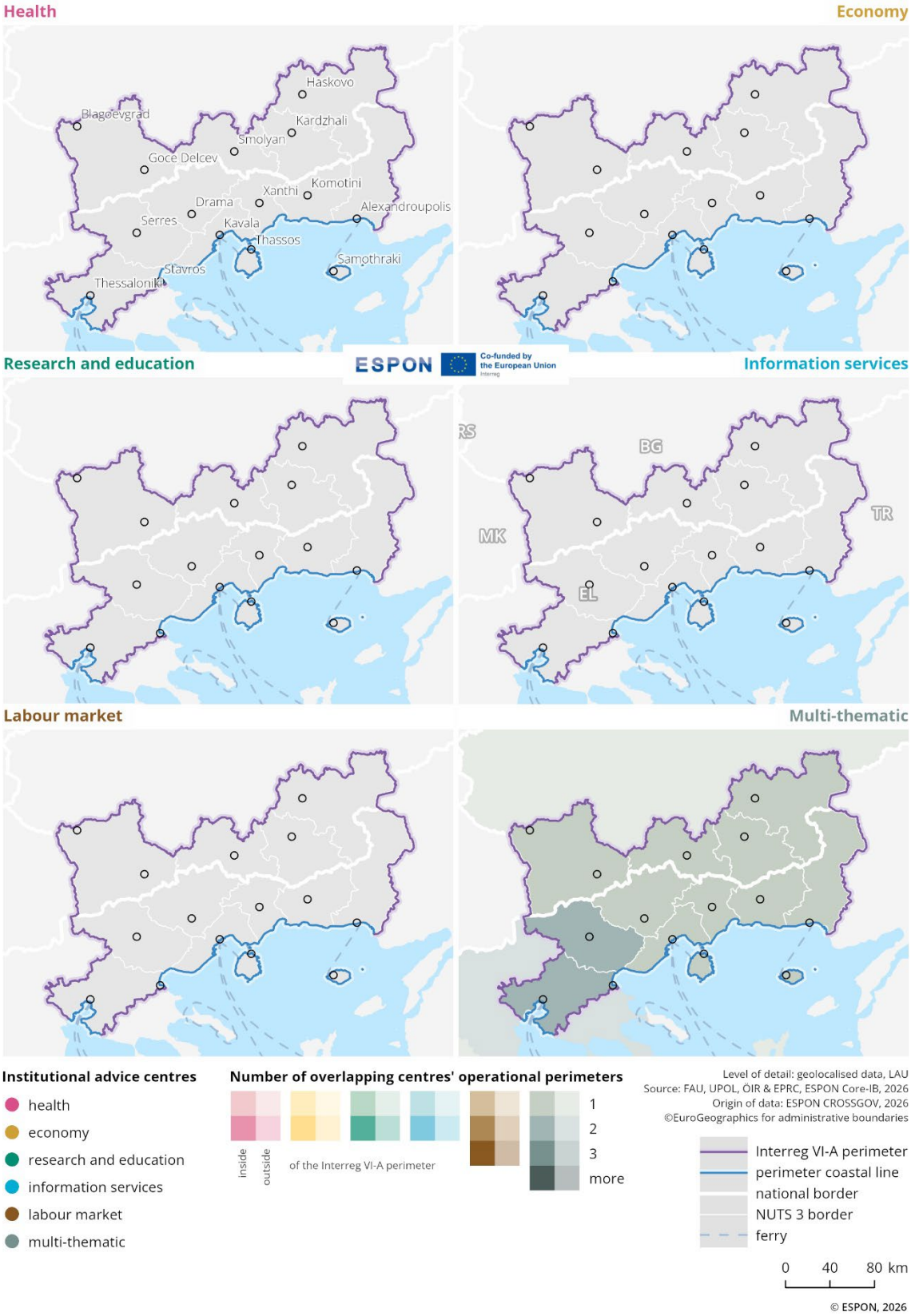
- **Source/method of retrieval**: Localisation and thematic focus of advice centres for cross-border issues are identified via desktop research.
- **Temporal coverage**: Status as of February 2025
- **Unit**: n/a

Please refer to the technical annex for more information.

Figure 2.38 shows the locations and types of institutionalised advice centres, along with their operational domains, in the cross-border Interreg region between Greece and Bulgaria. These centres throughout Europe provide support in various fields such as health, economy, research & education, information services, the labour market, and multi-thematic issues. The operational domains of these centres are also indicated by coloured shading on the map. The more intense the colour, the stronger the influence of that specific domain in the corresponding area.

The map indicates that there are no institutionalised advice centres in this cross-border, nor are there any outside the region. Multi-thematic operational domains are present in both countries within the Interreg area, but they are not strongly pronounced, although they are slightly more prevalent in the Greek part of the cross-border region.

Figure 2.38: Institutionalised cross-border advice centres



2.6.2 Outline of Interreg activities

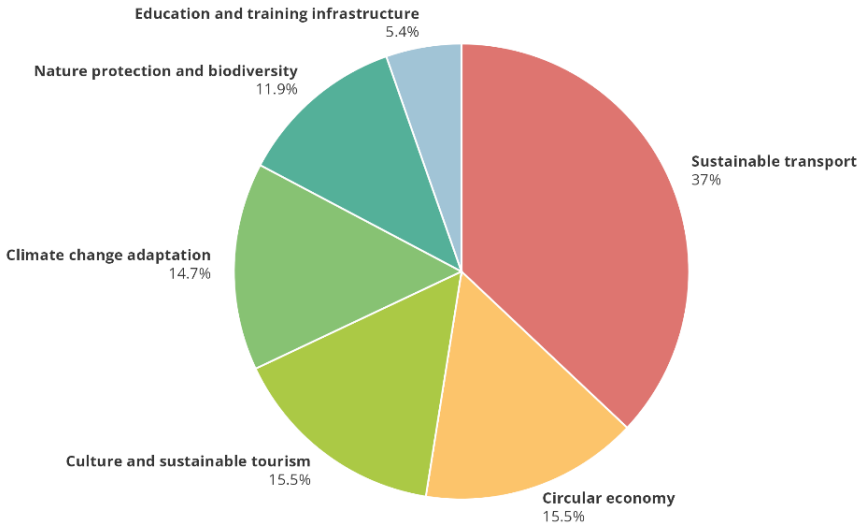
The following section outlines the key Interreg activities in the 2021-2027 programming period. The aspects included concern the development opportunities and challenges identified (see Table 2), the budget available and split of allocation (Figure 2.39), overlapping Interreg programmes and the key aspects drawn from the programme.

Table 2: Interreg VI (2021-2027): Opportunities and challenges

Topic	Key development opportunities and challenges identified for Interreg 2021-27
Economy	▪ Dominance of micro and family business ▪ Increase knowledge intensity and competitiveness of innovative micro enterprises ▪ Potential for economic growth by tapping into natural environmental assets along with culture
Environment	▪ High exposure to climate risks: forest fires and floods, actions on data collection and monitoring ▪ Adoption of circular economy models and cooperation at the local level
Education	▪ Increase the share of population with higher education, participation in lifelong learning activities and digital skills ▪ Liaison between education, training, competitiveness, and entrepreneurship
Transport	▪ Transition to sustainable mobility ▪ Building secondary routes to connect remote areas with local centres
Digitalization	▪ Technological modernisation, digital competences and skill
Coordination	▪ Organisation of tourist areas and networks ▪ Coordination with wider strategies, e.g., TEN-T, to favour local development

Total Budget: EUR 89,830,436.15

Figure 2.39: Split of Interreg allocation



ESPON Co-funded by the European Union

Table 3 shows the number of Interreg 2021-2027 cross-border and transnational programmes which share at least one NUTS3 region with the border area. Each programme has its own distinct rationale, value and territorial focus. However, for the purposes of, for example, planning and capitalisation activities it is potentially helpful for programmes and programme stakeholders to be aware of and connected to other Interreg programmes with which they share a direct territorial link.[11] The 4 Interreg C programmes Interreg ESPON, Interact, Interreg Europe and URBACT cover the whole EU territory and provide a range of joint services and initiatives.

Table 3: Shared geographies with other cross-border and transnational programmes

Interreg A (cross-border)	Interreg B (transnational)
/	5

Key aspects

- Prioritization of transport connectivity and entrepreneurship, in practice this has resulted in projects clustered around the following themes, tourism, cultural heritage and arts, and SMEs and entrepreneurship over the 2014-20 period. Smaller number of projects with comparatively large financial allocation are also evident in the field of infrastructure.
- Distinctive focus for Interreg cooperation in 2021-27 on climate risk adaptation and management, circular and resource efficient economy. Continuation of cooperation on inclusion and upgrade of capacities of (micro)enterprises, reduction of physical isolation through transport systems, and tourism and culture.

[11] It is noted that synergies and links with a wide range of other territorial cooperation and sectoral programmes and initiatives are also valuable, and this is reflected in the wider analyses presented in this border profile but not specifically covered in this table.

- Balanced participation across the 4 NUTS2 regions across the 2 borders, and concentration of projects in particular NUTS3 regions of Kardzhali and Blagoevgrad in Bulgaria, and Thessaloniki and Xanthi in Greece.
- Potential for synergies across programmes: Parts of the programme area lie within the Interreg B programme areas of Danube, EURO Mediterranean (EURO MED), Adriatic-Ionian, Black Sea Basin, and Mediterranean Sea Basin (NEXT MED).

2.6.2.1 Interreg cooperation

Indicator description

Based on the keep.eu database, this indicator illustrates the network density of Interreg V-A (2014–2020). It is derived from the geographical location of all partners within a project consortium and reflects the intensity of cooperation between them. For the analysis, project networks were visualised by drawing lines between the locations of partners within a consortium. These connections were subsequently aggregated and spatially abstracted by calculating line density using GIS software. Dark red areas indicate a high density of connections between project partners, while yellow areas represent a lower density of cooperation links.

An additional element in this section is the development of project partner numbers between Interreg IV-A (2007–2013) and Interreg V-A (2014–2020), based on data from the keep.eu database. The datasets were cleaned to remove duplicates, using the partner names as reported in keep.eu. For both programming periods, keep.eu indicates a high level of data completeness[12]. Nevertheless, this development should be interpreted as indicative, as variations in partner name reporting and general limitations regarding the representativeness of the dataset affect the robustness of the results.

- **Source/method of retrieval**: Processing and analysis of the keep.eu database
- **Temporal coverage**: 2007-2013 (Interreg IV-A), 2014-2020 (Interreg V-A)
- **Unit**: n/a

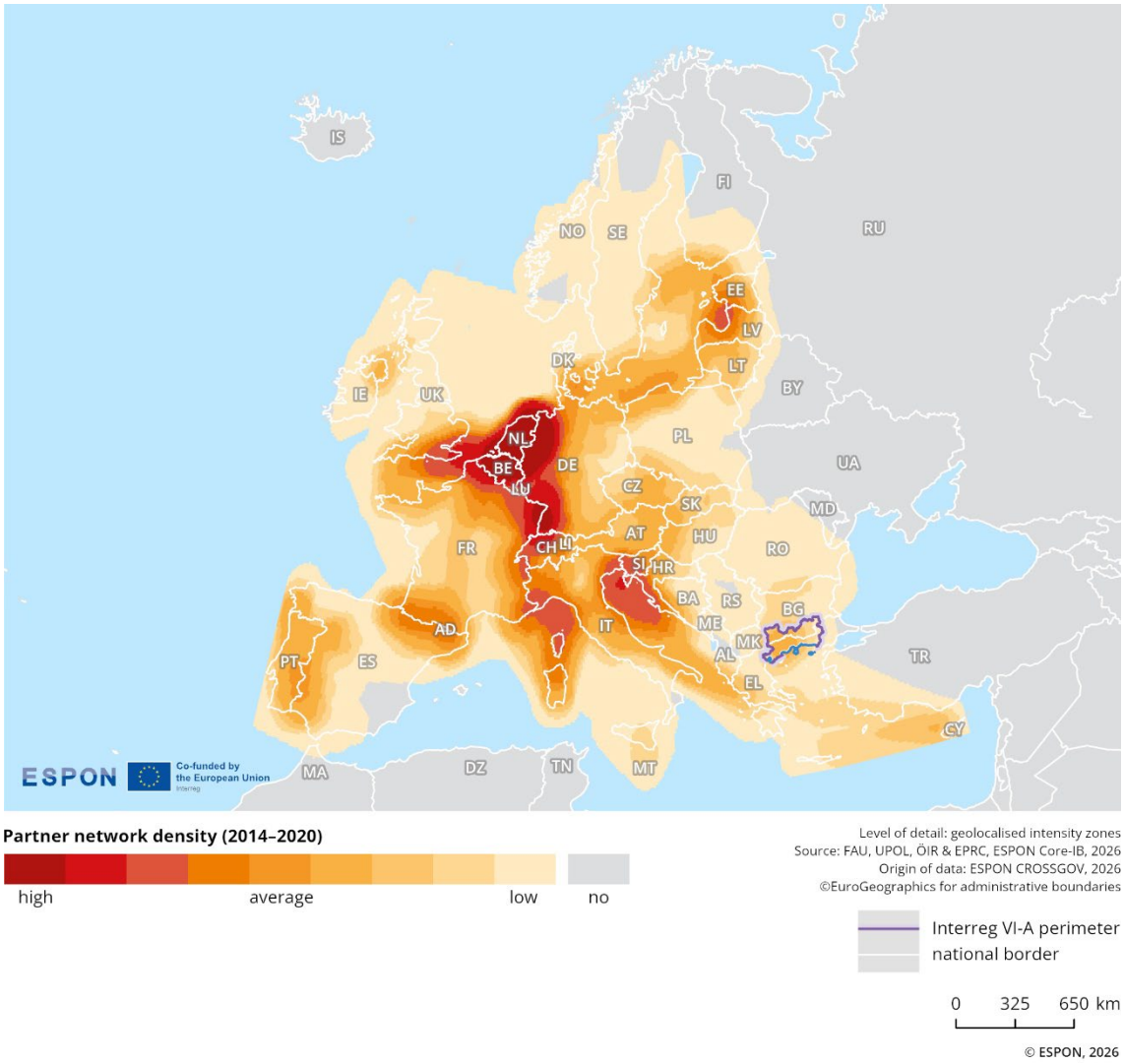
Please refer to the technical annex for more information.

Cooperation activities and networks are among the most meaningful types of information for delineating cross-border functional areas. As such, the indicator on cooperation through Interreg can help to identify networks among cross-border actors and highlight the density of cooperation in specific border segments.

Figure 2.40 shows the density of Interreg V-A (2014–2020) partner networks. The indicator includes the location of, and links between, Interreg project partners within a project consortium. From a European perspective, the partner network density in the Greece-Bulgaria border region appears relatively even across the territory, with slightly higher density in the west compared to the east. Overall, this cross-border region exhibits a cooperation density modestly below the European average. Based on the keep.eu database and excluding duplicates, the number of project partners increased from 251 in Interreg IV-A (2007–2013) to 404 in Interreg V-A (2014–2020), an increase of about 61%. It is important that these changes are considered in the context of factors such as change in programme budgets between 2007-2013 and 2014-2020, emphasis on targeting impact, and numbers of strategic projects.

[12] see Keep.eu representativeness: Interreg, Interreg-IPA and ENI cross-border

Figure 2.40: Interreg V-A partner network density



2.6.3 Key messages on the governance dimension

Existing governance structures facilitate contacts, exchange, and cooperation around cross-border interests and reflect a relatively long-standing tradition of cooperation. Several agreements and frameworks, in particular the 2 Euroregions Nestos-Mesta and Belasica, and 2 permanent agreements for disaster risk management, have supported joint initiatives. However, the coverage of the Euro-region structures is partial and concentrated on the western part of the border region. This is also the area where the density of Interreg V-A cooperation networks is higher. Overall, the evidence indicates that there is a scope to further strengthen institutionalised cooperation alongside the whole border and to cultivate more even cooperation networks.

An area of untapped potential in this border region is the limited availability of services specialising in cross-border challenges. Apart from a corridor of healthcare services in the western part, only one significant transportation service is identified: a route connecting Blagoevgrad and Thessaloniki. There is also a disaster area corridor, which however, bypasses Greek areas by connecting Bulgarian and Turkish border areas. Likely partly due to this gap, there are no institutionalised advice centres for specific cross-border issues (health, economy, research and education, information services, labour market). This limits access to guidance and support for citizens and institutions engaging in cross-border activities. Obstacles identified through the b-solutions initiative, particularly in cross-border business development, tourism facilitation and addressing infrastructure and transport challenges, further point to the need to

strengthen governance arrangements that can provide operational (e.g., joint business initiatives; information campaigns), administrative (e.g., setting up a taskforce to harmonise regulations; creating an EGTC), and legal (e.g., tax harmonisation) solutions.

Interreg activities in the region during the 2021-27 programming period cover a relatively broad range of themes with distinct focus on sustainability in its environmental, mobility and tourism dimensions. Compared to earlier periods, the programme has also seen a rise in participation: between Interreg IV-A (2007–2013) and Interreg V-A (2014–2020), the number of project partners increased, potentially reflecting improved accessibility and relevance of the programme, or alternatively changes in programme budgets and number of strategic projects.

The observed higher density of partner-to-partner connections in the western part of the programme area suggests a stronger concentration of project-based interlinkages in this part of the territory. This may reflect either broad mobilisation of multiple actors, indicating a more inclusive cooperation ecosystem, or repeated participation by a smaller number of highly active organisations. Conversely, eastern areas with somehow lower network density may reflect fewer participating organisations, geographically dispersed partnerships, more selective engagement in projects or single-entity project.

3 Summary and key observations

To support the strategic dialogue on cross-border cooperation beyond 2027, this territorial analysis provides harmonised and comparable information. Its data-driven evidence helps to inform the future direction of cross-border cooperation by facilitating alignment with EU priorities and the evolving regulatory framework. The Core-IB border profiles adopt a harmonised methodology and provide programme areas with access to recent European data. As this approach comes along with limitations, member states may hold additional or more detailed data which can further enrich or contextualise the findings beyond the Core-IB project (see final report and technical annex of this project). These national sources are essential for refining and validating territorial evidence in policymaking processes, including: a) regional, fine-scale data and b) insights from political processes related to prioritisation and objective setting. The study's findings are analytical and are intended to support reflection and discussion. They do not create regulatory or policy obligations for Member States, the European Commission, or programme authorities.

Table 4 provides 2 types of information. Firstly, it summarises the key analytical findings for the border region, as discussed earlier in this profile. Secondly, it suggests policy options based on the analytical findings. These options are intended to provide a practical and informative basis for the strategic dialogue among programme bodies, managing authorities and the European Commission.

Generally speaking, the aim of cohesion policy is to promote harmonious territorial development (also) across borders. The objective is to mitigate the impact of borders and achieve 360° functionality, thereby enhancing the quality of life and fostering prosperous development on both sides of the border. The upcoming Interreg period offers an opportunity to address these objectives and potentials through targeted cooperation projects.

Table 4: Evidence-based conclusions

Territorial dimension	
Key analytical findings	• The region has diverse topography, including mountain ranges with associated national forest parks, river basins, coastal zones, and flat lowlands; • The region's geography, shaped by topographic and hydrographic conditions, results in dispersed inland urban centres and widespread rural settlements. This underscores the need to improve rural–urban connections and enhance cross-border accessibility; • The region contains 15 urban centres with concentrated services and higher population density, particularly on the Greek side. In contrast, the eastern Bulgarian lowlands display a more evenly distributed population; • Demographic decline is pronounced, especially on the Bulgarian side, with youth decreasing sharply and the elderly (65+) increasing. These dynamics call for policies to retain young people, sustain labour market vitality, and adapt social and health services; • Despite the demographic decline, increase in settlement area around key urban centres is evident on both sides, suggesting trends of either urban sprawl or concentrated population clustering; • Accessibility patterns form a mosaic rather than a continuous belt, indicating uneven road infrastructure across the border region and reflecting the influence of the region's mountainous topography. Several key urban centres (e.g., Haskovo, Kardzhali, Xanthi, Drama, Serres, Alexandroupolis) lie in 60-minute travel zones to the border, while larger hubs such as Thessaloniki, Smolyan, Blagoevgrad and Kavala fall in 90-minute zones, limiting their immediate functional integration; • Central mountainous areas with long travel times to the border (above 90 minutes) also coincide with sparse service provision (shops, hospitals, doctors, pharmacies), creating multiple barriers for residents. These patterns partly reflect the physical geography of the region, where mountainous terrain and protected natural areas constrain transport infrastructure and service accessibility; • A comparison between cross-border rail and road accessibility is not possible as existing connections do not meet the methodological thresholds applied for visualisation. Nevertheless, the region is crossed by the TEN-T Orient/East-Med Corridor, a multimodal core network axis linking Central Europe with Bulgaria and Greece through nodes such as Kulata–Promachonas. Its location on the western side of the border area means that its influence on cross-border accessibility remains spatially uneven across the wider region.

Territorial dimension	
Policy options	**Population and settlement related aspects** • A relevant policy option is to address the dispersed urban centres and predominantly rural settlement patterns, enabling place-based and differentiated response through cross-border exchange and strategy formulation on spatial and service-planning policies; • Strengthening the collective capacity of dispersed settlements could allow them to act jointly on issues of common interest (e.g., related to health services), fostering coordination, knowledge exchange and collaborative action through territorial cooperation and territorial instruments. **Cross-cutting aspects** • Strengthening connections between regional transport networks and the TEN-T corridor could help improve accessibility across the wider border region. Cooperation projects could address supporting improved access to services outside core urban centres, contributing to enhanced economic development prospects and quality of life.

Economic dimension	
Key analytical findings	• The border region shows an industrial structure dominated by trade, transport, accommodation, and food services, which contribute most to productivity growth, as well as agriculture, social public services; mining, manufacturing, and utilities. There are opportunities for economic growth by tapping into natural environmental assets along with culture. GDP per capita has been more dynamic on the Bulgarian side of the border area, however, overall, there is still a significant gap with the EU average, indicating potential for convergence; • Employment rates on both sides are moderate to high in several Bulgarian regions; • There is certain asymmetry in wage levels, with several Greek NUTS3 regions recording slightly higher values. This may partially explain labour market migration, particularly observed in the Smolyan region. At the same time, housing prices are lower on the Bulgarian side, which may affect labour mobility choices; • Opportunities for cross-border telework, which could enhance the attractiveness of cross-border employment, are constrained in this border region as both counties are not signatories of the 2023 Framework Agreement on Cross-Border Telework as of March 2025; • Average internet speed is generally low across the border region, with urban densely-populated centres benefiting from higher speeds than rural areas on both sides. However, the spatial coverage of higher-speed internet around urban centres is significantly greater on the Bulgarian side. This highlights the need to expand internet infrastructure beyond urban cores and into rural areas to stimulate economic activity and enhance opportunities for digital service delivery.
Policy options	**Competitiveness related aspects** • Cross-border cooperation could strengthen R&D and innovation capacity in sectors with high potential (e.g. manufacturing; tourism) , including the adaptation and modernisation of traditional sectors such as agriculture (e.g. through agri-food research or supporting links between agriculture and tourism), as well as emerging fields such as the circular economy (e.g. through circular economy hubs where businesses, researchers, public authorities, and communities collaborate to implement circular economy practices); • The improvement in digital connectivity and internet speed may be facilitated through territorial cooperation, helping to reduce structural disadvantages across the territory; • A focus could be on expanding the access to training and education opportunities, including through digital solutions and shared learning hubs.

Green dimension	
Key analytical findings	• The border region shows ecological continuity through relatively large and contiguous protected areas located along the border. More isolated conservation zones are found further inland on both sides of the border; • Air pollution levels are higher on the Greek side, but the NUTS3 regions with the highest levels within each country's border area are located across from one another. This may indicate spillover effects and highlight the potential for coordinated solutions to shared air quality challenges; • Exposure to a number of natural hazards is largely shared. The risk of droughts is particularly pronounced. Risks of landsliding are shared and extend to the parts of the territory dominated by mountains. Seismic risks are dispersed and visible on both sides of the border. Wildfires are becoming an increasing concern, and a subject of disaster risk management agreement; • Trends in resource productivity and waste generation are asymmetrical: sharper progress on the former is being achieved on the Greek side and on the latter, on the Bulgarian side of the border. This highlights potential for learning from one another and for replication of good practices, especially as the border region averages on both indicators remain below the EU average.
Policy options	**Environment related aspects** • Cooperation projects could focus on the environmental management of common natural resources and climate change risks, supporting continued action and innovation in biodiversity protection and natural resource management; • Coordinated responses to climate change impacts could be supported through territorial cooperation, addressing both existing and emerging challenges such as the increasing risks of drought; • The energy transition can be advanced through cross-border cooperation, with a focus on smart energy systems, energy efficiency and the deployment of renewable energy sources. **Cross-cutting aspects** • The support of the green transition in both traditional sectors and emerging areas of activity, fostering diversification and resilience; • A focus on training and skills development could increase economic engagement in climate action, green transition processes and environmental protection.

Socio-economic dimension	
Key analytical findings	• The limited presence of cross-border online connectivity and linguistic proximity across the border region points to weaknesses in informal socio-cultural ties. Because such ties are important foundations for broader social and functional integration, the findings highlight the importance to further support everyday cross-border familiarity, interpersonal contact and cultural exchange; • Tourism activity is present across the border region and data indicate spatial concentration on the Greek side, particularly around Kavala, likely reflecting a strong orientation towards marine and coastal tourism; • Overall, tourism activity across the border region remains below the EU average. This suggesting that existing efforts within Interreg have yet to translate into stronger integrated cross-border tourism outcomes. At the same time, there is scope to build on current initiatives such as eco-tourism, which may offer more balanced opportunities across the border region. In this context, shared cultural heritage and natural parks could be leveraged as connectors for an integrated cross-border identity, for example through cultural routes such as Via Egnatia, the Thracian landscapes and the Rhodope corridor; • Services of general interest show clear urban–rural disparities, with shorter travel times in cities and longer access times in dispersed areas. Mountain areas such as Pirin in Bulgaria, Rhodope National Park, and Dadia–Lefkimi–Soufli Forest National Park in Greece record travel times exceeding one hour for several services; • The above underlines a shared interest in cross-border cooperation to develop common approaches to improving service access, particularly in highly underserved areas such as mountainous and remote regions. This could include, for example, cross-border or mirrored public services, supported by digital solutions and measures to address language barriers.

Socio-economic dimension	
Policy options	**Cross-cutting aspects** • Social connectivity and cultural exchange can be reinforced by supporting concrete actions and mechanisms that build on existing interpersonal ties within the functional cross-border area; • Strategy development, pilot projects and knowledge exchange can explore the potentials to balance tourism development pressures, protecting cultural and natural heritage while maximising the benefits of sustainable tourism for local communities; • Coordinated cross-border approaches could advance sustainable and green tourism development, aligning economic opportunities with environmental and social considerations; • The access to core services, particularly in remote and mountainous areas, could be improved through territorial cooperation, with a focus on digitalisation, the removal of language and administrative barriers, and enhanced accessibility (e.g., via multi-service local centres; flexible and on-demand mobility or health services).

Border security and safety dimension	
Key analytical findings	• Temporary border controls are a new feature in this border region, due to recent full accession of Bulgaria to the Schengen in January 2025; • No security concerns have so far led to a temporary reintroduction of border controls.
Policy options	**Cross-cutting aspects** • The implications of Bulgaria's full access to the Schengen Area can be addressed through coordinated and institutionalised cross-border policy dialogues, supporting smooth cross-border exchanges and cooperation; • The mitigation of border control effects can form part of cross-border cooperation projects in various sectors. Economic networks, transport infrastructure initiatives and tourism-related actions can incorporate considerations related to the impacts of border controls.

Governance dimension	
Key analytical findings	• Governance structures, in particular 2 Euroregion located on the west, have been fostering contacts, exchange, and joint initiatives. Their added value highlights the need to sustain their work and make such arrangements more spatially balanced; • More targeted arrangements are in place via 2 thematic disaster risk tools; • Legal, operational and administrative barriers persist and particularly affect potential in sectors such as transport infrastructure, tourism and business development, limiting functional integration; • There is a pronounced limitation in services addressing cross-border challenges, possibly in part due to institutional barriers. That, together with the absence of institutionalised cross-border advice centres represents an untapped potential for strengthening cooperation; • There is slightly higher density of project-based cooperation connections in the westerns part of the border region indicating a stronger concentration of project-based interlinkages in that area; • The increased numbers of partners over 2 consecutive Interreg period (IV-V) (based on the keep.eu database and excluding duplicates) may indicate enhanced awareness, accessibility or relevance of the programme to local needs and potentials or be linked to changes in programmes' characteristics such as their budgets.
Policy options	**Cross-cutting aspects** • A focus could be on capacity building and knowledge exchange, easing cooperation processes, boosting synergies and maximising impacts. The somewhat lower density of project-based cooperation connections in the eastern part of the cooperation area may signal the need of targeted capacity-building support or programme instruments aimed at encouraging broader participation; • Community engagement in cross-border cooperation through innovative digital solutions and targeted capacity-building measures; • Synergies with other programmes and cooperation arrangements can be maximised to improve the visibility, coherence and overall impact of the programme and its projects.

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