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EUROPEAN RESEARCH PROJECT //

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

Spain-Portugal

Border profile

March 2026

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This delivery does not necessarily reflect the opinions of members of the ESPON 2030 Monitoring Committee.

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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

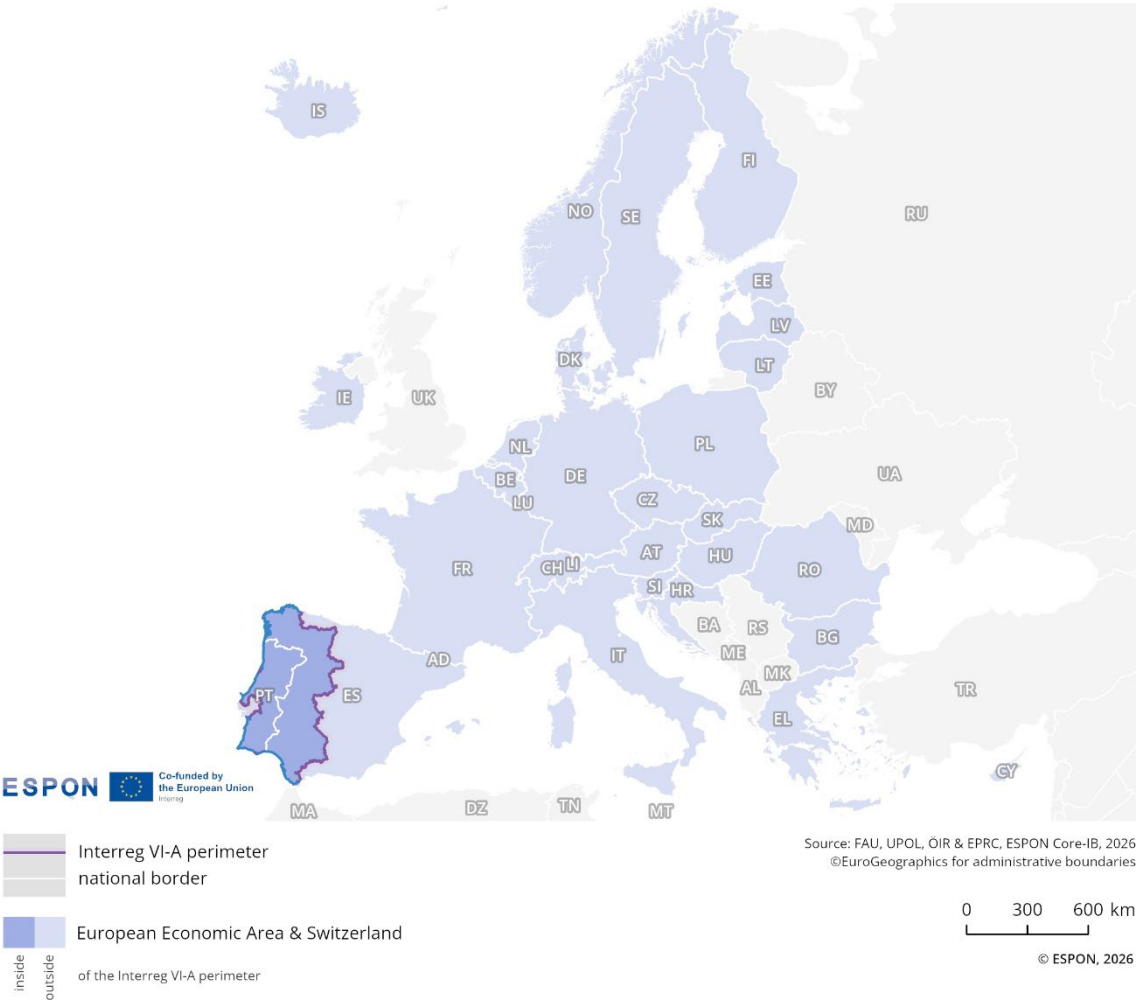
Within the ESPON framework, the CROSSGOV project (Governance mechanisms for cross-border functional areas) has been implemented in parallel to Core-IB. The CROSSGOV hub[2] provides a comprehensive platform for interactive data exploration, and selected data have been incorporated into this study.

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 'Spain–Portugal (POCTEP)' programme area covers the area between western Spain and eastern Portugal (see Figure 1.1).

Figure 1.1: Overview map



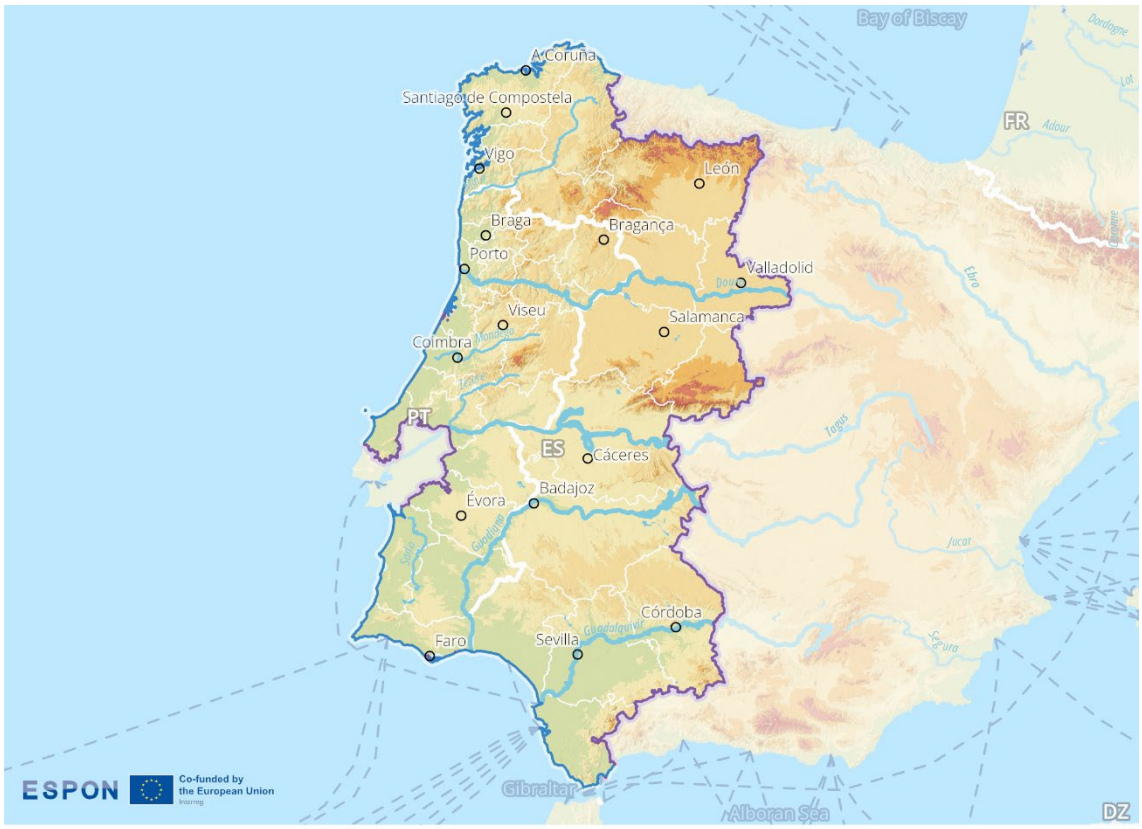
In Spain, the programme area includes most of the territory of the autonomous communities of Galicia, Castile and León, Extremadura, and Andalusia, located in the northwest, centre, southwest, and south of the country, comprising a total of 15 NUTS3 regions (Ourense, Pontevedra, Zamora, Salamanca, Cáceres, Badajoz, Huelva, A Coruña, Lugo, Ávila, León, Valladolid, Cádiz, Córdoba and Sevilla). In Portugal, it covers parts of the regions of Alentejo, Algarve, Norte Region, Centro Region, and Oeste e Vale do Tejo in continental Portugal, encompassing a total of 21 NUTS3 regions (Alto Minho, Cávado,

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

Terras Tras-os-Montes, Douro, Beiras e Serra de Estela, Beira Baixa, Alto Alentejo, Alentejo Central, Baixo Alentejo, Algarve, Ave, Alto Tâmega, Tâmega e Sousa, Área Metropolitana do Porto, Viseu Dão-Lafões, Região de Coimbra, Médio Tejo, Região de Aveiro, Região de Leiria, Oeste and Alentejo Litoral).

Figure 1.2 illustrates the region's geomorphological features and the perimeter of the current Interreg VI-A Spain-Portugal programme area.

Figure 1.2: Geographical features and characteristics[3]



Spanning approximately 239,430 km², the Spanish-Portuguese cross-border region exhibits significant topographical diversity. The programme area stretches along the entire 1,234-kilometre land border, from the Atlantic coast in the northwest — between Galicia and the Minho region — to the southernmost section, where the Guadiana River marks the border between Andalusia and Alentejo.

The natural landscape comprises a variety of geographical formations, ranging from rugged mountain chains and elevated plateaus to broad river valleys and low-lying coastal areas. In the north, the terrain

[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.

is shaped by the Galician Massif and the Serra da Peneda-Gerês, characterised by steep gradients, dense forest cover and significant rainfall. Moving southwards, the landscape transitions into the undulating plains and hills of the Meseta Central, including parts of western Spain such as Zamora, Salamanca and Cáceres. The central sections of the border region are influenced by mountainous systems such as the Sierra de Gata and the Sierra de San Pedro, while the southernmost areas are dominated by the Sierra Morena.

The region's geomorphology and ecological structure are largely influenced by its river systems. The Miño/Minho River forms the northern border, while the Douro/Duero River flows from east to west through the territory, playing a key role in the hydrographic network. Further south, the Tagus/Tejo and Guadiana rivers have created fertile valleys and wetlands along the border. The Guadiana River in particular defines large segments of the southern border and is central to cross-border water management and environmental cooperation.

The area also includes numerous protected natural areas and environmental corridors, including Natura 2000 sites and biosphere reserves.

The programme area encompasses several key urban centres that are closely connected to the landscape and its features. Important Spanish towns include León, Valladolid, Salamanca, Badajoz, Sevilla, A Coruña and Córdoba. On the Portuguese side Braga, Porto and Coimbra.

Overall, the Spain–Portugal cross-border region is characterised by its complex topography and ecological diversity. As a biogeographical transition zone between Atlantic, Mediterranean, and continental European natural environments, this diversity has a significant influence on the spatial organisation and environmental quality of the programme area.

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.

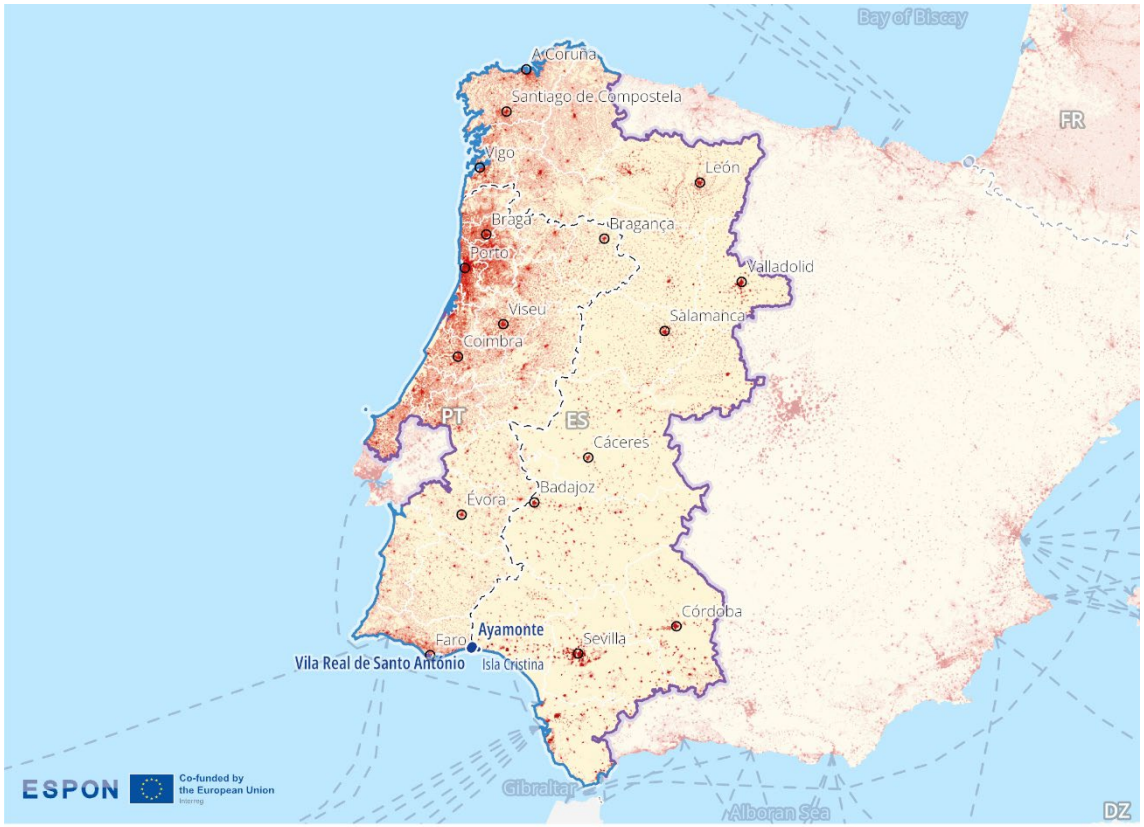
- **Source**: Eurostat
- **Temporal coverage**: 2021
- **Unit**: Inhabitants/km^2

Please refer to the technical annex for more information.

The border region includes 15 urban centres with a population of over 30.000 inhabitants. Figure 2.1 illustrates the spatial pattern of population and shows that the area directly adjacent to the border is very sparsely populated. The northern part of Spain is more densely and evenly populated than the central and southern parts. The north is home to cities with a higher concentration of inhabitants, such as A Coruña, León, Valladolid and Vigo. The centre of Spain's border region shows a pattern of very isolated settlements, except for Salamanca. In the south, there are more populous areas around Sevilla and Córdoba. The map also shows that the Portuguese part of the border region is more densely populated, especially along the coast, where a large area around the city of Porto is particularly dense. In the southern part, the population density decreases, except for the southern coast around the city of Albufeira.

The population density in this whole border region is 65 inhabitants/km², which is therefore much lower than the EU average of 109 inhabitants/km² (according to EUROSTAT), and it is also lower than the aggregated average of all EU evaluated border regions, which is 125 inhabitants/km². The Spanish side of the border has an average population density of around 57 inhabitants/km². It is therefore lower the national average population density in Spain (93 inhabitants/km²). The Portuguese side of the border has an average population density of around 81 inhabitants/km². It is therefore lower than the national average population density in Portugal (110 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 75 150 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 %

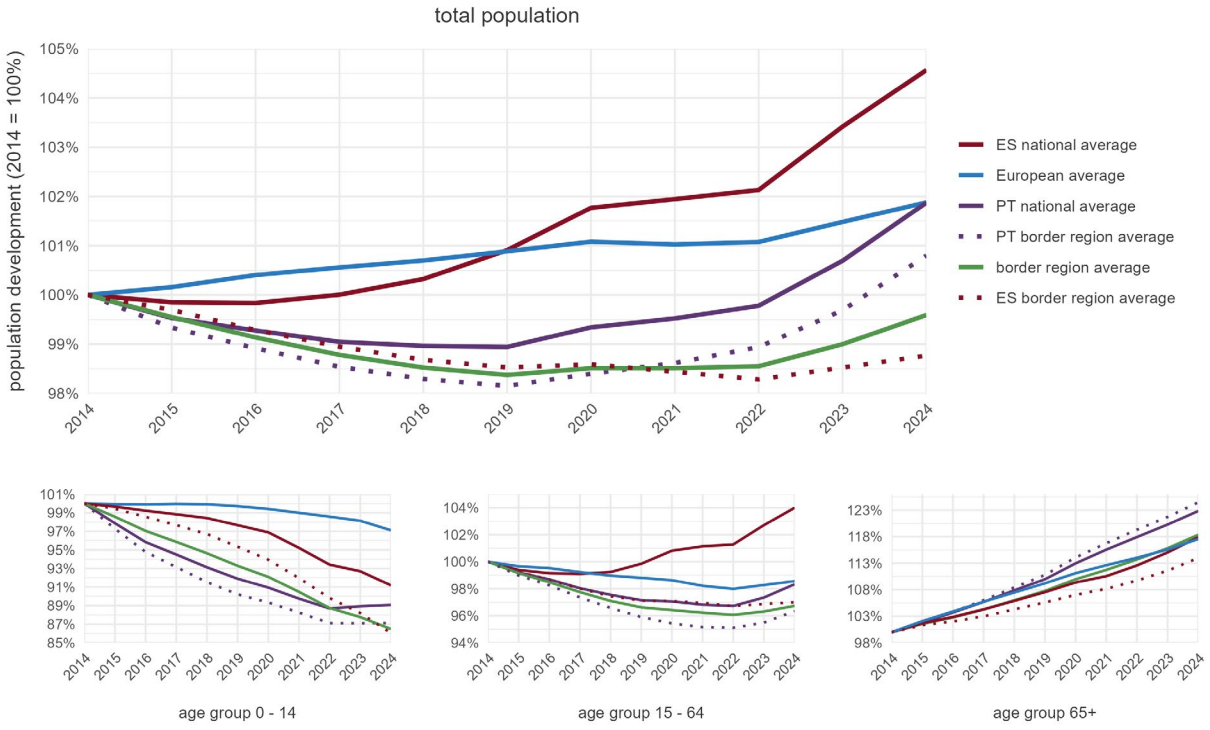
Please refer to the technical annex for more information.

Population in the Interreg VI-A Spain–Portugal programme area (POCTEP) in 2024 (Eurostat): 16.9 million inhabitants, of which:

- 58.9% in the Spanish border territory (9.9 million inhabitants);
- 41.1% in the Portuguese border territory (6.9 million inhabitants);
- Region within the border region with the highest population decrease since 2014: Zamora (ES419) at -10.7%.

Figure 2.2 shows the population change in the Interreg Spain–Portugal (POCTEP) programme between 2014 and 2024. During this period, the region has experienced a slight decline of -0.4%, with the most pronounced decrease observed on the Spanish side.

Figure 2.2: Population development (2014=100)



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Population development across the cross-border area is moderately below the European average (-0.4% vs. 1.9%) and also moderately below the aggregated averages of border regions (-0.4% vs 1.5%). While the Spanish border regions show a decrease in comparison to the national average (-1.2% vs. 4.6%), the Portuguese border regions show slightly lower growth compared to the national average (0.8% vs. 1.9%).

In terms of the development of individual age groups in the region, the population aged 0–14 experienced a sharp decrease of -13.5%, while the working-age population (15–64) showed a slight decrease of -3.3%. The population aged 65 and over underwent a substantial increase of 18.3%.

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 map shows similar patterns of change in settlement areas on both sides of the Spanish-Portuguese border. Changes are evident in particular around the urban centres of A Coruña, Badajoz, Córdoba and Sevilla. Braga, Porto, Coimbra, León, Valladolid and Salamanca show no significant changes during the observed time period. High growth in settlement areas is particularly evident along the Portuguese Coast as well as in Sevilla and along the valley between A Coruña and Salamanca. In close proximity to the national borders, the settlement area increases mainly in Badajoz and along the streets crossing the Spanish-Portuguese border. The map also reflects the topographical characteristics of the border region, with hardly any changes in settlement areas visible in steep, high-altitude mountainous areas as well as significant changes along the coast.

Figure 2.3: Settlement area dynamics

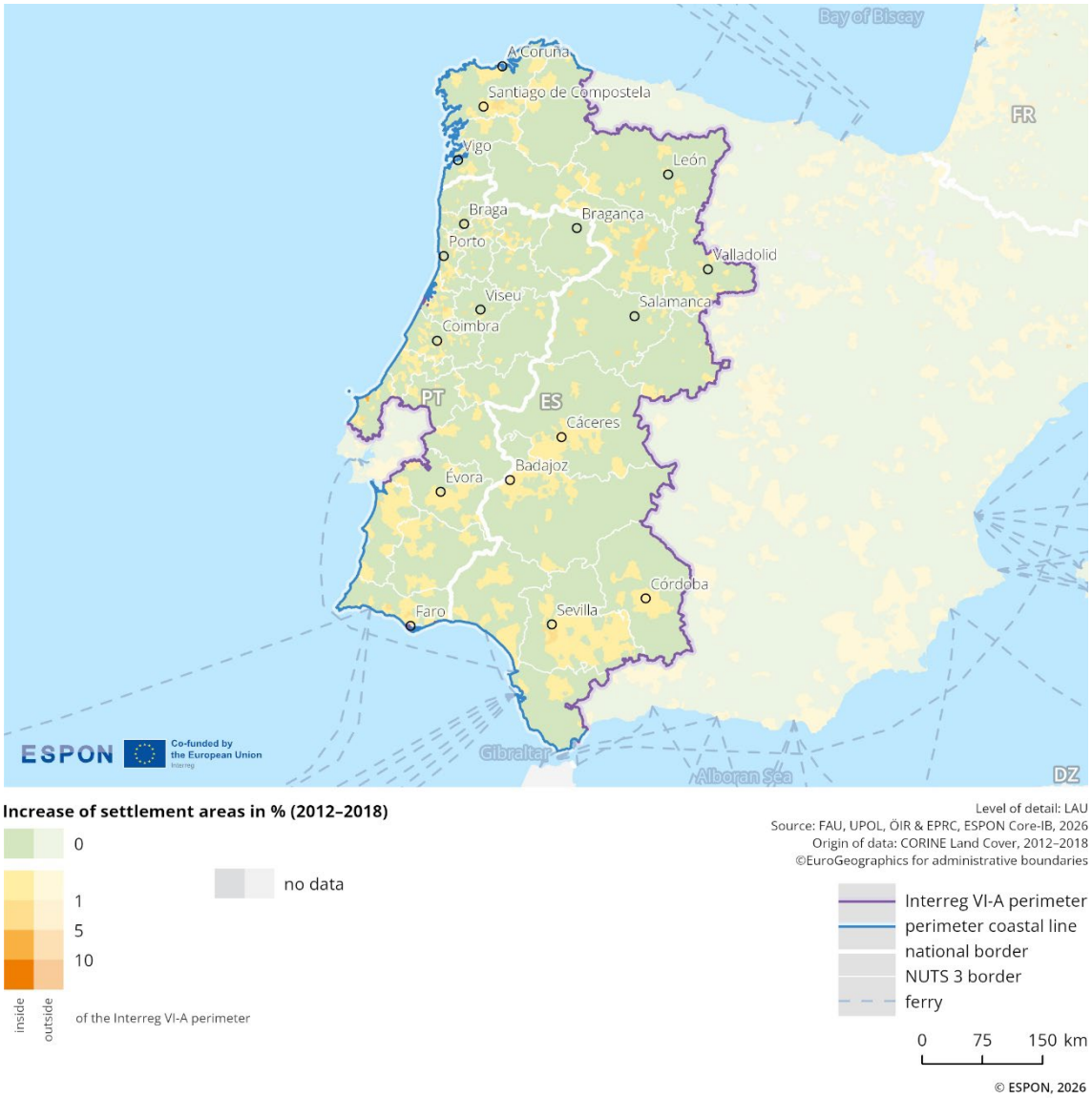
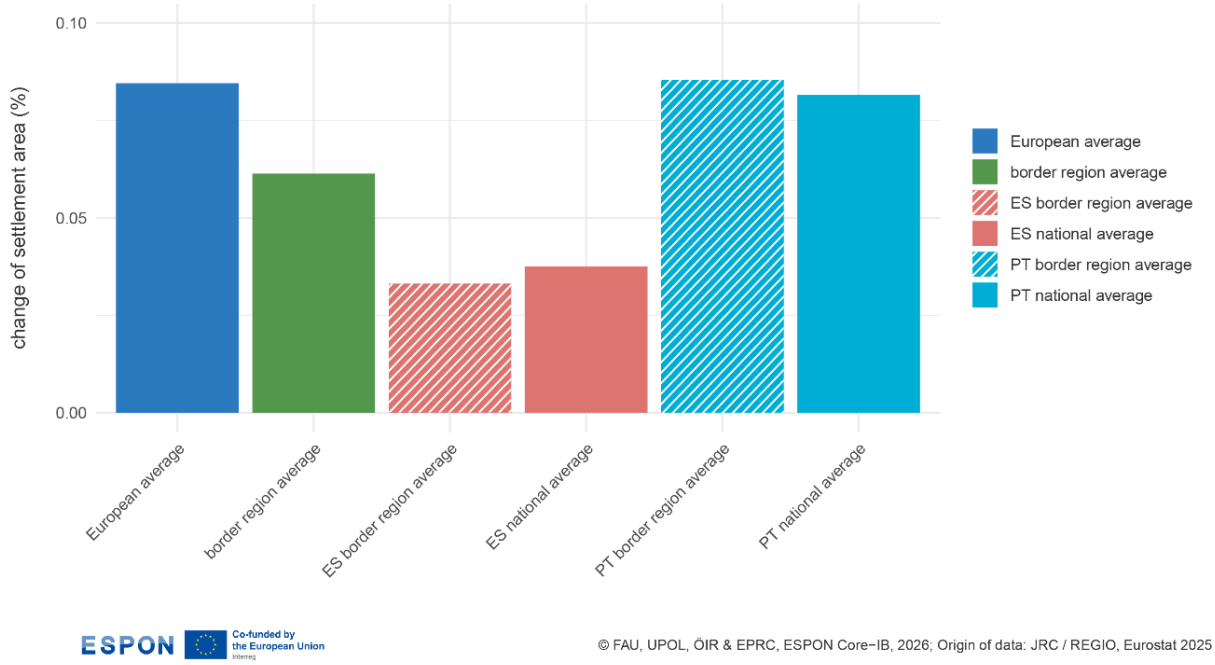


Figure 2.4 presents the change in settlement areas from a comparative perspective. The average for the Interreg Spain-Portugal (POCTEP) programme area is lower than the overall European average (0.06% vs. 0.08%), which includes both EU member states and the EFTA countries Switzerland, Liechtenstein, and Norway. The Portuguese values are higher than the Spanish ones, which applies for both the national average as well as for the border regions. The Spanish border-regional average (0.033%) is slightly lower than the national Spanish average (0.037%), whereas the Portuguese border-regional average is quite similar to the national Portuguese average (around 0.08%).

In general, the programme area shows a dynamic settlement development. The need for an integrated approach to spatial development is obvious. Spatial development has to balance the various demands on land use (e.g., residential, commercial, tourism, transport, agriculture, and nature conservation), and this requires ongoing coordination and exchange, also across the border.

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 whether the border hampers mobility.

2.1.2.1 Comparative quality of selected cross-border connections

Indicator description

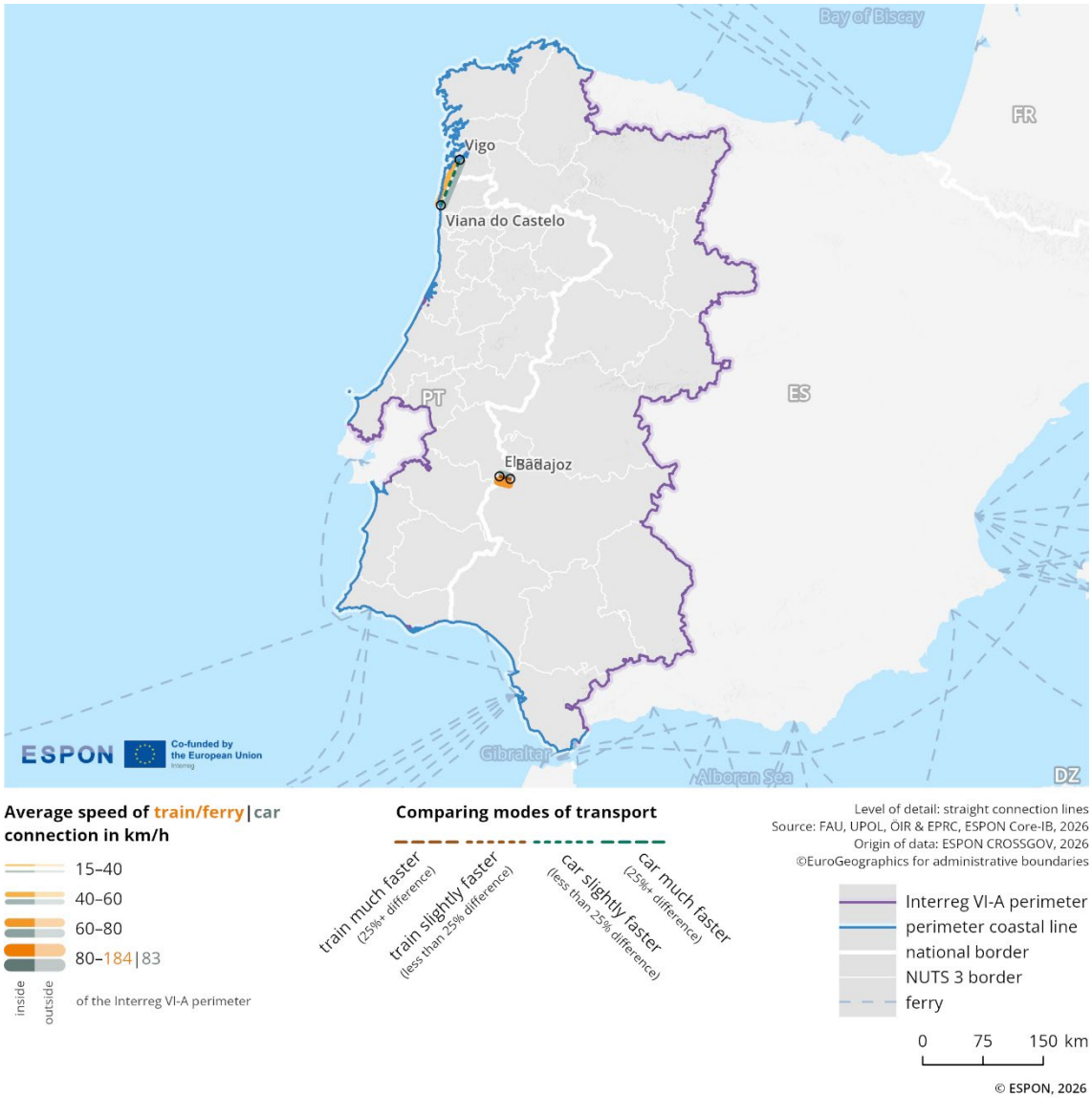
The indicator presents a comparative perspective for different modes of transport (public and private) and their average travel speed (so-called space-time-lines). As such it helps to understand and interpret accessibility patterns along the border and highlights the comparative quality of selected cross-border 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 and train travel times in the Spain-Portugal (POCTEP) cross-border region. This visualisation enables an assessment of transport quality by highlighting differences between public (train) and private (car) transport modes.

Figure 2.5: Comparative quality of selected cross-border connections



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 thickness of the lines (orange for trains, grey for cars) indicates the average speed of connections in km/h, with thicker lines representing faster connections. Dotted lines in-between reflect the indexed ratio between train and car speeds. A brown colour scale (values below 100) denotes that trains are faster than cars along the specific route, while a green scale (values above 100) indicates the opposite.

The selected connections within the programme area include Viana do Castelo–Vigo and Elvas–Badajoz. On the Elvas–Badajoz route, train travel outperforms car travel in terms of speed, whereas on the Viana do Castelo–Vigo route, car travel is the faster option.

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

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.

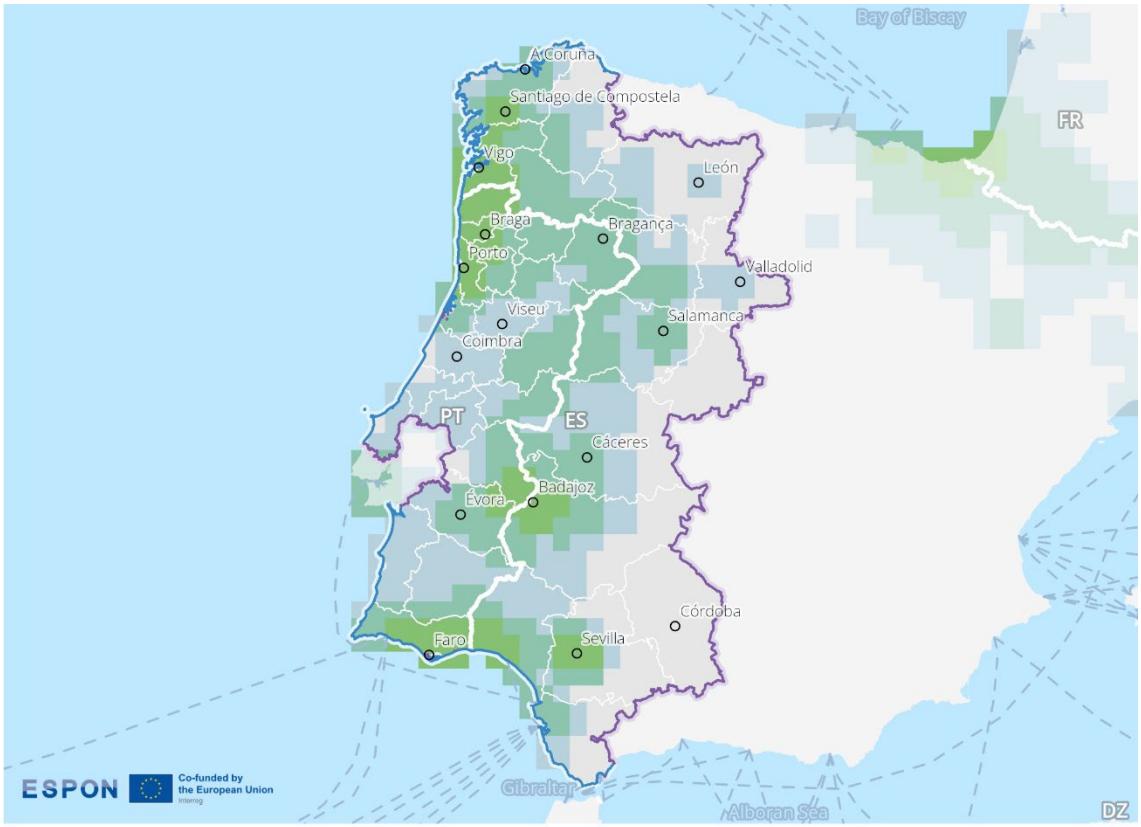
- **Source/method of retrieval**: The indicator is calculated based on Twitter (currently X) data. The digital footprint of individual users provides information about physical mobility flows and is used to calculate cross-border catchment areas of different intensity.
- **Temporal coverage**: 2013-2023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

Please refer to the technical annex for more information.

Figure 2.6 shows the cross-border catchment area between Portugal and Spain 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 highly variable. The highest mobility intensity is recorded around the cities of Porto and Braga, near Badajoz, around Sevilla, and along the southern coastline close to the borders of the countries in this region. Mobility intensity near the national borders is generally moderate. In areas further from the borders of both countries, intensity is low, and no intensity is recorded in the Spanish areas part of the programme area that ar from from the border (e.g. the area of Cordoba).

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

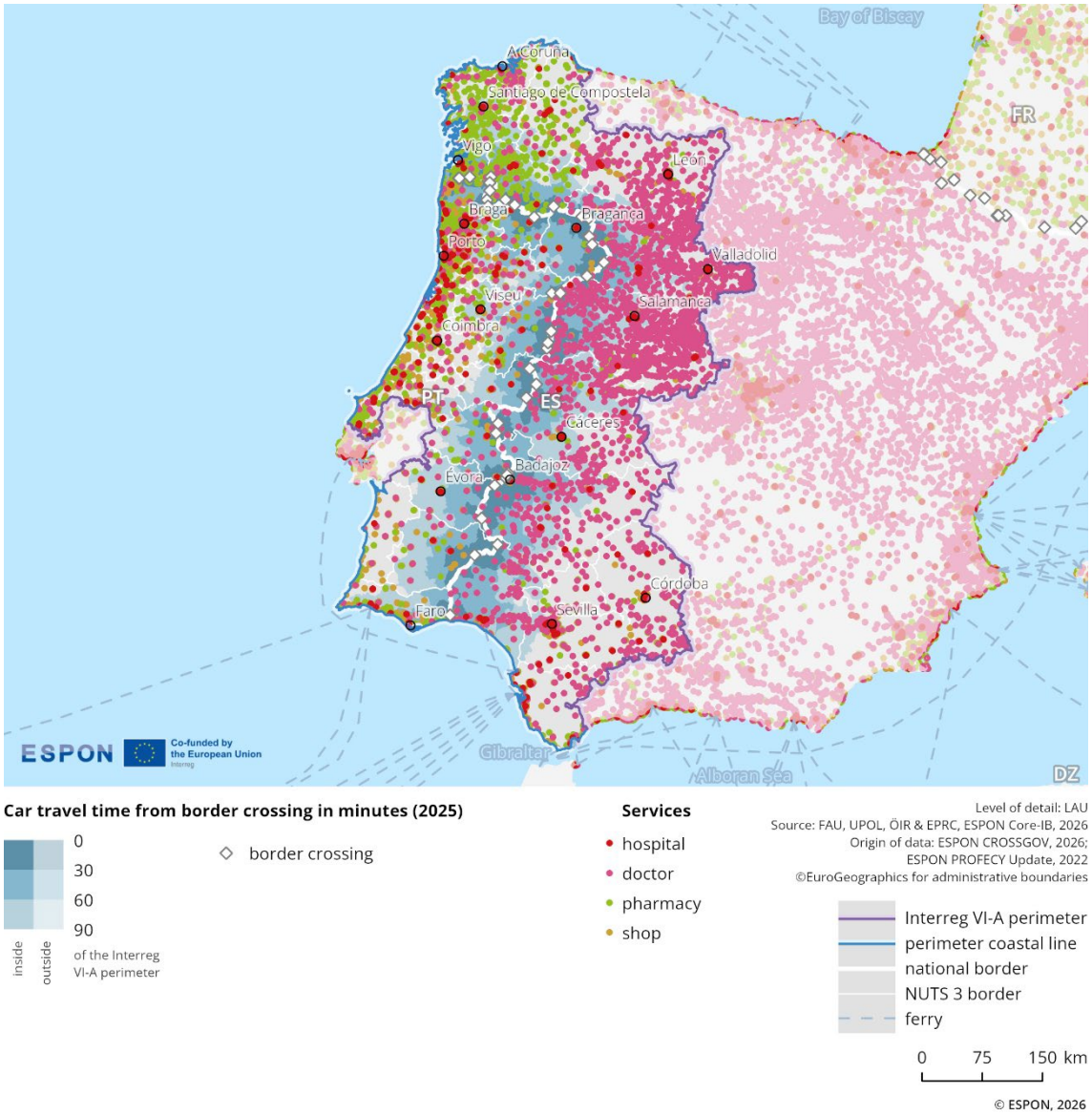
Please refer to the technical annex for more information.

Figure 2.7 illustrates cross-border travel time accessibility in the Interreg area, showing the time distance from the national border in 2023. 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 that the border is surrounded by a very narrow, sometimes discontinuous, strip of accessibility zone within 30 minutes from both sides of the border. This category, which is up to 30 minutes, is followed by wider bands with travel times of up to 60 and 90 minutes. The border has nearly good road connections, but the travel time increases very quickly far from the border.

Services such as shops, hospitals, doctors, and pharmacies are concentrated in higher-density areas far from the border, specifically in the travel category above 60 minutes from the border. Along the border accessibility is higher on the Spanish side. The services are concentrated in towns like Bajadoz in Spain (in the 30-minute travel time category) and on the northern part of the Spanish border. The next centres, such as Caceres (ES) and Evora and Braga (PT), are located within the 90-minute travel time category from the borderline, although this finding is limited as it does not take into account the number and types of services offered.

Figure 2.7: Travel-time accessibility from border crossings



2.1.3 Key messages on the territorial dimension

Topographic conditions strongly influence the territorial structure of the Spain-Portugal cross-border region, which is predominantly rural. The natural landscape is diverse, ranging from rugged mountain chains and elevated plateaus to broad river valleys and low-lying coastal areas. Population density is generally low, with the exception of larger cities. The Portuguese part of the cross-border region is more densely populated, particularly along the coast and in the wider metropolitan area around the city of Porto.

Demographic trends reveal contrasting dynamics. While the Spanish analysed area records a decline compared to the national average (-1.2% vs. 4.6%), the Portuguese analysed area shows slightly lower growth compared to the national average (0.8% vs. 1.9%). Settlement patterns follow similar trajectories on both sides of the border. Growth is particularly strong along the Portuguese coast, in Sevilla, and in the corridor between A Coruña and Salamanca. Closer to the border, settlement expansion is most visible around Badajoz and along cross-border roads, while mountainous and high-altitude areas show very little change.

Estimated cross-border mobility intensity is uneven across the region. The highest intensity is observed around Porto and Braga, in the area of Badajoz, around Sevilla, and along the southern coastline near the border. In contrast, mobility near the national border is generally moderate, and further inland the intensity drops to low or absent levels, especially on the Spanish side.

Accessibility of services such as shops, hospitals, doctors, and pharmacies is concentrated in higher-density areas far from the border, often requiring travel times of over 60 minutes from the border. Exceptions include Badajoz, where services are accessible within 30 minutes, and Braga, where they are accessible within 60 minutes.

There is considerable potential for cross-border infrastructure development, particularly in road and public transport networks. Although not captured by the analysed indicators, some important aspects regarding transport connectivity should be noted. Road accessibility is generally good, though specific gaps remain in inner peripheral areas. Overall, highway density is high across all regions, however Extremadura, Castilla y León, and Algarve present the weakest connectivity. As regards rail transport, there are only 3 cross border rail line operating and connectivity through public transport appears to be one of the main barriers preventing cross border development.[5]

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

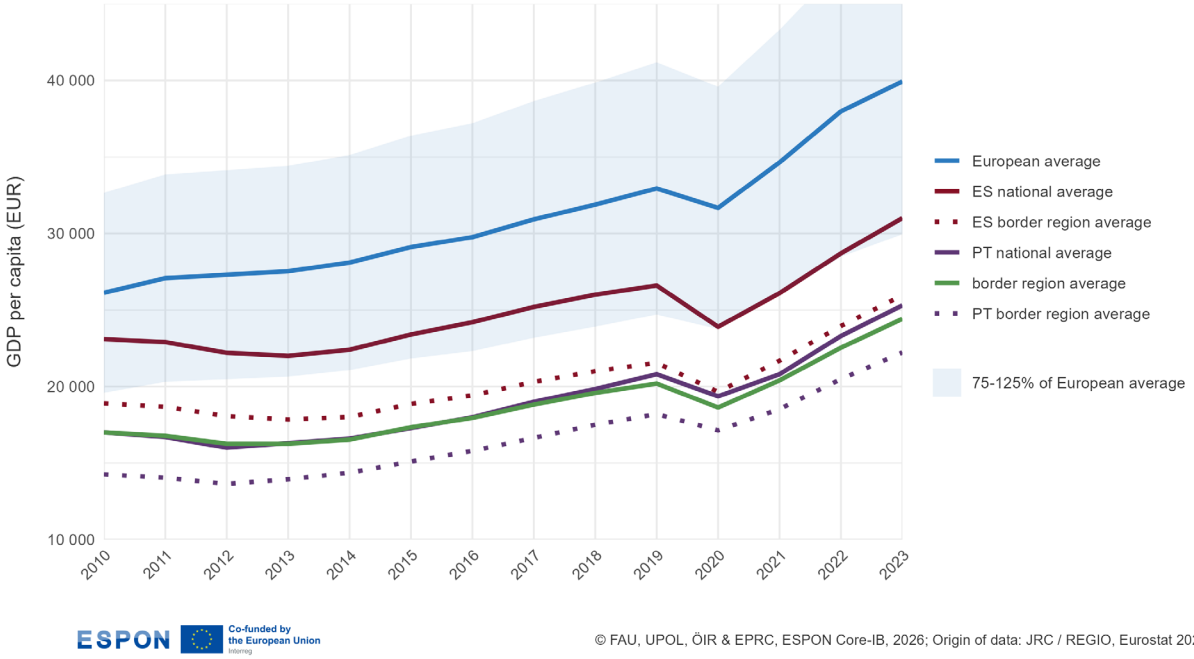
Please refer to the technical annex for more information.

Figure 2.8 illustrates the development of GDP per capita in Euros between 2010 and 2023, comparing border regions and national averages of Spain and Portugal with the European average. The cross-

[5] The study carried out by the Commission "Comprehensive analysis of the existing cross-border rail transport connections and missing links on the internal EU borders", identified 4 routes as having a 'need for improvement of cross-border passenger service" in the programme area.

border region shows a GDP/capita value of 62.4% of the EU average in 2022 and 63.3% of the average in European border regions in general. The cross-border region marks a 36.9% increase of GDP per capita in the cross-border region between 2014 and 2022.[6] This corresponds to a 1.3 percentage points higher increase of GDP per capita in the cross-border region compared to the EU average. Furthermore, this corresponds to 1.7 percentage points higher increase of GDP per capita in the cross-border region compared to the average of European border regions. The Spanish and the Portuguese border regions are both below their respective national average as well as considerably below the EU average in terms of GDP per capita. Overall since 2014 the Spanish border region grew in a similar pace than the EU average, while the Portuguese border region grew around 10 percentage points faster than the Spanish one.

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



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[6] 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.

2.2.2.1 Share of employment

Indicator description

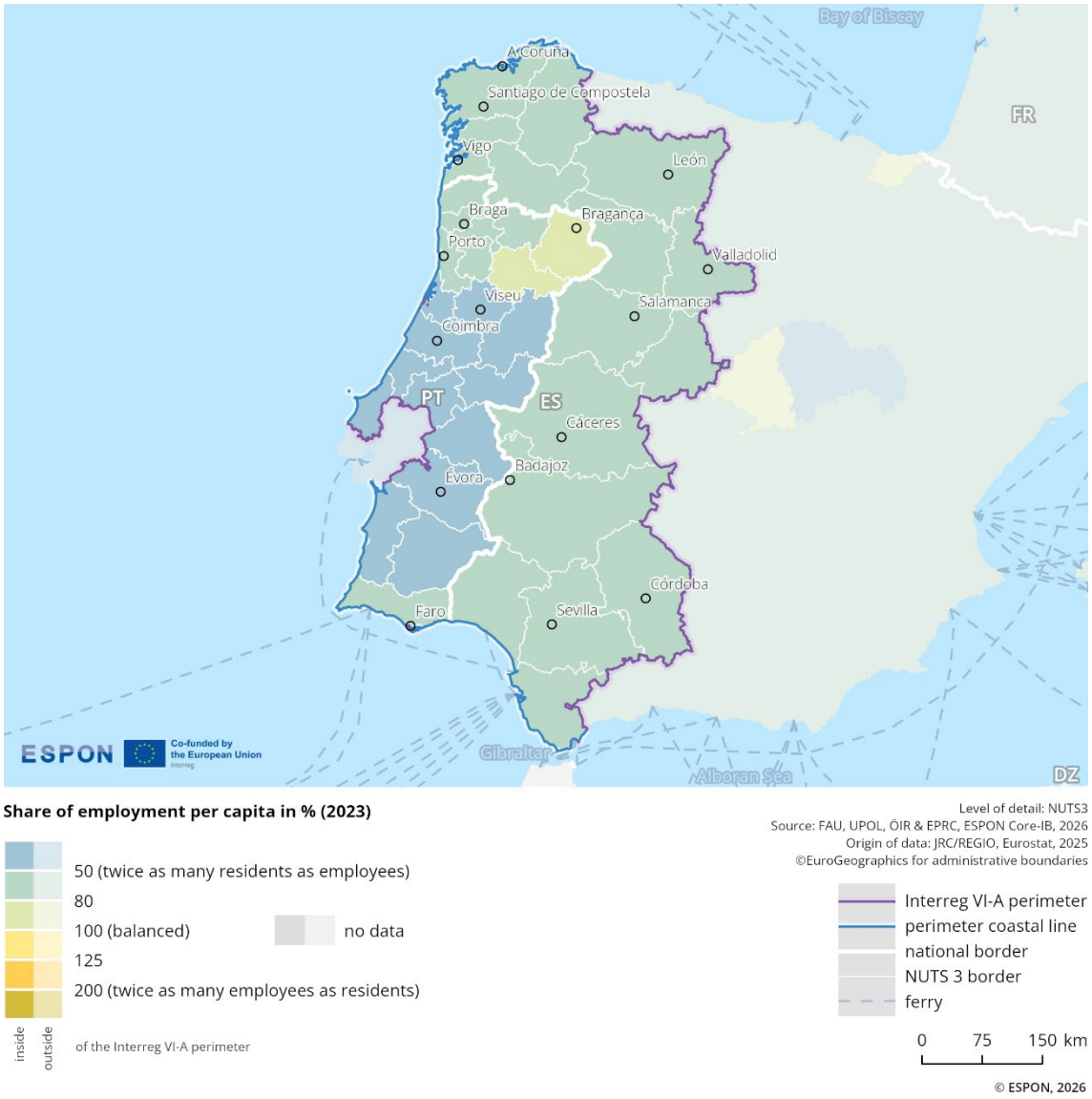
This indicator shows the share of employees in the population aged 15 to 64. Although it does not fully capture entrepreneurs, marginal employees, or civil servants, this is an important statistic for understanding general labour market patterns. It covers 2 aspects: first, high values can result from 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.

Figure 2.9: Employment share[7]



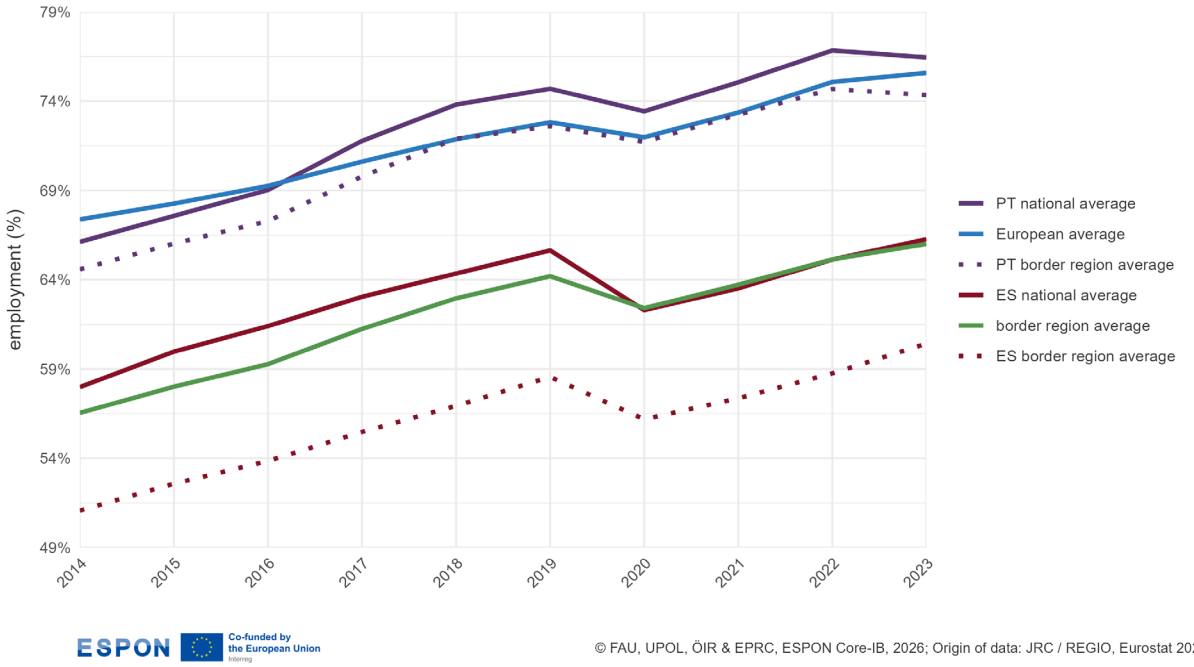
The share of employment in this border region is stable, with the regional average reaching 64.4% in 2023, representing an increase of 9.7 percentage points since 2014. Due to varying indicator values, clear differences between the participating countries are evident. Across the Spanish part of the programme area, values range from 50% to 80%, with a higher number of residents than employees on average. In most of the Portuguese territory, values fall below 50% (having twice as many residents as employees on average), except in the northeastern area where values range from 80% to 100%, and in the surroundings of the cities of Porto and Braga, as well as in the southern part of the Portuguese border region, where values range from 50% to 80%, with a higher number of residents than employees on average. According to Figure 2.10, a comparison of the share of employment in this cross-border region reveals the following:

- Compared to the European average, values in the cross-border region are lower by 11.2 percentage points; in 2014, the difference was 12.7 percentage points;
- Compared to the Spanish national average, values in the cross-border region are lower by 1.9 percentage points; in 2014, the difference was 3.3 percentage points;

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

- Compared to the Portuguese national average, values in the cross-border region are lower by 12.1 percentage points; in 2014, the difference was 11.4 percentage points;
- The Spanish border area records values 5.9 percentage points below the national average, while the Portuguese border area is 2.6 percentage points below the Portuguese national average;
- Compared to the average of all cross-border regions, the values are lower by 10.1 percentage points; in 2014, the difference was 11.6 percentage points.

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.

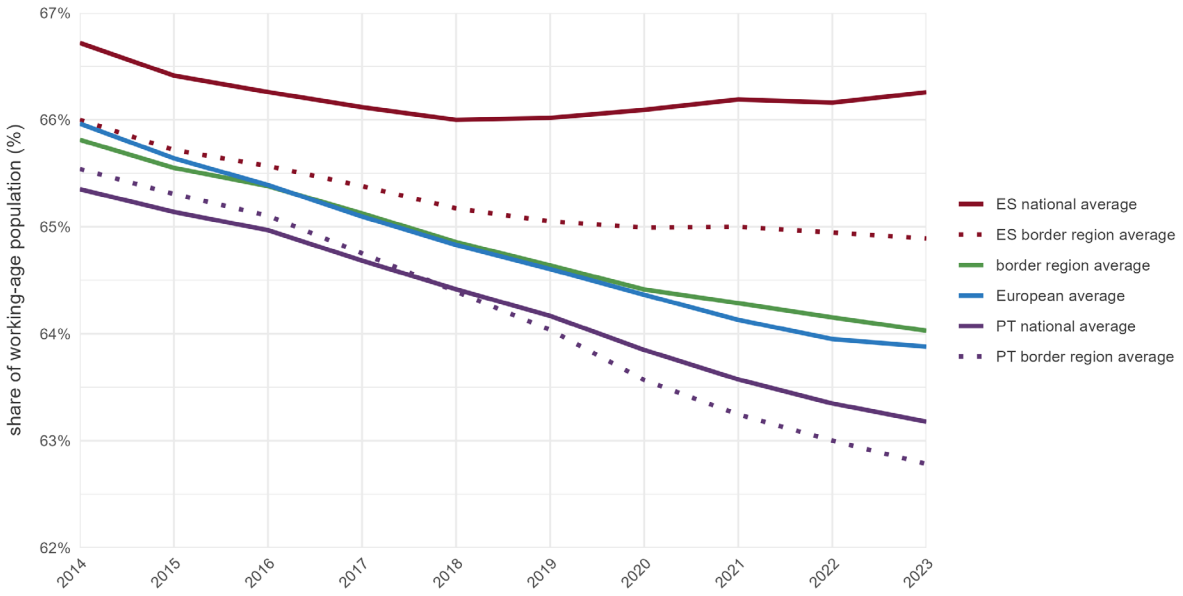
Figure 2.11 shows the evolution of the share of the working-age population in the Spain-Portugal (POCTEP) cross-border region between 2014 and 2023. In 2023, the region shows an average working-age population share of 64.0%, compared to the European average of 63.9% and 63.7% for the average of all cross-border regions.

The share of the working-age population in the whole cross-border region is slightly higher than the Portuguese border average (62.3%), and very similar to the Spanish border average (64.9%). Compared to national levels, it is moderately higher than the Portuguese national average (63.1%), and moderately lower than the Spanish national average (66.3%).

The region experienced a moderate -1.8 percentage point decrease in the share of working-age population between 2014 (65.8%) and 2023 (64.0%). This decline is somewhat slower than the European average, which dropped by 2.1 percentage points in the same period. While all areas in the region show a declining trend, the decrease has been more pronounced in the Portuguese parts (-2.8 percentage points at the border and -2.2 percentage points at the national level) than in the Spanish parts (-1.1 percentage points at the border and -0.5 percentage points at the national level). Although the overall trend is negative, a decrease can be observed in the analysed Spanish regions initially, and since 2018, a stabilisation or slight increase has been observed.

The Spain–Portugal (POCTEP) cross-border region experienced a moderate overall decline in the share of the working-age population between 2014 and 2023. In 2023, the cross-border region remained slightly above the EU and cross-border averages, with more favourable trends on the Spanish side.

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 %

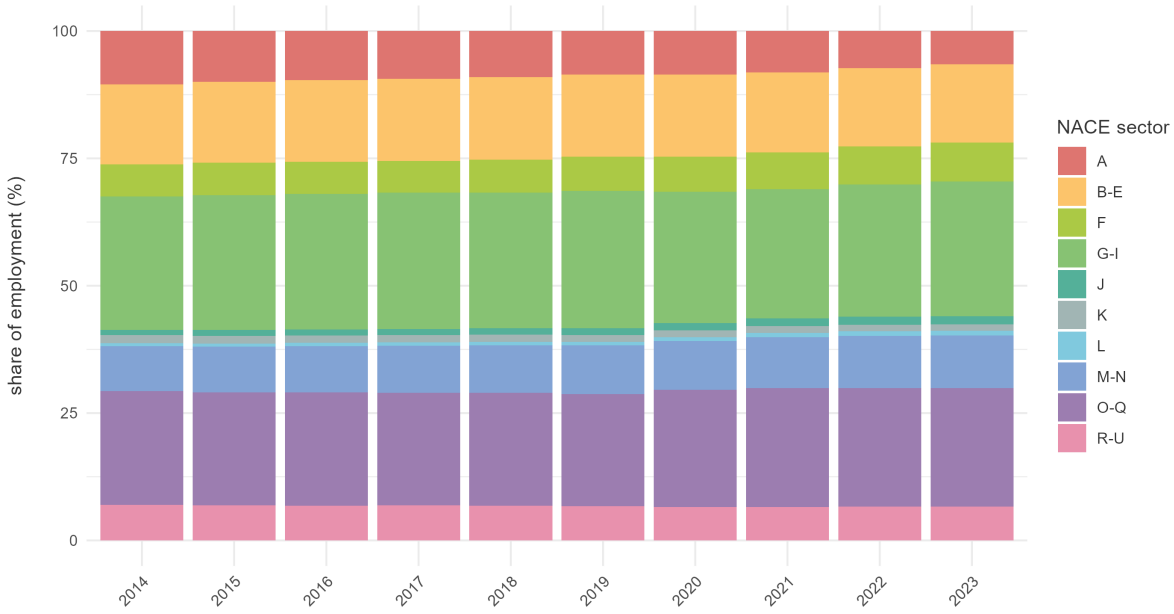
Please refer to the technical annex for more information.

Figure 2.12 illustrates the relative number of jobs in the border area differentiated by sectors. It shows where jobs are located (not where employed persons live). This workplace-based indicator offers 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 relative number 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). Conversely, there is a modest increase in the number of jobs in Construction (F), Information and communication (J), Professional, scientific and technical activities (M) and Administrative and support service activities (N).

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) and ‘O-Q’ (education, human health and social work activities).

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.

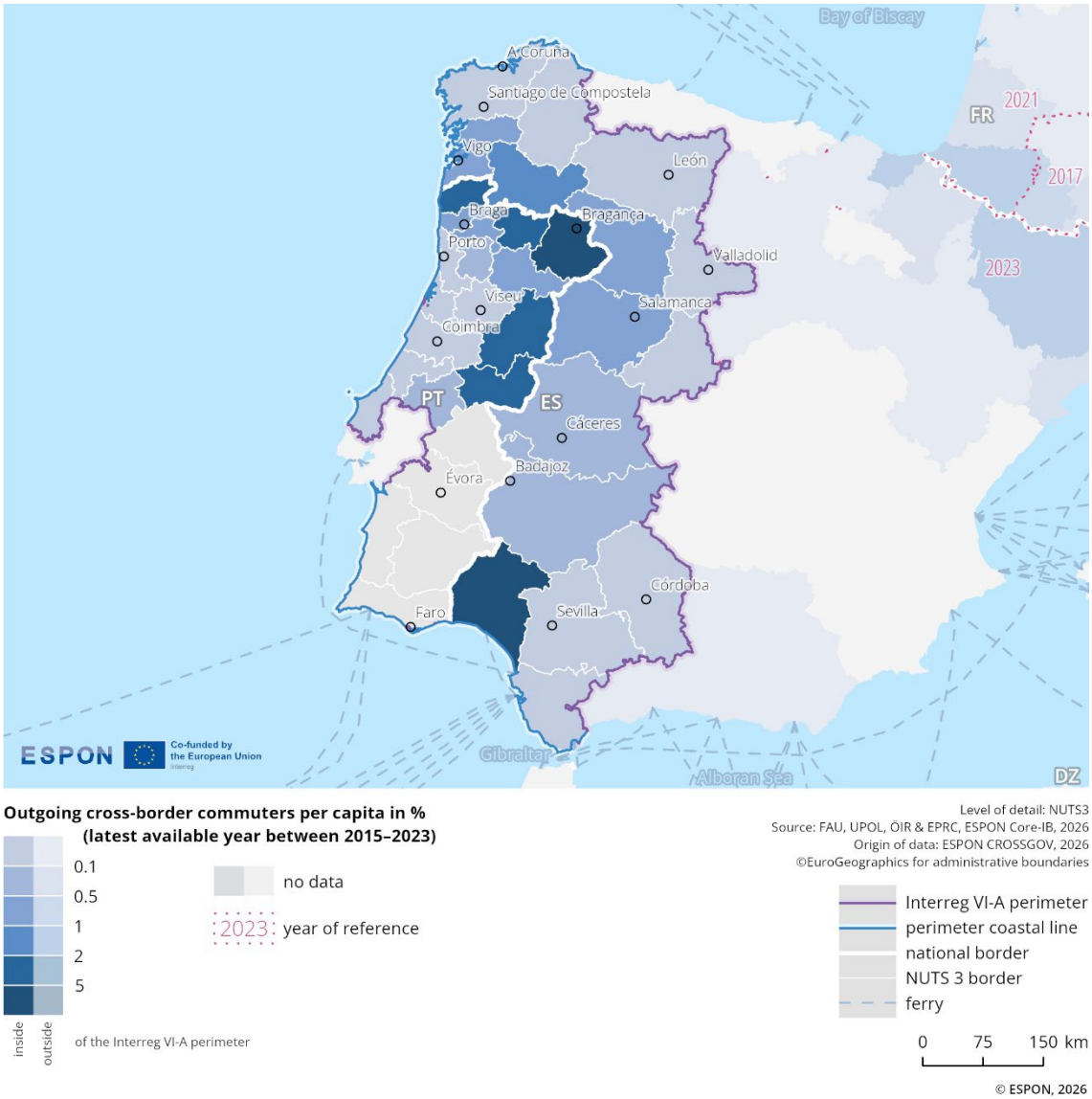
Commuting is one of the most relevant cross-border flows to identify functional linkages. Figure 2.13 illustrates the share of outgoing commuters per capita for each NUTS3 region (more concretely speaking the share of outgoing commuters among the residential population of the age group 15-64 years old, 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.

The map illustrates the share of cross-border commuters, based on the most recent available year of data. It shows relatively strong and fairly evenly distributed cross-border commuting activity in areas directly adjacent to the border on both the Portuguese and Spanish sides, particularly in the northern part of the programme area. For southern Portugal, no data is available.

The strongest hotspot is visible in northern Portugal, notably in the NUTS3 region of Terras de Trás-os-Montes, where the share of cross-border commuters is highest. A second hotspot appears in the southern part of the programme area, where the Spanish NUTS3 region of Huelva stands out with particularly high levels of cross-border commuting linked to the Algarve region. Overall, regions along the northern section of the border show more elevated and spatially continuous shares of outgoing cross-border commuters per capita.[8]

[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&

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.

The 2 countries involved in the programme are signatories of the 2023 Framework Agreement on Cross-Border Telework. Under this agreement, cross-border workers can telework from their country of residence for up to 50% of their total working time without affecting their social security affiliation.

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.

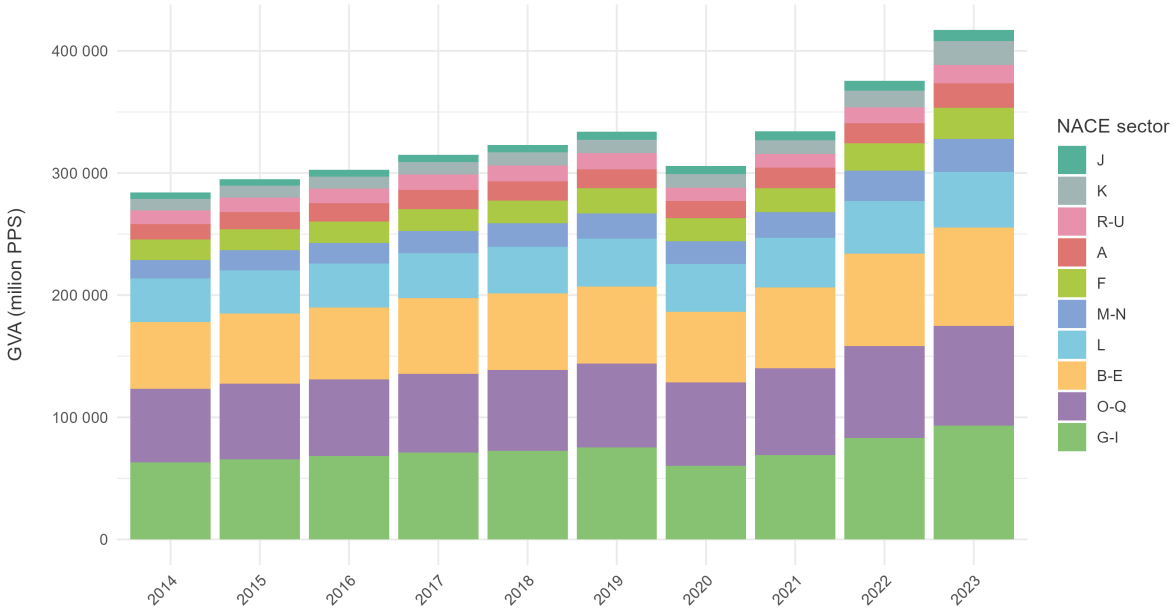
Figure 2.14 visualises gross value added (GVA), which is an important indicator of economic activity. GVA measures the value created by all economic activities involved in producing goods and services in a specific area. It is differentiated by sectors to provide detailed insights into the economic contributions 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 Spain-Portugal (POCTEP) increased from 284,244 million purchasing power standards (PPS) to 417,116 million PPS — a growth of 47%. 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 economy within the border area. The sector groups G–I contributed the largest share, with a total of 78,394 million PPS in 2023. This underlines the significance 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 the Spain-Portugal (POCTEP) border region.

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
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)

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

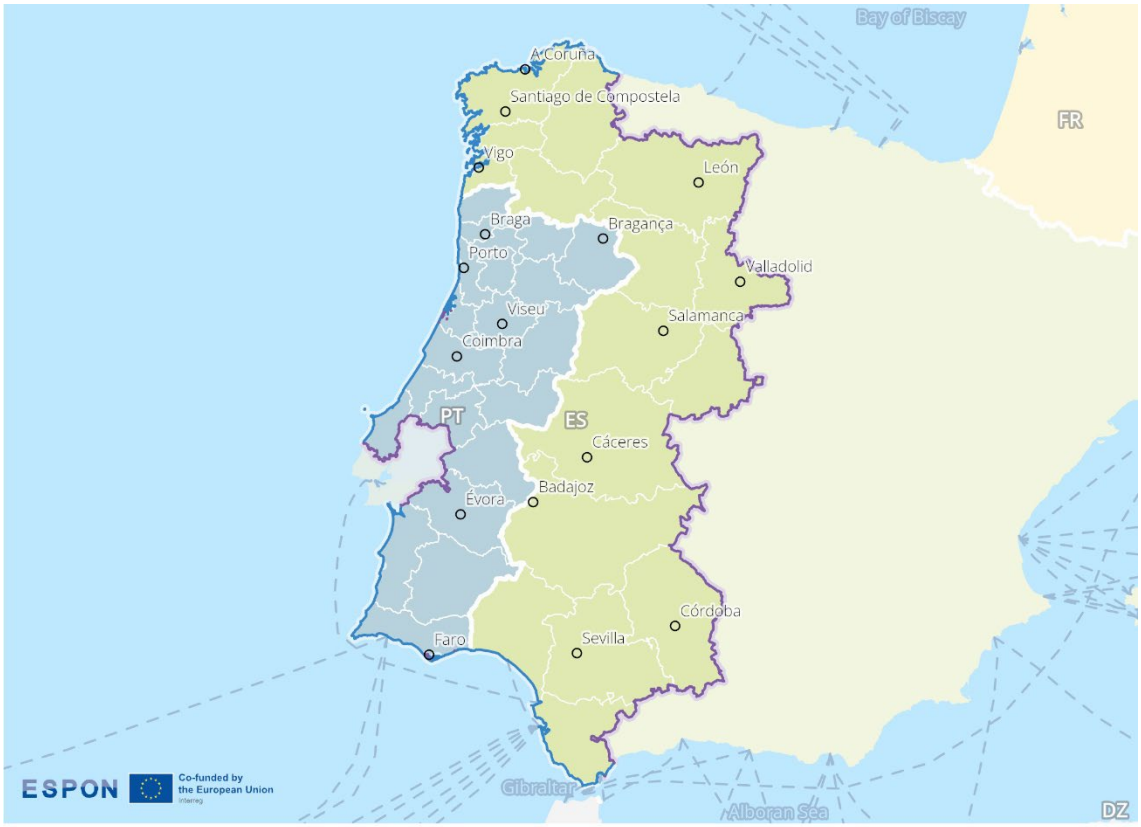
Please refer to the technical annex for more information.

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 by contract in productive activities. 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.

In 2023, the average nominal compensation per hour worked at national level is €23.70 in Spain and €15.50 in Portugal. In the Spain–Portugal border region, the nominal compensation per hour worked appears to be quite unevenly distributed, but in line with the respective national values. In the Spanish parts of the cross-border area, the average hourly income ranges between €20 and €30, with no region reporting values significantly above the general range. In the Portuguese areas, the average hourly income ranges between €10 and €15, and likewise, no region reports a value above the general range.

Cross-border wage differences can encourage labour migration from lower-wage areas to more economically prosperous neighbouring regions, creating both opportunities and challenges for local labour markets and social systems.

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.

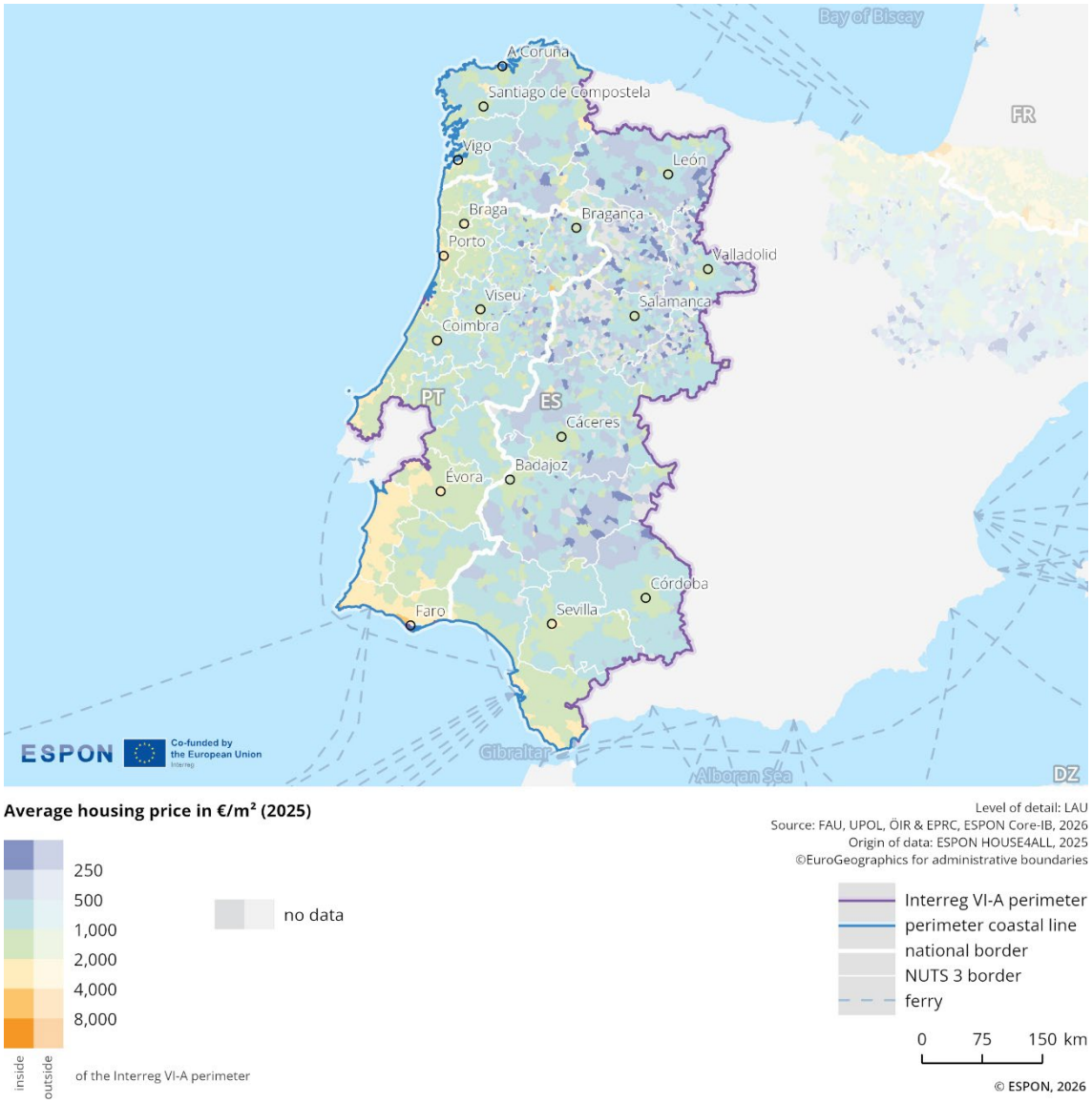
- **Source/method of retrieval**: Processed ESPON House4all data. The original data is collected via web-scraping of national listing websites over a one-year period.
- **Temporal coverage**: 2024/2025
- **Unit**: Average price per square meter (€/m^2)

Please refer to the technical annex for more information.

Figure 2.16 illustrates the advertised sales price of housing in 2025 across the Spanish-Portuguese 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.

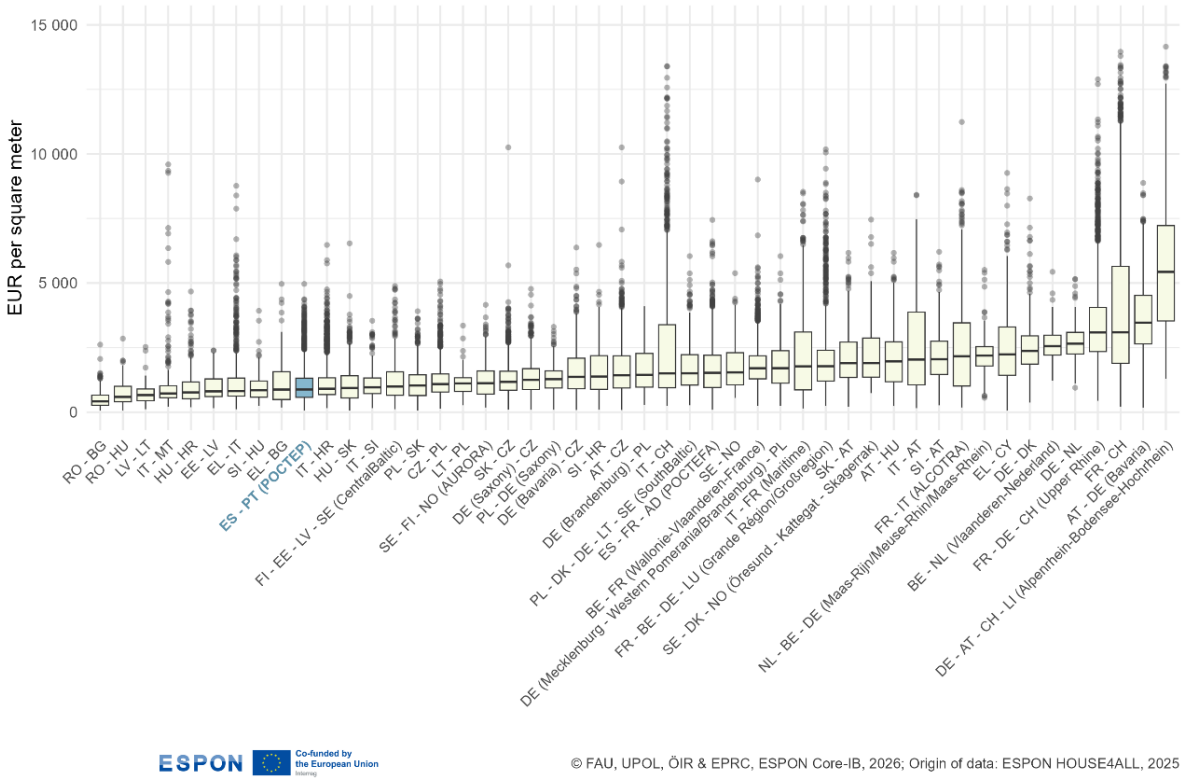
The map shows that in the inland Spanish part of the cross-border region, low prices ranging from 50 to 1,000 €/m² prevail. In the southern part, in the city of Sevilla and further south along the coast, prices rise to 4,000 €/m². Prices are also higher in large cities such as Leon, Valladolid, Salamanca and Cordoba (up to 2,000 €/m²). In the Portuguese part, prices are very variable. Near the border, prices are low, similar to Spanish prices. Prices up to 2,000 and above 4,000 €/m² rise towards the coast and in the south of Portugal. The border in the immediate vicinity does not create a significant difference in prices.

Figure 2.16: Advertised housing prices



The Spanish part of the border region records an average advertised residential sales price of approximately €706 per square metre, while the Portuguese part reports a higher average price of about €1,336 per square metre. As shown in Figure 2.17, the average advertised sales price across the entire border region amounts to €974 per square metre. This level is substantially lower than the average for all EU-evaluated border regions (€1,900 per square metre) and remains well below 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.

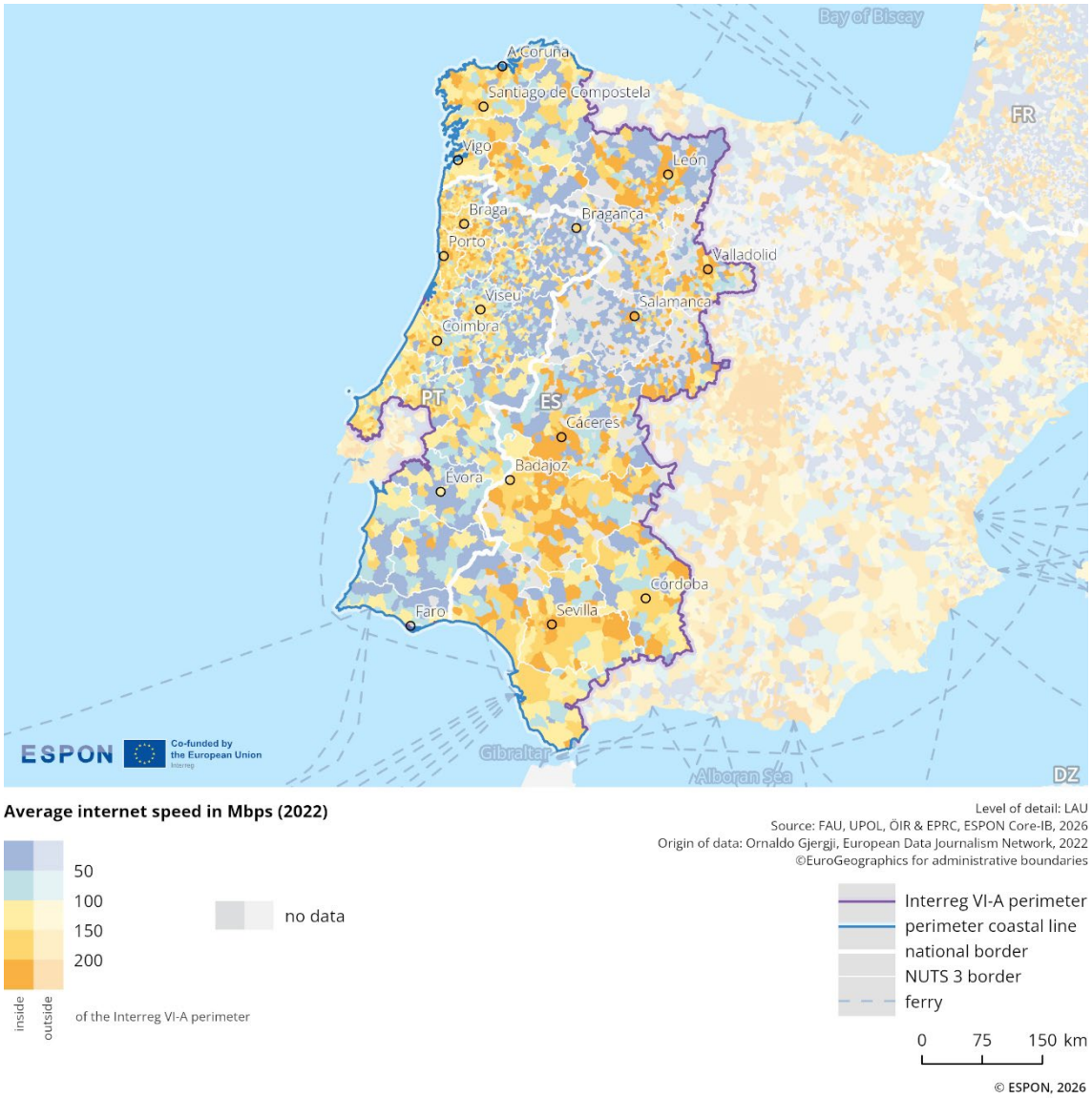
Digitalisation is a highly relevant issue in European border regions, with the overarching objective of ensuring appropriate digital access. It is widely recognised as a key precondition for successful regional and economic development. A major challenge in this process is preventing 'digital divides'—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

Average internet speed is a telling 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), not to be confused with megabytes per second (MBps).

The map reveals significant differences between urban and rural areas, with values ranging from under 50 Mbps to over 200 Mbps. Cities such as León, A Coruña, Valladolid, Salamanca, Badajoz, Sevilla, Córdoba, Braga, Porto, and Coimbra report relatively high average speeds, while surrounding areas tend to have significantly lower values. This may be due to the greater return on investment typically associated with digital infrastructure projects in urban areas compared to rural ones. However, not all urban areas in this border region have high download speeds, for example, the southern coastal cities in Portugal do not stand out in this regard. Mountainous terrain on both sides of the border clearly poses challenges to providing high-speed internet.

Figure 2.18: Average internet download speed



2.2.5 Key messages on the economic dimension

When analysing the economic aspects of the Spain-Portugal cross-border region, both similarities and differences emerge. On both sides, GDP per capita is below the respective national average and considerably below the EU average. While the Spanish border region shows higher GDP per capita levels, overal, in the period 2014-2023 the Portuguese side grew around 10 percentage points faster than the Spanish one.

The share of employment per capita ranges between 50% and 80% in the Spanish border areas, while in Portugal values are generally below 50%, except in the northeast (where they reach 80–100%) and around Porto, Braga, and the southern part of the Portuguese border region (50–80%).

The main sectors driving the economy of the cross-border region are "wholesale and retail trade, repair of motor vehicles and motorcycles, transportation and storage, accommodation and food service"s, as well as "education, health, and social work activities". Salaries are on average higher in Spain, creating incentives for cross-border commuting. This phenomenon is most evident in areas directly adjacent to the border in the northern (Norte Region-Galicia[9]), in the central part of the programme area (Portuguese regions of Beira Baixa and Beira Alta) and in the southern Spanish region of Huelva.

The Framework Agreement on Cross-Border Telework provides additional support to commuters whose jobs allow remote work. By reducing travel time, it enhances the attractiveness of cross-border employment.

Housing market patterns mirror these economic asymmetries between more urbanised areas and rural ones. Inland areas on both sides of the border show relatively low property prices, while higher values are concentrated in major cities and coastal or southern regions. The immediate border itself does not create significant differences in price levels.

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.

[9] For more information on the cross-border labour market between Norte Region and Galicia see: European Commission: Directorate-General for Regional and Urban Policy, ÖIR, HÉTFA, Nordregio, & AEBR, (2025). Cross-border regional labour market analysis: case study region Region Norte – Galicia (Portugal-Spain), Publications Office of the European Union https://data.europa.eu/doi/10.2776/9037901

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

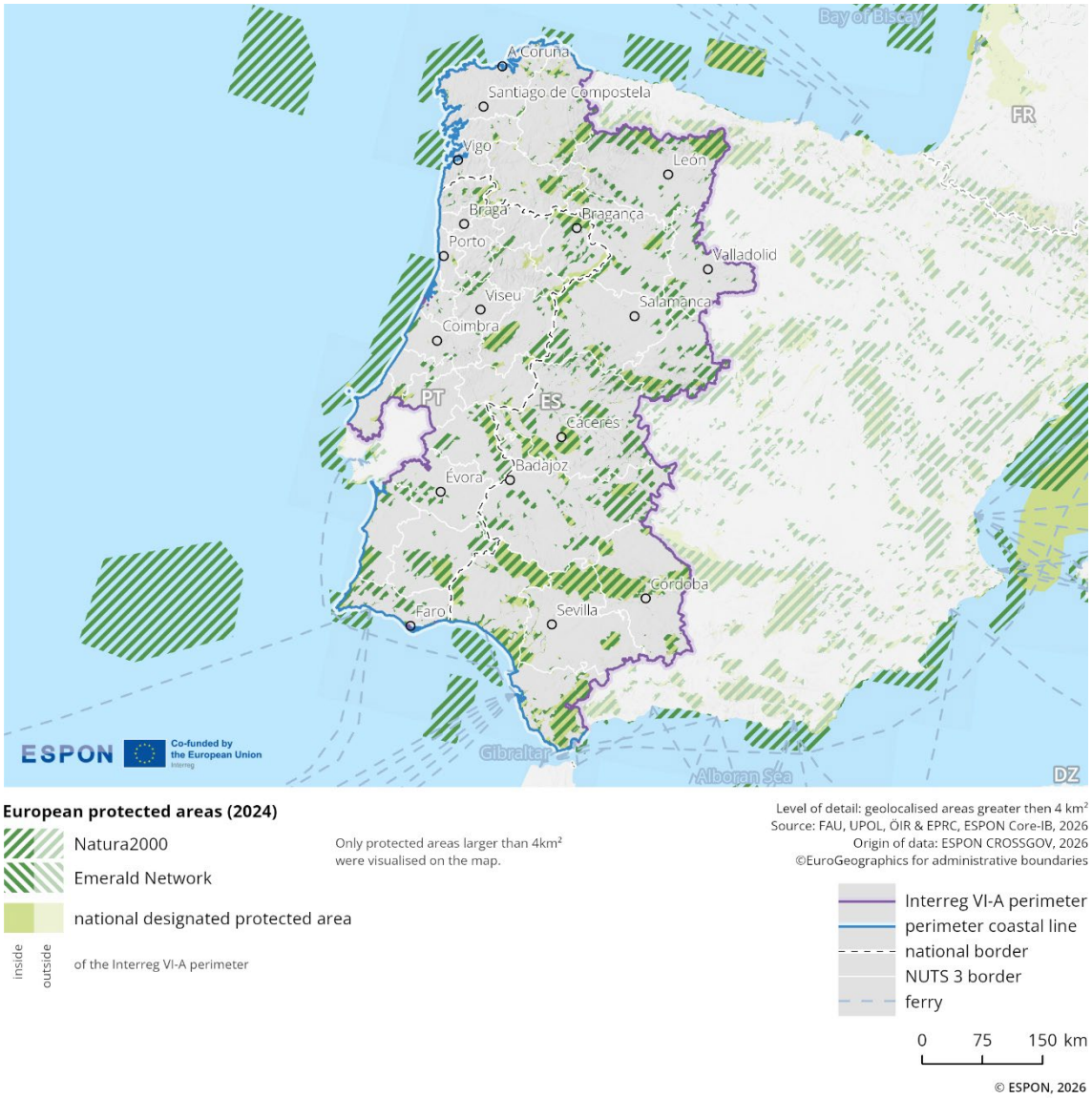
Please refer to the technical annex for more information.

Figure 2.19 illustrates the distribution of protected areas in 2024 across the Spanish-Portuguese border region. The data differentiate between Natura 2000 sites, the Emerald Network, and nationally designated protected ares, with only protected areas larger than 4 km² displayed.

Protected areas within the Interreg Spain-Portugal region are widely distributed across the border area between Portugal and Spain, with dense coverage in particular in the central zones. Larger contiguous Natura 2000 and national designated areas are present throughout these regions, and on local level cover considerable shares of the area.

Numerous protected areas along the border display clear cross-border counterparts, forming continuous corridors between Spain and Portugal. This pattern is especially strong in the central part of the Interreg region, whereas northern areas show fewer connections and greater fragmentation.

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

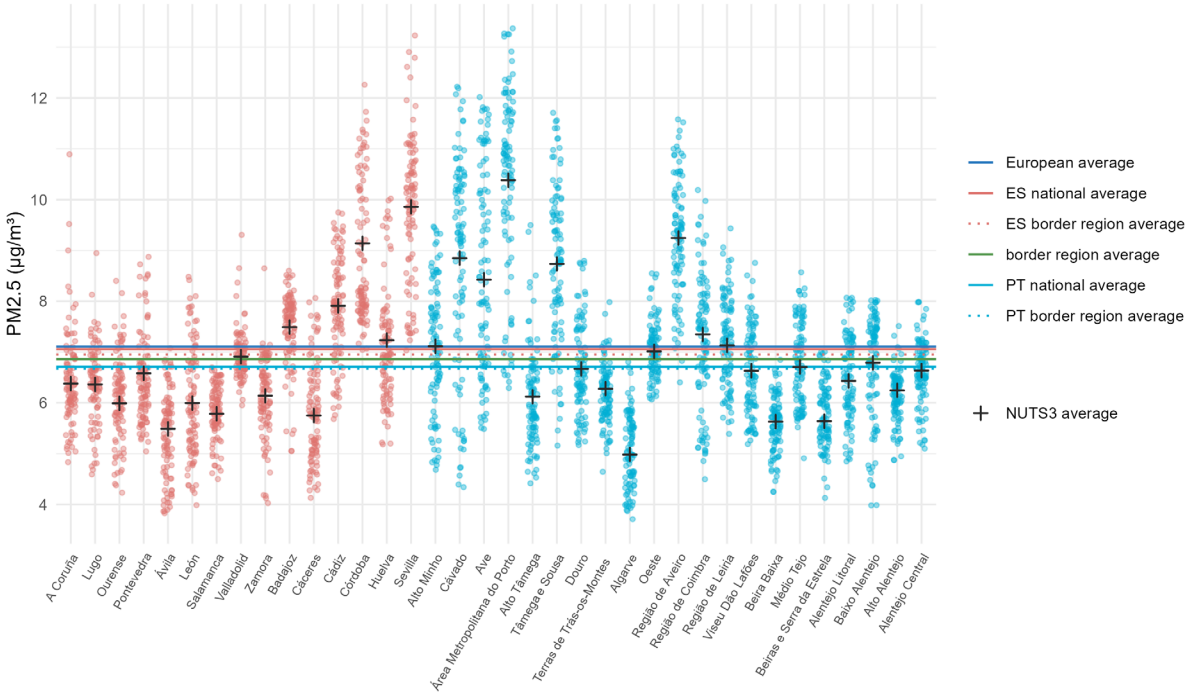
Please refer to the technical annex for more information.

Figure 2.20 illustrates PM2.5 concentrations (in µg/m³) across NUTS3 regions in Spain and Portugal in the Interreg POCTEP programme area. Each dot represents an individual measurement, while the black crosses indicate the average PM2.5 concentration for each NUTS3 region.[10] The regions are aligned along the x-axis, with Spanish regions on the left (in red) and Portuguese regions on the right (in blue).

PM2.5 measurements in the Portugues regions show a wider range compared to those in the Spanish regions, where values are more concentrated between 4 and 9 µg/m³. Overall, the Spanish national average is slightly higher than the Portuguese national average, though both are closely aligned.

All of the lines are relatively close to each other. The Portuguese border region average is slightly higher than the Portuguese national average. The cross-border average, the European average, and the Spanish national average are all at nearly the same level. The cross-border average reflects the relatively similar PM2.5 levels observed in the Portuguese and Spanish border regions.

Figure 2.20: Air pollution



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[10] 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&Icis=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.

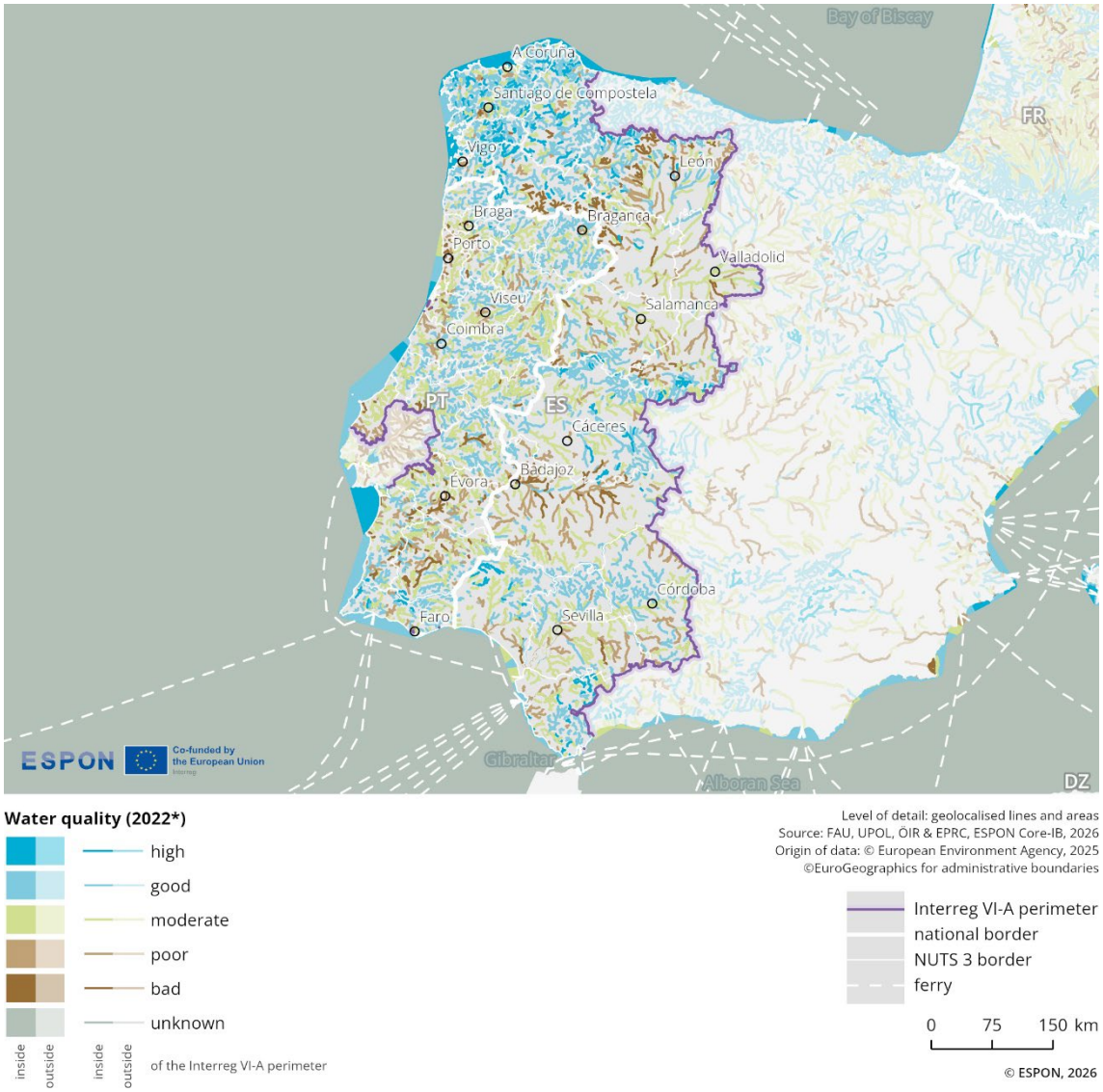
The map in Figure 2.21 illustrates water pollution levels in the Portugal–Spain Interreg region POCTEP in 2022. Water quality is represented using 6 colour-coded categories, ranging from bad to high, including an 'unknown' category.[11]

The programme areas has several cross border rivers and river basins, including in particular the Minho, the Douro, the Tagus and the Guadiana. In the Portuguese part of the Interreg region, waterbodies show a mix of quality but are predominantly moderate and good. The south has more waterbodies classified as having poor quality.

In the Spanish part of the Interreg region, rivers to the north are more frequently rated as good or high. Further south, the water bodies show a mix auf qualities. Around Badajoz, some rivers are shown as having poor and bad quality.

[11] 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.[12]

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

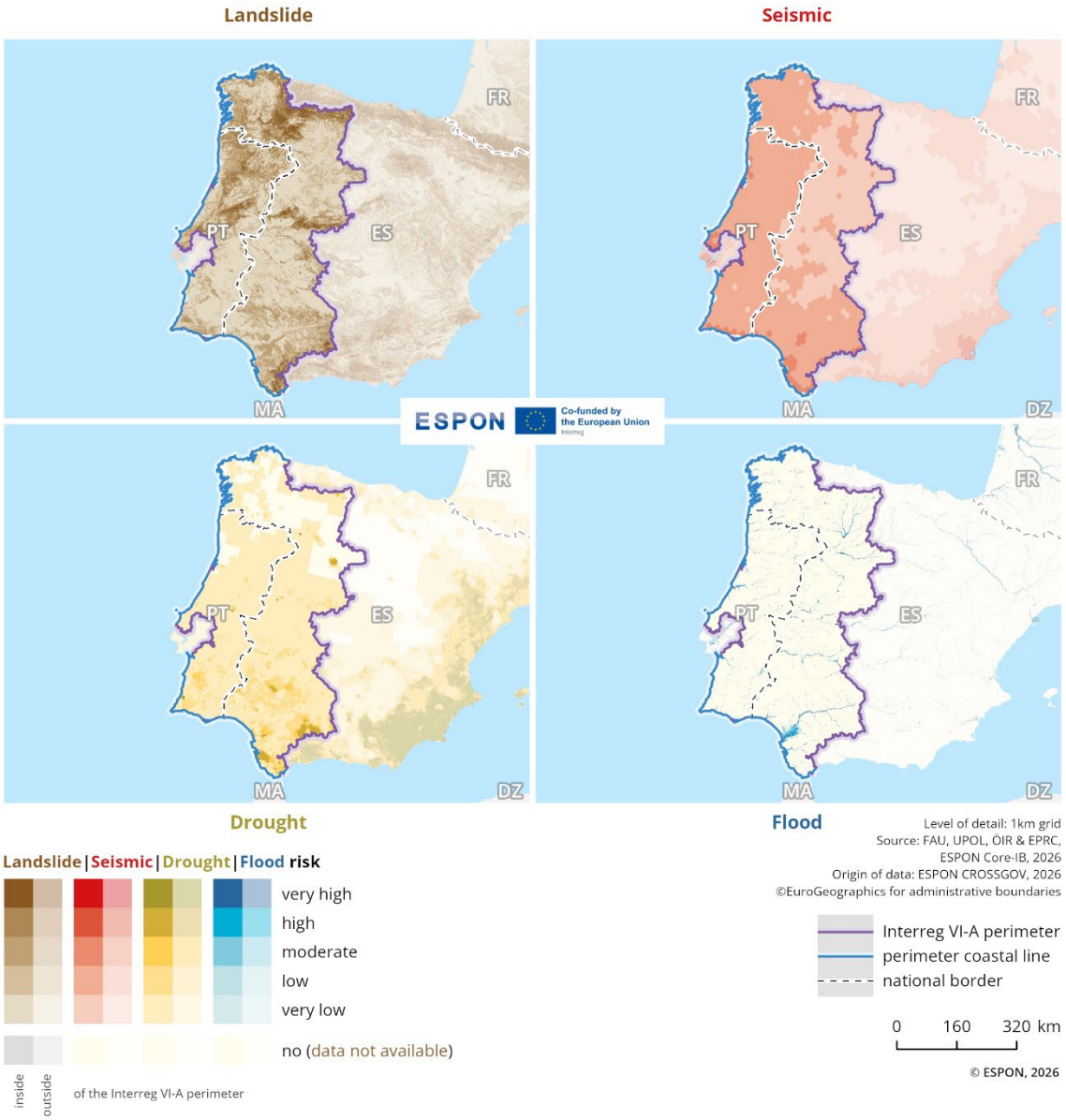
Please refer to the technical annex for more information.

The maps in Figure 2.22 illustrate the spatial distribution of natural hazards in the POCTEP region, highlighting areas where risks are shared across national boundaries and where risks are not necessarily cross-border relevant. It should be noted that in this indicator on natural hazard risk, wildfires/fire risk are not taken into account. However, they represent a fundamental threat in the Spain–Portugal Interreg programme area.

Both the risk of droughts and seismic activities are low across the region. This is also true for flooding incidents, with the exception of the Guadalquivir River delta located on the Spanish side of the cross-border region. There are several areas with a moderate to high landslide risk, but mostly not located near the shared border.

[12] See also: European Commission 2024: Strengthening the Resilience of EU Border Regions, https://ec.europa.eu/regional_policy/sources/studies/KN-02-24-586-2A-N.pdf

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.[13]

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

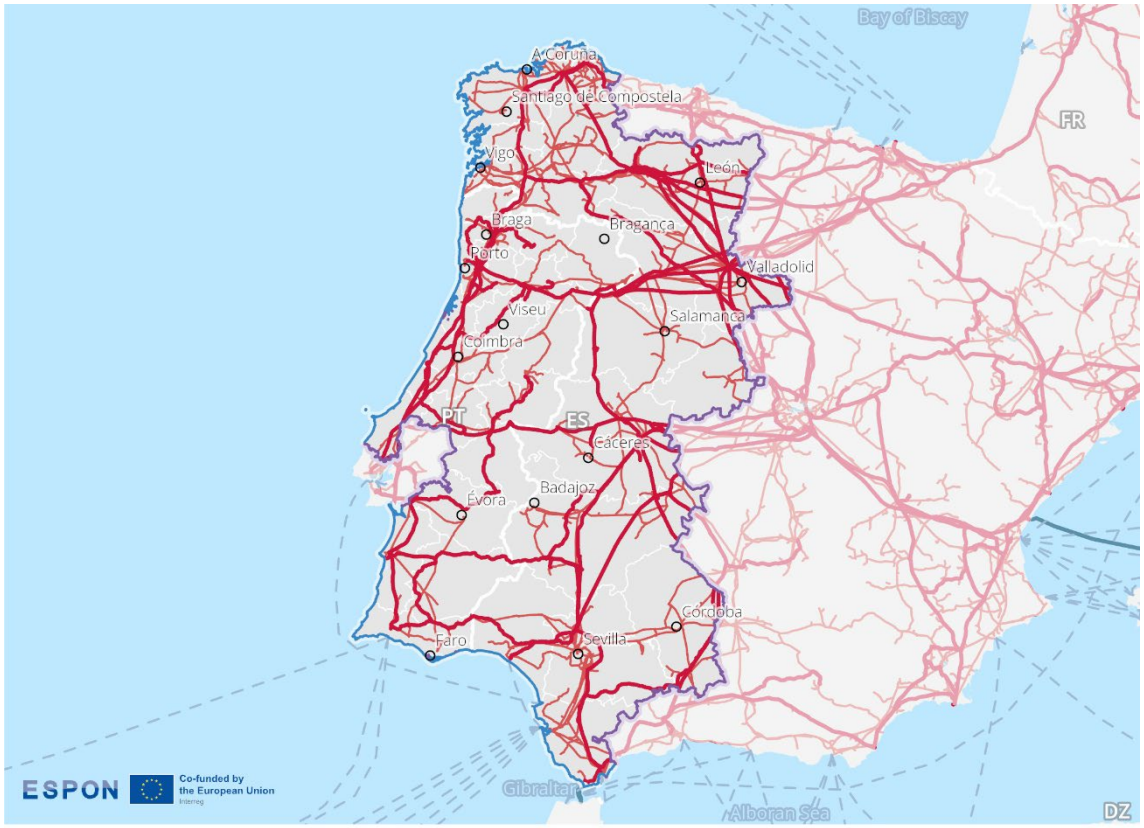
Please refer to the technical annex for more information.

Figure 2.23 illustrates the distribution of power lines and cables in 2025 across the Spanish-Portuguese border region. The data distinguish between overhead and underground power lines, 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 Spain-Portugal (POCTEP) exhibit robust extensive high- and extra high-voltage transmission infrastructure on bothe sides of the borderline. This network connects all major urban centres (e.g. Sevilla, Cordoba, Badajoz, Salamanca, León, A Coruña in Spain; Braga, Porto, Coimbra, and others on the Portuguese side). The 2 countries are then connected by a high-voltage network at 3 other locations. Overall, the density of the power grid and its interconnectivity is noteworthy in these 2 countries of the Iberian peninsula.

[13] 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 75 150 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.

As shown in Table 1, in the Spain-Portugal (POCTEP) cross-border region, there are a total of 121 power station locations[14], while the most prevalent is represented by hydroelectric power stations (91 in total).

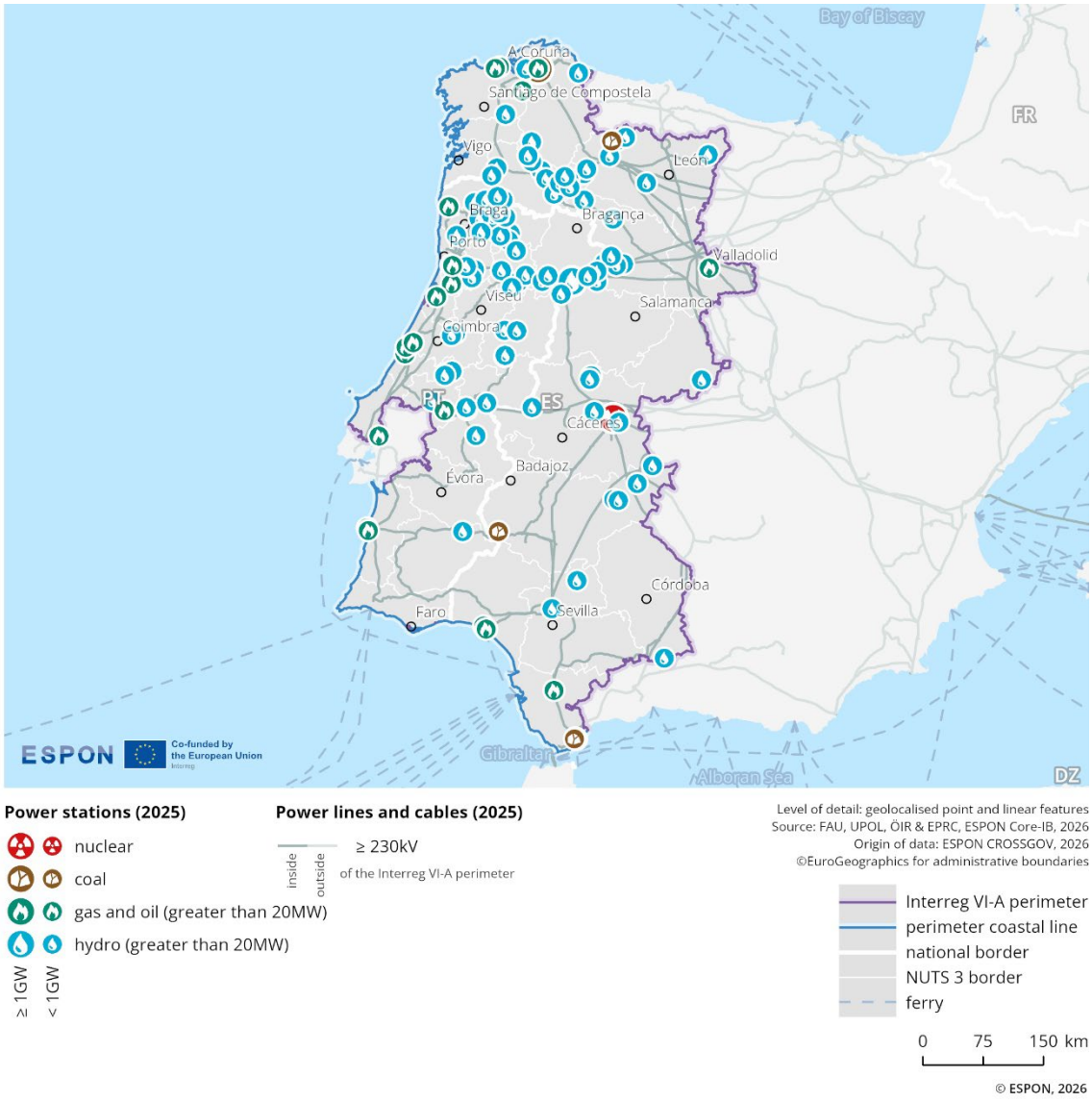
Table 1: Number and type of power stations

Power stations/plants	Less than 1GW	1GW and up
Nuclear	/	1
Coal	3	1
Gas and oil	25	/
Hydro	90	1

According to Figure 2.24, these are mainly concentrated in the northwestern parts of the cross-border region. In Spain, in the central and southern parts of the country, hydroelectric power stations tend to be located further away from the common border. Spain has a total of 49 hydroelectric power stations (one of them highly efficient and located on the border with Portugal, west of Salamanca), while Portugal holds 42. There are 25 unique gas and oil power stations (11 in Portugal and 14 in Spain) across the region, which together have more than 35 operations. All 4 coal-fired power plants are located in the Spanish part of the region, with one high-capacity plant in the northern part near A Coruña. Finally, there is one high-performance nuclear power plant located in the cross-border region on Spanish territory.

[14] For more information on cross-border energy communities between Spain and Portugal see: European Commission: Directorate-General for Regional and Urban Policy, Spatial Foresight, Eurac, EureConsult, Handbook on Cross-border Energy Communities – Final report, Publications Office of the European Union, 2025; https://data.europa.eu/doi10.2776/8146582

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

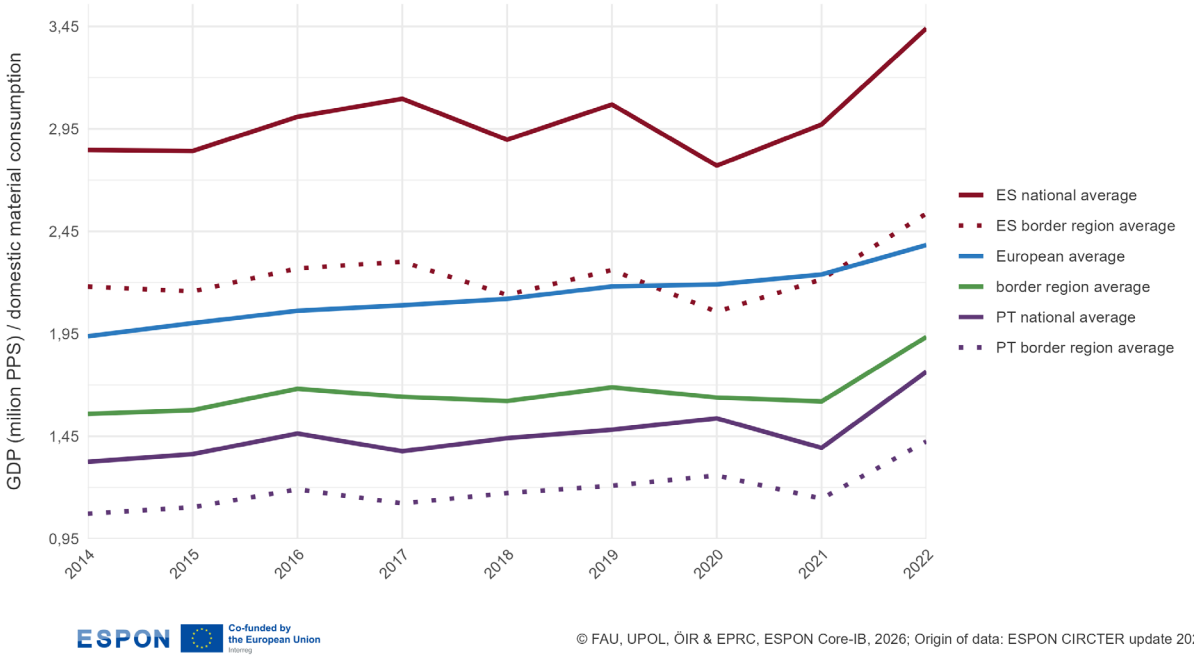
The indicator shows the economic value generated per unit of material consumed for each region within the cross-border area. Developments over time provide insights if the decoupling of productivity from resource use is progressing on regional level.

- **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 illlustrates 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 Spanish and Portuguese 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 Spanish national average shows some fluctuations, with 2 peaks in 2017 and 2019. From 2020 onward, resource productivity increases sharply, rising from around 2.7 to over 3.45 million PPS/DMC in 2022. The Spanish border region average follows a similar trend, albeit at a lower level.

The Portuguese national average also shows an upward trend over the observed period, but at a significantly lower level compared to both the Spanish values and the European average. The average for the Portuguese border region follows a similar pattern, remaining slightly below the Portuguese national average, and reaching around 1.45 million PPS/DMC in 2022.

The European average lies significantly below the Spanish national average but is closely aligned with the Spanish border region average. The border region average is slightly below the European average, reflecting a combination of the lower values from the Portuguese border region and the higher values from the Spanish border region, reaching over 2.07 million PPS/DMC in 2022. However, notable disparities exist within the border region itself.

2.3.4.2 Generation of waste per GDP

Indicator description

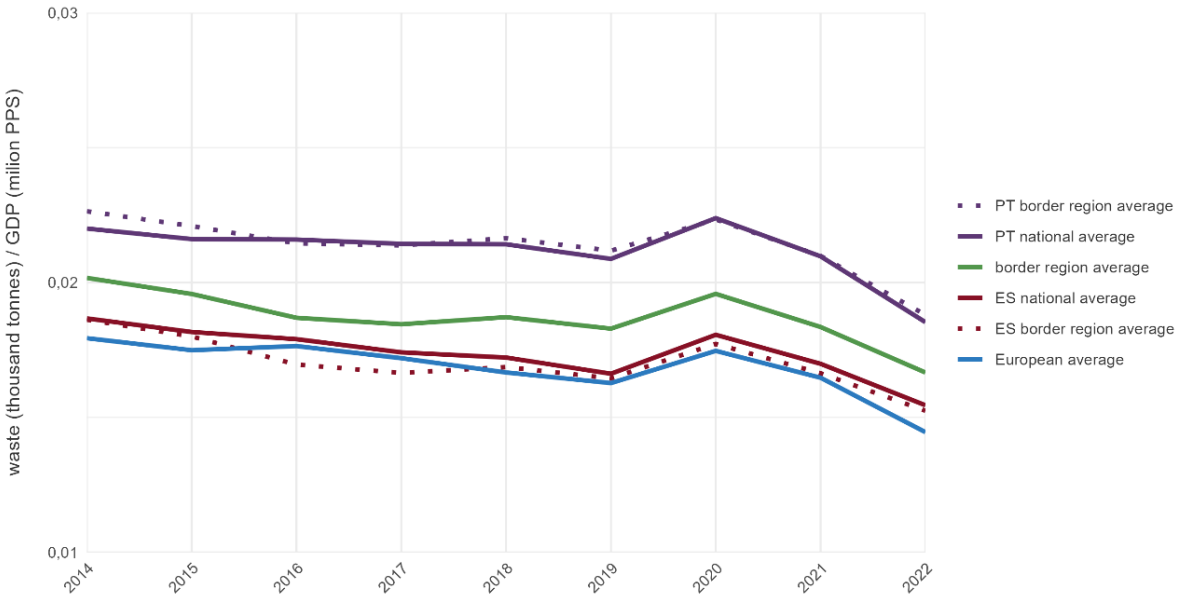
The indicator shows the regional distribution of waste creation in relation to the GDP development. Comparing waste generated to GDP reflects the waste intensity of the economy and provides a measure of "eco-efficiency". Observation of its change from year to year permits to assess whether the economy 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 from 2014 to 2022 in the Interreg region POCTEP (Spain-Portugal).

Figure 2.26: Waste generation per GDP



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Portugal's national average remains almost constant over the observed period, at a level of approximately 0.022 tonnes of waste per million PPS, with a slight increase in 2020, followed by a decline. A similar trend is observed in the Portuguese border region, though the values are slightly higher than the national average, reaching around 0.02 tonnes of waste per million PPS in 2022. Both the Spanish national and border region values show a slight downward trend, with the national average reaching approximately 0.015 tonnes of waste per million PPS in 2022.

The European average gradually decreases from around 0.018 in 2014 to approximately 0.015 tonnes of waste per million PPS in 2022, closely aligning with the Spanish national average. The cross-border regional average consistently remains above the European average and lies between the higher values of the Portuguese border region and the lower values of the Spanish border region. In 2022, it reaches approximately 0.017 tonnes of waste per million PPS.

2.3.5 Key messages on the green dimension

The Spain-Portugal cross-border region is characterised by a widely distributed network of protected areas, particular dense in the central zones. Large contiguous Natura 2000 and national designated protected areas overlap across the region, many with clear cross-border counterparts that form continuous ecological corridors between Spain and Portugal. The region is among the top 5 border regions in the EU in terms of Natura 2000 sites, and several cross-border protected areas exist, including biosphere reserves and an international park in the Northern and North-Central sub areas. While ecological continuity is well established, there is potential to strengthen cross-border governance and joint management of these areas.

Air quality indicators reveal similarities across the border. PM2.5 concentration measurements (in $\mu g/m^3$) in the Portugues regions show a wider range compared to analysed Spanish regions, but overall are relatively similar. Overall the cross-border average has values in line with the European average. The highest concentrations levels of PM2.5 are recorder in the Metropolitan area of Porto and the province of Sevilla.

Water quality is more problematic in the southern part of the Interreg region, where drought has a strong influence. South-Central and Southern border regions (Extremadura, Alentejo, Algarve, and Andalusia) are already experiencing more frequent heat extremes, reduced precipitation, and declining river flows, which intensify risks of drought, biodiversity loss, and forest fires. Forest fires represent the most significant environmental risk along much of the border. Drought risk is particularly pronounced in the southern regions of Spain. Seismic activity is low throughout the region, as is flood risk, except in the Guadalquivir River delta on the Spanish side. Landslide risk exists in several areas but is mostly away from the immediate border. Coordinated action and cross-border cooperation is essential to mitigate climate change impacts and reduce the costs of adaptation measures. Although Spain and Portugal already maintain formalised cross-border cooperation on wildfire issues and civil protection matters[15], major opportunities remain to extend this cooperation to other risks such as drought management.

The cross-border region relies heavily on hydroelectric power, which accounts for about 75% of power stations, concentrated mainly in the north-western areas. Gas and oil power stations are distributed almost equally between both sides, while the Spanish border regions also include 4 coal-fired power plants and one nuclear power station. Energy infrastructure is extensive, with high- and extra high-voltage transmission lines on both sides connecting all major urban centres. The entire cross-border region offers great potential to generate energy from renewable sources and cross-border cooperation in this field could bring added values.

Environmental resource use shows cross-border disparities. The analysed Spanish regions demonstrate higher resource productivity, close to the European average, while the analysed

[15] Inforegio - Strengthening the Resilience of EU Border Regions

Portuguese regions perform significantly lower. Waste generation per unit of GDP follows a stable downward trend in both countries, but values remain consistently higher in Portugal. These differences highlight that, although environmental challenges are shared, policy responses and systemic efficiencies remain largely determined at the national level.

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

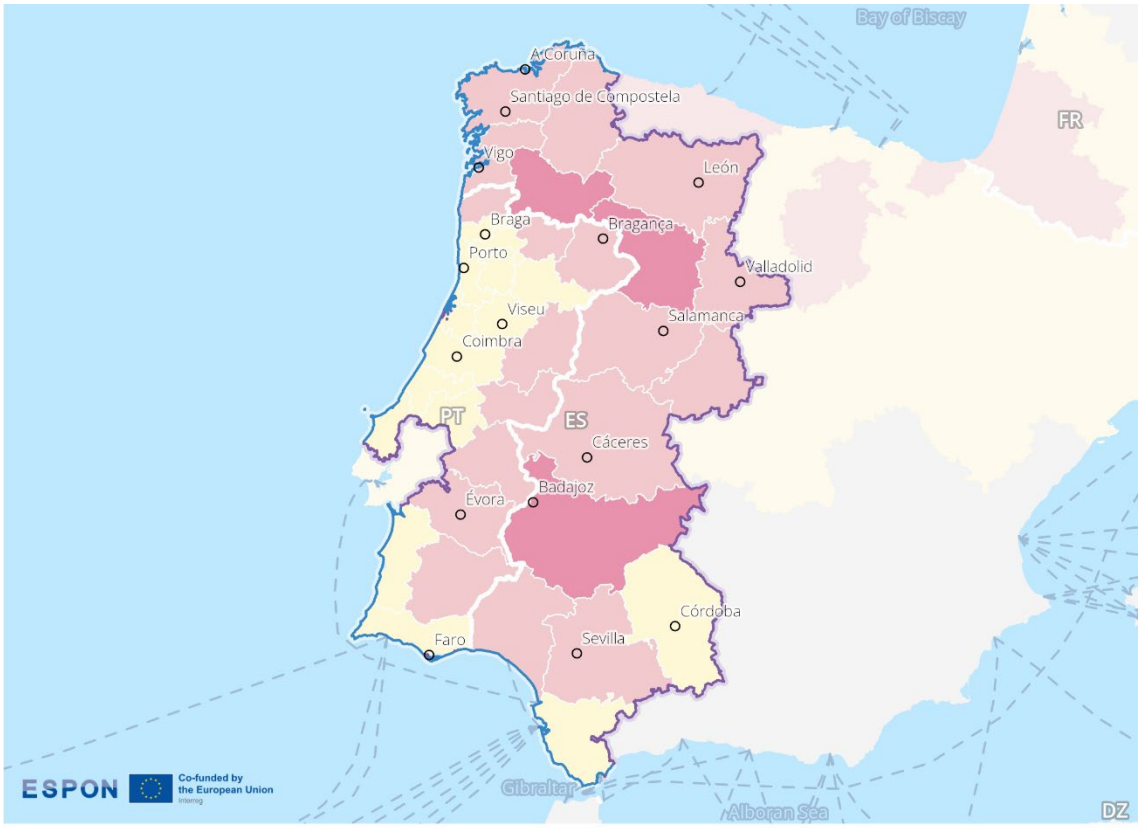
Please refer to the technical annex for more information.

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

The intensity of cross-border connectivity among residents of this border region is highly heterogeneous. In the Portuguese areas located along the border with Spain, cross-border connectivity in social media is low, while in other Portuguese parts of the region, cross-border connectivity is absent, particularly in areas including Braga, Porto, and Coimbra. In most areas of the Spanish part of the programme area (including Sevilla, Salamanca, Valladolid, León, and A Coruña), cross-border connectivity is low. Moderate cross-border connectivity values are observed along the northern border with Portugal (southwest of León) and in the area around Badajoz. In the southern Spanish part of the

programme area (around Córdoba and south of Sevilla), 2 NUTS3 units show no cross-border connectivity.

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.

The border region is characterised by 2 different languages, which, however, are quite closely related and share and some similar linguistic structures. Mutual intelligibility is limited, generally better in written form and furthermore better for Portuguese speakers than for Spanish speakers. A particular feature of the Spain-Portugal Interreg programme area is the Galicia-Norte Region cross-border region, where mutual understanding is stronger due to the close linguistic ties between Galician, a language spoken in the Spanish region of Galicia, and Portuguese.

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.

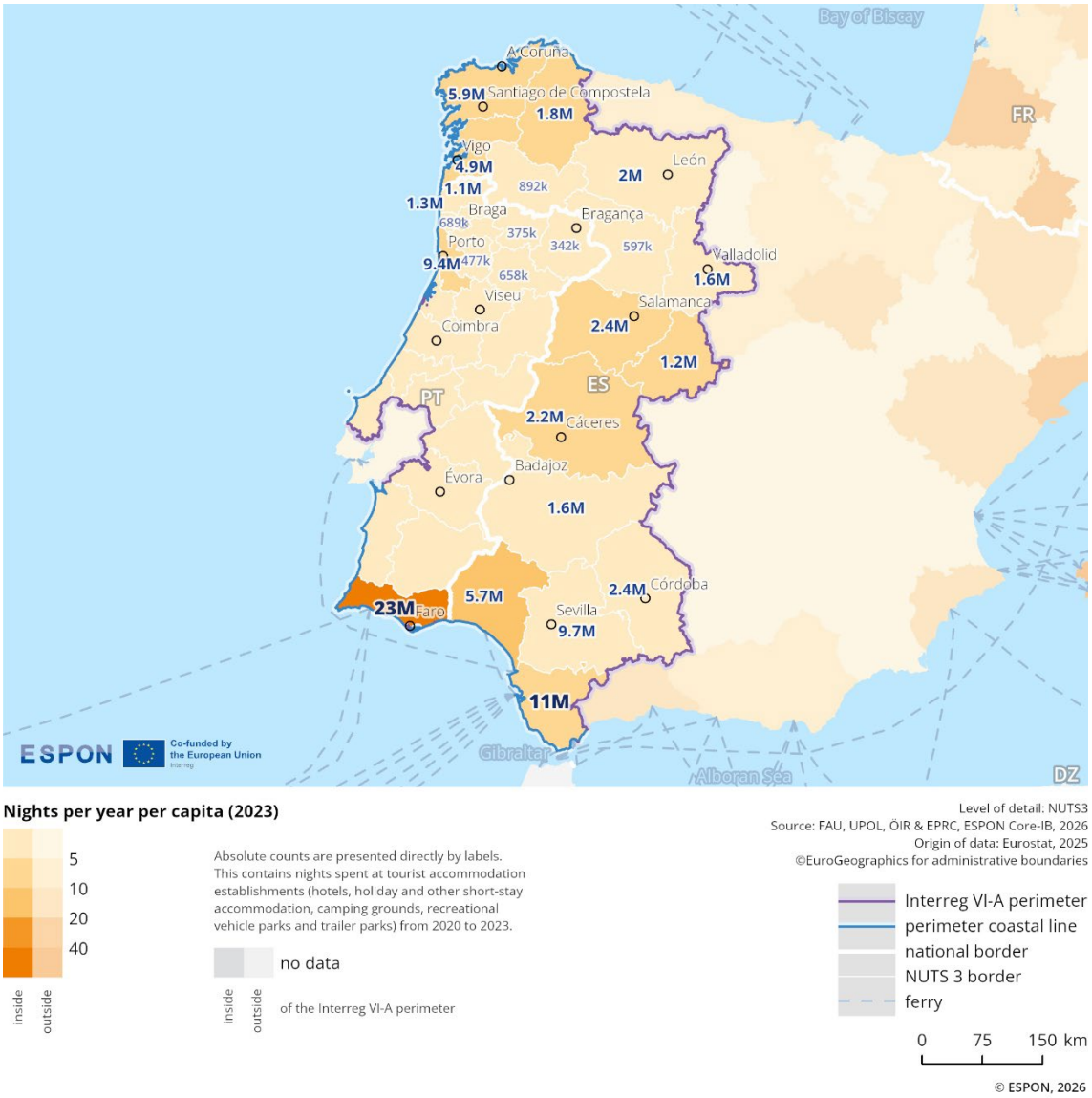
- **Source**: Eurostat
- **Temporal coverage**: 2020-2023
- **Unit**: Nights per capita

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 map 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.

Figure 2.28: Overnight stays in tourism



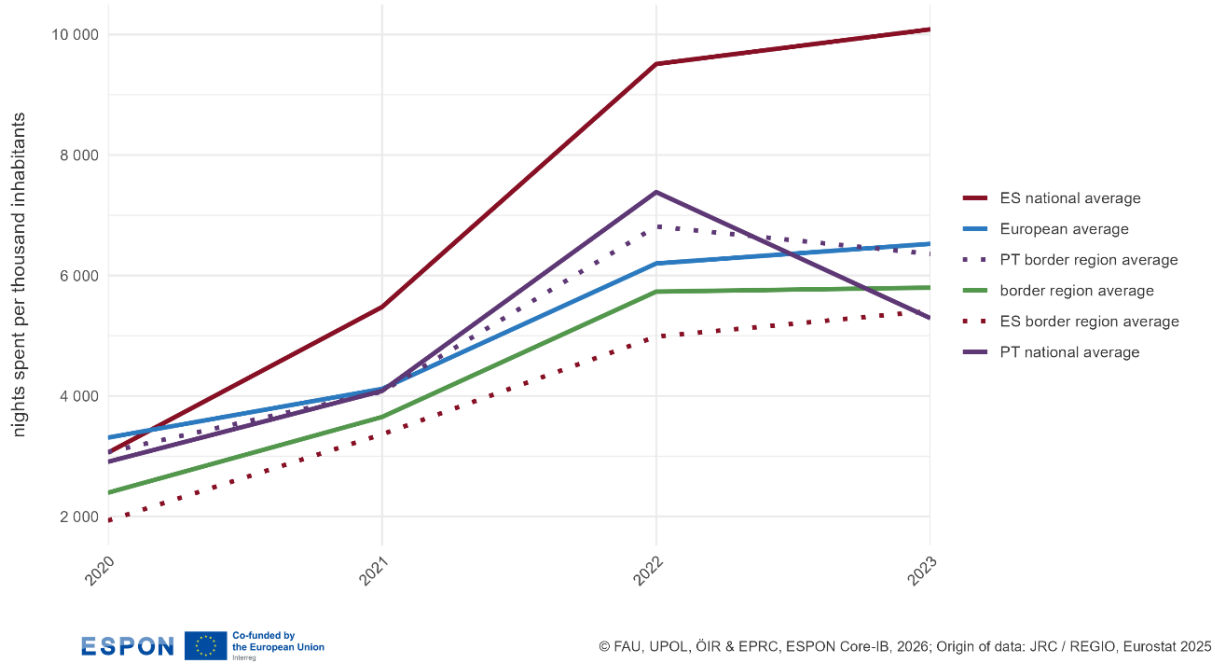
In 2023, Algarve shows more than 40 nights per capita. In the other NUTS3 regions, the per capita figures are somewhat lower with Huelva, A Coruña, Lugo and Pontevedra comprising 10 to 20 nights per capita.[16] In terms of total overnight stays over the 3-year period, the leading tourism regions are Algarve (approx. 23 million), Cádiz (approx. 11 million), Área Metropolitana do Porto (approx. 9.4 million), A Coruña (approx. 5.9 million) and Huelva (approx. 5.7 million). In this border area, there are several popular UNESCO heritage sites located, such as Santiago de Compostela (Old Town) (ES), the Prehistoric Rock Art Sites in the Côa Valley (PT) and Siega Verde (ES) as well as the Doñana National Park (ES).

[16] 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&

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 Spain-Portugal programme area is somewhat lower than the overall European average, which includes EU member states and the EFTA countries Iceland, Liechtenstein, Switzerland and Norway. While the border regional average in Portugal is slightly higher than the national average since 2023, the Spanish border regional average is lower than the national average. Additionally, the regional average for the Portuguese border area is higher than that for the Spanish throughout the given period.

Touristic patterns have a series of implications for spatial development on either side of the border. Transport infrastructure has to consider peak volumes and balancing recreating activities with socio-cultural as well as environmental heritage can be a challenge.

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)

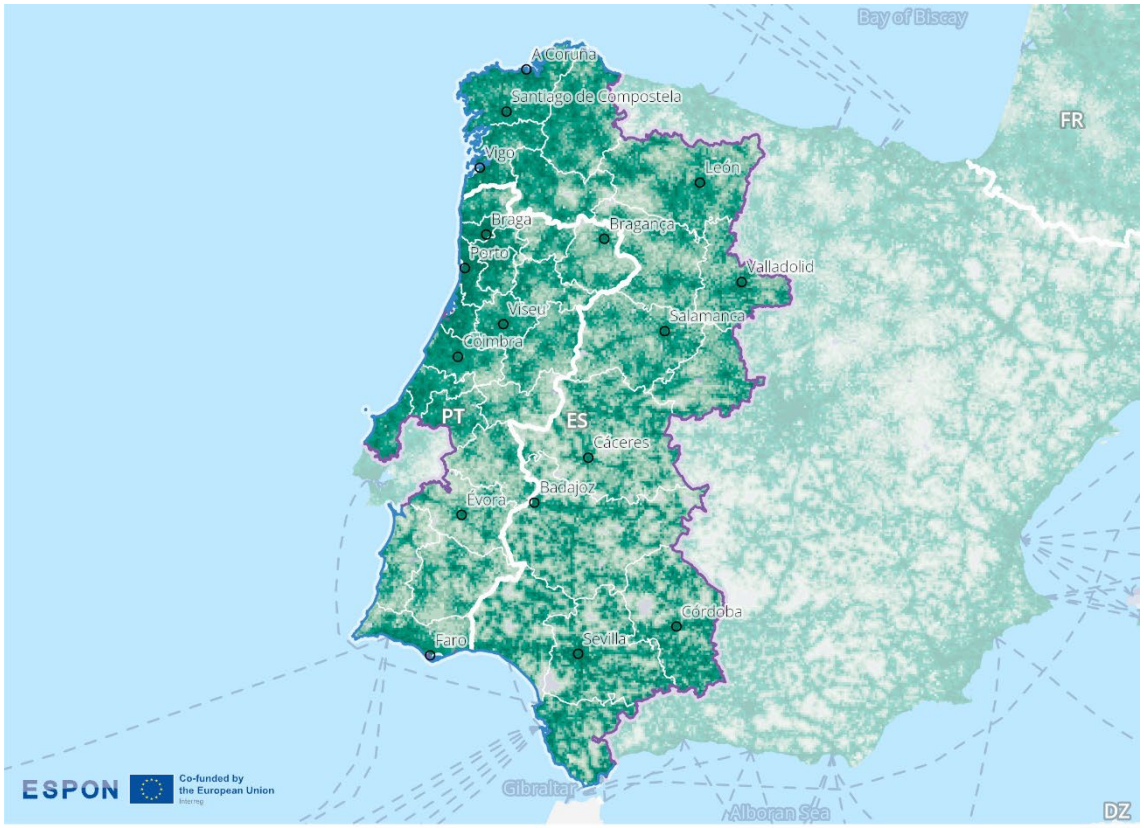
These indicators show how long, on average, it takes to reach the nearest facility by car. The data comes from the ESPON PROFECY Update project (2022) and is visualised based on a 2.5-kilometer grid.

In the Spain–Portugal cross-border area, essential services such as hospitals, doctors, pharmacies, schools, and grocery shops are not evenly distributed across most areas in either country. Travel times are shortest in the Portuguese coastal regions and in the northern Spanish regions for pharmacies, grocery shops, and schools. Doctors are also concentrated in the northwestern Spanish regions. This results in travel times of over one hour, mainly in the southern parts of the analysed Spanish regions.

Near the national border, travel times to grocery shops and doctors appear to be somewhat longer in the southern regions compared to the northern ones.

Hospitals are mainly located in cities and more densely populated areas. This creates an urban–rural gradient, with shorter travel times in and near urban centres and longer travel times in rural or remote regions. The same applies to cinemas as a cultural service.

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

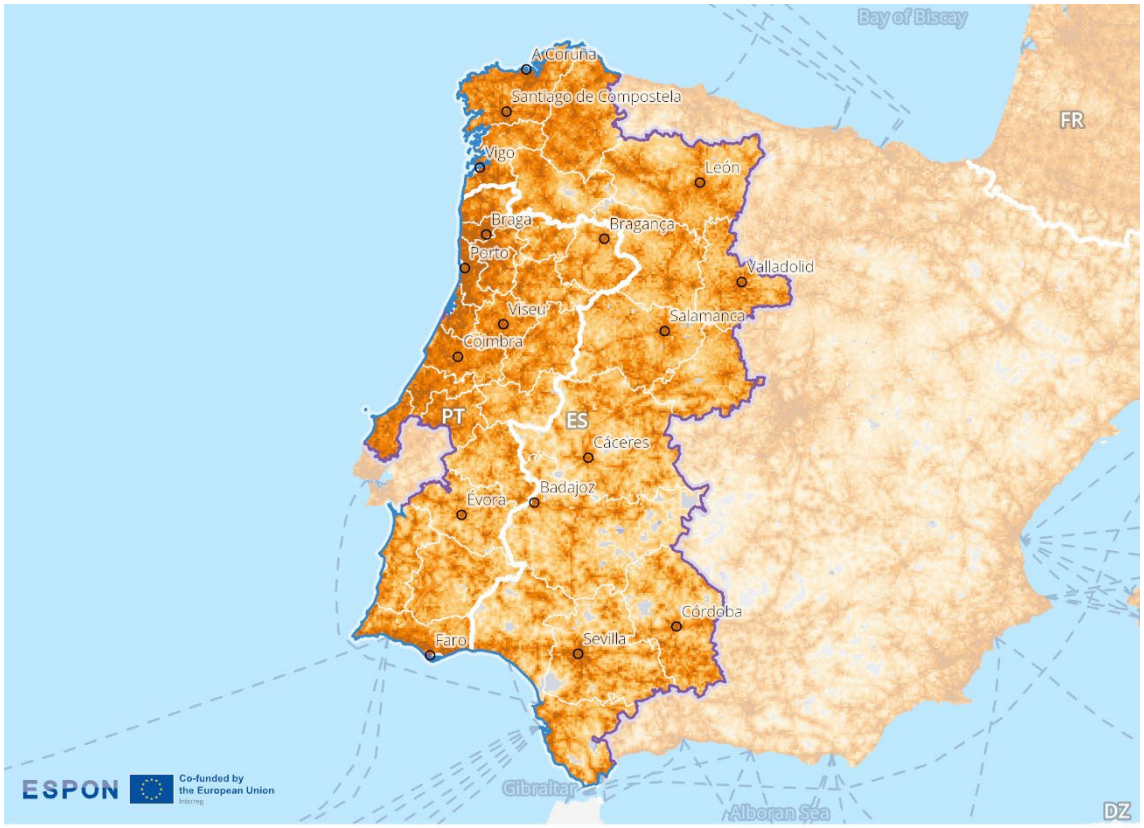
Level of detail: 2.5km grid
Source: FAU, UPOL, ÖIR & EPRC, ESPON Core-IB, 2026
Origin of data: ESPON PROFECY Update, 2022
©EuroGeographics for administrative boundaries

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

0 75 150 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

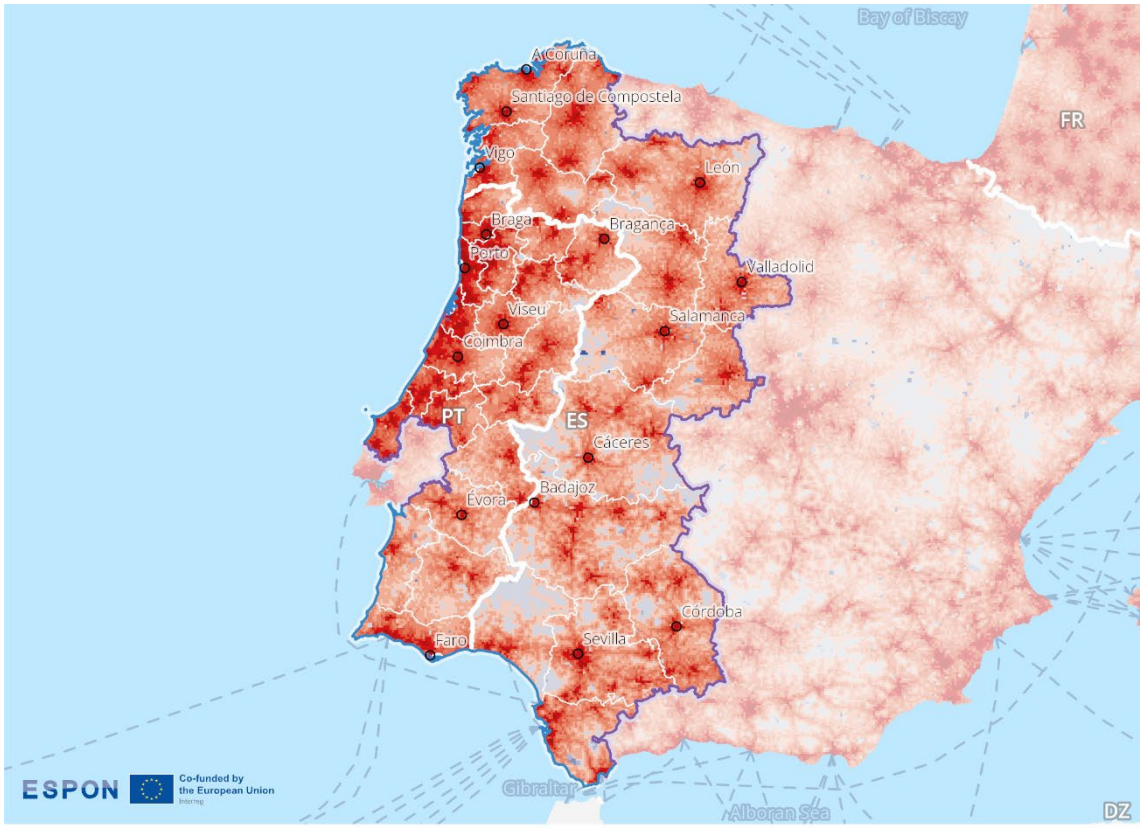
inside outside of the Interreg VI-A perimeter

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 75 150 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

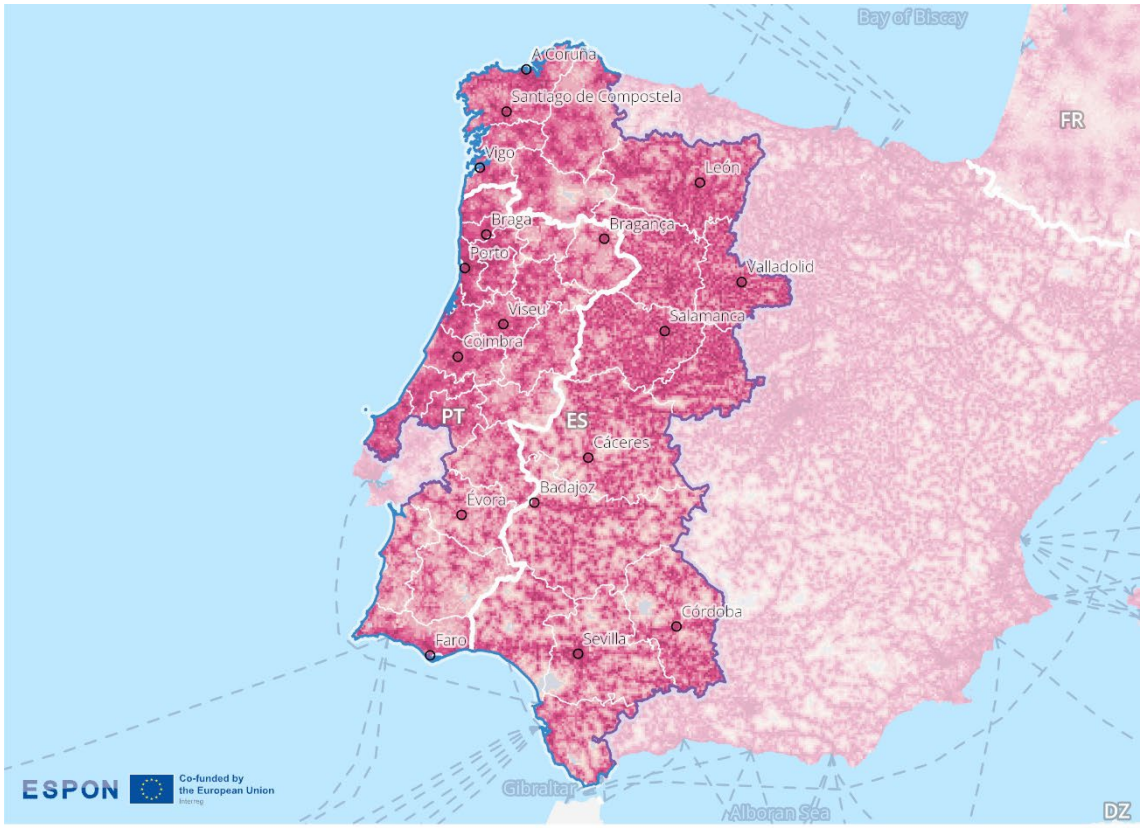
inside outside of the Interreg VI-A perimeter

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 75 150 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

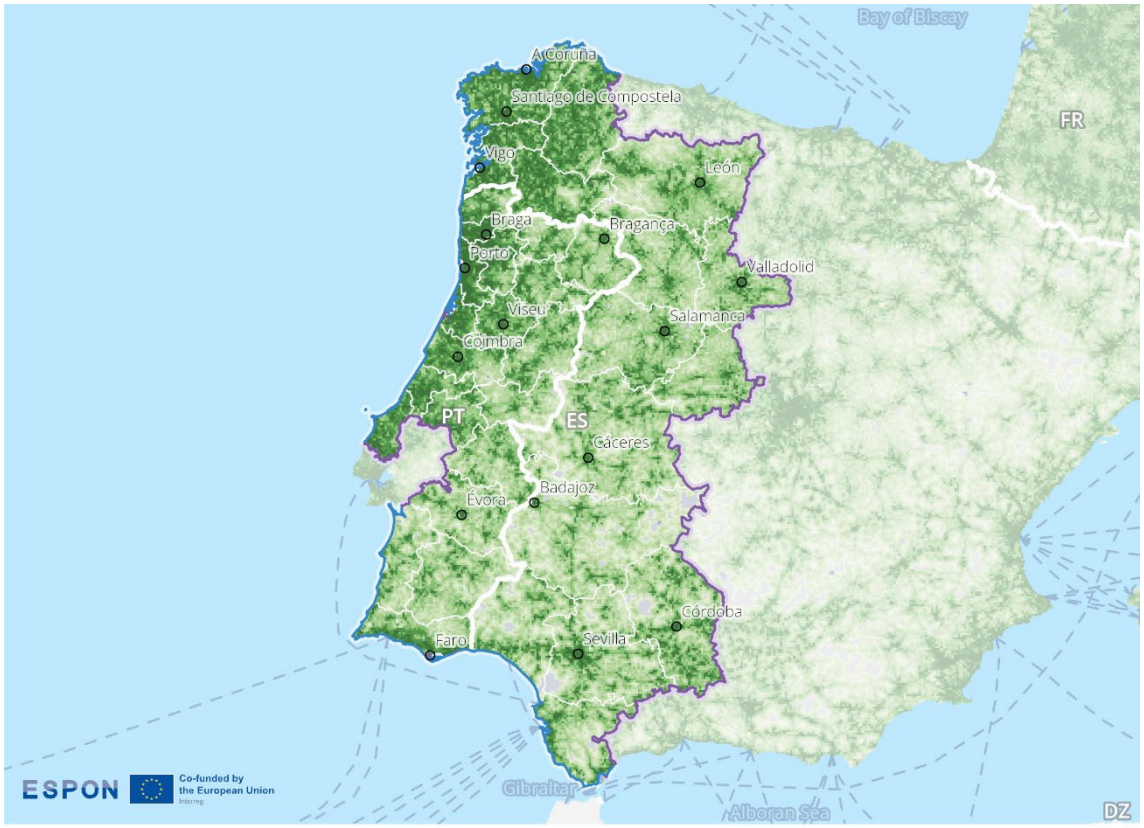
inside outside of the Interreg VI-A perimeter

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 75 150 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

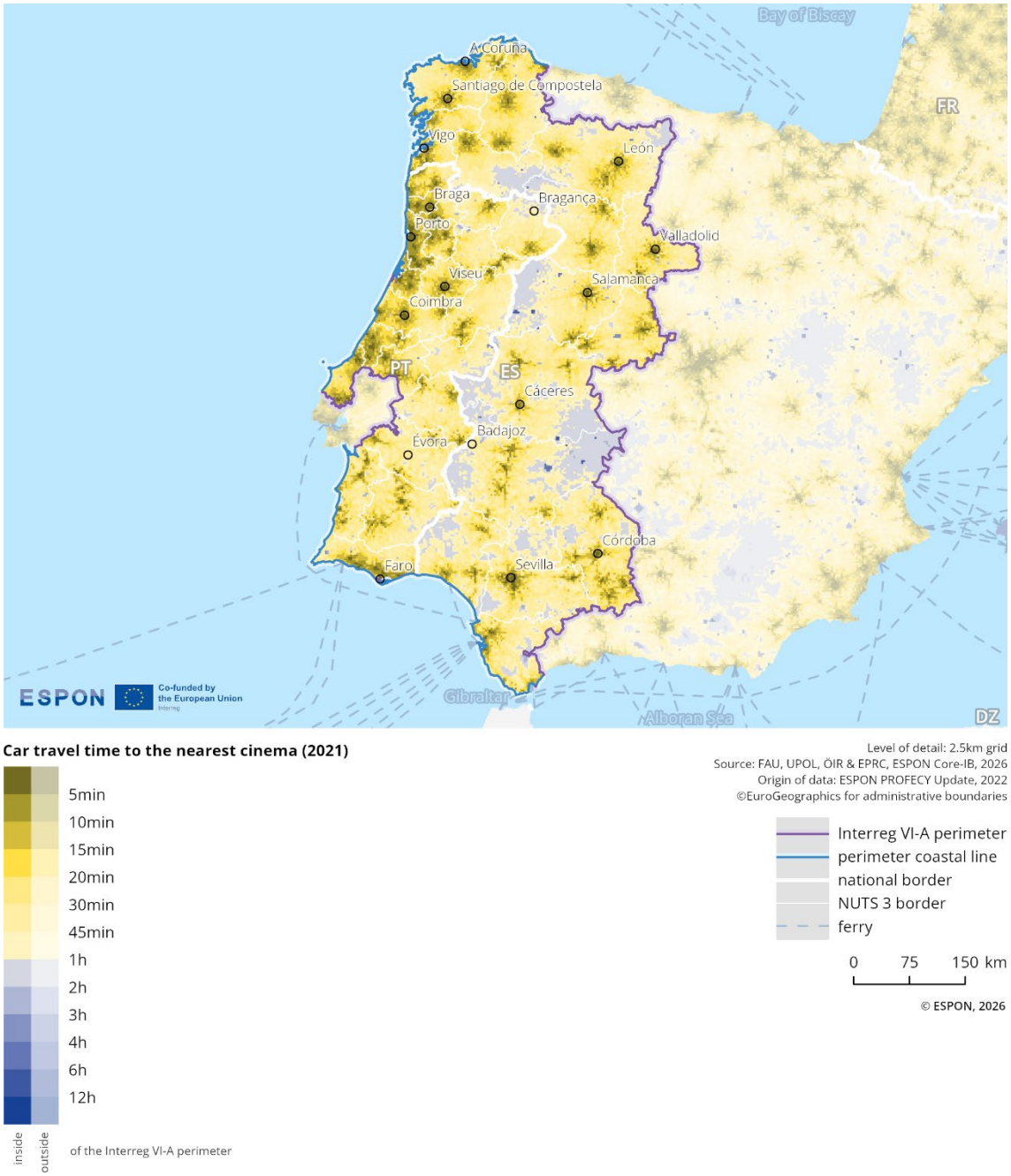
Level of detail: 2.5km grid
Source: FAU, UPOL, ÖIR & EPRC, ESPON Core-IB, 2026
Origin of data: ESPON PROFECY Update, 2022
©EuroGeographics for administrative boundaries

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

0 75 150 km

© ESPON, 2026

Figure 2.35: Travel time to cinemas



2.4.4 Key messages on the socio-economic dimension

The border region shows asymmetries in cross-border connectivity in social media, language, tourism, and access to services. Social integration is geographically heterogeneous: cross-border connectivity is limited on the Portuguese side and observed mainly in areas directly adjacent to the border. On the Spanish side, connectivity is generally low, with notable exceptions in the northern part of the border with Portugal and around Badajoz. Although Spanish and Portuguese are closely related languages, mutual intelligibility remains limited, being higher in written form and generally easier for Portuguese speakers than for Spanish ones. In the Galicia (ES) – Norte Region (PT) area, mutual understanding is greater due to the use of Galician in Galicia, which is very close to Portuguese.

Tourism represents a shared economic potential based on the strong common historical and cultural heritage of the border region, yet it shows distinct regional contrasts. Leading destinations in terms of

overnight stays include Algarve, Cádiz, Área Metropolitana do Porto, A Coruña, and Huelva. These areas reflect different tourism profiles, from summer coastal tourism and surfing areas in Algarve, Cádiz, and Huelva, to cultural heritage destinations such as Porto and A Coruña, the latter hosting the end of the Camino de Santiago. Since 2023, Portuguese border regions record tourism intensity averages (average overnight stays per inhabitants) slightly above the national level, while Spanish border regions remain below their national average, pointing to untapped development potential. The programme area presents potential to further develop tourism as a shared economic asset, diversifying the offer of tourism supply and extending the tourism season, particularly in the internal and rural areas.

Essential services such as hospitals, schools, pharmacies, and shops are unevenly distributed across the border region. Accessibility is best in Portuguese coastal regions and in the analysed northern Spanish regions, where pharmacies, schools, and doctors are concentrated. In contrast, southern Spanish regions record longer travel times, often exceeding one hour for access to basic services. Hospitals are mainly located in urban centres, reinforcing an urban–rural divide with better access in cities and longer travel times in rural or remote areas. The same pattern applies to cultural services such as cinemas. The similarity of the demographic challenges faced by areas along both sides the border (very low population density and ageing population) provides a basis for common action and collaboration in improving access to essential services in the inner and rural areas of the programme area.

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.

Figure 2.36 illustrates the number of days during which temporary border controls were reintroduced at internal borders within the Schengen Area. Each bubble represents a specific year with bubble sizes indicating the number of days the respective border was under control. The categories of reasons for reintroducing controls include:

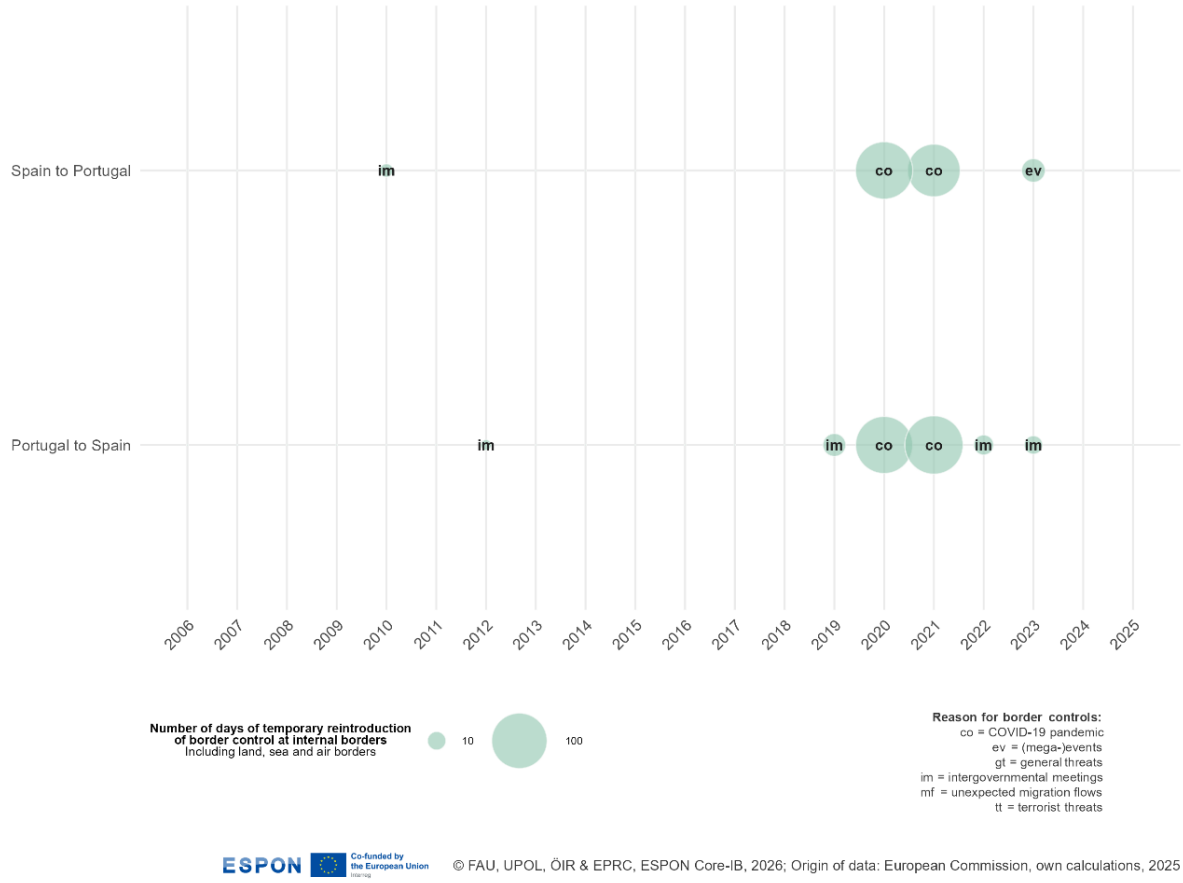
- co – COVID-19 pandemic
- ev – (Mega-)events
- gt – General threats

- im – Intergovernmental meetings
- mf – Unexpected migration flows
- tt – Terrorist threats

The data spans from 2006 to 2025 (cut-off: 08 May 2025) and is based on notifications from the European Commission information pursuant to Article 25 and 28 et seq. of the Schengen Borders Code. In line with Schengen rules, the reintroduction of controls is to be used only as a last resort, for exceptional circumstances, and with strict adherence to the principle of proportionality—both in duration and scope.

Both, Spain and Portugal had already been part of the Schengen Area by 2006.

Figure 2.36: Temporary reintroduction of border controls



The Spain-Portugal border area is characterised by a similar pattern:

- Crossing the border from Spain to Portugal: Temporary border control occurred in 4 out of 20 years, mainly driven by COVID-19 (2020-2021). In addition, the border has been controlled on 2 occasions: once for a NATO summit in 2010 and again for World Youth Day in 2023.
- Crossing the border from Portugal to Spain: Temporary border controls occurred in 6 out of 20 years, primarily because of COVID-19 (2020-2021) and intergovernmental meetings like the UN conference on climate change or NATO summits (2019, 2022).

In general, these 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.

From a comparative perspective, both countries have had controls in place for some time, but neither has controlled the border much more than the other.

2.5.2 Key messages on the border security dimension

The analysis of temporary reintroductions of border controls highlights a similar pattern for the Spain–Portugal border region. Between 2006 and 2025, controls were reintroduced primarily during the COVID-19 pandemic (2020-2021), with a few additional instances linked to major intergovernmental events such as NATO summits. These measures had tangible consequences for cross-border life. In particular, the closure of many road crossings and the imposition of daily checks created long queues, significantly hampering cross-border commuting and disrupting labour mobility. Cross-border workers were disproportionately affected, especially in sectors such as accommodation and food services, which already faced high job losses during the pandemic. Administrative barriers further complicated access to unemployment services, as procedures for cross-border workers are more complex than for those employed in their country of residence.

The situation also accelerated the spread of teleworking across the border region, although this raised regulatory gaps, particularly regarding taxation and social security coordination. Beyond the direct labour market impacts, temporary border closures generated measurable economic losses, as local economies in cross-border areas are heavily dependent on daily flows of workers, visitors, and goods.

These experiences underline how quickly cross-border interaction can be disrupted by unilateral national measures. Although the Spain–Portugal border region benefits from a high degree of socio-economic integration, resilience remains limited. Ensuring the long-term functionality of cross-border cooperation, especially in times of crisis, requires stronger bilateral coordination and more balanced governance mechanisms.

2.6 Governance dimension

The Spain-Portugal border is the oldest and longest in the EU. It has a rich history of cross-border cooperation. This cross-border region has participated in 5 generations of Interreg programmes. Although the border between Spain and Portugal is mainly a land border, POCTEP also takes part in the implementation of the EU Strategy for the Atlantic. At national level, the Treaty of Valencia between the Kingdom of Spain and the Portuguese Republic, signed in 2002 is the framework in which the actions of cross-border cooperation between both countries take place. Several regions have cross-border entities which can be established under EU law (e.g. European Groupings of Territorial Cooperation – EGTC), national law (e.g. private law associations or public law bodies) or international law (e.g. under bilateral agreements). One example of this are the Euroregions under national law. This border comprises many examples of cross-border cooperation, including: the Galicia (ES) – Norte region (PT) Euroregion, created in 2008; EUROACE Euroegion founded in 2009 by the 3 regions of Alentejo (PT), Centro (PT) and Extremadura (ES); the eurocity Chaves (PT) – Verin (ES), established in 2013; Duero Douro EGTC, established in 2009; Rio Minho EGTC, founded in 2018, among others. The border has 10 risk and crisis management agreements in place.

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

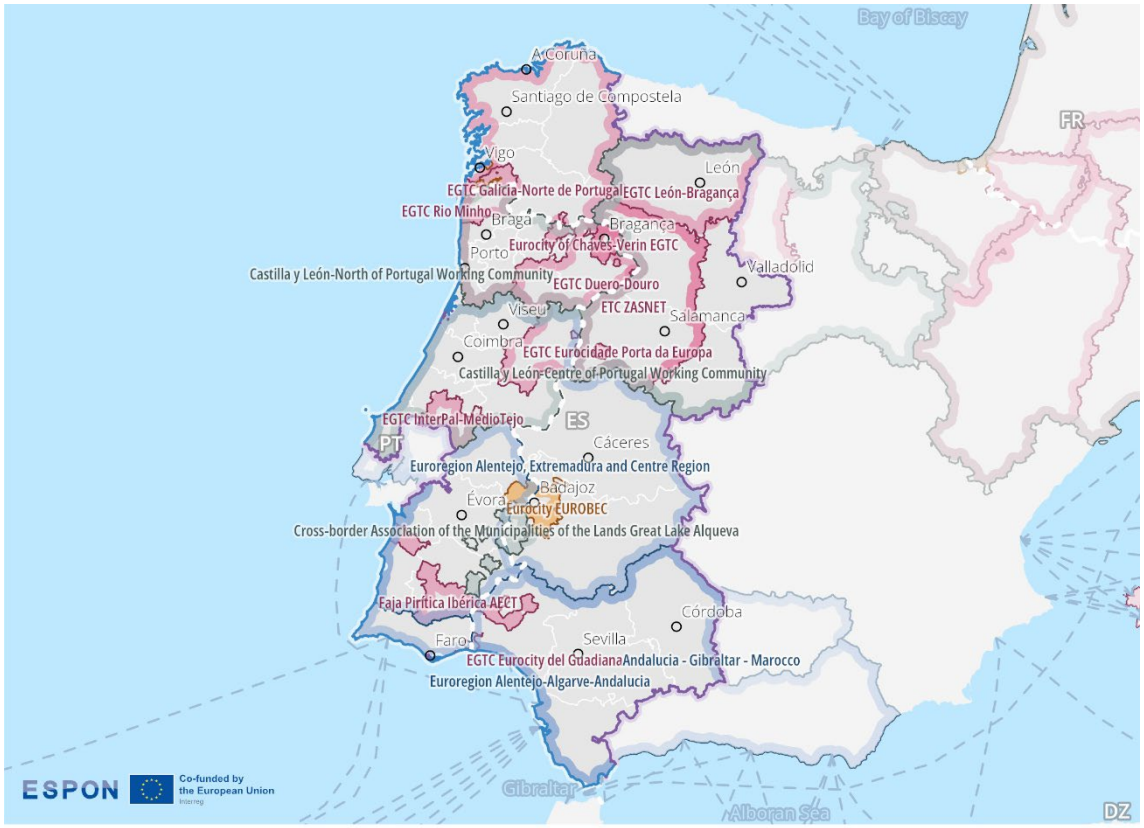
Please refer to the technical annex for more information.

Figure 2.37 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 institutionalisation: EGTCs are shown in red, Eurocities in yellow, Euroregions/Euregios/Europaregions/Eurodistricts in blue, and other formats in grey.

The multi-level governance structure in this programme area shows broad spatial coverage along the borders. Overall, the region exhibits a high level of institutionalised cooperation along the national border. EGTCs and Euroregional formats are the most prevalent ones and several eurocities are present.

Figure 2.37: Cross-border governance structures



Format of cooperation

- EGTC
- Eurocity
- Euroregion / Euregio / Europaregion / Eurodistrict
- other

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 75 150 km

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

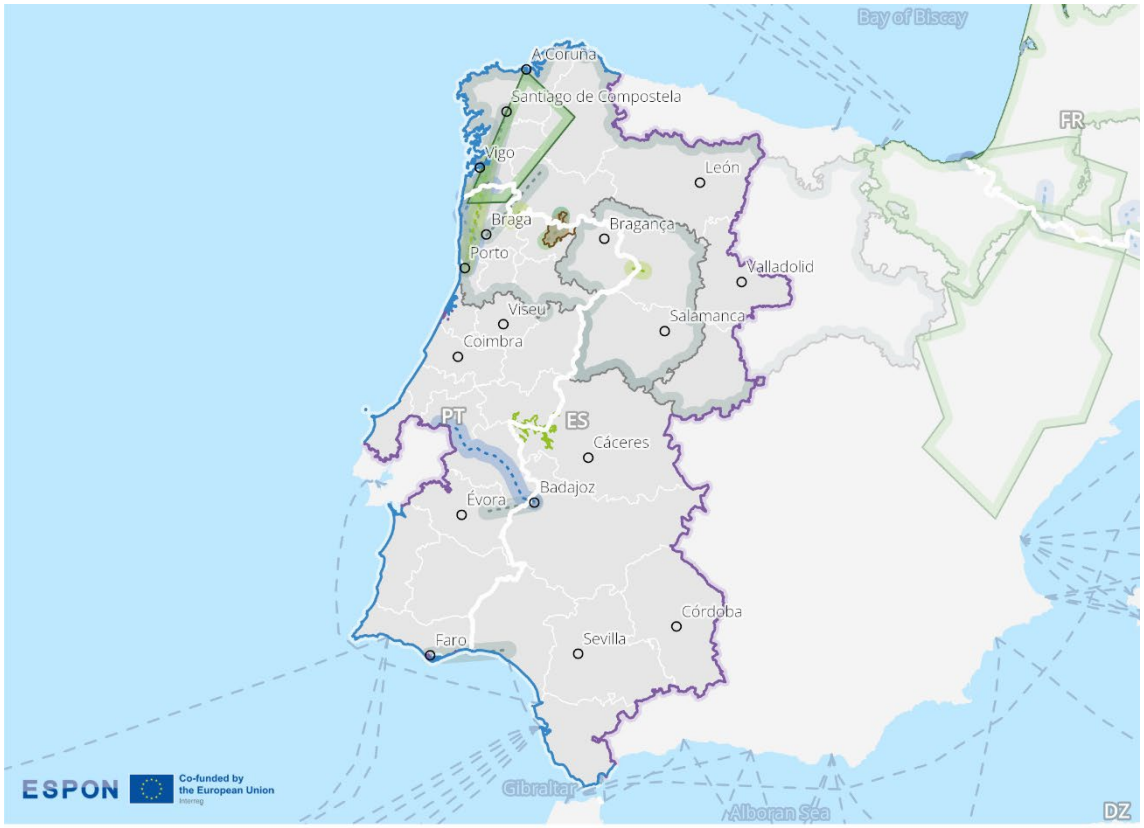
Please refer to the technical annex for more information.

Figure 2.38 depicts the geographical extent of cross-border public services in the programme area in 2022. Different thematic areas are represented by distinct symbols and colours, indicating services such as disaster management[17], health care, transportation, education, environment, energy, job placement, and culture. The visualisation highlights where these services operate across the national boundary.

Cross-border public services along the Portugal–Spain border are sparse and dispersed, with limited thematic variety. Most visible are isolated tourism & information services and environment & water services in the north near Braga and Porto, complemented by small-scale culture initiatives. A limited presence of environment & water services and 'other' services are confined to the central border near Salamanca. A short transport-related link, environment & water services and 'other' services appear in the Badajoz area. The southern and central sections of the border lack broader service integration, showing only 'other' services in the Algarve or Andalusian regions. Overall, the cross-border cooperation is fragmented and mainly project-based, without continuous coverage.

[17] For more information on cross-border disaster and risk management between Spain and Portugal see: European Commission: Directorate-General for Regional and Urban Policy, Technopolis Group, CMCC, Nordregio, *Strengthening the Resilience of EU Border Regions – Mapping Risks & Crisis Management Tools and Identifying Gaps*, 2024, https://data.europa.eu/doi/10.2776/832103

Figure 2.38: 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 75 150 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 Spain–Portugal, 23 b-solutions pilot actions were identified. These included initiatives aimed at boosting Minho River cross-border mobility, creating regular passenger transport services with cabotage between Chaves and Verín, simplifying cross-border mobility for minors engaged in cultural or educational exchanges, addressing administrative barriers in environmental management systems, consolidating the circular economy concerning Waste Electrical and Electronic Equipment (WEEE), and enhancing employability in the health and social sector. Applications for these pilots were mainly submitted by public bodies and European Groupings of Territorial Cooperation (EGTCs).

In this border area, in the field of transport and mobility, issues relate to sustainable transport, bus and rail services, and the urban mobility network as well as the regulatory framework for cabotage. Governance and institutional cooperation focuses on establishing cross-border agreements that facilitate transport services and improve coordination between the involved transport authorities. Challenges in the transport sector include regulatory compliance and the need for enhanced connectivity across borders.

In addition, the education sector faces challenges related to youth mobility and the recognition of skills for students and professionals. There are administrative hurdles that limit the ease of educational exchanges and internships, particularly for vulnerable groups.

The solutions proposed in the pilot actions are predominantly hybrid or legal in nature. For instance, the MOBITRANS initiative aims to establish a legal framework through a cross-border cooperation agreement between the transport authorities of Spain and Portugal to allow for cabotage and enhance sustainable transport options. The project for launching regular passenger transport between Chaves and Verín seeks to create a hybrid model that combines legal agreements to define technical arrangements with administrative steps for transport authorities to secure necessary approvals as mandated by Regulation 1073/2009.

In the education sector, the initiative aimed at simplifying cross-border mobility of minors focuses on both legal and administrative strategies. This involves drafting a joint declaration to modify current

national standards, allowing for explicit legislative exceptions, along with operational measures to create a cost-free cross-border pilot authorisation model that facilitates student exchanges.

The initiative targeting administrative barriers in environmental management systems proposes a legal revision to current legislation in Spain and Portugal, ensuring compliance with operational standards that promote the reuse of wastewater. The consolidation of the circular economy concerning WEEE emphasises operational training provided by bilingual legal support centres to assist entities in navigating legal procurement requirements and implementing best practices through Interreg funding.

In terms of social security coordination, the initiative to address 'double personality' enables workers to have a clear understanding of their tax obligations and legal recognition in both countries. This involves clarifying and standardising procedures for obtaining the Foreigner Identification Number (NIE) and changing Portuguese Social Security legislation to accommodate EGTCs.

Finally, improving healthcare for cross-border commuters includes establishing additional protocols and cooperation agreements that enhance access to social security coordination and healthcare services for these professionals.

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.

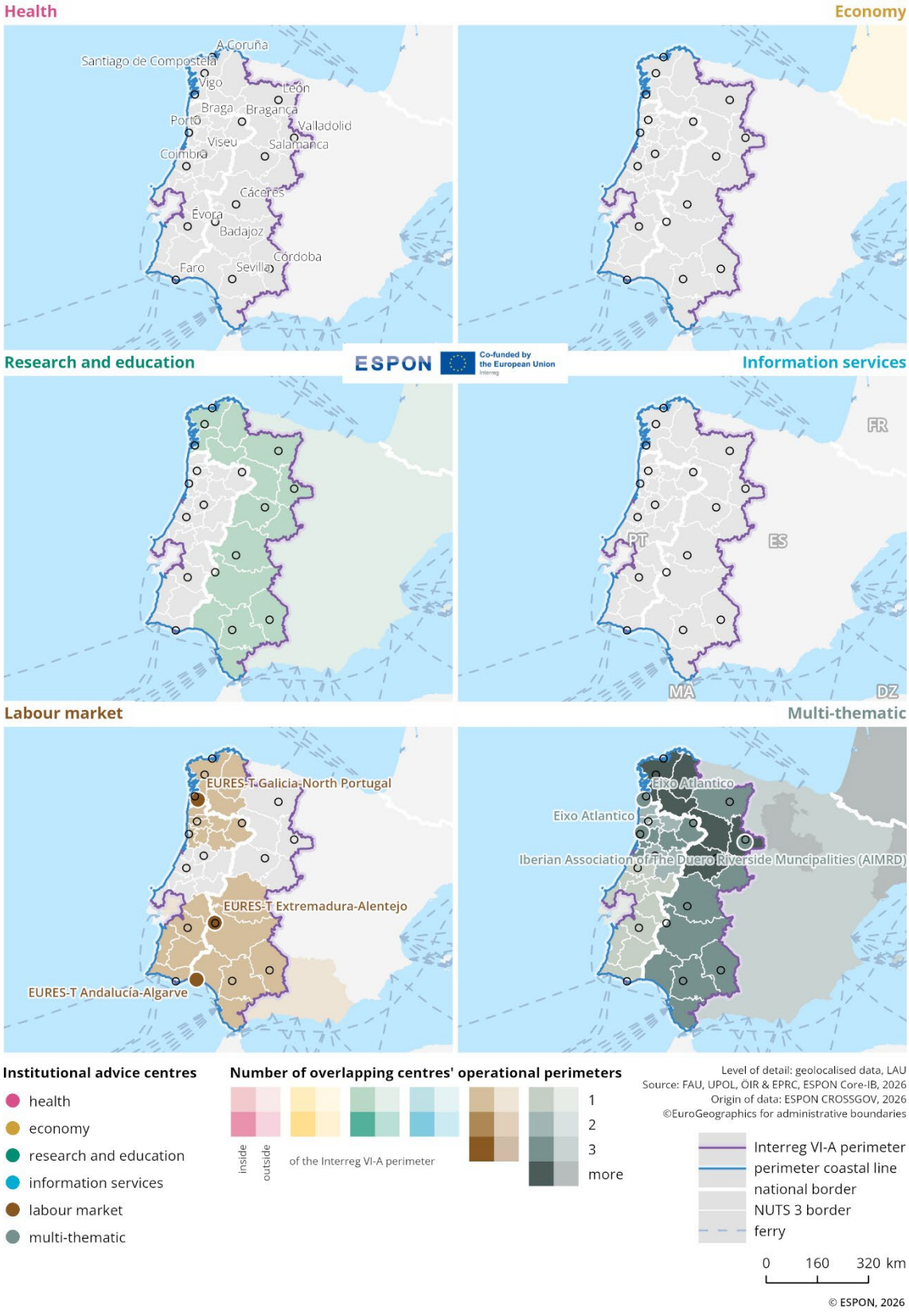
The map shown in Figure 2.39 visualises the locations and types of institutionalised advice centres, along with their operational domains, in the cross-border Interreg region between Spain and Portugal (POCTEP). These centres throughout Europe provide support in various fields such as health, economy, 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.

Inside the Interreg region, there are 3 labour market-oriented institutionalised advice centres, 2 of them located in the south along the national border between Spain and Portugal: EURES-T Andalucía-Algarve in the far south at the coast, and EURES-T Extremadura-Alentejo further north, near the city of Badajoz. Another one is located in the very north at the coastal border between Spain and Portugal: EURES-T Galicia-North Portugal.

Additionally, there are 2 multi-thematic institutionalised advice centres: Eixo Atlántico, located in the Portuguese city of Porto, and the Iberian Association of the Duero Riverside Municipalities (AIMRD), located in the Spanish city of Valladolid.

Centres with multi-thematic operational domains are present in both Portugal and Spain within the Interreg area, though with regional differences: they are more pronounced in the northern Spanish part of the cross-border region. In both the south and north of these countries, there are labour market-related operational domains. Research and education operational domains are only present in the Spanish part of the Interreg region.

Figure 2.39: 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 2.40), overlapping Interreg programmes and the key aspects drawn from the programme.

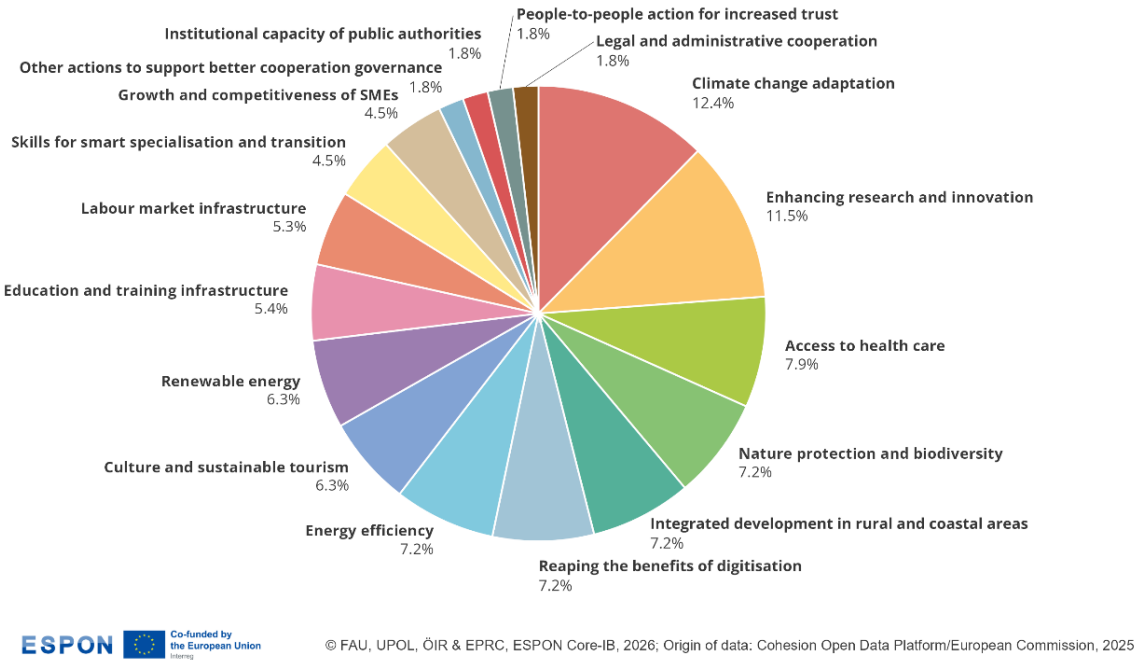
Table 2: Interreg VI (2021-2027): Opportunities and challenges

Topic	Key development opportunities and challenges identified for Interreg 2021-27
Economic structure	▪ The cross-border cooperation area has progressively improved its capacity to generate knowledge and innovation, but it remains far from the EU average, and there are significant internal differences that pose a barrier to balanced growth; ▪ Key sectors, such as tourism and cultural activity, which generate a significant portion of GVA and employment in the cross-border area, have been seriously affected by the crisis resulting from the pandemic, forcing them to accelerate their transformation process toward a more sustainable and innovative model; ▪ Internal territorial differences, as the most advantaged areas maintain their positive growth dynamics, while the least well-positioned continue to fall behind the average.
Population	▪ The lack of economic opportunities and remoteness of the urban centres push young people to leave the small communities. The result is that internal rural areas and smaller urban areas are losing population; ▪ Increase the region's attractiveness and address the aging and depopulation phenomena occurring in the cross-border cooperation area.
Access to services	▪ Value in cooperation on access to basic services.
Research and Innovation	▪ Infrastructure available for the generation and transfer of knowledge; ▪ Specialisation in technology transfer related to the agricultural, bioscience, and natural resources sectors; ▪ Level of public-private collaboration in the generation and dissemination of knowledge and innovation.

Topic	Key development opportunities and challenges identified for Interreg 2021-27
Environment	▪ Improving energy efficiency; ▪ Droughts, floods, and forest fire risks: the case of fires is particularly significant, as the risk in the area on both sides of the border is considered extreme; ▪ The use of water is a very important element in bilateral relations between Spain and Portugal; ▪ High ecological value and significant biological diversity, both in habitats and in animal and plant species, with numerous natural areas enjoying some form of protection.

Total Budget: EUR 475,573,979.08

Figure 2.40: 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.[18] The 4 Interreg

[18] 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.

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)
/	4

Key aspects

- The programme supports sustainable development across areas such as innovation, energy efficiency, biodiversity, employment, education, healthcare, tourism, and culture.
- With a focus on the green transition and biodiversity, it promotes cooperation in disaster prevention, renewable energy, and cultural heritage preservation.
- Some territories in the programme area are also covered by the 2021-27 Interreg B Atlantic Area, South West Europe, Euro MED and 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.[19] 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

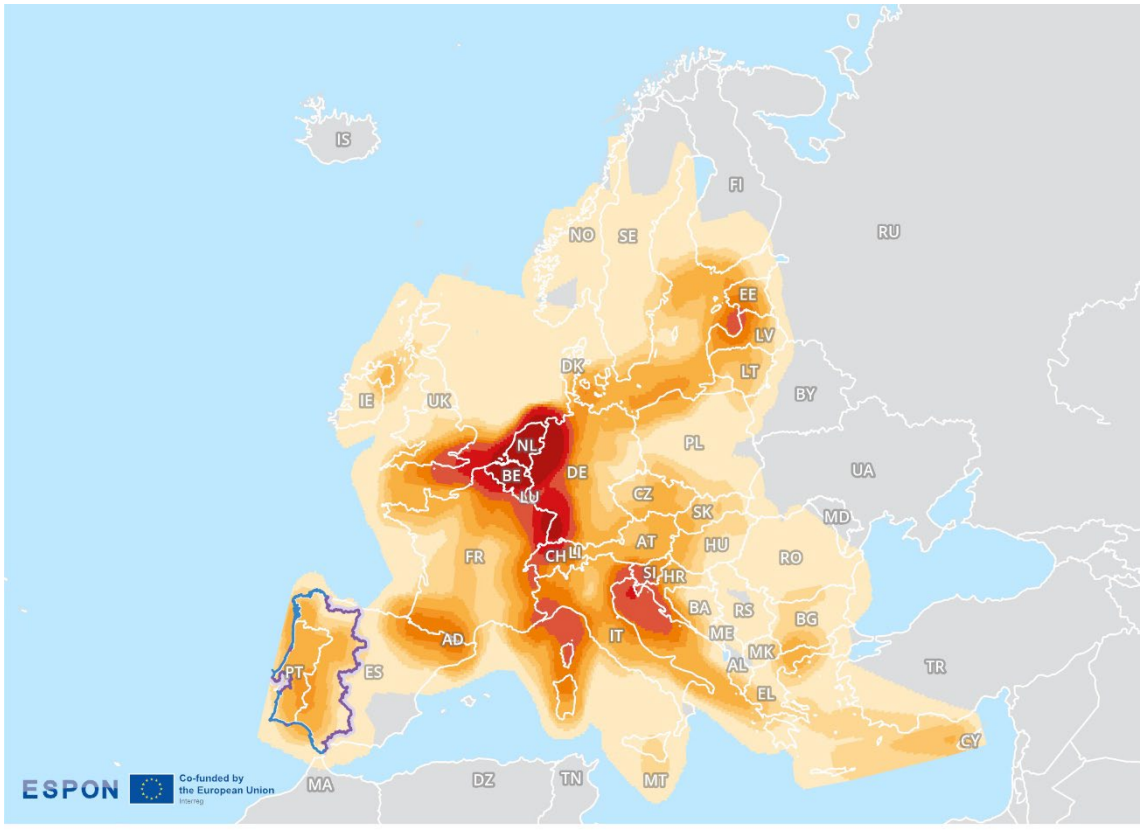
Please refer to the technical annex for more information.

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.

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

Figure 2.41 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, cooperation density in the Spain-Portugal programme area appears quite evenly spread. No specific border segments within the programme area show significantly higher or lower partner network levels than others. Overall, the partner network density in this border area is close to the European average. Based on the keep.eu database and excluding duplicates, the number of project partners decreased from 699 in Interreg IV-A (2007–2013) to 567 in Interreg V-A (2014–2020), a decrease of about 19%. 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.

Figure 2.41: Interreg V-A partner network density



2.6.3 Key messages on the governance dimension

The Spain-Portugal cross-border region shows a high degree of institutionalised cross-border cooperation, with EGTCs and Euroregional formats being the most prevalent. The area also stands out for its several Eurocities, e.g. Chaves-Verín, Badajoz-Elvas-Campomayor and Guadiana, which illustrate the consolidation of functional cross-border urban areas. Cross-border public services remain sparse and dispersed, with fragmented provision. Tourism and information services, as well as environment and water services, are concentrated in the north near Braga and Porto, complemented by small-scale cultural initiatives. In the area of Badajoz a transport link is also present.

Obstacles identified through the b-solutions initiative in the Spain–Portugal cross-border region concern transport, education, environmental management, and social security coordination. In the field of transport, challenges relate to sustainable mobility, regulatory compliance for cabotage, and the need for better connectivity between bus and rail networks, pointing to the importance of bilateral agreements and improved coordination between authorities. In education, administrative barriers limit student exchanges and youth mobility, particularly for vulnerable groups, while the recognition of skills remains fragmented. Environmental cooperation is hampered by differing national standards, particularly in wastewater reuse and circular economy practices, and social security issues complicate the situation of cross-border workers due to complex procedures and gaps in tax interoperability.

The proposed solutions in the pilot actions are predominantly legal or hybrid, combining legislative adjustments with operational measures. Initiatives such as MOBITRANS seek to establish cross-border agreements for sustainable transport, while education projects introduce joint declarations and pilot authorisations to facilitate exchanges. In the environmental field, legal revisions and bilingual support structures aim to harmonise procedures, while in the social and health sectors, protocols and agreements enhance employability and healthcare access for cross-border workers. EGTCs and targeted Interreg funding play a crucial role in driving these solutions forward.

Interreg activities in the Spain–Portugal cross-border region cover a broad range of themes, including research and innovation, access to healthcare, and energy efficiency. The partner network density is evenly spread across the territory, with cooperation density close to the European average, although, based on the keep.eu database and excluding duplicates, between Interreg IV-A and Interreg V-A, the number of project partners declined by around 19%.

Institutionalised advice centres for cross-border issues remain limited. 3 EUREST-T centres operate in the region, complemented by 2 multi-thematic advice centres located in Valladolid. Centres with multi-thematic operational domains exist on both sides of the border, though with regional differences: they are more prominent in northern Spain. Labour market-related advice centres are present in both northern and southern parts of the programme area, while research and education-related centres are found only on the Spanish side.

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 border region is predominantly rural, with diverse landscapes; population density is generally low, though higher on the Portuguese side, especially along the coast and around Porto; • Demographic trends diverge: the Spanish border area records population decline compared to the national average, while the Portuguese side shows modest but below-average growth; settlement expansion is strongest along the Portuguese coast, Sevilla, and Badajoz; • Estimated cross-border mobility intensity is uneven, with the highest intensity near Porto, Braga, Badajoz, Sevilla, and the southern coastline; mobility close to the border is moderate and declines further inland in Spain; • Services are concentrated in urban areas far from the border, with Badajoz and Braga as notable exceptions; • Considreable potential for cross-border infrastructure development. Althought road accessibility is generally good, connectivity gaps remain in inner peripheral areas. Poor connectivity via public transport options, including only 3 cross border operating rail lines.

Territorial dimension	
Policy options	**Population and settlement related aspects** • Persistent depopulation and ageing trends, particularly in the Spanish part of the cross-border region, may be addressed through targeted cross-border cooperation and coordinated spatial and service-planning approaches; • Stronger population concentration along the Portuguese coast offers opportunities to stimulate development in sparsely populated inland border territories, supported by cross-border exchange and strategic planning; • Cross-border spatial planning could contribute to preventing further polarisation between dynamic and declining areas, as settlement growth continues to concentrate along coastal zones and major cities. **Accessibility related aspects** • Functional connectivity could be improved through cross-border transport cooperation in a context where road accessibility is generally good but travel times increase rapidly away from the border; • East–west connectivity in inner peripheral areas, particularly in Extremadura, Castilla y León and Algarve, may be strengthened through targeted cross-border investments addressing persistent infrastructure gaps; • Existing cross-border rail connections (e.g. Elvas–Badajoz and Viana do Castelo–Vigo) could be further developed into strategic corridors supporting sustainable mobility and territorial cohesion. **Cross-cutting aspects** • The integration of demographic decline, low population density and accessibility constraints into coherent cross-border territorial development pathways would support more balanced territorial outcomes; • Stronger coordination across the border on spatial planning, housing policy and risk management could contribute to more balanced territorial development.

Economic dimension	
Key analytical findings	• The cross-border region records GDP per capita levels below national and EU averages; Spain's border regions have higher absolute values, while Portugal has shown faster growth; • Employment rates are stronger on the Spanish side, while in Portugal values are generally lower with higher levels only in the northeast, around Porto and Braga, and in the south; • Key sectors include trade, transport, accommodation and food services, education, and health; salaries are higher in Spain, generally encouraging commuting from Portugal; a hotspot for outgoing cross-border commuters in the Spanish side is represented by the region of Huelva; • Housing markets show low prices inland and higher values in urban, coastal, and southern areas, with no significant price differences directly along the border.
Policy options	**Competitiveness and labour market related aspects** • Economic complementarities between the Spanish and Portuguese border regions could be leveraged through cross-border cooperation to strengthen productivity across the programme area; • Pronounced digital divides between urban centres and rural or mountainous areas may be addressed through coordinated cross-border digital strategies; • Digital asymmetries and transport bottlenecks could be mitigated through the development of cross-border telework hubs and shared innovation infrastructure. **Cross-cutting aspect** • Integrated planning responses to differing housing costs and uneven digital networks could enhance the attractiveness of the cross-border area for both businesses and residents.

Green dimension	
Key analytical findings	• Protected areas are widespread and particularly dense in the central border region, with contiguous Natura 2000 sites forming cross-border ecological corridors. There is potential to strengthen cross-border governance and joint management of these areas; • Air quality is broadly similar on both sides, PM2.5 levels are highest in the metropolitan areas of Porto and Sevilla; • Water quality is weakest in the south, where drought, reduced river flows, and heat extremes intensify risks of biodiversity loss and forest fires; flood and seismic risks are generally low, with exceptions such as the Guadalquivir delta. Existing formalised cross-border cooperation on wildfire issues, potential to extend this cooperation to other risks such as drought management; • Energy production relies heavily on hydropower (75% of stations, concentrated in the northwest), while Spain also operates coal and nuclear plants; transmission networks are extensive and connect major urban centres. Potential for cross-border cooperation on production of renewable energy; • Resource productivity is higher on the Spanish side, closer to the EU average, while Portuguese regions lag behind; waste generation is declining in both countries but remains consistently higher in Portugal.
Policy options	**Climate risks and resilience related aspects** • Cross-border management of protected areas and energy systems could strengthen climate resilience and improve resource efficiency; • Existing cooperation frameworks on wildfire prevention and civil protection may be expanded to include joint drought management and ecosystem resilience strategies; • A focus could be on addressing the differences in the energy mix, including the presence of coal and nuclear facilities on the Spanish side to jointly coordinate decarbonisation pathways. **Cross-cutting aspect** • Cooperation projects could focus on asymmetries in air pollution, waste generation and resource productivity that provide a basis for developing tailored and cross-border coordinated transition pathways.

Socio-economic dimension	
Key analytical findings	• Cross-border connectivity in social media is limited and geographically uneven, with higher connectivity only around Badajoz and in the area of Galicia adjacent to the border; Portuguese participation is mainly restricted to communities close to the border; • Spanish and Portuguese are related but only partially mutually intelligible; understanding is stronger in Galicia–Norte Region due to the similarity between Galician and Portuguese; • Tourism has strong common cultural and historical roots but remains uneven: Algarve, Cádiz, Porto, A Coruña, and Huelva lead in overnight stays, with Portuguese border regions performing above their national average while Spanish regions remain below. Potential to further develop tourism as a shared economic asset, particularly in the internal and rural areas; • Essential services are unevenly distributed: access is better in Portuguese coastal and northern Spanish areas, while southern Spain records travel times of over one hour; hospitals and cultural services are concentrated in cities, reinforcing an urban–rural divide. Potential to collaborate in the improvement of the access to essential services in the inner and rural areas of the programme area.
Policy options	**Socio-economic related aspects** • Shared cultural and natural heritage may be more effectively mobilised through cross-border cooperation to diversify tourism beyond coastal and metropolitan hotspots such as Porto; • Physical accessibility improvements in remote areas could be complemented by digital solutions and coordinated cross-border service provision. **Cross-cutting aspects** • Strong socio-cultural integration can serve as a foundation for strengthening cross-border cooperation in labour markets, education and service provision; • A focus can be on common demographic challenges, including low population density and ageing, that may be used as a basis for coordinated cross-border approaches to service provision and social inclusion.

Border security and safety dimension	
Key analytical findings	• Temporary border controls were mainly reintroduced during the COVID-19 pandemic, with a few shorter episodes linked to major intergovernmental events such as NATO summits; • Closures and daily checks disrupted commuting and labour mobility, with cross-border workers in sectors like accommodation and food services particularly affected; • The disruptions revealed the vulnerability of cross-border integration, underlining the need for stronger bilateral coordination and governance mechanisms to ensure resilience in times of crisis.
Policy options	**Cross-cutting aspects** • The impacts of border controls on cross-border commuting and logistics can be mitigated through coordinated and institutionalised cross-border policy dialogue; • 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	• Cross-border cooperation is highly institutionalised, with EGTCs, Euroregional formats, and Eurocities collaborating on topics such as the preservation of natural areas, employment and tourism; • Cross-border public services remain sparse and fragmented, mainly limited to tourism and environmental services near Braga and Porto, with a transport link in Badajoz; • Obstacles identified through the b-solutions initiative concern transport, education, environmental standards, and social security coordination; proposed solutions are predominantly legal or hybrid, supported by EGTCs and Interreg funding; • Interreg cooperation covers diverse themes and shows evenly spread networks, though, based on the keep.eu database and excluding duplicates, partner numbers within a consortium declined by 19% between Interreg IV-A and V-A; advice centres remain limited, with multi-thematic centres concentrated in the analysed regions of northern Spain and labour market centres present on both sides.

Governance dimension	
Policy options	**Cross-cutting aspects** • Existing institutional cross-border frameworks provide scope for supporting Euroregions in driving cooperation in functional areas where asymmetries remain high, such as demographic decline, digital infrastructure and labour markets; • Lessons from the relatively high number of b-solutions pilot actions could be further capitalised on to systematically reduce structural legal and administrative barriers in areas such as transport, education, environmental management and social security; • A focus could be on cross-border governance structures that offer opportunities to develop integrated solutions to interconnected challenges in energy, transport, land use, nature protection and demographic change.

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