Eurostat regional yearbook

2024 edition

eurostat

FLAGSHIP PUBLICATION

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Foreword

The *Eurostat regional yearbook* provides you with an overview of economic, social, demographic and environmental developments in the EU regions. It includes data for regions in 27 EU countries, 4 EFTA countries, as well as 9 candidate countries. An extensive set of indicators is presented in the form of maps, figures and infographics: these have been designed to highlight regional variations and similarities.

The *Eurostat regional yearbook* gives you the opportunity to journey across our continent looking at a broad range of topics described in numbers. At its core, the publication distils numbers into comprehensible explanations and narratives. In doing so, it underscores evidence-based decision-making, empowering stakeholders – from local municipalities to international entities – to formulate informed strategies that foster inclusive growth, mitigate disparities and enhance the quality of life in the EU.

In this year's edition of the *Eurostat regional yearbook*, the indicators for the Sustainable Development Goals (SDGs) are featured with a logo attached to those maps, figures or infographics that address the SDGs. As such, readers can assess regional as well as national and supranational developments for this important data collection.

Additionally, several chapters in this year's edition of the *Eurostat regional yearbook* highlight the European Year of Skills, which continued into 2024.

The *Eurostat regional yearbook* is available online in Statistics Explained and in PDF format on Eurostat's website. The latest data can be downloaded from Eurostat's database, where more detailed and up-to-date statistics can be found.

I hope that you enjoy exploring the regions of the EU!

Mariana Kotzeva

Director-General, Eurostat

Abstract

Statistical information is an important tool for understanding and quantifying the impact of political decisions in a specific territory or region. The *Eurostat regional yearbook 2024* provides a detailed picture relating to a broad range of statistical topics across the regions of the EU, EFTA and candidate countries.

Each chapter presents statistical information in the form of maps, figures and infographics, accompanied by a descriptive analysis highlighting the main findings. Regional indicators are presented for the following 13 subjects: population, health, education, the labour market, living conditions, the digital society, the economy, business, research and development, tourism, transport, the environment and agriculture.

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An online data code available under each map/figure can be used to directly access the most recent data on Eurostat's website.

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Contents

Introduction

Eurostat, the statistical office of the European Union (EU), collects, compiles and publishes statistics for the EU, primarily for the regions of EU, EFTA and candidate countries.

This edition of the *Eurostat regional yearbook* focuses on the European Year of Skills initiative which ran from May 2023 to May 2024. The European Year of Skills put skills centre-stage: helping people get the right skills for quality jobs and helping businesses, in particular small and medium-sized enterprises (SMEs), address skills shortages. The European Year of Skills was designed to help the EU achieve 2 of its social targets for 2030, namely that at least 60% of adults should be in training and at least 78% in employment.

Having a workforce with the skills that are in demand can contribute to sustainable growth, more innovation and an improvement in business competitiveness. These aspects are considered key to ensuring an economic recovery from the COVID-19 crisis alongside green and digital transitions that are socially just and fair. Several chapters in this edition of the *Eurostat regional yearbook* have a special focus to highlighting skills and related issues.

The impact of Russia's war of aggression against Ukraine and related sanctions, alongside population movements, disruptions to energy markets and global food security, as well as related cost-of-living price increases can be seen in the analyses of 2022 and 2023 data presented in several chapters of the *Eurostat regional yearbook*. Over the last couple of years, few issues have prompted as much scrutiny as the cost-of-living crisis. The rapid increase in the price of energy and a wide range of essential goods (including food), coupled with relatively high interest rates, had a profound impact locally, regionally, nationally and internationally.

European statistics

SUBNATIONAL STATISTICS

EU countries are often compared with each other in statistical presentations. However, in practice it is sometimes difficult to compare smaller and larger countries. For example, Malta had 542 000 inhabitants on 1 January 2023 and Luxembourg had 661 000 inhabitants, while Germany – the most populous EU country – had 84.4 million inhabitants.

There are considerable differences between countries as regards their territorial composition. For example, Ireland, Finland and Sweden are generally rural and sparsely-populated, whereas Malta and the Benelux countries are characterised by much higher levels of population density.

Equally, there can be great diversity within individual EU countries: for example, the densely-populated, urbanised areas of Nordrhein-Westfalen in the west of Germany may be contrasted with the sparsely-populated, largely rural, north-eastern region of Mecklenburg-Vorpommern. In a similar manner, there are considerable differences between regions of France: for example, contrast the bustling pace of life in the economic hub of Paris (which had an average of 20 700 inhabitants per square kilometre in 2022) with the more sedate pace of rural life in the central/southern region of Lozère (which had an average of 15 inhabitants per square kilometre).

As such, examining subnational or regional data can often be more meaningful as it highlights disparities within EU countries. Examples include an east-west divide in Germany and a north-south divide in Italy. By doing so, analyses can reveal significant differences in socioeconomic developments. For example, Germany and Poland principally have polycentric patterns of (economic) development with several, relatively big cities spread across their territory. By contrast, France and Romania are examples of a more monocentric pattern of development, with activity more concentrated in and around their respective capitals.

Over the past few years, Eurostat has expanded the range of statistics that it provides beyond national and regional information to cover other territorial typologies. These alternative typologies address the needs of policymakers, particularly within the context of cohesion and territorial developments. They are based on 2 broad headings

- typologies linked to regional statistics, and
- typologies linked to statistics for local administrative units (LAU or municipalities).

With this in mind, *Regulation (EU) 2017/2391 of the European Parliament and of the Council of 12 December 2017 as regards the territorial typologies (Tercet)* established a common statistical classification of territorial units. This legislative consolidation facilitates the collection, compilation and dissemination of European statistics at different territorial levels.

STATISTICS ON REGIONS – THE NUTS CLASSIFICATION

The classification of territorial units for statistics – known as NUTS – is at the heart of the EU's regional statistics. It is a classification based on a hierarchy, subdividing each EU country into regions. These are classified according to NUTS levels 1, 2 and 3, from larger to smaller regions.

The 2021 version of the NUTS classification provides the basis for classifying regional information in this edition of the *Eurostat regional yearbook*. At its most detailed level – NUTS level 3 – the EU is composed of 1 166 different regions. Taking the example of Germany, there are 401 NUTS level 3 regions, which make up 38 regions at NUTS level 2 or 16 regions at NUTS level 1. Some EU countries have a relatively small population and/or area and aren't therefore subdivided at some (or even all) of the different levels of the NUTS classification. Estonia, Cyprus, Latvia, Luxembourg and Malta are each composed of a single NUTS level 2 region, that covers the whole of their respective territory, while Cyprus and Luxembourg are also composed of a single NUTS level 3 region.

For non-EU countries – EFTA and candidate countries – the concept of 'statistical regions' is used instead of NUTS. This applies the same principles as those used in the establishment of the NUTS classification but is based on bilateral agreements between the countries concerned and Eurostat.

Table 1: Number of NUTS 2021 regions and statistical regions

	NUTS level 1	NUTS level 2	NUTS level 3
EU	92	242	1 166
Belgium	3	11	44
Bulgaria	2	6	28
Czechia	1	8	14
Denmark	1	5	11
Germany	16	38	401
Estonia	1	1	5
Ireland	1	3	8
Greece	4	13	52
Spain	7	19	59
France	14	27	101
Croatia	1	4	21
Italy	5	21	107
Cyprus	1	1	1
Latvia	1	1	6
Lithuania	1	2	10
Luxembourg	1	1	1
Hungary	3	8	20
Malta	1	1	2
Netherlands	4	12	40
Austria	3	9	35
Poland	7	17	73
Portugal	3	7	25
Romania	4	8	42
Slovenia	1	2	12
Slovakia	1	4	8
Finland	2	5	19
Sweden	3	8	21
	Level 1	**Level 2**	**Level 3**
Iceland	1	1	2
Liechtenstein	1	1	1
Norway	1	7	13
Switzerland	1	7	26
Bosnia and Herzegovina	–	–	–
Montenegro	1	1	1
Republic of Moldova	–	–	–
North Macedonia	1	1	8
Georgia	–	–	–
Albania	1	3	12
Serbia	2	4	25
Türkiye	12	26	81
Ukraine *	–	–	–

* An agreement on statistical regions between Ukraine and Eurostat was reached in spring 2024 (regional data will be collected for reference periods after 1 January 2024).

Source: Eurostat

Table 1 provides an overview of the number of NUTS regions that exist in each of the EU and non-EU countries covered in the *Eurostat regional yearbook*.

Most of the regional statistics shown in the *Eurostat regional yearbook* are for NUTS level 2 regions. However, subject to data availability, some maps and figures are shown for either NUTS level 1 regions (more aggregated geographical information) or NUTS level 3 regions (the most detailed level of regional information). The latter are only available for a limited selection of indicators that cover topics such as demography, economic accounts, business statistics, tourism statistics and environmental statistics. Subject to data availability, national data are used for Bosnia and Herzegovina, Georgia, the Republic of Moldova (hereafter Moldova) and Ukraine.

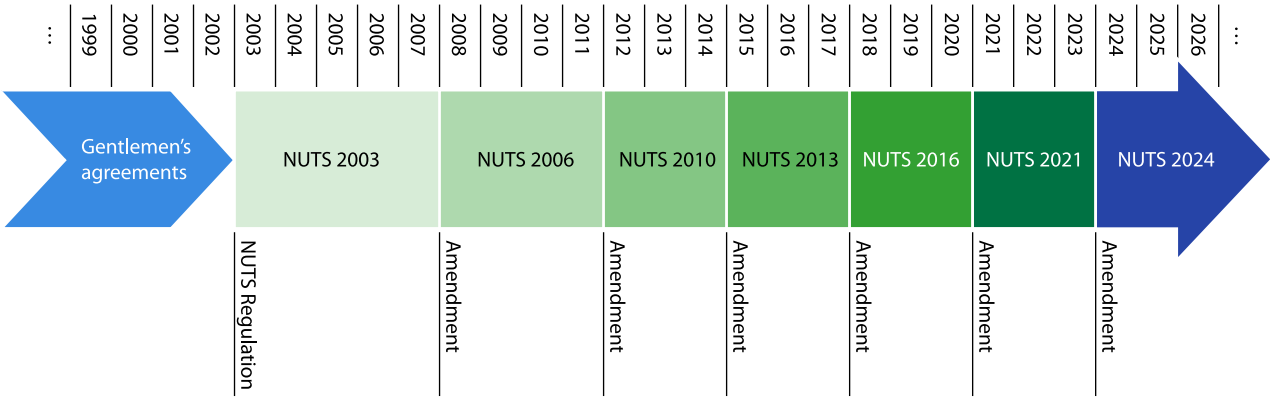
The NUTS regulation and classification

The NUTS classification is defined in *Regulation (EC) No 1059/2003 of the European Parliament and of the Council of 26 May 2003 on the establishment of a common classification of territorial units for statistics (NUTS)*, which has to be amended by a European Commission regulation each time the classification is updated; in other words, when a new version of the NUTS is needed. The NUTS regulation specifies that there should be a minimum period of 3 years stability during which time the classification shouldn't be changed. Exceptions are made when the accession (or departure) of an EU country occurs.

Since 2003, the NUTS classification has been amended several times (see Figure 1), due to

- regular amendments
- changes in the membership of the EU
- changes to the territorial boundaries of existing EU countries (for example, the inclusion of data for the French region of Mayotte).

Figure 1: History of NUTS



Source: Eurostat

The 6th amendment of the NUTS classification (Commission Delegated Regulation (EU) No 2019/1755) was adopted in August 2019 and applies to any data transmitted to Eurostat from 1 January 2021 onwards. This version of NUTS – commonly referred to as NUTS 2021 – is the basis for classifying regional statistics in the 2024 edition of the *Eurostat regional yearbook*. Some data referring to earlier reference periods may have been collected using a previous version of NUTS, although these statistics have been recoded (as far as possible) to NUTS 2021. As a consequence, data aren't always available for a complete set of regions, for example when the simple recoding or aggregation of data from previous versions of NUTS wasn't possible.

The 7th amendment of the NUTS classification (*Commission Delegated Regulation (EU) No 2023/674*) was adopted in December 2022 and applies to any data transmitted to Eurostat from reference period 1 January 2024 onwards. With little or no data having been provided at the time of writing, NUTS 2024 hasn't been used for this edition of the *Eurostat regional yearbook*; it is planned that it will be used to classify regional statistics in future editions of the *Eurostat regional yearbook*.

More about the data: the main principles of the NUTS classification

Principle 1: NUTS favours administrative divisions. If available, administrative structures are used for the different NUTS levels. In those EU countries where there is no administrative layer corresponding to a particular level of NUTS, so-called non-administrative regions are created by aggregating smaller administrative regions.

Principle 2: the NUTS regulation defines minimum and maximum population thresholds for the size of NUTS regions (see Table 2) to ensure a basic degree of comparability. Different rules apply to administrative and non-administrative layers. Deviations from these thresholds are only possible when particular geographical, socioeconomic, historical, cultural or environmental circumstances exist.

Table 2: Population size constraints for NUTS 2021 regions
(number of inhabitants)

	Minimum population	Maximum population
NUTS level 1 regions	3 000 000	7 000 000
NUTS level 2 regions	800 000	3 000 000
NUTS level 3 regions	150 000	800 000

Source: Eurostat

OTHER TERRITORIAL TYPOLOGIES

Previous editions of the *Eurostat regional yearbook* have shown a number of other territorial typologies. These allow analyses to be extended so they cover topics such as cities and commuting zones, or statistics compiled by degree of urbanisation – for cities, towns and suburbs, and rural areas. Although these statistics remain highly relevant for policy debate in the EU, an editorial decision was taken when compiling the 2024 edition of the publication to concentrate on regional statistics. Readers interested in subnational statistics that are based on other territorial typologies can refer to 2 Eurostat publications

- Rural Europe
- Urban Europe.

A short reading guide

COVERAGE

Each chapter in the *Eurostat regional yearbook* presents statistical information in the form of maps, figures and infographics, accompanied by descriptive analyses highlighting the main findings. Regional indicators are presented for the following 13 subjects: population, health, education and training, the labour market, living conditions, the digital society, the economy, business, research and innovation, tourism, transport, the environment and agriculture.

The *Eurostat regional yearbook* contains regional statistics for the EU countries, alongside data for several non-EU countries: EFTA countries (Iceland, Liechtenstein, Norway and Switzerland) and candidate countries (Bosnia and Herzegovina, Montenegro, Moldova, North Macedonia, Georgia, Albania, Serbia, Türkiye and Ukraine).

The geographical descriptions used within this publication to group EU countries – for example, as 'northern', 'eastern', 'southern' or 'western' – aren't intended as political categorisations. Rather, these references relate to the geographical location of 1 or more EU countries, based on the geography domain of the European Commission's multilingual thesaurus (Eurovoc).

The designations employed and the presentation of material in maps and figures doesn't imply the expression of any opinion whatsoever on the part of the EU concerning the legal status of any country, territory or area or of its authorities, or concerning the delimitation of its frontiers or boundaries.

Regional indicators for sustainable development goals (SDGs)

The United Nations (UN's) 2030 Agenda for Sustainable Development is a long-term strategy that aims to achieve a range of economic, social and environmental goals. The strategy is monitored through a set of 17 Sustainable Development Goals (SDGs) and 169 targets.

Eurostat regularly monitors progress towards the SDGs in an EU context. It coordinates the development of an EU SDG indicator set and publishes regular monitoring reports. Within this edition of the Eurostat Regional Yearbook, regional indicators that may be used to measure progress towards the SDGs are identified through the addition of a logo next to the title of respective figures/maps.

For more information on SDGs, please refer to Eurostat's website and its dedicated section: https://ec.europa.eu/eurostat/web/sdi

TIMELINESS

A wide range of surveys and data collection exercises are used when compiling the information presented in the *Eurostat regional yearbook*. As a result, there may be differences in the latest available reference year between chapters and indicators, as each aims to show the latest information available.

In general, 2023 data are available for demography (as used in the chapter on population), the labour force survey (as used in the chapters on education and training and on the labour market), EU statistics on income and living conditions (as used in the chapter on living conditions) and the information society survey (as used in the chapter on the digital society). Otherwise, the most recent reference period is generally 2022. Eurostat's website may have fresher data due to the continuous nature of data collection and processing (resulting in updates and new reference periods being added throughout the year). Online data codes are provided below each of the maps and figures as part of the source and these can be used to locate the freshest data.

HOW TO INTERPRET THE MAPS

A majority of the maps in the *Eurostat regional yearbook* are choropleth maps that use different colour shades to highlight regional differences. These maps are generally composed of 6 sequential colours, from a light yellow (for low values) through to dark blue (for high values). The information presented has been normalised. In other words, rather than show data for absolute values (which could introduce bias linked to the size of each region), these maps are generally based on proportions, rates or ratios. In some cases a larger or smaller number of classes/colours has been used, while in others a different colour scheme may have been applied (for example, when there are inherent colour conventions for a particular indicator).

The class boundaries used in the legend for each map are computed exclusively in relation to the distribution of regional values across the EU (in other words, values for non-EU countries aren't taken in to account when computing the classes). The boundaries for the lower classes are usually based on the 10th and the 25th percentiles, the middle class on the 50th percentile, and the upper classes on the 75th and the 90th percentiles. As such, the lightest shade of yellow and the darkest shade of blue portrays those EU regions with approximately the lowest/highest 10% of values. For a limited number of cases, several choropleth maps may be shown together (for example, small multiple maps presenting the share of industry, construction, trade and other market services in business economy employment). A common classification scheme is employed for the class boundaries of these maps to assist readers who would like to make comparisons across multiple maps.

Some choropleth maps have been produced using a diverging colour scheme. These maps have been produced to highlight the distribution of regions around a specific EU policy target. They tend to be based on showing 3 shades of teal/turquoise (progressively darker for values that are increasingly higher than an EU target) and 3 shades of gold (progressively darker for values that are increasingly lower than an EU target). For a limited number of maps, the order of the colours in diverging choropleth maps has been reversed. This has been done when there are policy targets that seek to lower (rather than increase) the value of a particular indicator; for example, the EU seeks to reduce the number of early leavers from education and training.

The *Eurostat regional yearbook* also presents bivariate choropleth maps. These provide information for 2 distinct indicators at the same time (for example, a map showing the number of hospital beds per 100 000 inhabitants and the number of medical doctors per 100 000 inhabitants). This type of map uses 9 different colours/shades organised in a 3*3 grid, from a light shade (that is used for those regions that have low values for both indicators) to a dark shade (that is used for those regions that have high values for both indicators).

This edition of the *Eurostat regional yearbook* includes other map types.

- Proportional circles are used to map regional data based on absolute values (for example, the number of people employed as human resources in science and technology), where the size/area of each circle represents its underlying data. These circles are often coloured to provide complementary information for another indicator.
- Hybrid maps are also included, designed to illustrate specific datasets (for example, the top ports in the EU for maritime freight handled and maritime passengers carried).

METADATA

Eurostat's data are consistently published with accompanying metadata. These metadata provide background information on each of the principal sources, as well as more specific information about particular indicators and individual data cells.

Metadata about individual data cells are usually referred to as flags. They provide information about the status of the data, for example, detailing whether it is estimated, provisional or forecasted. To restrict the amount of metadata that is presented under each map or figure, information about the flags isn't generally shown in this publication. No distinction is made between data values that aren't available, are of poor quality, or are confidential; these data points are all simply shown/labelled as being 'not available'. Readers who would like more detailed metadata are encouraged to use the online data codes that are provided as part of the source for each map or figure.

MISSING DATA

In maps, missing data for regions of any of the EU, EFTA or candidate countries are denoted by a dark shade of grey, while countries outside the spatial coverage adopted for this edition of the *Eurostat regional yearbook* are denoted by a lighter shade of grey.

In figures, missing data for any of the EU regions are footnoted. To save space, information about missing data for EFTA or candidate country regions aren't footnoted. Many of the figures presented in the *Eurostat regional yearbook* are based exclusively on data for EU regions – for example, charts showing the 20 regions in the EU with the highest rates/shares for a particular indicator.

When processing the data and compiling the maps and figures for this edition of the *Eurostat regional yearbook* missing data were identified. Given the considerable impact of the COVID-19 crisis and its associated restrictions, 2 different approaches were employed to try to fill the gaps for missing data

- datasets where the most recent data available concern 2020 or 2021: in these cases, because there could be considerable differences linked to COVID-19 impacts, an effort was made to fill missing cells with higher aggregates of NUTS or with national data rather than making use of data from an earlier reference period
- datasets where the most recent data available were for 2022 or 2023: in these cases, an effort was made to fill missing cells 1st with data for the previous year (at the same NUTS level) before making use of more aggregated NUTS levels or national data.

In both cases, the exceptions for different geographical levels or for different reference periods are documented in the notes/footnotes under each map or figure. This is also the case for breaks in series and other major methodological differences.

If maps or figures are based on different territorial levels, any counts of regions that are provided in the accompanying commentaries are systematically based on the territorial levels for which data are available in each country.

Where few or no regional values exist for a particular country, national data have been used to fill the gaps; these exceptions are also documented in notes/footnotes. Furthermore, the source data (online data codes) are adapted so as to reflect any additional national data tables that may have been used.

Policy context

European policymaking is inherently multidimensional: on the one hand, it has to encompass a broad framework providing objectives for the EU as a whole, while on the other it needs to acknowledge the – often specific – needs of national and subnational territories. The territorial dimension of EU policy is increasingly recognised, as job creation and the transition towards a green and digital economy depend on making the best use of all assets.

COHESION POLICY

What is cohesion policy?

EU cohesion policy is designed to promote harmonious development within the EU by strengthening economic, social and territorial cohesion. In doing so, it aims to promote job creation, business competitiveness, economic growth, social inclusion and sustainable development, thereby aiming to improve the overall quality of life.

During the period 2021–27, the framework for regional development and cohesion policy focuses on 5 key investment priorities

- **smarter Europe** achieved through innovation, digitalisation, economic transformation and support to SMEs
- **a greener, carbon-free Europe**, implementing the Paris Agreement and investing in the energy transition, renewables and the fight against climate change
- **a better connected Europe**, with strategic transport and digital networks
- **a more social Europe**, supporting social inclusion, equal access to healthcare, quality employment, education and skills, while delivering on the European Pillar of Social Rights
- **a Europe closer to citizens**, based on locally led strategies and sustainable urban development.

Cohesion policy: how is the budget decided?

Regulation (EU) No 2021/1060 of 24 June 2021 – the Common Provisions Regulation (CPR) – provides a policy framework for 8 shared management funds, including EU cohesion policy funds. These funds continue to fulfil the objectives of promoting convergence and supporting the least developed parts of the EU.

More about the data: the NUTS classification – an objective basis for the allocation of cohesion policy funding

Statistics from regional accounts are used in the allocation of cohesion policy funds, with the NUTS classification providing the basis for regional boundaries and geographic eligibility.

During the period 2021–27, eligibility for cohesion policy funds is based on NUTS level 2 regions being ranked and split into 3 groups

- less developed regions, where GDP per inhabitant was less than 75% of the EU average
- transition regions, where GDP per inhabitant was 75–100% of the EU average
- more developed regions, where GDP per inhabitant was more than 100% of the EU average.

For the 2021–27 period, the allocation of cohesion policy funds is largely based on regional gross domestic product (GDP) per inhabitant in purchasing power standards (PPS). While GDP per inhabitant is the primary factor used to determine the amount of funding each region receives, a new set of criteria have been added for the 2021–27 funding period to reflect better the social, economic and environmental challenges faced by different regions of the EU. These include youth unemployment, low education levels, climate change, demographic developments or the reception and integration of migrants.

Cohesion policy: integrated into broader policy goals

Across the EU, cohesion policy is embedded within overall economic policy coordination, in particular the European Semester, the digital transition, A European Green Deal and promotion of the European Pillar of Social Rights. These links between cohesion policy and broader policy actions have been strengthened such that regional funding to any EU country which doesn't comply with the EU's economic rules may be suspended.

OTHER POLICY AREAS THAT IMPACT ON SUBNATIONAL AREAS

Urban development policy in the EU

The various dimensions of urban life – economic, social, cultural and environmental – are closely inter-related. Cooperation on urban matters is carried out at intergovernmental level. The work was launched in May 2016, at a meeting of EU ministers responsible for urban matters held in Amsterdam at which an agreement was reached on an Urban Agenda for the EU, as established by the Pact of Amsterdam. The objective is to include an urban dimension in EU policies, and the Agenda's implementation should lead to better regulation, better funding and better knowledge for cities in Europe. The work in 'partnerships' was initially focused on 14 priority areas covering the inclusion of migrants and refugees; air quality; urban poverty; housing; the circular economy; jobs and skills in the local economy; climate adaptation; energy transition; sustainable land use; urban mobility; digital transition; public procurement, security in public space; culture and cultural heritage.

In 2021, a renewal process for the Agenda was started, in line with directions provided by the New Leipzig Charter – the transformative power of cities for the common good in 2020 and its implementing document, leading in November 2021 to the Ljubljana agreement. During this 2nd phase of the Urban Agenda for the EU, 4 new partnerships have been launched so far: on sustainable tourism and greening cities (in October 2022) and on food and cities of equality (in November 2023).

Rural development policy in the EU

The European Commission is implementing the Communication on *A long-term Vision for EU's Rural Areas – Towards stronger, connected, resilient and prosperous rural areas by 2040*. This vision comes with an EU rural action plan, designed to help rural areas meet a wide range of economic, social and environmental challenges. Under this long-term vision, the European Commission has also proposed a Rural Pact, a framework for cooperation that facilitates interaction on rural matters between public authorities.

In March 2024, the European Commission published a report outlining the progress made in relation to the EU's long-term rural vision and provided a set of reflections on possible orientations for enhanced support action and financing for rural areas, as well as on the ways forward. It highlights how the EU supports stronger, more connected, resilient and prosperous rural areas and communities.

The EU's common agricultural policy (CAP) is composed of 2 pillars.

- The European Agricultural Guarantee Fund (EAGF) is the 1st pillar. This provides income support and support to agricultural markets.
- The European Agricultural Fund for Rural Development (EAFRD) is the 2nd pillar. This is the CAP's contribution to sustainable development of rural areas.

At the end of 2021, a political agreement was reached on a new common agricultural policy for 2023–27. This legislation aims to make the CAP more environmentally friendly, results orientated and responsive to future challenges, while continuing to support EU farmers for a sustainable and competitive agricultural sector. This latest policy aims to be greener, more modern and fairer and is built around 10 key objectives that are focused on social, environmental and economic sustainability.

European Committee of the Regions

The European Committee of the Regions (CoR) – which is the EU's assembly for regional and local representatives – provides a voice for regions and cities across the EU. During the period 2020–25, the CoR has 3 main priorities

- bringing the EU closer to people – democracy and the future of the EU
- managing fundamental societal transformations – building resilient regional and local communities
- promoting cohesion as a fundamental value – place-based EU policies.

The European Week of Regions and Cities is an annual multi-day event which allows regions and cities to showcase their capacity to encourage growth and job creation, implement EU cohesion policy and support good governance.
The 22nd European Week of Regions and Cities will be held 7–10 October 2024 under the headline of 'Empowering communities' and will concentrate on 4 principal themes

- competitiveness and convergence – 2 sides of the same coin
- regions strengthening European democracy
- smart and sustainable growth for regions
- regions got talent.

During the opening session of the European week of regions and cities, the CoR will present the main findings coming from the 2024 edition of the EU annual report on the State of Regions and Cities in the European Union. It is one of the CoR's flagship publications providing insights on how regions and cities address crises, showing how regions and cities contribute to the long-term transformation of our societies, with the green and digital transition, while strengthening cohesion.

The European Green Deal

To overcome the triple global crises of climate change, pollution and biodiversity loss, the EU has enacted a new growth strategy designed to transform the EU into a modern, resource-efficient and competitive economy, where

- there are no net emissions of greenhouse gases by 2050
- economic growth is decoupled from resource use, and
- no person and no place is left behind.

The European Green Deal (COM(2019) 640 final) provides details of how the EU plans to develop into a sustainable economy by turning climate and environmental challenges into opportunities, while making the transition fair and inclusive for all.

A Europe fit for the digital age

Digital technology has and will continue to change people's lives in a rapid manner. The EU's digital strategy aims to make this transformation work for people and businesses. On 9 March 2021, the European Commission presented a vision for the EU's digital transformation by 2030. This is based on 4 key points that are the cornerstones of the *2030 Digital Compass: the European way for the Digital Decade* (COM(2021) 118 final)

- government
- skills
- infrastructure
- business.

European Pillar of Social Rights

The European Pillar of Social Rights was jointly signed by the European Parliament, the Council and the European Commission in November 2017. It aims to take account of changing realities in the world of work, to promote the renewal of economic convergence across the EU, and to deliver new and more effective rights for citizens. The pillar is built around 3 main headings

- equal opportunities and access to the labour market – education, training and lifelong learning; gender equality; equal opportunities; active support for employment
- fair working conditions – secure and adaptable employment; wages; information about employment conditions and protection in case of dismissals; social dialogue and involvement of workers; work-life balance; healthy, safe and well-adapted work environment and data protection
- social protection and inclusion – childcare and support to children; adequate protection for workers; unemployment benefits; minimum income; old age income and pensions; healthcare; inclusion of people with disabilities; long-term care; housing and assistance for the homeless; access to essential services.

Sustainable development goals

At the core of the United Nations *2030 Agenda for Sustainable Development*, there is a set of 17 sustainable development goals (SDGs). They provide a global policy framework until 2030 for stimulating action in areas of critical importance related to people, the planet, prosperity, peace and partnership.

On 22 November 2016, the European Commission adopted the Communication, *Next steps for a sustainable European future – European action for sustainability* (COM(2016) 739 final). It detailed the importance of the SDGs, identified EU policies that contribute to the implementation of SDGs, and announced plans for regular monitoring within an EU context. The EU has made a firm commitment towards delivering on the SDGs and on the Paris Agreement on climate change. Within this context, Eurostat has been called upon to monitor regularly the progress towards the SDGs in an EU context. For this purpose it coordinates the development and release of an EU SDG indicator set and produces regular monitoring reports (further information is available in the links at the end of this chapter).

European Year of Skills

In May 2023, the Council and European Parliament adopted *Decision (EU) 2023/936 establishing the European Year of Skills* (which ran from May 2023 to May 2024). Its overall objective was to promote a mindset of reskilling and upskilling, to address skills gaps and shortages, to boost the competitiveness of European business and to create quality jobs.

The European Year of Skills pursued 4 main objectives

- promoting investment in training and upskilling
- ensuring the skills of the workforce match the needs of employers, by closely cooperating with social partners and businesses
- matching people's aspirations and skill sets with opportunities on the job market, especially for the green and digital transition and the economic recovery from the COVID-19 pandemic
- attracting people from outside the EU with relevant skills that will promote economic growth.

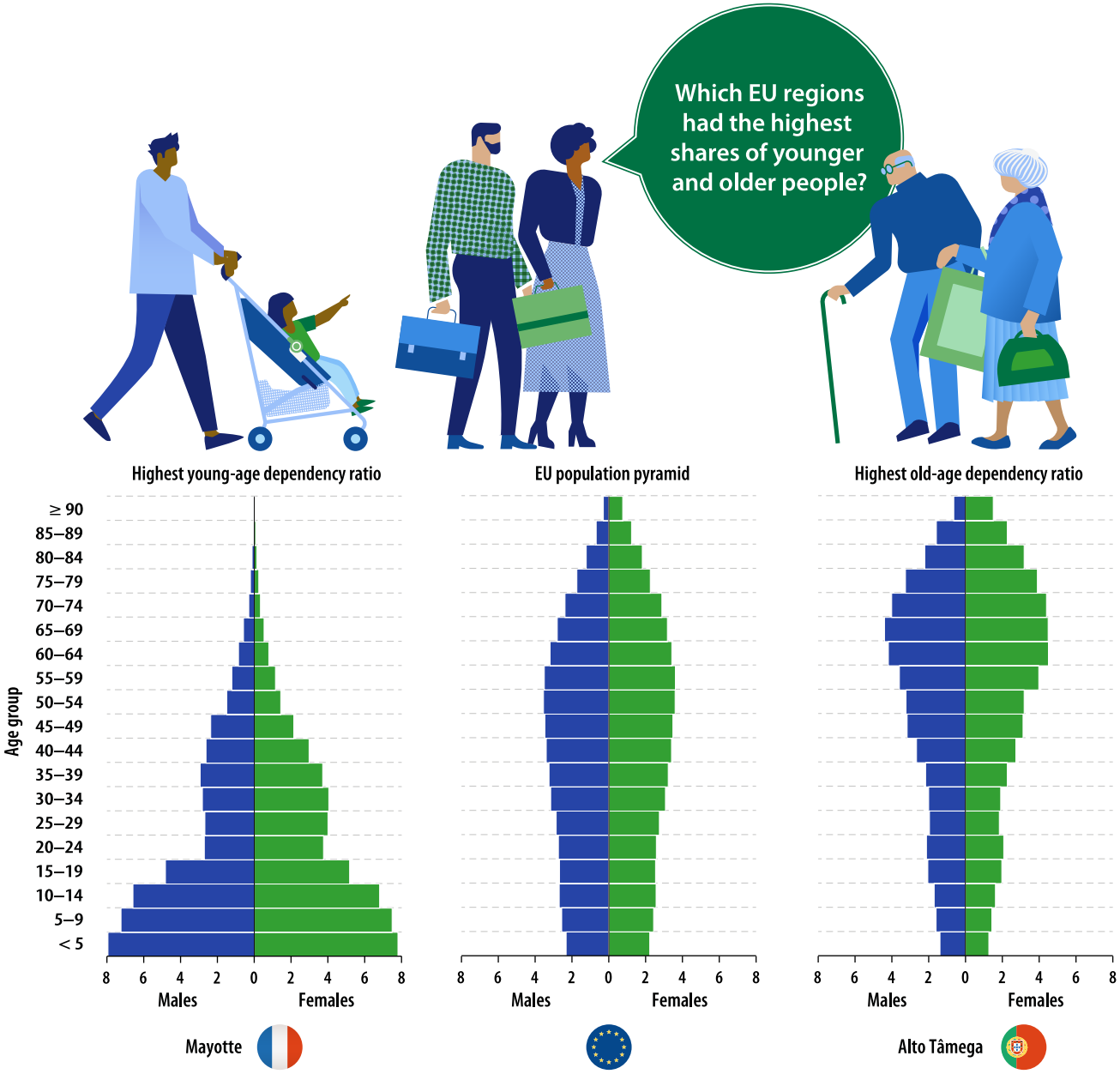
Further information can be found on a dedicated website; https://year-of-skills.europa.eu/index_en.

A People and society

1. Population

On 1 January 2023, there were 448.8 million people living in the EU. During the course of 2022, the population of the EU increased (up 1.9 million). The rising number of inhabitants resulted from migratory flows, as natural population change was negative; in other words, there were more deaths than births. The relatively high number of migrants entering the EU during 2022 reflected, among other contexts, an influx of displaced people linked to the Russia's war of aggression against Ukraine.

To provide an historical context to the latest figures, the rate at which the EU's population was growing slowed after 2013 (when the population increased by 1.4 million). This development was compounded by the onset of the COVID-19 pandemic, as mortality rates increased (especially among elderly populations) and migration was hampered. During 2020 and 2021, the EU's population fell for only the 2nd time since the start of the time series in 1960 (the only other time being in 2010). The number of inhabitants living in the EU rebounded in 2022, recording its highest annual increase since 1998.



(% of total population, 1 January 2023, by NUTS 3 regions)

Note: the infographic shows the NUTS level 3 region with the highest young-age dependency ratio, data for the EU average, and the NUTS level 3 region with the highest old-age dependency ratio.

Source: Eurostat (online data code: demo_r_pjangrp3)

Across the EU, people tend to live in relatively densely-populated cities or in towns and suburbs, while the vast majority of the EU's land area is more sparsely populated. There are 242 NUTS level 2 regions and 1 166 NUTS level 3 regions across the EU from which a detailed typology for studying demographic developments can be established. Some of the differences described below reflect the criteria used to determine the administrative boundaries that delineate each of these regions.

Population events such as births, deaths and migratory flows shape demographic changes over time. Demographic developments are also impacted by irregular shocks, such as the COVID-19 crisis or Russia's war of aggression against Ukraine. The population pyramids shown in the infographic above highlight the considerable difference in age structures across NUTS level 3 regions. On 1 January 2023, the outermost region of Mayotte (France) had the highest young-age dependency ratio in the EU, while the northern Portuguese region of Alto Tâmega had the highest old-age dependency ratio.

Demographic developments in the EU are far from uniform, with considerable variations both between and within individual EU countries. One factor that is often key to explaining these divergences is the mobility of young people, reflecting – among other issues – their search for education and/or job opportunities. As a result, some regions can thrive due to an inflow of younger more-qualified generations, whereas others lag behind and progressively age due to the departure of younger cohorts. This demographic transition may impact population structures across EU regions, resulting in (among other consequences)

- major urban areas which are often characterised by relatively youthful populations, large numbers of people living alone, high costs of living, diverse educational opportunities and buoyant labour markets
- towns and cities in former industrial heartlands that have been left behind economically, characterised by relatively high levels of unemployment, poverty and social exclusion
- commuter belts/suburban areas which are often inhabited by families
- coastal and countryside locations, some of which may be viewed as retirement locations for relatively affluent pensioners
- other rural and remote regions which may exhibit declining population numbers and a relatively elderly population structure, while being characterised by narrow labour market opportunities and relatively poor access to a range of services.

Population structure

The median age is an indicator that can be used to analyse the pace at which population structures are changing. During the last 2 decades, the median age of the EU population increased by 5.5 years, up from 39.0 years on 1 January 2003 to 44.5 years by 1 January 2023.

The distribution of median ages across NUTS level 3 regions exhibited some skewness. On 1 January 2023, there were 753 regions that had median ages equal to or above the EU average, while there were 413 regions where the median age was below.

At the start of 2023, some of the highest median ages were recorded in rural regions …

At the top end of the distribution, there were 158 regions in the EU where the median age on 1 January 2023 was at least 50.0 years (as shown by the darkest shade of blue in Map 1.1). These regions were concentrated in eastern regions of Germany as well as central and northern regions of Italy; there were also several regions in Bulgaria, Greece, Spain, France and Portugal with relatively high median ages. Many of the regions with the highest median ages were characterised as relatively rural regions with low levels of disposable income and/or relatively high unemployment rates.

There were 3 regions in the EU where the median age exceeded 55.0 years on 1 January 2023

- the northern Portuguese region of Alto Tâmega (56.5 years)
- Arr. Veurne in north-west Belgium (56.2 years)
- the mountainous region of Evrytania in central Greece (56.2 years).

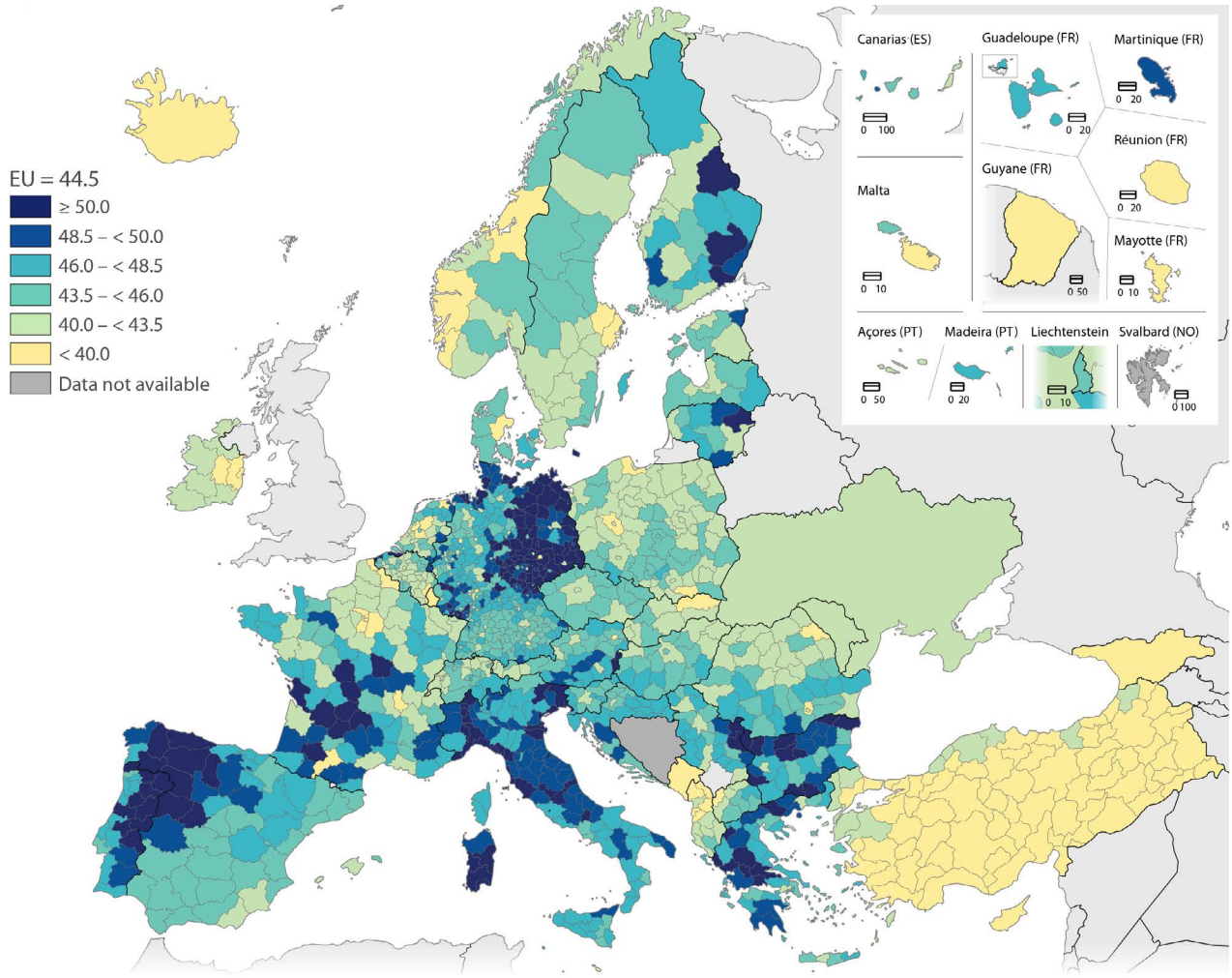
… while some of the lowest median ages were recorded in and around capital cities

Capital regions often exert a considerable pull on inter-regional and international migrants, as they tend to provide a diverse range of educational and employment opportunities. This process can lead to a shift in population structures, with younger people accounting for a growing share of a region's population; over time, this pattern may self-reinforce, insofar as populations with younger age structures are more likely to have relatively high birth rates.

There were 56 NUTS level 3 regions in the EU where the median age was less than 40.0 years on 1 January 2023 (they are shown with a yellow shade in Map 1.1). Upon further examination, many of these regions could be characterised as belonging to one of the following groups

- capital regions – the lowest median ages among this group were recorded in the Danish capital region of Byen København (34.0 years), the Belgian capital region of Arr. de Bruxelles-Capitale/Arr. Brussel-Hoofdstad (35.9 years), the Irish capital region of Dublin (37.3 years) and the Dutch capital region of Groot-Amsterdam (38.0 years)
- neighbouring regions that bordered or surrounded capital regions – for example, Mid-East in Ireland, 7 of the 8 regions that surround Paris, Flevoland in the Netherlands, or Ilfov in Romania
- several other predominantly urban regions (not capitals) with relatively large student populations and dynamic labour markets – including (among others) Frankfurt am Main, München and Würzburg in Germany; Haute-Garonne and Rhône in France; Overig Groningen and Utrecht in the Netherlands; or Poznański and Gdański in Poland
- outermost and autonomous regions, often characterised by relatively high fertility rates – for example, the French outermost regions of Mayotte (that had the lowest median age in the EU, at 18.1 years), Guyane and La Réunion, or the Spanish autonomous regions of Ceuta and Melilla.

Map 1.1: Median age of the population, 1 January 2023
(years, by NUTS 3 regions)



Administrative boundaries: © EuroGeographics © UN–FAO © Turkstat
Cartography: Eurostat – IMAGE, 06/2024

Note: Montenegro and Ukraine, 2022.
Source: Eurostat (online data codes: demo_r_pjanind3 and demo_pjanind)

In 2022, the population increased in every region of Belgium, Czechia, Denmark, Estonia, Ireland, Cyprus, Luxembourg, Malta and Austria

Population change has 2 components: natural population change (the difference between the number of live births and the number of deaths) and net migration (the difference between the number of immigrants and the number of emigrants, with statistical adjustments).

The crude rate of total population change is the ratio of population change between 1 January of consecutive years compared with the average population of that same year; it is expressed per 1 000 inhabitants. In 2022, the EU's total population increased by 2.7 million inhabitants; the crude rate of total population change was 6.0 per 1 000 people. A clear majority of EU regions had a positive rate of change in population numbers: this was the case in 806 out of 1 164 regions for which data are available (69.2%), as shown by those regions denoted by a teal shade in Map 1.2. A negative rate was recorded in 357 regions (30.7%), while there was a single region – Dolj in Romania – which recorded no change in its population.

Map 1.2 shows that in 2022 there was a positive development for population across every NUTS level 3 region of Belgium, Czechia, Denmark, Estonia, Ireland, Malta and Austria; this was the case in Cyprus and Luxembourg too. The vast majority of regions in Germany and the Netherlands also recorded positive rates, with the only exceptions being Mansfeld-Südharz and Hildburghausen in the former and Het Gooi en Vechtstreek in the latter.

At the top end of the distribution, there were 102 NUTS level 3 regions where the crude rate of total population change was at least 18.0 per 1 000 people in 2022 (they are shown in the darkest shade of blue in Map 1.2). Looking in more detail, this group included 3 regions with rates above 50.0 per 1 000 people

- the Maltese region of Gozo and Comino/Għawdex u Kemmuna (which recorded the highest crude rate of total population change, 141.4 per 1 000 people)
- the Czech capital region of Hlavní město Praha (62.2 per 1 000 people)
- the Irish region of Midland (52.6 per 1 000 people).

Across NUTS level 3 regions, the 3 largest increases in overall population numbers between 1 January 2022 and 1 January 2023 were recorded in some of the EU's most prominent cities

- Barcelona in Spain (an increase of 155 800 people)
- the Spanish capital region of Madrid (an increase of 102 500 people)
- Hlavní město Praha in Czechia (an increase of 81 900 people).

Rising population numbers in these 3 regions resulted mainly from migratory flows (the origin of migrants can be other regions from the same country, other EU countries, or non-EU countries). Net migration plus statistical adjustment accounted for 106.5% of the overall population increase in Barcelona, 100.2% in Madrid and 99.1% in Hlavní město Praha. Values higher than 100.0% indicate that natural population change was negative, in other words, there were more deaths than births.

In 2022, the lowest crude rates of total population change were recorded in Bulgaria

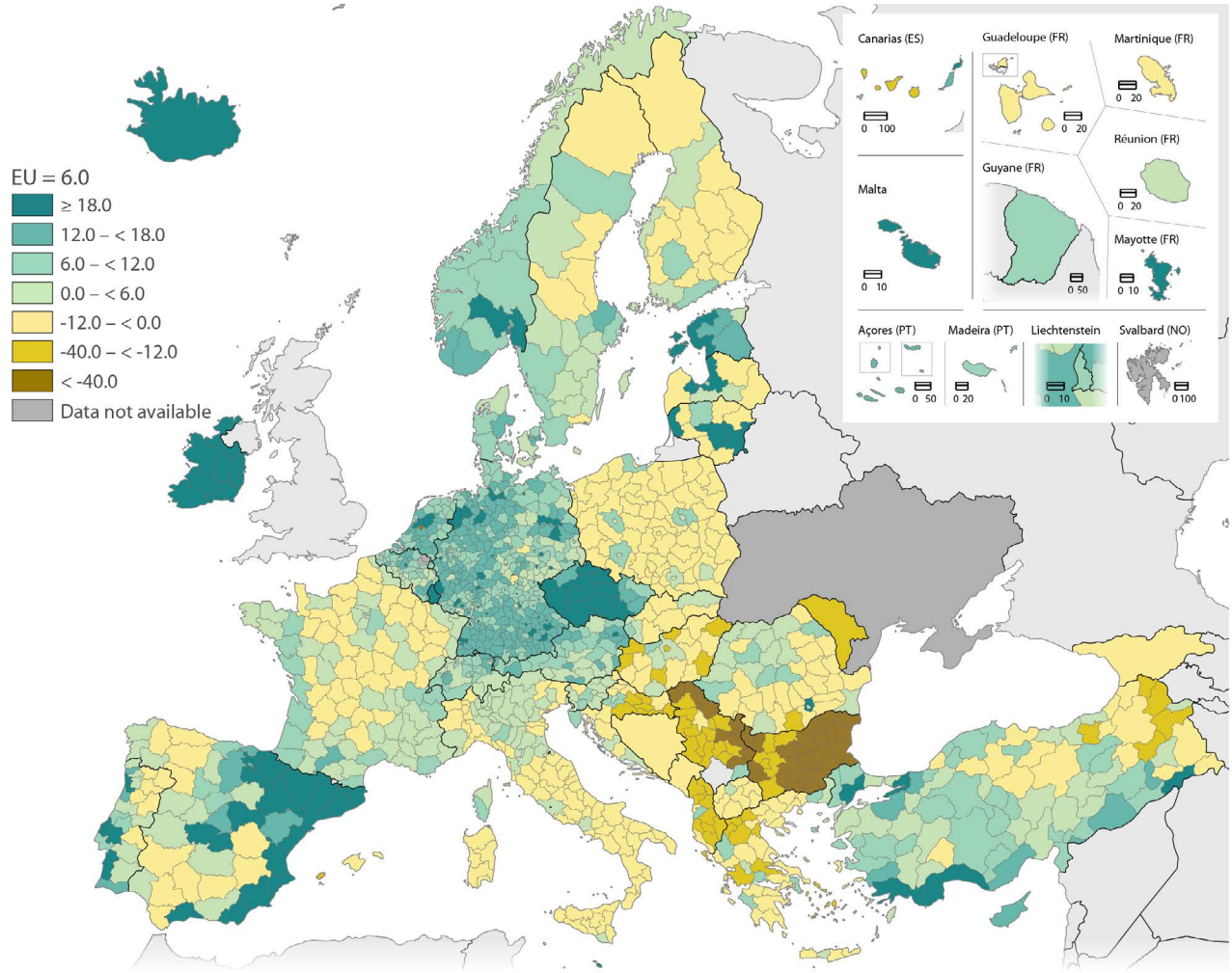
In 2022, negative crude rates of total population change were observed across a majority of the regions in Greece, Italy, Lithuania, Hungary, Poland, Romania, Slovakia and Finland. However, Bulgaria was the only EU country to report a negative rate for every NUTS level 3 region. Indeed, the 12 EU regions with the lowest crude rates of total population change were all located in Bulgaria. The north-eastern region of Dobrich (–127.9 per 1 000 people; equivalent to a fall of 12.8%) had the lowest rate of population change among EU regions, while Shumen, Kardzhali, Targovishte and Veliko Tarnovo also recorded rates that were less than –100.0 per 1 000 people.

Across NUTS level 3 regions, the 3 most sizeable decreases in the total population between 1 January 2022 and 1 January 2023 were recorded in southern Poland

- the Bulgarian region of Varna (a fall of 37 800 people)
- the Hungarian capital region of Budapest (a fall of 35 800 people)
- the Bulgarian region of Plovdiv (a fall of 31 400 people).

Falling population numbers for these 3 regions were largely composed of changes resulting from migratory flows. Net migration plus statistical adjustment accounted for 92.1% of the overall reduction in Varna, 85.1% in Plovdiv and 78.6% in Budapest.

Map 1.2: Crude rate of total population change, 2022
(‰ people, by NUTS 3 regions)



Administrative boundaries: © EuroGeographics © UN–FAO © Turkstat
Cartography: Eurostat – IMAGE, 09/2024

Note: Montenegro and Georgia, 2021.
Source: Eurostat (online data codes: demo_r_gind3 and demo_gind)

Fertility

In 2022, there were 3.9 million live births in the EU. The total number of births decreased by 209 000 (equivalent to a fall of 5.1%) when compared with 2021.

The total fertility rate is the average (mean) number of children who would be born to a woman during her lifetime, if she were to spend her childbearing years conforming to the age-specific fertility rates of a given year. In 2022, the total fertility rate in the EU was 1.46 live births per woman. This rate had been somewhat higher in 2021, when it stood at 1.53 live births per woman.

The natural replacement rate – which is the average number of live births per woman required to keep the population size constant in the absence of migration – is estimated to be around 2.10 children per woman for developed world economies. During the last 2 decades – the period for which an EU time series is available – the fertility rate was consistently below the natural replacement rate. It was in the range of 1.43 to 1.57 live births per woman between 2001 and 2022.

Map 1.3 shows the distribution of total fertility rates across NUTS level 3 regions. In 2022, the regional distribution was somewhat skewed insofar as there were 471 NUTS level 3 regions (40.4% of all regions) where the total fertility rate was below the EU average, while there were 695 regions (59.6%) where the rate was equal to or higher than the EU average.

In 2022, the highest fertility rates were recorded in the French outermost regions

A more detailed analysis of the latest data for 2022 reveals that

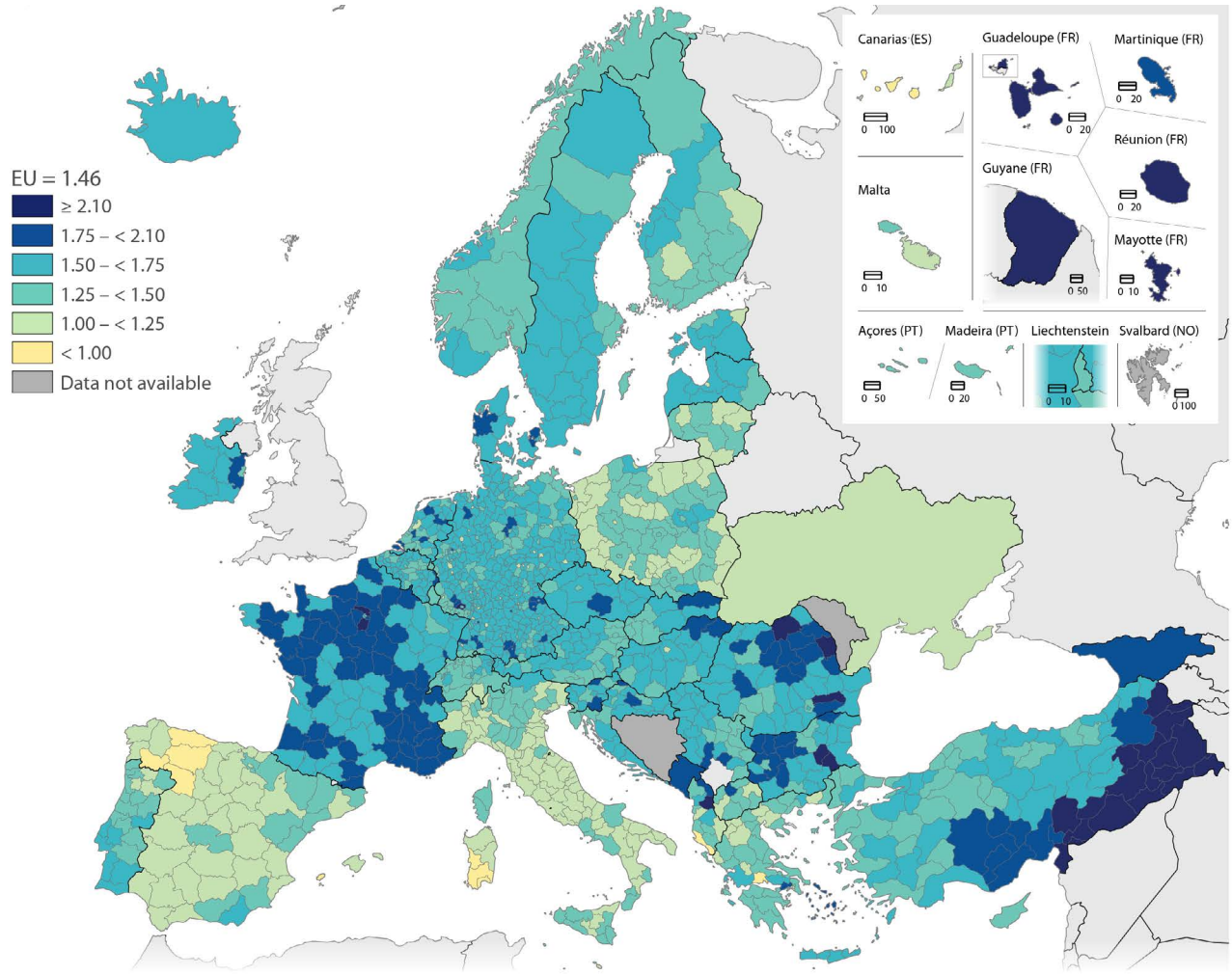
- some of the highest fertility rates were concentrated in regions across Bulgaria, France and Romania
- some of the lowest fertility rates were concentrated in regions across Greece, Spain, Italy and Lithuania

- in several EU countries, the lowest fertility rate was recorded in the capital region – this was the case for Hlavní město Praha (Czechia), Byen København (Denmark), Dublin (Ireland), Rīga (Latvia), Budapest (Hungary), Malta (Malta), Groot-Amsterdam (the Netherlands) and Wien (Austria).

In 2022, there were 13 NUTS level 3 regions where the total fertility rate was equal to or above the natural replacement rate of 2.10 live births per woman (they are shown in the darkest shade of blue in Map 1.3). The highest rates were recorded in the French outermost regions of Mayotte (4.52 live births per woman) and Guyane (3.54 live births per woman), followed – at some distance – by the eastern Bulgarian region of Sliven (2.37 live births per woman). 5 out of the 10 remaining regions with fertility rates equal to or above the natural replacement rate were located in France (either outermost regions or regions within close proximity of the capital), 3 were in Romania, while there was another region from Bulgaria and a single region from Germany.

At the other end of the range, there were 14 NUTS level 3 regions where the total fertility rate was less than 1.00 live births per woman in 2022. These regions were concentrated in southern EU countries: with 9 located in Spain (in the north-west, Canarias or Illes Balears) and 3 in Italy (all in Sardegna); they were joined by single regions in south-west Germany (Heidelberg, Stadtkreis) and central Greece (Fokida). The lowest fertility rate in the EU was recorded in Tenerife (Spain), at 0.79 live births per woman.

Map 1.3: Total fertility rate, 2022
(average number of live births per woman, by NUTS 3 regions)



Administrative boundaries: © EuroGeographics © UN–FAO © Turkstat
Cartography: Eurostat – IMAGE, 06/2024

Note: Montenegro and North Macedonia, 2021. Albania and Türkiye: 2020. Ukraine: 2019.
Source: Eurostat (online data codes: demo_r_find3 and demo_find)

Women in the EU are giving birth later in life

Relatively low levels of fertility across most EU regions reflect a growing proportion of women giving birth later in life. This may be linked, among other factors, to

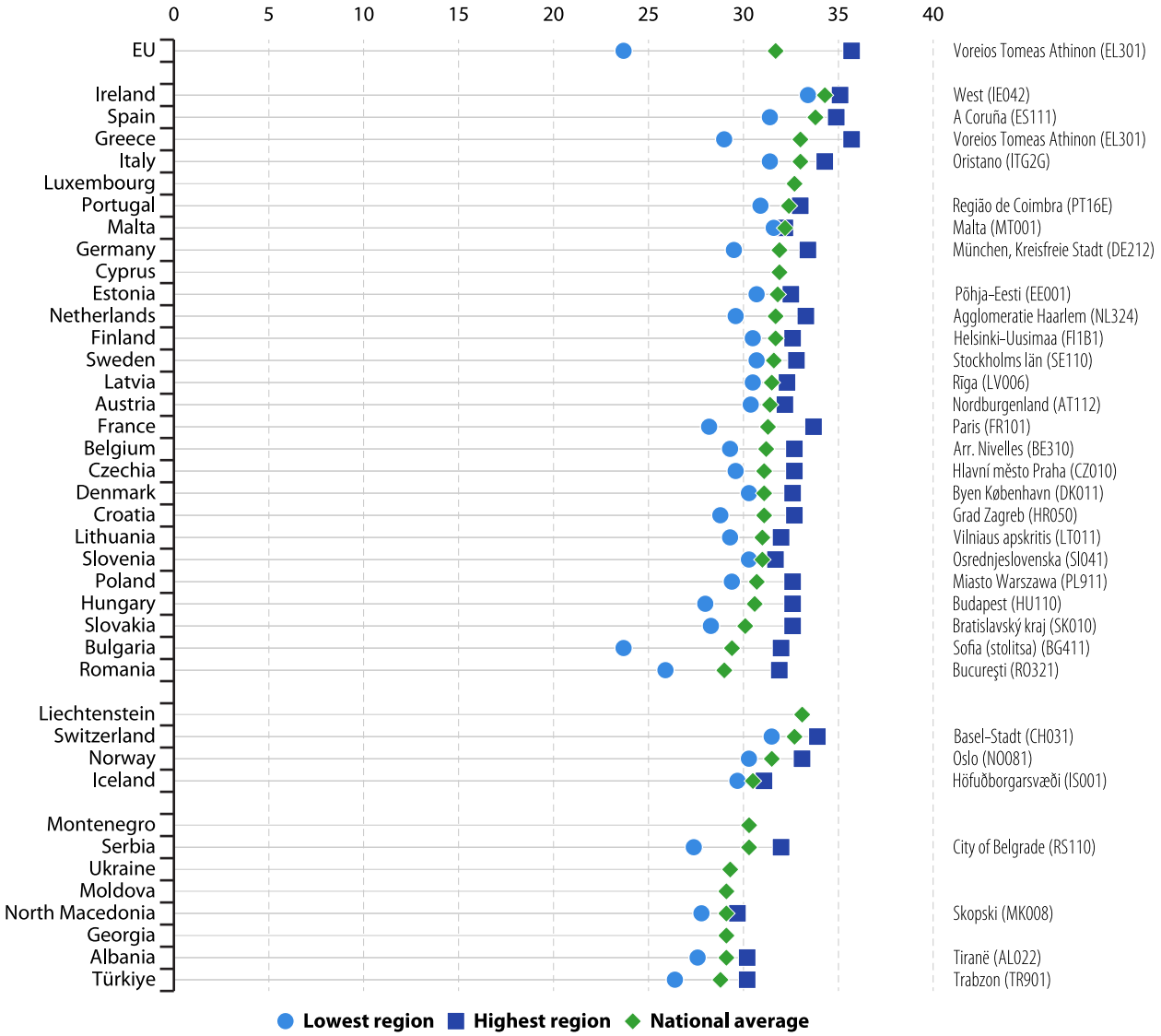
- higher female participation rates in further education and/or more women choosing to establish a career before starting a family
- lower levels of job security (for example, in precarious employment)
- the increasing cost of raising children and of housing
- a decline in the number of traditional family units (fewer people getting married, more same sex couples, and more people getting divorced).

Across the EU, the median age of women at childbirth rose from 30.9 to 31.7 years between 2013 and 2022.

Figure 1.1 shows that, among NUTS level 3 regions, the Greek capital region of Voreios Tomeas Athinon had the highest median age of mothers at childbirth (35.7 years in 2022), followed by the West region of Ireland (35.1 years). Some of the highest median ages were recorded in capital regions and predominantly urban regions. This may reflect a variety of cultural, socioeconomic and personal factors, including

- better education/job opportunities leading some women to prioritise their education and/or career development
- better access to healthcare in these regions, increasing the likelihood of a successful pregnancy for older women
- more progressive social norms, giving women more freedom to decide when they have children
- a wide range of recreational activities, cultural events and social networks, which some women may choose to enjoy before they give consideration to starting a family.

Figure 1.1: Median age of mothers at childbirth, 2022
(years, by NUTS 3 regions)



Note: the figure shows, for each country, the highest and lowest median age of mothers at childbirth by region, as well as the national average; the name of the region with the highest median age is also presented. Montenegro, North Macedonia, Türkiye and Ukraine: 2021. Jan Mayen (NO0B1) and Svalbard (NO0B2): not available.

Source: Eurostat (online data codes: demo_r_find3 and demo_find)

At the other end of the distribution there were 14 NUTS level 3 regions where, in 2022, the median age of women at childbirth was less than 27.5 years. All of these regions were located in either Bulgaria (8 regions) or Romania (6 regions). The lowest median age was registered in the eastern Bulgarian region of Sliven, at 23.7 years.

Mortality

Historically, life expectancy at birth in the EU has risen at a relatively consistent pace with a few exceptional periods (such as during war). In 2019, prior to the COVID-19 pandemic, life expectancy at birth in the EU had been 81.3 years. However, there were consecutive falls of 0.9 years in 2020 and 0.3 years in 2021. The data available for 2022 show that life expectancy in the EU resumed an upward development, rising to 80.6 years, which was nevertheless 0.7 years lower than the pre-pandemic level.

There are a range of potential drivers that may impact inter-regional differences in life expectancy, including

- proximity to healthcare services – capital regions tend to have a greater number and variety of healthcare facilities compared with rural regions
- the prosperity of a region – life expectancy is generally higher in regions characterised by a higher standard of living and lower in regions characterised by poverty and social deprivation
- lifestyle and cultural differences – for example, the type of work that predominates in a region, the typical diet of a region, or the incidence of smoking and alcohol consumption
- climatic conditions – people living in warm or temperate and relatively dry climates tend to live longer lives than those living in regions that experience more extreme weather conditions.

In every region of the EU life expectancy at birth for women was higher than for men

Map 1.4 shows life expectancy at birth for women and men; both maps use the same class boundaries in their legends to aid comparison. In 2022, life expectancy for women (83.3 years) was 5.4 years higher than for men (77.9 years).

This gender gap – in favour of women – was repeated in all of the 242 NUTS level 2 regions for which data are available. In 2022, the largest regional gender gaps for life expectancy at birth were recorded in the Baltic countries and several Polish and Romanian regions. The biggest gap was recorded in Latvia (where life expectancy for women was 10.0 years higher than for men).

Differences in life expectancy at birth between women and men were generally much smaller in Denmark, Ireland, the Netherlands and Sweden. However, the smallest gender gap was observed in the French outermost region of Mayotte (where life expectancy for women was 0.4 years higher than for men).

In 2022, life expectancy at birth for women was highest (as shown by the darkest shade of blue in Map 1.4) in several regions across Spain, France and Italy. The only other NUTS level 2 regions to record life expectancy for women of at least 85.0 years were Prov. Vlaams-Brabant (Belgium), Ipeiros (Greece), Luxembourg (a single region), Norte (Portugal), Åland (Finland), Stockholm and Småland med öarna (both Sweden).

Life expectancy at birth for women peaked in the Spanish capital region of Comunidad de Madrid (87.7 years in 2022), while 2 other Spanish regions – Comunidad Foral de Navarra (86.9 years) and Castilla y León (86.7 years) – had the 2nd and 3rd highest values. Outside of Spain, the highest level among NUTS level 2 regions was recorded in the French capital region of Ile-de-France (86.6 years). The top 10 regions with the highest levels of life expectancy for women was completed by 4 additional Spanish regions (Cataluña and 3 northern regions), Rhône-Alpes (France) and Provincia Autonoma di Trento (Italy).

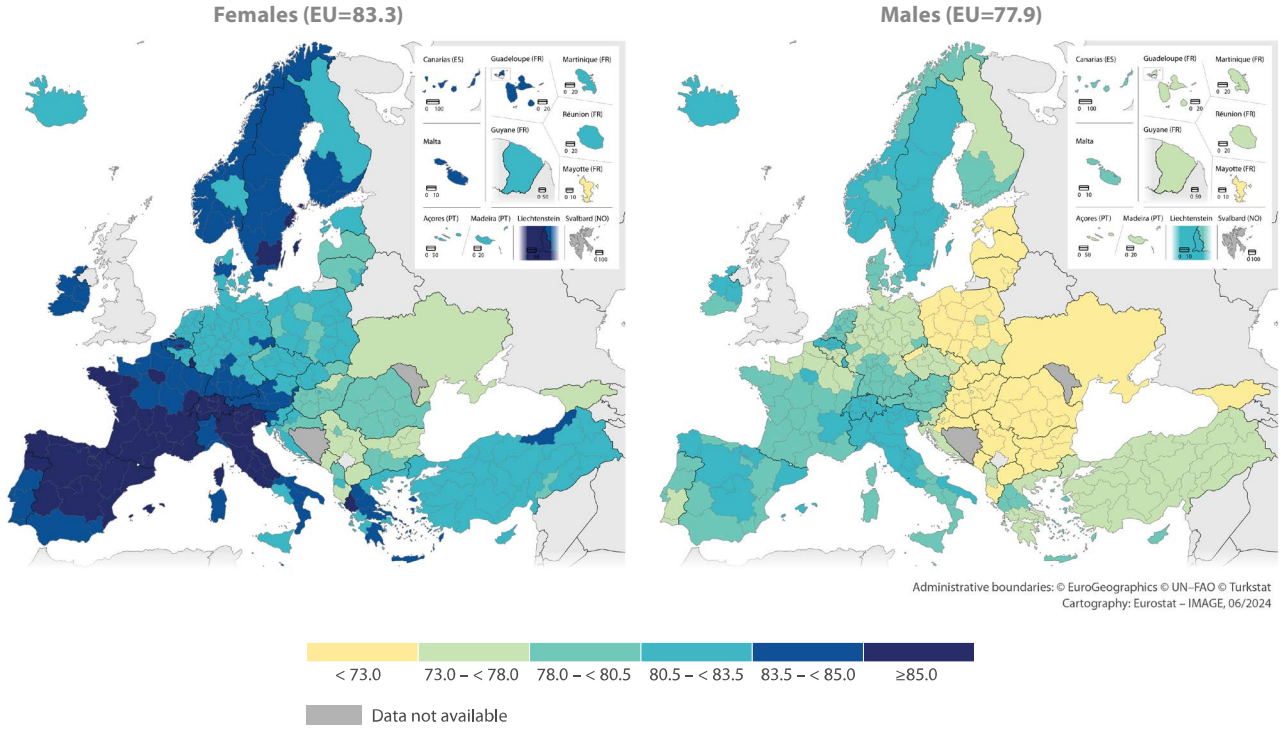
The lowest level of life expectancy at birth for women among NUTS level 2 regions was recorded in the French outermost region of Mayotte (74.4 years in 2022; this was also the region with the lowest level of gross domestic product (GDP) per inhabitant in the EU). There were 5 other regions where life expectancy was less than 78.0 years (as shown by the lightest 2 shades in Map 1.4). One of these was in northern Hungary, while the other 4 were located in Bulgaria.

In 2022, the highest regional levels of life expectancy at birth for men were concentrated in Belgium, Ireland, Spain, Italy and Sweden. The only other NUTS level 2 regions to record life expectancy for men of at least 80.5 years were Ile-de-France and Rhône-Alpes (both France), Luxembourg, Utrecht (the Netherlands) and Åland (Finland). As was the case for women the highest level of life expectancy for men was recorded in the Spanish capital region of Comunidad de Madrid (82.4 years in 2022). The northern Italian region of Provincia Autonoma di Trento and the Swedish capital region of Stockholm (both 82.3 years) had the next highest levels. The top 10 regions were completed by

- 3 additional northern Italian regions
- 2 additional Swedish regions
- the Irish (Eastern and Midland) and French (Ile-de-France) capital regions.

Across NUTS level 2 regions, the lowest level of life expectancy at birth for men was recorded in the Bulgarian region of Severozapaden (68.7 years in 2022; this was also the region with the 2nd lowest level of GDP per inhabitant in the EU). There were 2 other regions where life expectancy at birth for men was less than 70.0 years: Severen tsentralen (also in Bulgaria) and Latvia.

Map 1.4: Life expectancy at birth, 2022
(years, by NUTS 2 regions)



Note: Montenegro and North Macedonia, 2021. Albania: 2020. Georgia, Türkiye and Ukraine: 2019.
Source: Eurostat (online data codes: demo_r_mlifexp and demo_mlexpec)

INFANT MORTALITY RATES

Within the EU, the principal driver behind increases in life expectancy is the marked reduction in infant mortality rates. The EU's infant mortality rate is low by international standards, reflecting well-established healthcare systems, access to quality prenatal and neonatal care, and comprehensive social support.

The EU's infant mortality rate had been 26.5 deaths per 1 000 live births in 1970. By 2010, it had been considerably reduced, falling to 4.0 deaths per 1 000 live births. This downward path continued during most of the next decade (albeit at a slower pace): in 2021, a rate of 3.2 per 1 000 live births was recorded. In 2022, there were 12 872 children in the EU who died before reaching 1 year of age; this equated to an infant mortality rate of 3.3 deaths per 1 000 live births (a modest increase compared with the year before).

Map 1.5 shows that the distribution of infant mortality rates across NUTS level 2 regions had some skewness in 2022. In 138 regions the rate was lower than the EU average, while in 93 regions it was higher; in the remaining 11 regions the rate was identical to the EU average (3.3 deaths per 1 000 live births).

Some of the lowest infant mortality rates in the EU were observed in capital regions. This may reflect, among other factors

- higher living standards
- better access to healthcare facilities and/or
- a concentration of expertise and resources (for example, specialised neonatal units for infants requiring advanced medical interventions).

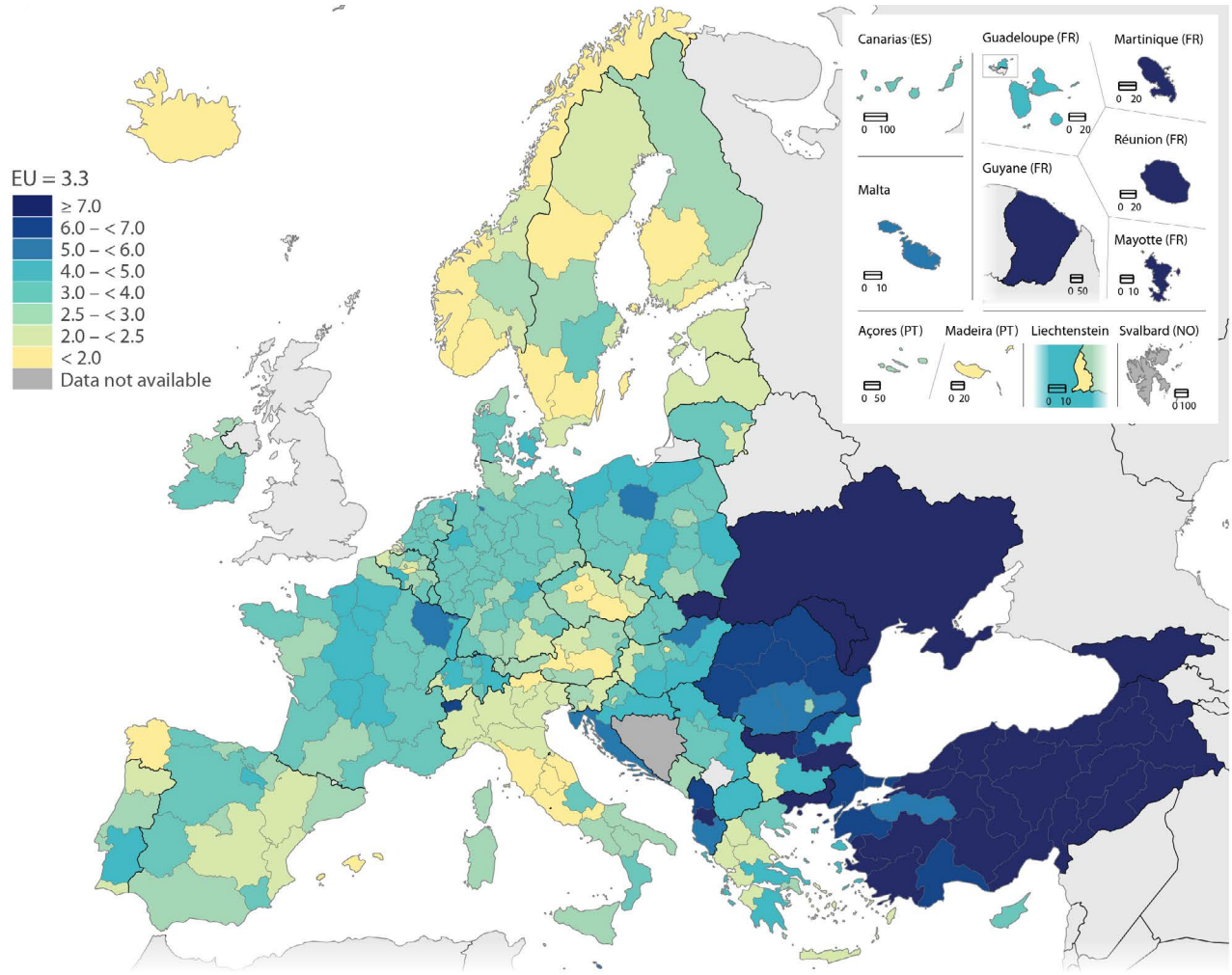
However, there were exceptions to this pattern, as infant mortality rates in the capital regions of Ile-de-France (France), Wien (Austria) and Zahodna Slovenija (Slovenia) were higher than their respective national averages, while the rates in Área Metropolitana de Lisboa (Portugal) and Stockholm (Sweden) were the same as their national averages.

In 2022, there were 23 NUTS level 2 regions where the infant mortality rate was below 2.0 deaths per 1 000 live births. These relatively low rates were mainly located in Italy (6 regions), Czechia, Spain, Finland and Sweden (all 3 regions each). There were no deaths of children under the age of 1 in Åland (Finland).

At the upper end of the distribution, there were 8 NUTS level 2 regions with infant mortality rates of at least 7.0 deaths per 1 000 live births in 2022 (as shown by the darkest shade of blue in Map 1.5). Many of these regions were rural/remote regions.

In 2022, some of the highest infant mortality rates among NUTS level 2 regions were recorded in Bulgaria, Greece, the outermost regions of France and Slovakia. The French regions of Mayotte and Guyane had the highest rates in the EU (10.1 and 9.8 deaths per 1 000 live births, respectively), while the 3rd highest rate was recorded in the eastern Slovak region of Východné Slovensko (9.7 deaths per 1 000 live births).

Map 1.5: Infant mortality rate, 2022
(deaths of children under 1 year of age per 1 000 live births, by NUTS 2 regions)



Administrative boundaries: © EuroGeographics © UN–FAO © Turkstat
Cartography: Eurostat – IMAGE, 06/2024

Note: Saarland (DEC0), Leipzig (DED5), North Macedonia and Ukraine: 2021. Montenegro, Moldova and Georgia: 2020.
Source: Eurostat (online data codes: demo_r_minfind and demo_minfind))

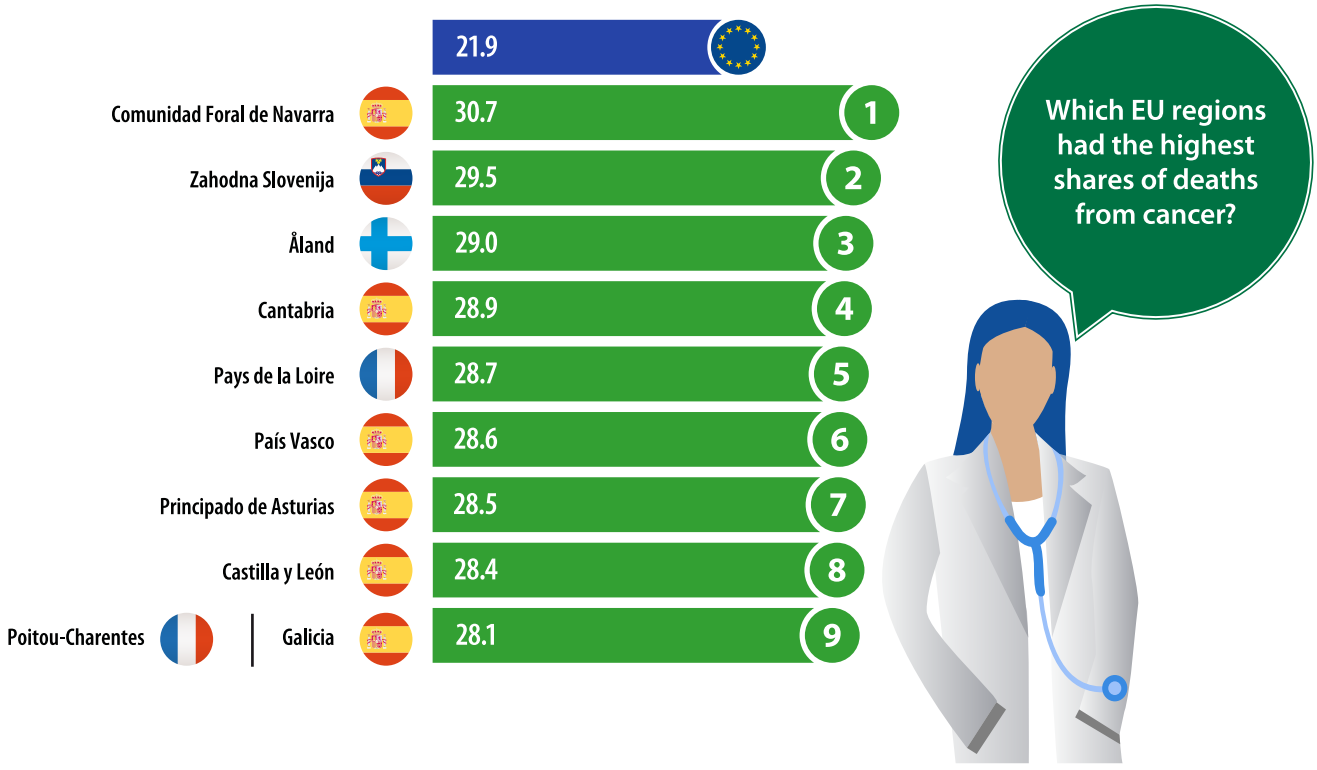
2. Health

Health is an important priority for most Europeans who expect to receive efficient healthcare services – for example, if contracting a disease or being involved in an accident – alongside timely and reliable public health information. A key principle included within the European Pillar of Social Rights is that everyone should have access to affordable, preventive and curative health care of good quality. The overall health of the European Union's (EU's) population is closely linked to that of the environment through – among other influences – the quality of the air we breathe, the water we drink and the food we eat.

The President of the European Commission highlighted a 'European plan to fight cancer, to support Member States in improving cancer control and care' among a number of political guidelines for the period 2019–24. *Europe's Beating Cancer Plan* was presented by the European Commission in February 2021. It is built around 10 flagship initiatives and a range of supporting actions and is designed to support the work of EU countries in preventing cancer and ensuring a high quality of life for cancer patients, survivors, their families and carers.

This year's edition of the *Eurostat regional yearbook* has a special focus on cancer. In 2021, 21.9% of all deaths in the EU were attributed to cancer: as such, it was the 2nd most common cause of death, behind circulatory diseases. In the northern Spanish region of Comunidad Foral de Navarra, 30.7% of all deaths were attributed to cancer in 2021 – this was the highest regional share among NUTS level 2 regions (see the infographic below). The next highest shares were recorded in

- Zahodna Slovenija, the capital region of Slovenia
- Åland, an archipelago in Finland that is the smallest region in the EU (in terms of population numbers)
- 5 additional regions located in northern Spain – Cantabria, País Vasco, Principado de Asturias, Castilla y León and Galicia
- Pays de la Loire and Poitou-Charentes in western France.



(% of all deaths, 2021, by NUTS 2 regions)

Note: based on standardised death rates per 100 000 inhabitants.

Source: Eurostat (online data code: hlth_cd_asdr2)

Health care

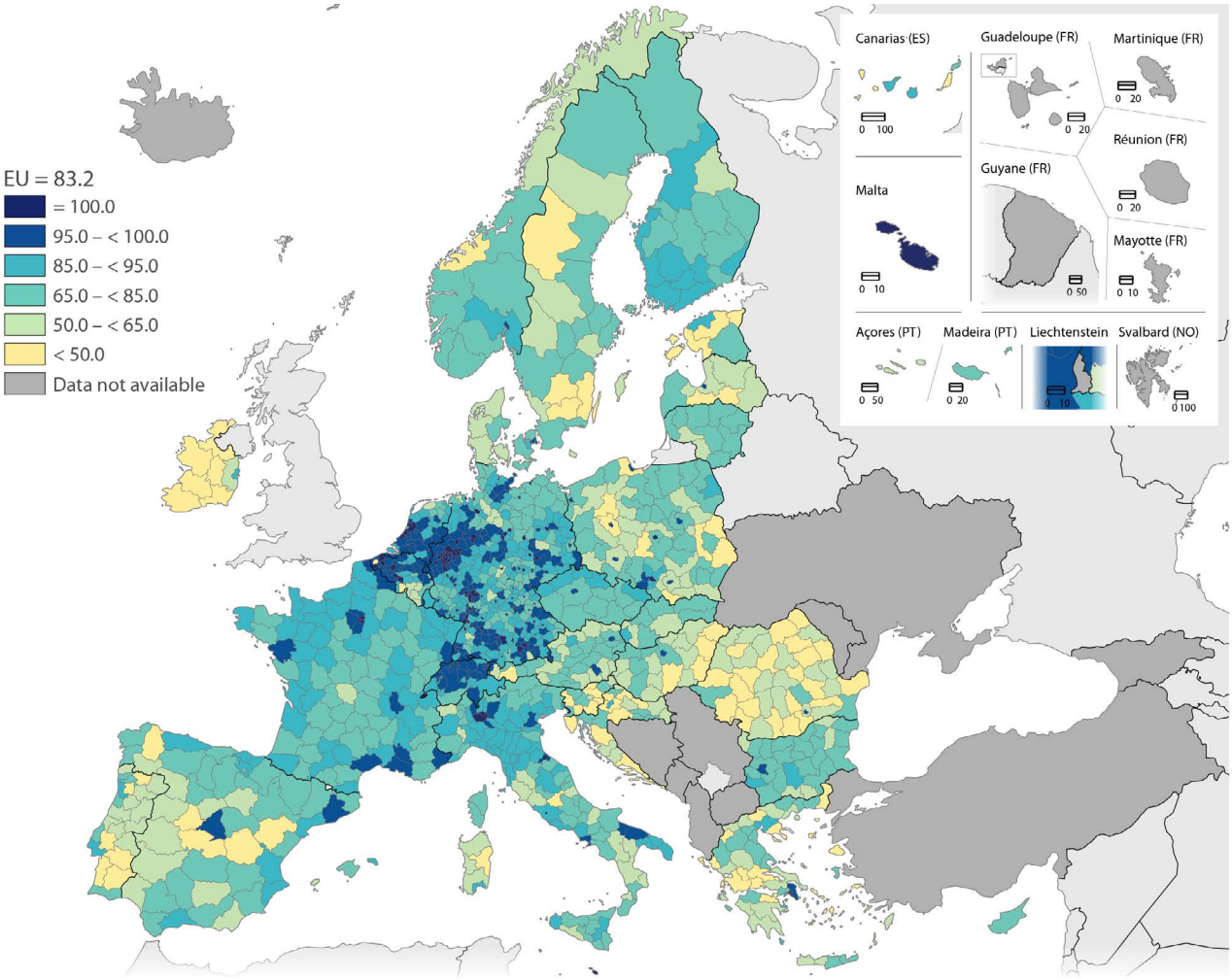
In 2023, the share of the EU's population living within 15 minutes driving time of a hospital was 83.2%

Accessibility may be broadly defined as how quickly and easily a destination can be reached given the available means of transport. It is increasingly considered a key policy goal in land-use, transport and regional planning. A lack of access to a range of services is one of the principal challenges faced by people living in rural areas: where is the nearest hospital, pharmacy, school, bank or supermarket, and how easy is it to get there?

In 2023, the share of the EU population living within 15 minutes driving time of a hospital was 83.2%; the definition applied for a 'hospital' may vary somewhat between EU countries. There were 124 NUTS level 3 regions where all (100.0%) of the population lived within 15 minutes driving time of a hospital (as shown by the darkest shade of blue in Map 2.1). The vast majority – 96 out of the 124 regions – were located in Germany, principally in regions containing towns/cities. The remainder of this group was located in

- Belgium (6 regions)
- the Netherlands (6 regions – including the capital of Groot-Amsterdam)
- Greece (4 regions – all of which form part of the capital)
- France (4 regions – including the capital of Paris and 3 surrounding regions)
- Malta (both regions)
- Spain, Italy and Poland (all 2 regions).

Map 2.1: Population living within 15 minutes driving time of a hospital, 2023
(%, by NUTS 3 regions)



Administrative boundaries: © EuroGeographics © UN–FAO © Turkstat
Cartography: Eurostat – IMAGE, 07/2024

Source: TomTom Multinet 2022, Geostat population grid 2021, Eurostat-GISCO hospital locations 2023

At the other end of the range, there were 97 NUTS level 3 regions where a minority (less than 50.0%) of the population lived within 15 minutes driving time of a hospital in 2023 (they are shown with a yellow shade in Map 2.1). These 97 regions were primarily located in eastern and southern EU countries, with the largest concentration in Romania (21 regions) and Greece (15 regions). There were also several regions across Croatia, Spain (both 9 regions), Poland (8 regions), Ireland, Portugal and Slovenia (all 6 regions) where a minority of the population lived within 15 minutes driving time of a hospital. At the bottom end of the distribution, there were 7 regions in the EU where less than 10.0% of the population lived within 15 minutes driving time of a hospital, they were

- Lefkada, Thesprotia, Lesvos and Limnos, and Chalkidiki in Greece
- Covasna, Tulcea and Mehedinți in Romania.

HOSPITAL BEDS AND MEDICAL DOCTORS

More about the data: the number of hospital beds and medical doctors

The number of hospital beds and the number of medical doctors are indicators that may be used to measure the capacity of healthcare systems.

The number of hospital beds includes beds which are regularly maintained and staffed and immediately available for the care of patients admitted to hospitals; these statistics cover beds in general hospitals and in speciality hospitals.

The number of medical doctors includes generalists (such as general practitioners (GPs)) as well as medical and surgical specialists. These doctors provide services to patients as consumers of health care, including: giving advice, conducting medical examinations and making diagnoses, applying preventive medical methods, prescribing medication and treating diagnosed illnesses, giving specialised medical or surgical treatment.

Eurostat gives preference to the concept of practising health care staff. The data for Greece, Portugal and Finland relate to medical doctors licensed to practice, while the data for Slovakia, North Macedonia and Türkiye relate to professionally active medical doctors. Within this section on health care resources, only national data are available for Germany, Ireland and the Netherlands.

In 2021, there were 2.35 million hospital beds across the EU. This equated to 525 hospital beds per 100 000 inhabitants, or – expressed in a different way – there was, on average, 1 hospital bed for every 191 people. In 2021, there were 1.81 million medical doctors in the EU; this equated to an average of 406 per 100 000 inhabitants, or 1 medical doctor for every 246 people.

In 2021, the north-western Polish region of Zachodniopomorskie and the Romanian capital region of Bucureşti-Ilfov were the only regions in the EU to report more than 1 000 hospital beds per 100 000 inhabitants

Map 2.2 shows the number of hospital beds and the number of medical doctors per 100 000 inhabitants. In 2021, there were 20 NUTS level 2 regions with a relatively high concentration of both of these healthcare resources – at least 585.0 hospital beds per 100 000 inhabitants and at least 415.0 medical doctors per 100 000 inhabitants – as shown by the darkest shade of green in the map. A more detailed investigation reveals that this group included

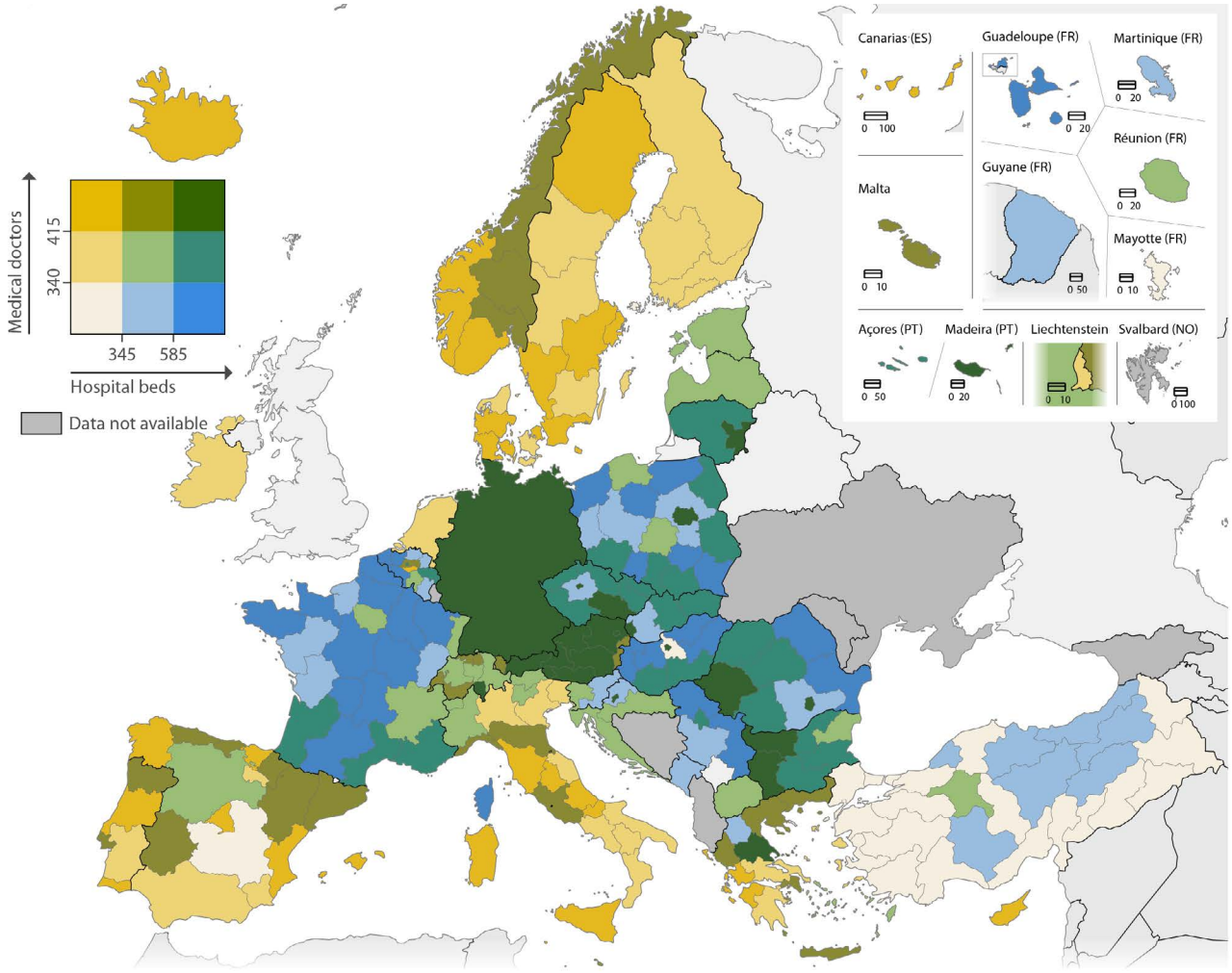
- 8 capital regions predominantly from eastern EU countries – those of Bulgaria, Czechia, Croatia, Lithuania, Hungary, Austria, Poland, Romania and Slovakia (this pattern may reflect, to some extent, a large number of healthcare services and medical doctors being concentrated in urban regions with high levels of population density, as well as country-specific ways of organising health care and the types of service provided to patients)
- all but 2 of the remaining regions from Austria – the exceptions were Burgenland and Vorarlberg
- additional regions from Bulgaria, Czechia and Romania – Severozapaden, Jihovýchod and Vest
- Região Autónoma da Madeira in Portugal
- Germany (only national data are available).

By contrast, there were 9 NUTS level 2 regions with a relatively low concentration of healthcare resources per 100 000 inhabitants in 2021 – fewer than 345.0 hospital beds and fewer than 340.0 medical doctors – as shown by the lightest coloured shade in the map. This group included Pest in Hungary, a region which surrounds the national capital of Budapest (that featured among the 20 regions with the highest ratios of hospital beds and medical doctors per 100 000 inhabitants). This contrasting situation reflects, at least in part, a relatively centralised healthcare system in Hungary, with a high proportion of hospitals and other medical facilities in the region of Budapest, where demand is further stimulated by medical tourism (for example, cosmetic and orthopaedic surgery, fertility treatment, balneotherapy or dentistry).

The remaining 8 regions that had a relatively low concentration of healthcare resources in 2021 were composed of rural, remote and outermost regions

- the Greek region of Sterea Elláda
- the Spanish region of Castilla-La Mancha
- the French outermost regions of Guyane and Mayotte
- the relatively mountainous Italian region of Basilicata
- the southern Portuguese region of Alentejo
- 2 Finnish regions Länsi-Suomi and Åland (the Finnish data for medical doctors relates to 2020).

Map 2.2: Hospital beds and medical doctors, 2021
(per 100 000 inhabitants, by NUTS 2 regions)



Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat – IMAGE, 06/2024

Note: Germany, Ireland and the Netherlands, national data. Iceland: hospital beds, 2020. Denmark, Finland and Sweden: medical doctors, 2020.

Source: Eurostat (online data codes: hlth_rs_bdsrg2, hlth_rs_bds1, hlth_rs_physreg, hlth_rs_phys and demo_gind)

There was a modest reduction in the number of hospital beds across the EU between 2016 and 2021

There was a modest reduction in the number of hospital beds per 100 000 inhabitants in the EU; this ratio fell 3.7% between 2016 and 2021. Falling numbers of hospital beds relative to population numbers may reflect – among other factors – cuts to healthcare spending, medical and technological developments, or changes in healthcare policies. The demand for hospital beds may be reduced through a greater provision of day-care and outpatient services as well as reductions in the average length of hospital stays. Such changes may result from the introduction of new treatments and less invasive forms of surgery. In addition, during the COVID-19 pandemic, some hospital services outside of emergencies were closed (for example, planned operations were postponed and/or staff shortages meant that certain wards were shut down); these factors may also have contributed to a decrease in bed numbers towards the end of the period under consideration.

Figure 2.1 shows the NUTS level 2 regions with the highest and lowest overall changes in their number of hospital beds per 100 000 inhabitants between 2016 and 2021. There was a relatively clear development of falling bed numbers over most of the EU. Almost 7 out of 10 regions (129 out of 187 for which data are available) recorded a decrease in their number of hospital beds per 100 000 inhabitants. This pattern was particularly evident across Finland and Sweden, as Pest in Hungary was the only region from outside of these 2 Nordic countries to feature among the 12 regions with the lowest overall reductions. The most rapid declines in hospital bed numbers per 100 000 inhabitants were recorded in the Finnish regions of Etelä-Suomi (down 35.1% between 2016

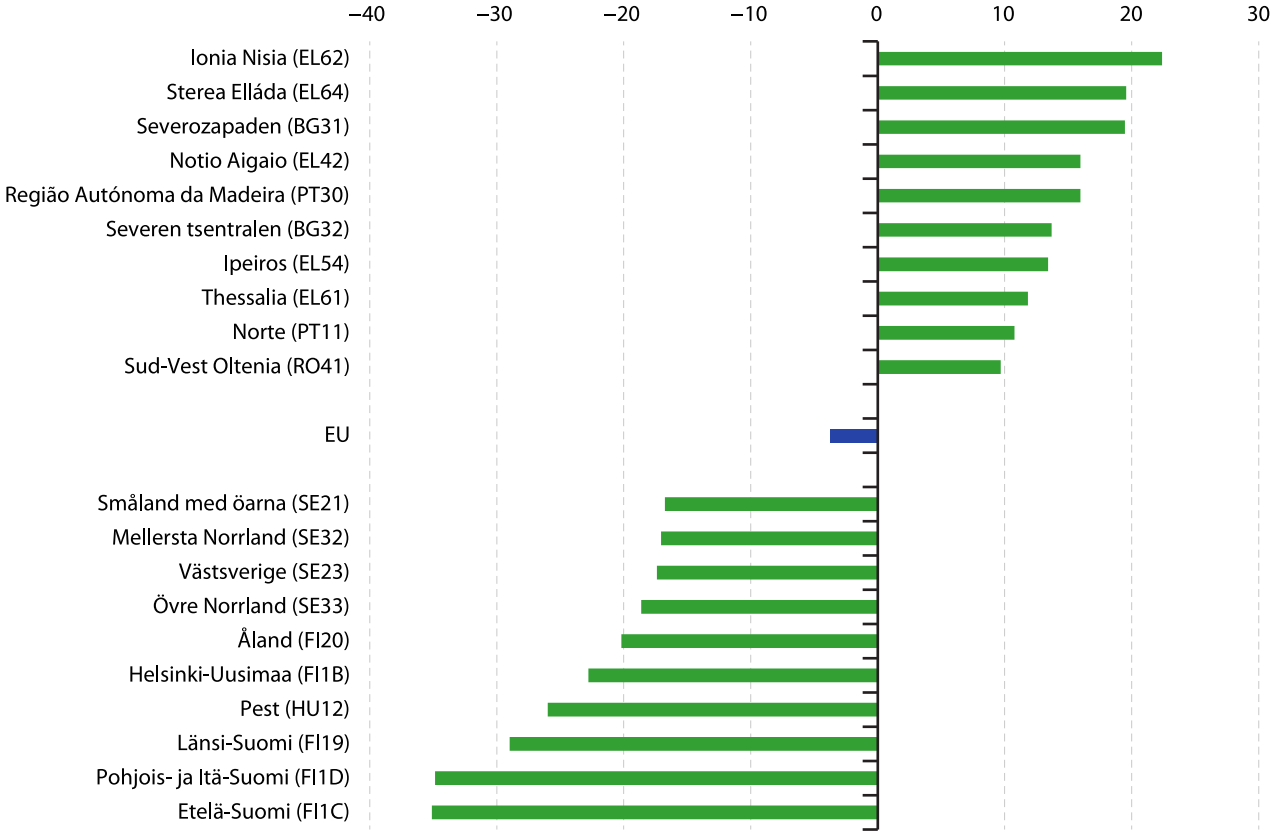
and 2021) and Pohjois- ja Itä-Suomi (down 34.8%). The rapid decrease in hospital beds in Finland may be linked, at least in part, to a fall in long-term care and psychiatric care beds and a reorganisation/centralisation of key services in a restricted number of university/major hospitals.

By contrast, there were 58 NUTS level 2 regions where the number of hospital beds per 100 000 inhabitants increased between 2016 and 2021. Only 9 of these recorded increases of more than 10.0%

- 5 regions from Greece – Ionia Nisia, Sterea Elláda, Notio Aigaio, Ipeiros and Thessalia
- 2 regions from Bulgaria – Severozapaden and Severen tsentralen
- 2 regions from Portugal – Região Autónoma da Madeira and Norte.

The most rapid increases in hospital bed numbers per 100 000 inhabitants were recorded in the Greek regions of Ionia Nisia (up 22.4% between 2016 and 2021) and Sterea Elláda (up 19.6%), as well as the Bulgarian region of Severozapaden (up 19.5%).

Figure 2.1: Change in the number of hospital beds, 2021
(%, overall change compared with 2016 based on hospital beds per 100 000 inhabitants, by NUTS 2 regions)



Note: the figure shows the EU regions with the highest and lowest overall rates of change. Germany, Ireland, Croatia and the Netherlands: national data. Warszawski stołeczny (PL91) and Mazowiecki regionalny (PL92): not available.

Source: Eurostat (online data codes: hlth_rs_bdsrg2 and hlth_rs_bds1)

The number of medical doctors in the EU rose by a tenth between 2016 and 2021

In 2021, there were 1.81 million medical doctors in the EU. This figure marked an overall increase of 10.5% when compared with the situation in 2016 (1.64 million medical doctors). Expressed relative to population size, the number of medical doctors per 100 000 inhabitants increased 10.1% across the EU between 2016 and 2021, to reach 406 medical doctors per 100 000 inhabitants, an average increase of 1.9% per year.

Figure 2.2 shows the NUTS level 2 regions with the highest and lowest overall changes in their number of medical doctors per 100 000 inhabitants. The ratio of medical doctors relative to population increased in the vast majority of regions, rising in almost 9 out of every 10 (or 173 out of 196) regions for which data are available. This ratio increased in every region of Belgium, Bulgaria, Czechia, Denmark, the Netherlands, Austria, Poland, Portugal, Romania, Slovenia, Slovakia and Finland (2016–20); Germany, Ireland, Croatia, Cyprus, Latvia and Malta also recorded increases (only national data are available).

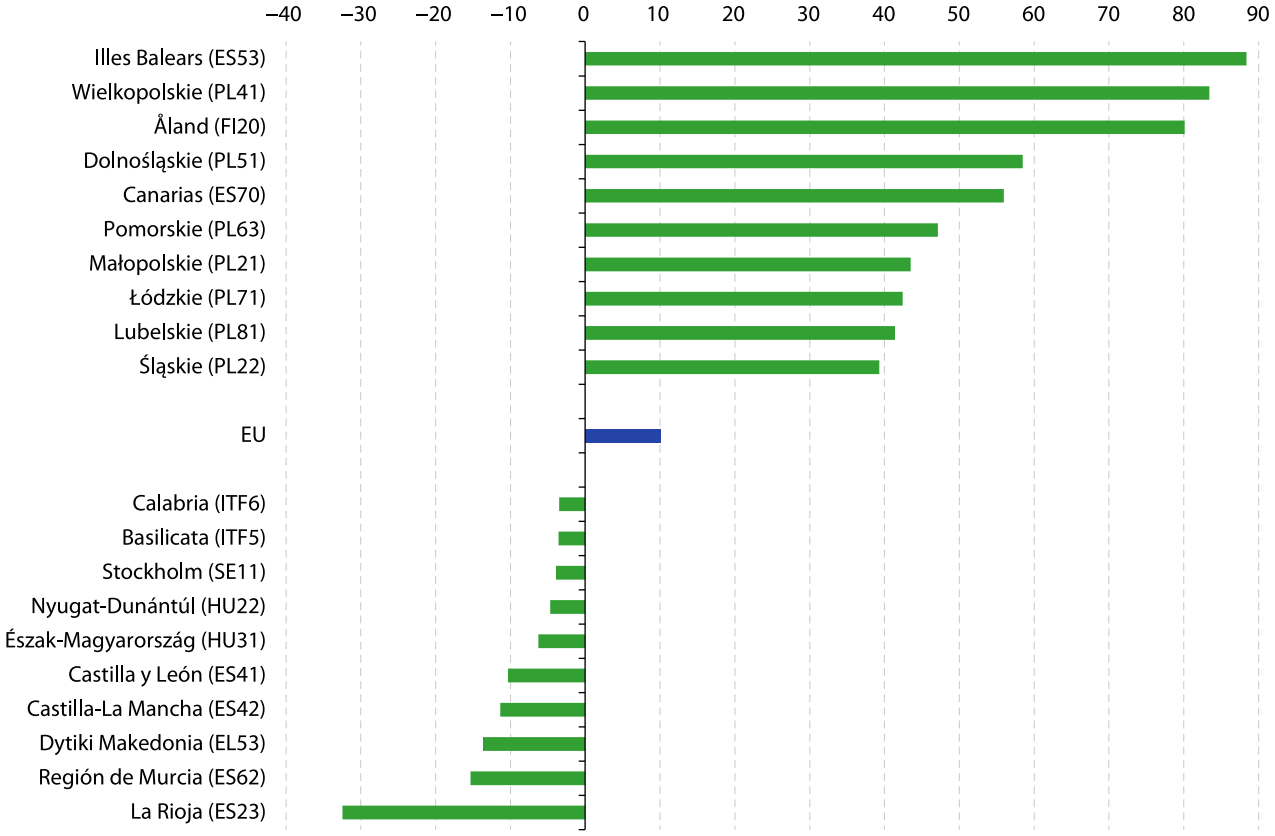
The highest rates of increase were concentrated in Polish and Spanish regions, while the lowest rates were mainly distributed across regions located in southern EU countries and France. At the top end of the distribution, there were 5 NUTS level 2 regions where the number of medical doctors per 100 000 inhabitants increased by more than 50.0% between 2016 and 2021

- the Spanish island regions of Illes Balears and Canarias – the former recorded the highest increase, up 88.4%
- the western Polish regions of Wielkopolskie and Dolnośląskie
- the Finnish archipelago of Åland.

By contrast, there were 5 NUTS level 2 regions where the number of medical doctors per 100 000 inhabitants fell by more than 10.0% between 2016 and 2021

- 4 Spanish regions – Castilla y León, Castilla-La Mancha, Región de Murcia and La Rioja – the latter recording the biggest fall among EU regions, down 32.5%
- a single Greek region – Dytiki Makedonia.

Figure 2.2: Change in the number of medical doctors, 2021
(%, overall change compared with 2016 based on medical doctors per 100 000 inhabitants, by NUTS 2 regions)



Note: the figure shows the EU regions with the highest and lowest overall rates of change. Germany, Ireland and Croatia: national data. Denmark, Finland and Sweden: 2016–20 instead of 2016–21. Ciudad de Melilla (ES64), Luxembourg (LU00), Warszawski stołeczny (PL91) and Mazowiecki regionalny (PL92): not available.

Source: Eurostat (online data codes: hlth_rs_physreg, hlth_rs_phys and demo_gind)

Causes of death

The total number of deaths in the EU reached a high of 5.3 million in 2021

In 2021, there were 5.3 million deaths across the EU. This equated to an increase of 109 500 compared with the year before (up 2.1%), reflecting, at least in part, the continued impact of the COVID-19 crisis.

More about the data: standardised death rates

Information presented in this section is based on standardised death rates, whereby age-specific mortality rates are combined to reflect the structure of a standard population. This removes the influence of different age structures between regions (as elderly people are more likely to die than younger people or are more likely to catch/contract a specific illness/disease); the result is a measure that is more comparable across space and/or over time.

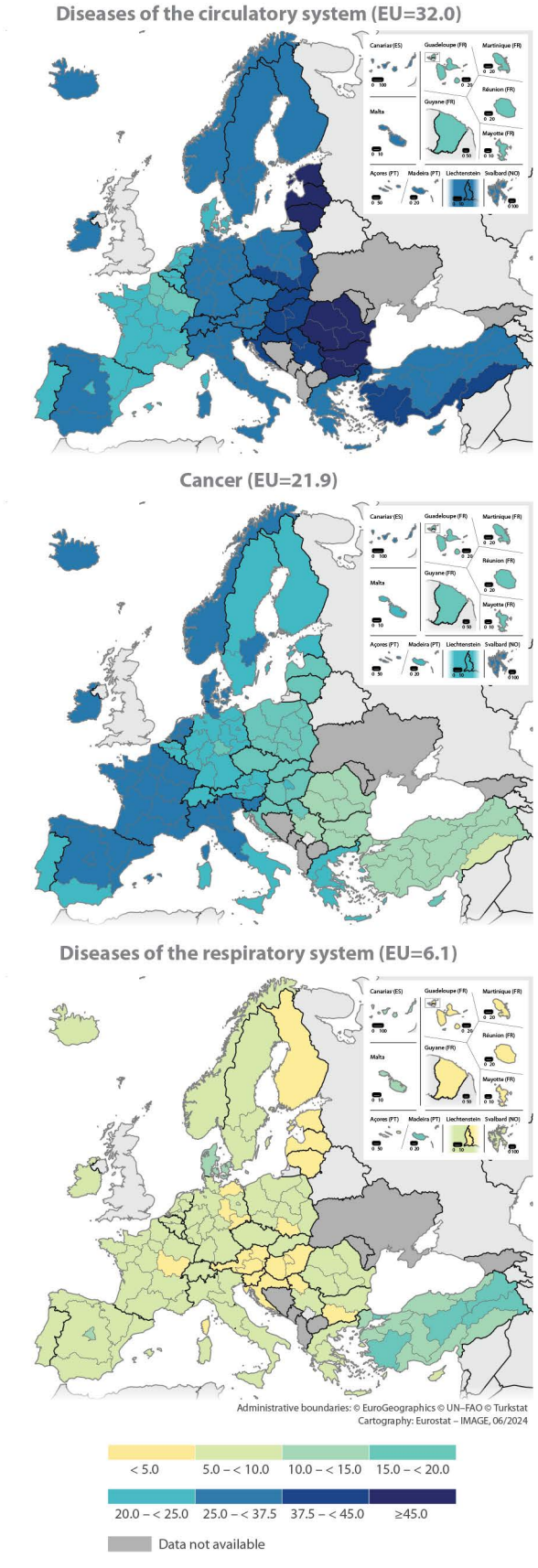
In 2021, almost 1 in 3 deaths in the EU were attributed to diseases of the circulatory system

A wide range of factors determine regional mortality patterns, with deaths linked, among other issues, to age structures, sex distributions, access to healthcare services and the quality of these services, healthcare policies, living/working conditions, types of occupation, and the surrounding environment.

Map 2.3 is composed of 3 different maps covering the principal causes of death in the EU. In 2021, diseases of the circulatory system – which include heart attacks, heart diseases, hypertensive diseases and diseases of pulmonary circulation – accounted for 32.0% of all deaths. The 2nd most common cause of death was cancer (21.9%), which is the subject of a special focus in this year's edition of the *Eurostat regional yearbook* (see below). Diseases of the respiratory system accounted for 6.1% of all deaths, while the residual category of other causes of death made-up the remaining 40.0%. The EU – in common with many other parts of the world – had a large number of COVID-19 deaths in 2021 (10.8% of the total). While globally death rates for COVID-19 have subsequently been reduced, the long term-epidemiological consequences aren't well known / are still being researched (for example, the impact of long COVID).

In 2021, diseases of the circulatory system were the main cause of death in 71.7% (66 out of 92) of NUTS level 1 regions. There were 9 regions within the EU where more than 45.0% of all deaths were caused by diseases of the circulatory system (as shown by the darkest shade of blue in the map). In both regions of Bulgaria and all 4 regions of Romania, a majority of deaths were accounted for by diseases of the circulatory system, while the 3 Baltic countries recorded shares within the range of 45.0% to 50.0%. The highest share of deaths from diseases of the circulatory system was recorded in Yugozapadna i Yuzhna tsentralna Bulgaria, at 57.1%. By contrast, the southern French region of Provence-Alpes-Côte d'Azur had the lowest share, at 18.1%.

Map 2.3: Main causes of death, 2021
(% of all deaths, based on standardised death rates per 100 000 inhabitants, by NUTS 1 regions)



Source: Eurostat (online data code: hlth_cd_asdr2)

In 2021, cancer was the main cause of death in more than 25% of all NUTS level 1 regions (26 out of 92 regions). There was a relatively narrow range in the share of deaths attributed to cancer across different regions of the EU. The highest regional shares were recorded in

- Åland in Finland (where cancer accounted for 29.0% of all deaths)
- the western French regions of Pays de la Loire (28.7%), Bretagne and Nouvelle-Aquitaine (both 27.6%)
- the northern Spanish regions of Noroeste (28.3%) and Noreste (28.2%).

At the other end of the range, cancer accounted for a relatively low share of the total number of deaths in each of the regions where diseases of the circulatory system accounted for more than 50.0% of all deaths. In both Bulgarian regions and the 4 Romanian regions, cancer accounted for no more than 13.5% of all deaths in 2021; the next lowest share was recorded in Makroregion wschodni in Poland (15.5%).

Diseases of the respiratory system are another main cause of death in the EU. They include conditions such as chronic obstructive pulmonary disease, pneumonia or asthma, but exclude cancers of the respiratory system (for example, lung cancer). In 2021, diseases of the respiratory system accounted for a 15.0% share of all deaths in the Portuguese island Região Autónoma da Madeira – the highest share in the EU. There were 4 other NUTS level 1 regions where in excess of 1 in 10 deaths were accounted for by diseases of the respiratory system

- the Spanish regions of Canarias (11.2%) and Comunidad de Madrid (10.2%)
- Malta (11.2%)
- Denmark (10.5%).

By contrast, diseases of the respiratory system accounted for no more than 3.0% of all deaths in 2021 in Slovenia, Manner-Suomi (mainland Finland) and the Baltic countries of Latvia and Lithuania, the last of these having the lowest regional share, at 2.2%.

FOCUS ON CANCER

In 2021, there were 1.1 million deaths across the EU that were attributed to cancer. Map 2.4 provides a more detailed picture than Map 2.3, providing information for NUTS level 2 regions. The regional distribution was relatively uniform insofar as 47.9% of all regions – 116 out of 242 – reported that their standardised death rate for cancer was equal to or above the EU average (235.4 deaths per 100 000 inhabitants).

Looking in more detail, there were 23 NUTS level 2 regions where the standardised death rate for cancer was at least 275.0 deaths per 100 000 inhabitants in 2021 (as shown by the darkest shade of blue in Map 2.4), they were principally concentrated in eastern EU countries, including

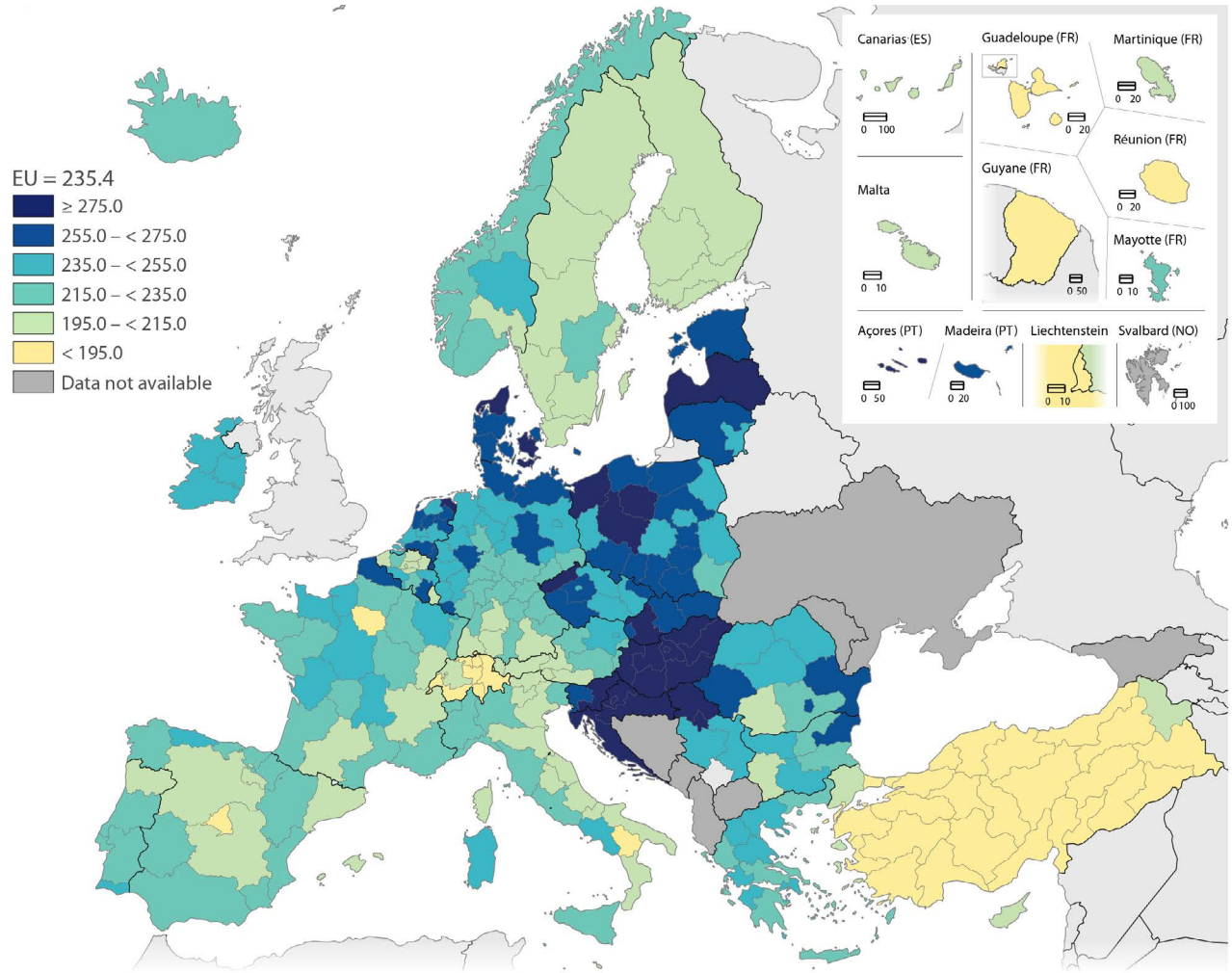
- all 8 regions of Hungary
- all 4 regions of Croatia
- 3 regions from Poland
- single regions from each of Czechia, Slovenia and Slovakia
- this group of 23 regions also included 2 regions from Denmark and single regions from Latvia, the Netherlands and Portugal.

The highest standardised death rate for cancer in 2021 was recorded in the Hungarian industrial region of Dél-Dunántúl (336.1 deaths per 100 000 inhabitants); this was 1.4 times as high as the EU average. There were 5 other regions in Hungary and 3 regions in Croatia where the death rate for cancer was higher than 300.0 per 100 000 inhabitants. Região Autónoma dos Açores in Portugal was the only other region with a death rate above this level.

There were 6 NUTS level 2 regions where the standardised death rate for cancer was less than 195.0 deaths per 100 000 inhabitants in 2021 (they are shown with a yellow shade in Map 2.4). This group was composed of

- 4 regions from France, including the capital region of Ile-de-France and 3 outermost regions – Guadeloupe, La Réunion and Guyane
- Basilicata in southern Italy
- the Spanish capital region of Comunidad de Madrid.

Map 2.4: Deaths from cancer, 2021
(standardised death rates per 100 000 inhabitants, by NUTS 2 regions)



Administrative boundaries: © EuroGeographics © UN–FAO © Turkstat
Cartography: Eurostat – IMAGE, 06/2024

Source: Eurostat (online data code: hlth_cd_asdr2)

In 2021, cancer of the trachea, bronchus and lung accounted for 6.1% of all deaths in the Spanish regions of Noreste and Noroeste, and the French island region of Corse

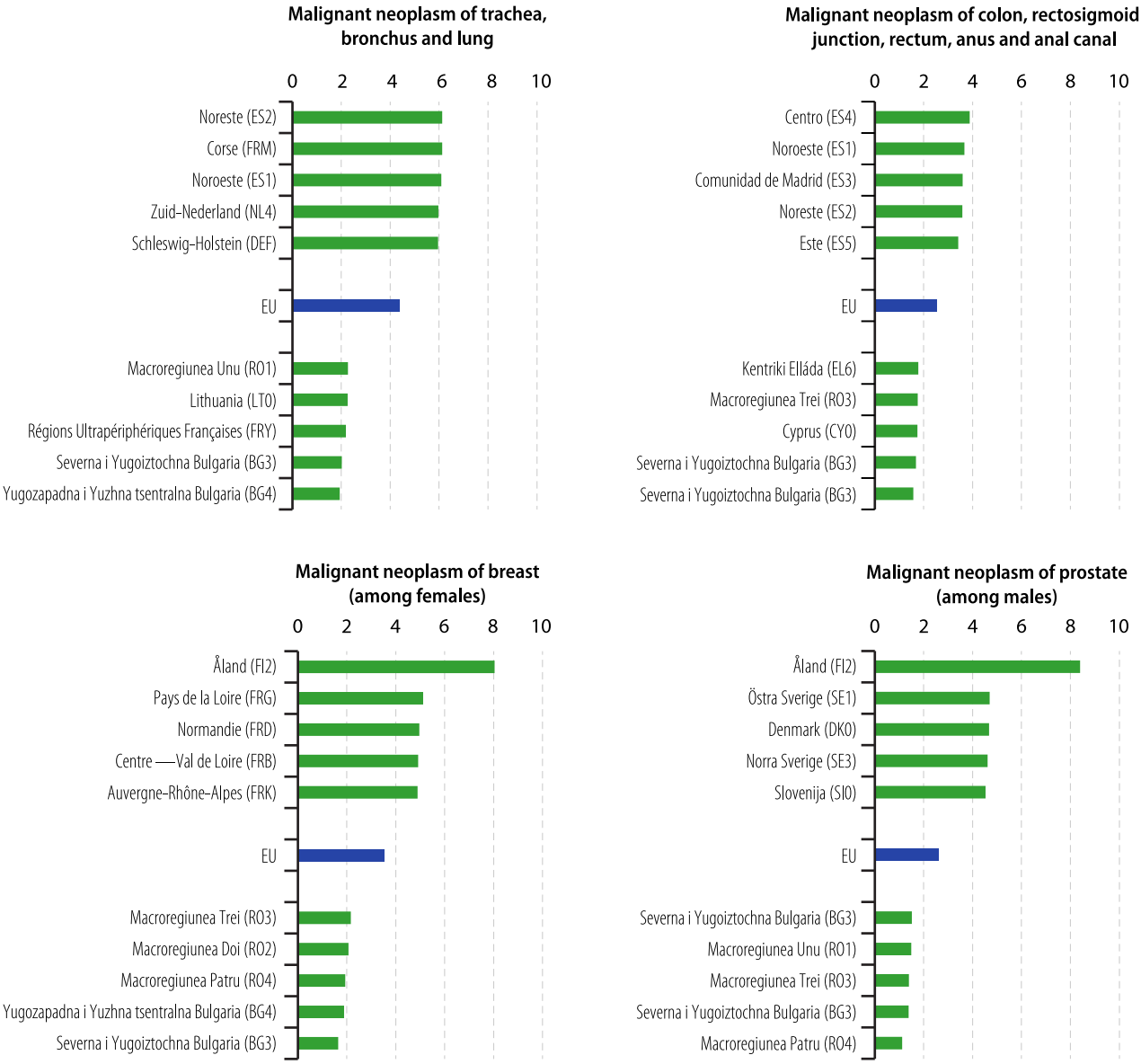
Figure 2.3 provides more detailed information for 4 different types of cancer. In 2021, there were 3 NUTS level 1 regions where cancer of the trachea, bronchus and lung accounted for 6.1% of all deaths: the Spanish regions of Noreste and Noroeste, and the French island region of Corse. By contrast, cancer of the trachea, bronchus and lung accounted for 1.9% of all deaths in Yugozapadna i Yuzhna tsentralna Bulgaria, which was less than half the EU average (4.4%).

There was less variation across EU regions in terms of the relative weight of cancer of the colon, rectosigmoid junction, rectum, anus and anal canal in the total number of deaths. In 2021, the 5 highest shares were recorded in Spanish regions, peaking at 3.9% in Centro. The lowest share was (again) recorded in Yugozapadna i Yuzhna tsentralna Bulgaria (1.6%), which was approximately two thirds of the EU average (2.5%).

The other charts in Figure 2.3 provide information about 2 types of cancer that are largely gender specific. In 2021, breast cancer accounted for 3.5% of all female deaths within the EU. Among NUTS level 1 regions, the Finnish archipelago of Åland had the highest share of deaths from breast cancer (8.0% of all female deaths). This share was substantially higher than the shares recorded in any of the other EU regions; Åland has a very small population and as such its death rates may fluctuate considerably from 1 year to the next. Breast cancer also accounted for a relatively high proportion of female deaths in France, where the 2nd to 8th highest regional shares were recorded, peaking at 5.1% in Pays de la Loire. Severna i Yugoiztochna Bulgaria had the lowest share of female deaths from breast cancer, at 1.7%, which was approximately half the EU average (3.5%).

In 2021, prostate cancer accounted for 2.6% of all male deaths in the EU. As for breast cancer, the highest share of deaths from prostate cancer was recorded in the Finnish archipelago of Åland (8.4% of all male deaths). More generally, prostate cancer accounted for a relatively high share of male deaths in the Nordic countries. After Åland, the 2nd to 4th highest regional shares were recorded in the Swedish regions of Östra Sverige (where 4.7% of all male deaths were attributed to prostate cancer) and Norra Sverige (4.6%), as well as Denmark (also 4.7%). The lowest share was recorded in the Romanian region of Macroregiunea Patru, as prostate cancer accounted for 1.1% of all male deaths, which was less than half the EU average (2.6%).

Figure 2.3: Deaths from selected cancers, 2021
(% of all deaths, based on standardised death rates per 100 000 inhabitants, by NUTS 1 regions)



Note: the figure shows the EU regions with the highest and lowest shares of total deaths for 4 selected cancers in the EU (based on standardised death rates per 100 000 inhabitants).

Source: Eurostat (online data code: hlth_cd_asdr2)

There is a broad range of factors that may determine an individual's chances of getting and surviving cancer. These include socioeconomic status, lifestyle habits and where we live. A wide range of different healthcare policies also play a role, such as effective prevention policies, easy access to screening and vaccination initiatives, or the rapid introduction of new medicines to health systems. Hospital discharge rates can be used to analyse the capacity of individual healthcare systems to provide cancer care.

Both in-patient care and day care comprise formal admission into a healthcare facility, such as a hospital, for diagnosis, treatment or other types of healthcare. While in-patient care involves an overnight stay after admission, day care comprises planned medical and paramedical services delivered to patients without an overnight stay: day care patients are formally admitted with the intention of being discharged on the same day.

More about the data: cancer/neoplasm statistics

There are considerable differences across regions in terms of the level and organisation of cancer care (oncology) services. In some EU countries, cancer care is relatively centralised in specialised centres/hospitals that are usually located in major cities. The aim is to ensure high-quality care by bringing together specialised medical expertise, advanced equipment, and comprehensive treatment options in a single location. By contrast, to improve accessibility for patients living in remote areas, other countries seek to develop telemedicine services and satellite clinics to extend the reach of their specialised care.

The statistics presented above for cancer are based on information pertaining to malignant neoplasms (C00–C97), as defined by 10th revision of the International statistical classification of diseases and related health problems (ICD-10). They relate to malignant tumours / cancerous cells, which can invade the surrounding tissue and spread to other parts of the body. By contrast, the information presented below for hospital discharges covers all forms of neoplasms (C00–D48). As such, these statistics include benign neoplasms and neoplasms of uncertain or unknown behaviour; benign tumours aren't cancerous, they don't invade the surrounding tissue and they don't spread to other parts of the body.

The regional statistics presented below for discharges are based on the location of each hospital. As such, they confirm (or otherwise) the centralisation of cancer services in key locations. As of reference year 2022, this dataset will be adapted to focus on the region of residence for each discharged patient (the 'residency concept') rather than focusing on those regions from which each patient was discharged from hospital.

In 2021, there were at least 5.9 million in-patients discharged from EU hospitals having been treated for neoplasms; this aggregate figure excludes information for Denmark, Greece and Luxembourg and includes 2020 data for Malta. During the same year, there were 3.9 million day case patients treated for neoplasms who were discharged from hospital (this aggregate is based on similar coverage, but also excludes Bulgaria).

The number of hospital discharges for neoplasm in-patients peaked in the Croatian capital region of Grad Zagreb, while the number of hospital discharges for neoplasm day care patients peaked in the Romanian capital region of Bucureşti-Ilfov

In 2021, hospital discharge rates for neoplasm in-patients ranged from highs of 4 258 and 4 105 per 100 000 inhabitants in the Croatian and Bulgarian capital regions of Grad Zagreb and Yugozapaden down to fewer than 500 discharges per 100 000 inhabitants in Ciudad de Melilla in Spain, Malta (2020 data) and 2 French outermost regions – Guyane and Mayotte. For the vast majority of regions within the EU, the discharge rate for neoplasm in-patients was within the range of 750–2 000 discharges per 100 000 inhabitants.

Hospital discharge rates for neoplasm day cases peaked at 12 437 and 12 235 per 100 000 inhabitants in the Romanian and Croatian capital regions of Bucureşti-Ilfov and Grad Zagreb. These rates were nearly twice as high as in any other region of the EU. At the lower end of the distribution, a relatively large number of regions had low rates: there were 52 regions with fewer than 350.0 discharges per 100 000 inhabitants.

Map 2.5 shows the number of hospital discharges for neoplasms per 100 000 inhabitants – information is presented for both in-patients and day cases. In 2021, there were 12 NUTS level 2 regions with relatively high numbers of discharges for neoplasms per 100 000 inhabitants – at least 1 200 for in-patients and at least 1 100 for day cases – as shown by the darkest shade of green in the map. A more detailed investigation reveals that this group included

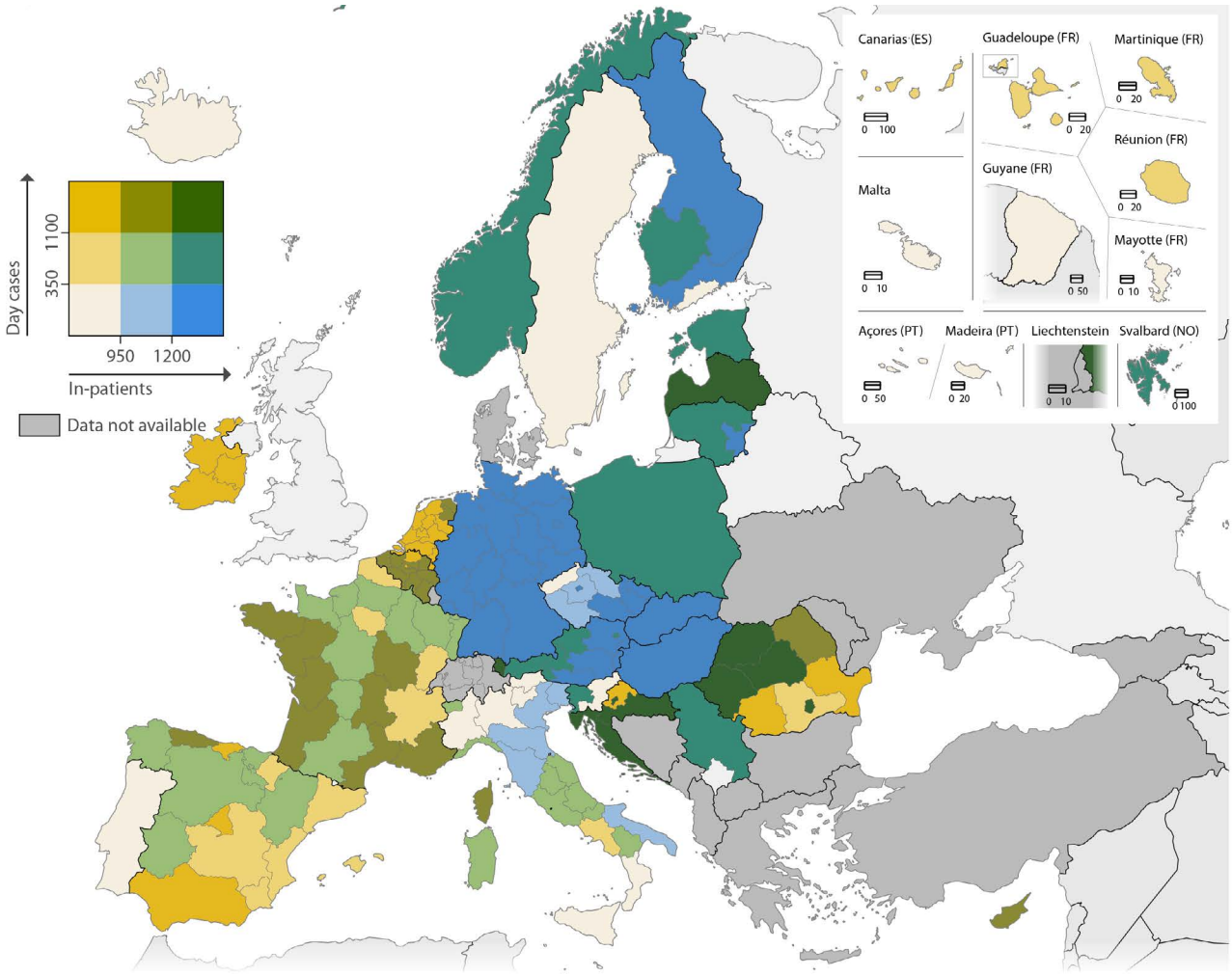
- 4 Romanian regions – Nord-Vest, Centru, Bucureşti-Ilfov and Vest
- 3 rural regions from France – Bourgogne, Auvergne and Corse
- 3 regions from Croatia – Panonska Hrvatska, Jadranska Hrvatska and Grad Zagreb
- the westernmost Austrian region of Vorarlberg
- Latvia.

By contrast, there were 12 NUTS level 2 regions with a relatively low number of hospital discharges for neoplasms per 100 000 inhabitants in 2021 – fewer than 950.0 for in-patients and fewer than 350.0 for day cases – as shown by the lightest coloured shade in the map. This group included

- 4 Italian regions – Lombardia, Calabria, Provincia Autonoma di Bolzano/Bozen and Provincia Autonoma di Trento
- 2 outermost regions from France – Guyane and Mayotte
- single regions from Czechia (Severozápad), Slovenia (Vzhodna Slovenija) and Finland (Helsinki-Uusimaa)
- Malta (2020 data), Portugal and Sweden (only national data are available).

Among the 156 regions for which data are available for both neoplasm in-patients and neoplasm day cases, there were 95 regions where the hospital discharge rate was higher for in-patients than it was for day cases in 2021, while the opposite was true in the remaining 61 regions. In Czech and German (NUTS level 1) regions, the organisation of treatment and care was such that almost all discharges were for in-patients. For example, in the central German region of Hessen, there were more than 200 times as many hospital discharges for neoplasms among in-patients than for day cases. By contrast, there were other EU countries where a majority of hospital discharges for neoplasms were day cases. This was the case, for example, in every region of Belgium, Ireland, Croatia, Latvia, the Netherlands and Romania. It was also the case in Cyprus, where there were 5 times as many hospital discharges for neoplasms among day case patients as among in-patients.

Map 2.5: Hospital discharges for neoplasms, 2021
(per 100 000 inhabitants, by NUTS 2 regions)



Administrative boundaries: © EuroGeographics © UN–FAO © Turkstat
Cartography: Eurostat – IMAGE, 06/2024

Note: Germany, NUTS level 1. Hungary, Poland, Portugal, Slovakia, Sweden, Norway and Serbia: national data. Malta: 2020. Iceland: 2019.

Source: Eurostat (online data codes: hlth_co_disch2t and hlth_co_disch4t)

3. Education

Alongside the provision of health care, public expenditure on education is often considered one of the most important investments that can be made in people. Education has the potential to drive socioeconomic development forward: this is particularly the case in a globalised world, where a highly-skilled workforce can be an advantage in terms of productivity, innovation and competitiveness.

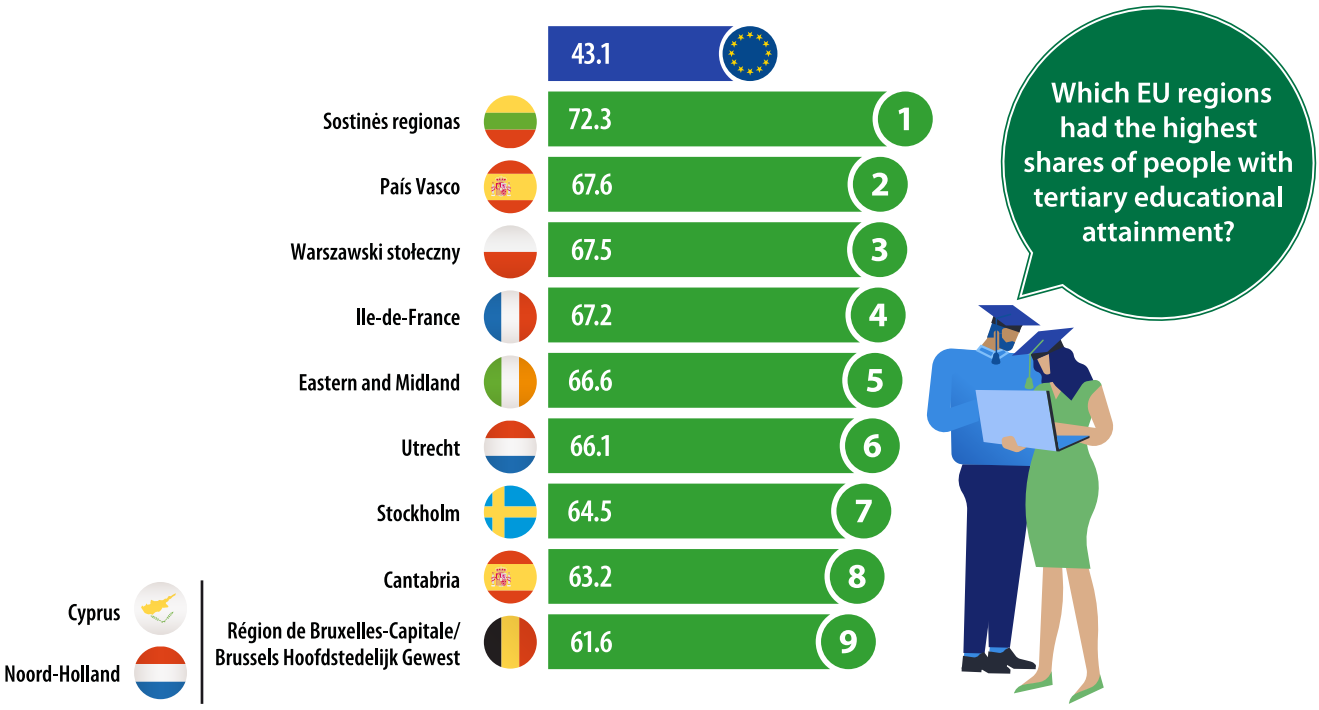
Education and training play a vital role in the economic and social strategies of the European Union (EU). In February 2021, a *Council Resolution on a strategic framework for European cooperation in education and training towards the European Education Area and beyond (2021–2030)* (2021/C 66/01) was adopted. The resolution sets a number of policy targets for the European Education Area designed to promote collaboration between EU countries and monitor progress; several of these targets are referred to within this chapter.

The European Year of Skills 2023/24 was designed to 'promote reskilling and upskilling, helping people to get the right skills for quality jobs'. It was also designed to provide fresh impetus to help the EU reach 2 of its social targets that form part of the European Pillar of Social Rights Action Plan: to have, by 2030, at least 60% of adults in training every year, and at least 78% in employment.

The infographic below provides information for the 10 NUTS level 2 regions across the EU that recorded the highest shares of people (aged 25–34) with a tertiary level of educational attainment. In 2023, several of the highest shares were recorded in capital regions. This was the case in the Lithuanian capital region, where 72.3% of people aged 25–34 had a tertiary level of educational attainment, while the Polish, French, Irish, Swedish, Belgian and Dutch capital regions also recorded high shares, as did Cyprus.

This chapter presents data following the common progression of pupils and students through different levels of the education system (according to the International standard classification of education (ISCED); see box for more details), before looking at educational attainment levels, transitions from education into the labour market and adult education and training. Administrative data on the participation of pupils and students in various levels of education generally refer to 2022, while the latest information from other datasets (surveys) generally concerns 2023.

In 2022, there were an estimated 94.0 million pupils and students enrolled across the EU in all levels of education from pre-primary to tertiary (as covered by ISCED levels 02–8); this estimate is based on the latest information available for EU countries.



(%, people aged 25–34, 2023, by NUTS 2 regions)
Note: Mayotte (FRY5) and Åland (FI20), not available.
Source: Eurostat (online data code: edat_lfse_04)

More about the data: classifying education levels

As national education systems vary in terms of structure and curricular content, statistics on education and training are compiled according to the international standard classification of education (ISCED).

ISCED is the reference classification for organising formal education programmes and related qualifications by education levels and fields into internationally agreed categories. The most recent version of the classification – *ISCED 2011* – was adopted by the UNESCO General Conference in November 2011 and identifies the following levels of education

- early childhood education – ISCED level 0
  - early childhood educational development – ISCED level 01
  - pre-primary education – ISCED level 02
- primary education – ISCED level 1
- lower secondary education – ISCED level 2
- upper secondary education – ISCED level 3
- post-secondary non-tertiary education – ISCED level 4
- short-cycle tertiary education – ISCED level 5
- bachelor's or equivalent level – ISCED level 6
- master's or equivalent level – ISCED level 7
- doctoral (PhD) or equivalent level – ISCED level 8.

School attendance is compulsory – at least for primary and lower secondary education – across all of the EU countries.

Young people who have successfully completed lower secondary education may enter upper secondary education (ISCED level 3), when they generally have to choose certain subjects or specialisations to study, alongside their future education and/or career paths. Upper secondary (or intermediate) education typically ends in the EU when students are aged 17 or 18. These programmes are designed primarily to prepare students so that they may continue their studies at a tertiary level (general programmes), or to provide them with the necessary skills and competencies that are relevant for a specific occupation or trade (vocational programmes).

The term 'tertiary education' is used to refer to ISCED levels 5–8. It builds on secondary education, providing learning activities at a higher level of complexity. This level of higher education – provided by universities and other tertiary educational institutions – can play an important role in society, fostering innovation, increasing economic development and growth, and more generally improving individual well-being.

Enrolments

PARTICIPATION IN EARLY CHILDHOOD EDUCATION

Research has shown that early experiences of children are often critical for their long-term development. Early childhood education and care programmes which are intentionally designed to support children's cognitive, language, physical and socio-emotional development are considered as educational in the ISCED classification (ISCED level 0, early childhood education) ([1]).

Early childhood education programmes are typically designed to introduce young children to organised instruction outside of the family context. Programmes have an intentional education component and target children below the age of entry into primary education (ISCED level 1). Early childhood education programmes constitute the 1st level of education and training systems and play a key role in redressing 'unequal' life chances, tackling inequalities by preventing the formation of early skills gaps.

More about the data: statistics on early childhood education and care

Within the strategic framework towards European cooperation in education and training towards the European Education Area and beyond (2021–30), a key policy target concerns the share of children aged between 3 years and the starting age of compulsory primary education who are participating in early childhood education and care. Eurostat data on early childhood education (ISCED level 0) are used to measure progress towards the goal of having at least 96% of children in this age group participating in early childhood education and care by 2030 ([2]).

Within this section, regional statistics presented for Germany relate to NUTS level 1 regions, while national data are presented for the Netherlands.

Based on the latest available data, there were an estimated 15.5 million children (of any age) enrolled in early childhood education across the EU in 2022 (data for Belgium, Greece and Malta only cover pre-primary education). Map 3.1 shows a more detailed picture for 209 NUTS level 2 regions, it covers those pupils between the age of 3 and the starting age of compulsory education at primary level. There were

([1]) At this age, learning activities are very different to the traditional methods adopted within the context of compulsory schooling, and take place alongside/as part of caring activities (in other words, supervision, nutrition and health) most of the time. Programmes providing childcare only (in other words, supervision, nutrition and health) without a sufficient set of purposeful learning activities can't be considered as educational according to ISCED and aren't classified as early childhood education.

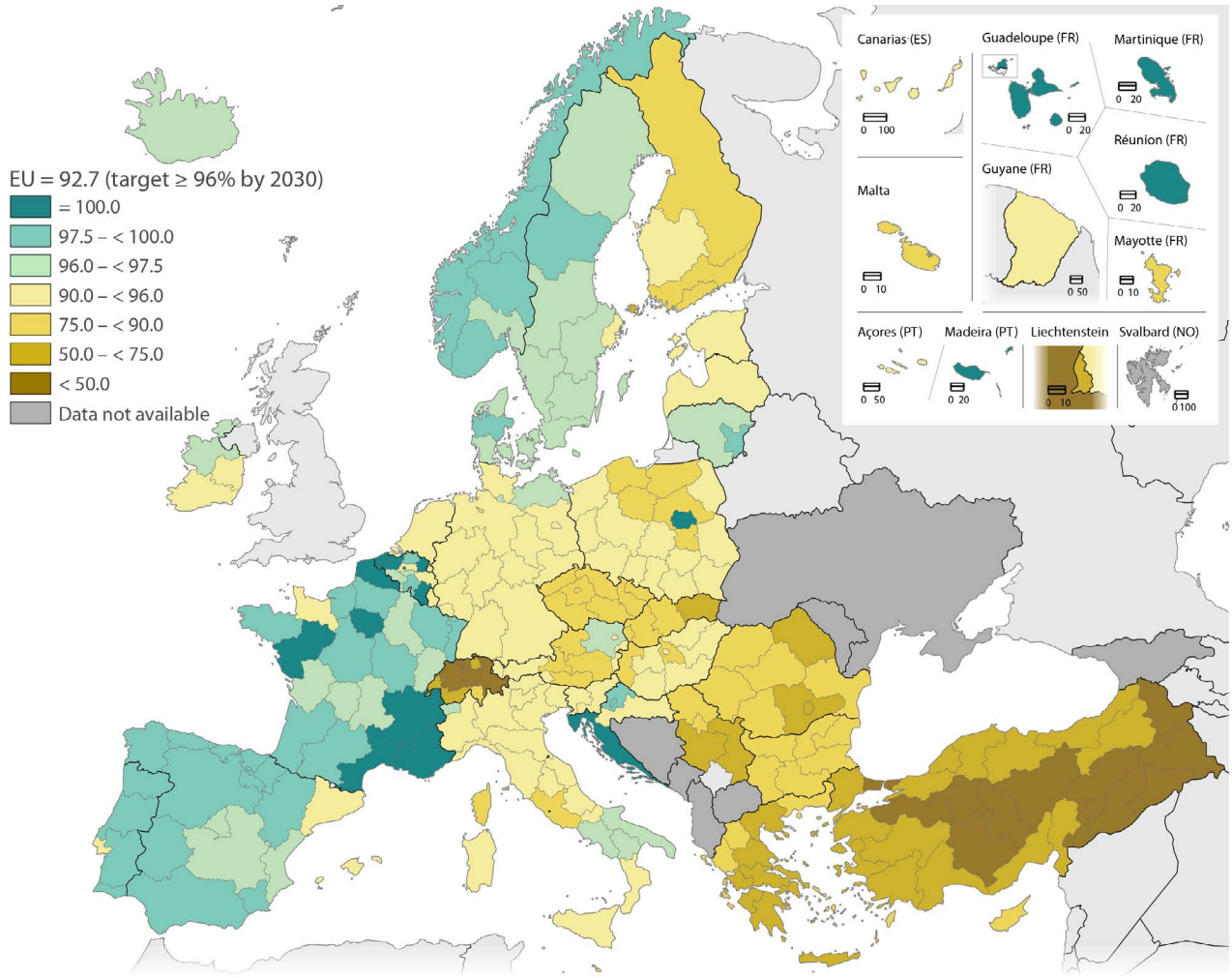
([2]) It should be noted that the wording of the EU target is for participation in 'early childhood education and care' and not 'early childhood education'. Early childhood education and care refers to any regulated arrangement for children from birth to compulsory primary school age, regardless of the programme content, whereas early childhood education refers specifically to ISCED programmes. The former encompasses not only early childhood education but also programmes which don't meet the minimum requirements to be classified as such (for example, childcare only programmes). Although the EU target is for participation in early childhood education and care, the Regulation stipulates that Eurostat's data on participation rates in early childhood education will be used to measure progress towards this target. This means that, in practice, the EU target for participation in early childhood education and care programmes concerns only those programmes which meet criteria to be classified as early childhood education. For more details on the difference between these 2 terms, please consult an article on early childhood education statistics.

considerable differences in regional participation rates in early childhood education, with the highest rates generally recorded in the westernmost regions of the EU and lower rates across most eastern regions. Capital regions had higher than average participation rates in some EU countries (for example, Bulgaria or Poland), whereas in others they recorded lower than average rates (for example, Ireland, Portugal or Sweden).

In 2022, there were 18 regions where practically every child (100.0%) between the age of 3 years and the age for starting compulsory primary education participated in early childhood education

Looking in more detail, by 2022 the share of children between the age of 3 years and the age for starting compulsory primary education participating in early childhood education had already reached the EU's strategic target of 96.0% in more than 1 out of 3 EU regions for which data are available (78 out of 209 regions); they are shaded using 3 different teal tones in Map 3.1. These 78 regions already at or above the target made up a large proportion of the regions in Belgium, Denmark, Spain, France, Croatia, Lithuania, Portugal and Sweden. There were also 4 regions in Italy, 2 regions in Germany (NUTS level 1), the capital region of Poland, as well as a single region in Austria where the policy target of 96.0% had already been achieved. At the very top end of the distribution, there were 18 regions in the EU where practically every child (100.0%) between the age of 3 years and the age for starting compulsory primary education participated in early childhood education (as shown by the darkest shade of teal). Half of this group of 18 regions was concentrated in France (9 regions), with a further 5 regions located in neighbouring Belgium.

Map 3.1: Participation rates in early childhood education, 2022
(%, by NUTS 2 regions)



Administrative boundaries: © EuroGeographics © UN–FAO © Turkstat
Cartography: Eurostat – IMAGE, 07/2024

Note: pupils participating in early childhood education from age 3 years to the starting age of compulsory education at primary level, as a share of the population of the corresponding age. Germany: NUTS level 1. The Netherlands: national data. Greece: 2019.

Source: Eurostat (online data code: educ_uoe_enra22)

In Map 3.1, the regions with participation rates below the strategic target of 96.0% are shaded using 4 different golden tones. In 2022, the share of young children participating in early childhood education was less than 75.0% in 13 out of the 209 EU regions for which data are available. These regions with relatively low participation rates (as shown by the 2nd darkest shade of gold) were concentrated in Greece (8 regions; 2019 data) and Romania (3 regions), but also included Východné Slovensko in Slovakia and Åland in Finland. The lowest rate was recorded in the Greek region of Voreio Aigaio (55.0%; 2019 data). The only regions in Europe to report that fewer than 50.0% of young children were participating in early childhood education (as shown by the darkest shade of gold) were located in non-EU countries, namely, Switzerland and Türkiye.

Participation in tertiary education

The number of people enrolling in tertiary education across the EU has risen in recent decades, reflecting several factors, such as

- demographic patterns
- changes in labour force participation (particularly for women)
- increased demand from employers for tertiary education qualifications (for jobs that previously required a secondary level of education)
- an increased awareness of the benefits of tertiary education
- access to student finance, scholarships and other benefits
- different patterns of learning mobility (within and from outside of the EU)
- an increased demand for longer tertiary education (such as the extension from a bachelor's degree to master's or doctoral (PhD) studies)
- an increasing share of adults participating in lifelong learning.

There were approximately 18.8 million students enrolled in the EU's tertiary education institutions in 2022. As such, tertiary students accounted for 1 in 5 (20.0%) of the total number of pupils and students enrolled within the EU's education system. A majority of the students enrolled in the tertiary education sector were female (54.6% of the total).

In 2022, there were 11.2 million EU students enrolled in bachelor's programmes. This figure was approximately twice as high as the count of students enrolled in master's programmes (5.5 million). The other 2 types of tertiary programmes had fewer students: 1.4 million were enrolled in short-cycle programmes (either academic or vocational) and 0.7 million in doctoral programmes. As noted above, females accounted for a majority of the students enrolled within tertiary education: this gender gap was particularly apparent among students studying for a master's degree (58.1% were female) and somewhat smaller among those studying for a bachelor's degree (53.9% were female). By contrast, males accounted for a small majority of the students studying for a short-cycle tertiary education qualification (50.8%) and for a doctoral degree (51.0%).

Unsurprisingly, the highest numbers of tertiary students were recorded in urban regions from some of the most populous EU countries. The German region of Nordrhein-Westfalen (821 000) and the French capital region of Ile-de-France (764 000) were the only regions within the EU to record more than 0.5 million tertiary students enrolled in 2022. After Nordrhein-Westfalen and Ile-de-France, there were 12 regions where the number of tertiary students enrolled was situated within the range of 250 000–500 000

- 3 regions from Germany – Bayern, Baden-Württemberg and Hessen (all NUTS level 1)
- 3 regions from Spain – Comunidad de Madrid, Cataluña and Andalucía
- 3 regions from Italy – Lombardia, Lazio and Campania
- the capital regions of Attiki in Greece and Warszawski stołeczny in Poland
- the French region of Rhône-Alpes.

Figure 3.1 shows the proportion of all tertiary students who were enrolled to study for a short-cycle, bachelor's, master's or doctoral degree. Each national education system has its own specific characteristics, with an education offer with its own balance of particular fields or levels of education. This may explain why some regions have no students enrolled to study for a short-cycle tertiary education qualification, or for a master's or doctoral (PhD) degree, as these educational levels aren't offered; in such cases, the shares of students enrolled to study other types of tertiary education may be higher than elsewhere. For example, in the Finnish region of Åland, a bachelor's degree was the only form of tertiary education available and therefore accounted for 100.0% of students enrolled within tertiary education.

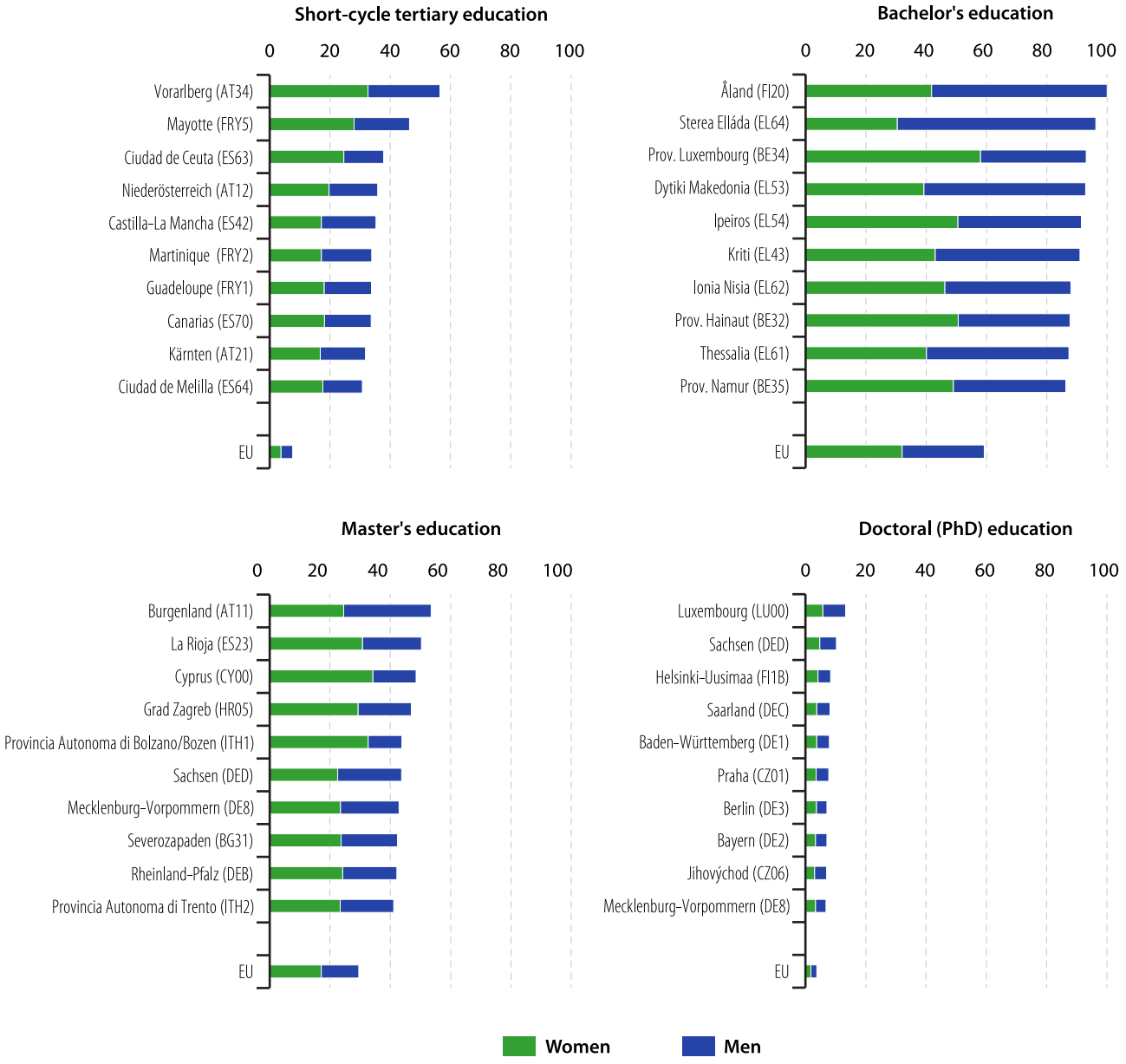
In 2022, the share of tertiary students in the EU who were enrolled to study for a bachelor's education was 59.2% (32.0% were female bachelor's students and 27.2% were male bachelor's students). Among NUTS level 2 regions, the highest share (100.0%) was recorded – as noted above – in the Finnish region of Åland. There were 5 other regions where more than 9 out of every 10 tertiary students followed a bachelor's education: the southern Belgian region of Prov. Luxembourg and 4 Greek regions, namely, Sterea Elláda, Dytiki Makedonia, Ipeiros and Kriti. The biggest numbers of tertiary students studying for a bachelor's degree were concentrated in Nordrhein-Westfalen (506 000), Ile-de-France (318 000) and the Spanish capital region of Comunidad de Madrid (255 000).

A 29.5% share of all tertiary students in the EU were enrolled to study for a master's education in 2022 (17.1% were female master's students and 12.4% were male master's students). The highest numbers of students studying for a master's degree were recorded in Ile-de-France (312 000; just 6 000 fewer than were studying for a bachelor's degree in the French capital region) and in 2 German regions – Nordrhein-Westfalen (275 000) and Bayern (172 000). Burgenland in eastern Austria (53.5%) and La Rioja in northern Spain (50.3%) were the only NUTS level 2 regions to report that a majority of their tertiary students were enrolled to study for a master's education.

In 2022, 7.6% of all tertiary students in the EU were enrolled to study for a short-cycle tertiary education qualification (3.9% were male short-cycle students and 3.7% were female short-cycle students). The westernmost Austrian region of Vorarlberg was the only NUTS level 2 region to report that more than half of all its tertiary students were enrolled to follow a short-cycle tertiary education course, with a 56.5% share. There were also relatively high shares of tertiary students following short-cycle courses in several (other) regions of Austria and in several regions of France and Spain.

Doctoral or equivalent students accounted for a 3.7% share of the EU's tertiary students in 2022 (1.9% were male doctoral students and 1.8% were female doctoral students). Across EU regions, Luxembourg (13.3%) and the eastern German region of Sachsen (10.3%) were the only regions to report that more than 1 in 10 tertiary students were following a doctoral education. The next highest shares were recorded for the Finnish capital region of Helsinki-Uusimaa (8.3%), 2 more German regions – Saarland (8.1%) and) Baden-Württemberg (7.9%) – and the Czech capital region of Praha (7.7%). The highest numbers of students studying for a doctoral degree were recorded in 3 German regions: Nordrhein-Westfalen (40 000), Baden-Württemberg (32 000) and Bayern (32 000).

Figure 3.1: Students enrolled in tertiary education, 2022
(% of people aged 20–24, by NUTS 2 regions)



Note: the figure shows the 10 EU regions with the highest shares in 2022 (ranked on the total for both sexes). Germany: NUTS level 1. The Netherlands: 2021. Subject to data availability.

Source: Eurostat (online data code: educ_uoe_enrt06)

Educational attainment

A basic level of education is desirable for all, as it provides the opportunity to participate in economic and social life. Nevertheless, people with higher levels of educational attainment generally tend to experience a wider range of job opportunities, higher levels of income and tend to be more satisfied with life, while they usually have a lower likelihood of being unemployed.

More about the data: educational attainment

Educational attainment is measured by looking at the highest level of education (based on the ISCED classification) that an individual has successfully completed. These statistics pertain to the highest level of attainment reached at the moment of the survey interview

- some people in the target age range might still be studying
- some people in the target age range might have completed their highest level of education in a different region from the 1 where they live at the time of the survey.

PEOPLE WITH AT LEAST AN INTERMEDIATE LEVEL OF EDUCATION

In 2023, 84.1% of the EU population aged 20–24 reported having at least an intermediate level of educational attainment (in other words, they had at least an upper secondary level of educational attainment as defined by ISCED levels 3–8). The last couple of decades have seen an expansion in the share of people within the EU with at least an intermediate level of educational attainment. This upward development has been evident since the start of the time series in 2002, when the share was 76.8%. This development for the EU as a whole was interrupted only in 2009 (when there was no change) and 2022 (when there was a marked decline in Germany).

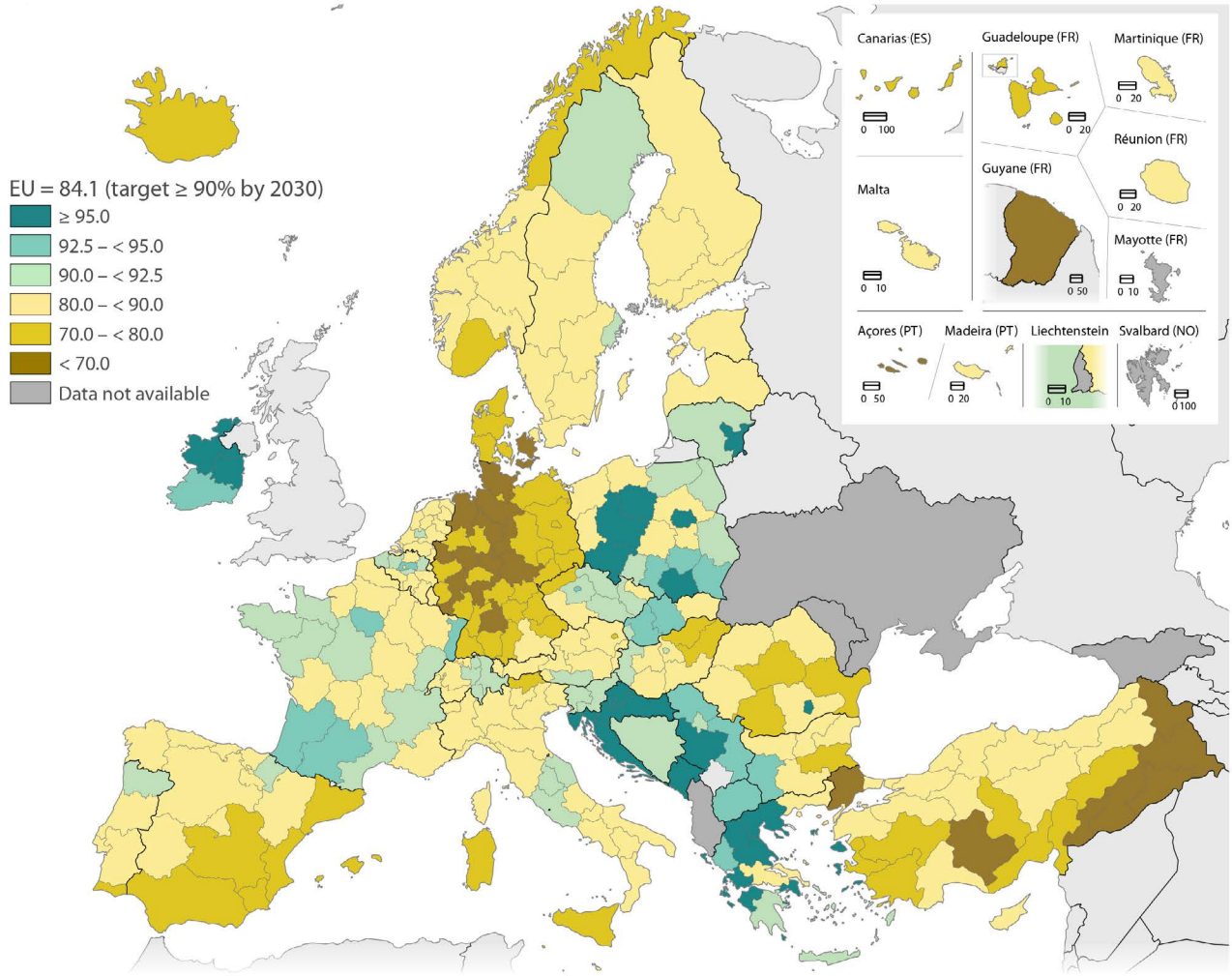
The strategic framework for European cooperation in education and training towards the European Education Area and beyond (2021–30) includes a complementary indicator for measuring progress in relation to educational attainment: it is defined as the share of people aged 20–24 with at least an intermediate (or upper secondary) level of educational attainment. The target is for the share of young people meeting this criterion to be at least 90% by 2030.

Map 3.2 presents information for the share of people aged 20–24 with at least an intermediate level of education. In 2023, approximately 30% of EU regions – 71 out of 240 NUTS level 2 regions for which data are available – had already reached the EU's target of 90.0%; they are shaded using 3 different shades of teal. These 71 regions already at or above the target made up a large proportion of the regions in (northern) Belgium, Czechia, Ireland, Greece, Croatia, Lithuania, Poland, Slovenia and Slovakia. There were also multiple regions in France, Italy, Hungary and Sweden, as well as single regions from each of Bulgaria, Spain, the Netherlands, Austria, Portugal and Romania, where upwards of 90.0% of people aged 20–24 had at least an intermediate level of education.

At the top end of the distribution, there were 20 NUTS level 2 regions where the share of people aged 20–24 with at least an intermediate level of educational attainment was 95.0% or higher in 2023. This group was concentrated in Ireland (2 out of 3 regions), Greece (7 out of 13 regions), Croatia (all 4 regions) and Poland (5 out of 17 regions). The other 2 regions with such high shares were the capital regions of Lithuania and Romania. The highest share of young people aged 20–24 having attained at least an intermediate level of educational attainment was recorded in the Croatian coastal region of Jadranska Hrvatska (99.6%).

At the other end of the range, there were 19 NUTS level 2 regions where less than 70.0% of all young people aged 20–24 had attained at least an intermediate level of education in 2023 (as shown by the darkest shade of gold in Map 3.2). These regions were primarily located in Germany (14 regions), while there were also relatively low levels of (at least) intermediate educational attainment in 2 outermost/autonomous regions of the EU – Guyane in France and Região Autónoma dos Açores in Portugal – as well as Sjælland in Denmark and Ciudad de Ceuta and Ciudad de Melilla in Spain. The lowest share of young people aged 20–24 having attained at least an intermediate level of educational attainment was recorded in the north-western German region of Weser-Ems (59.2%); it was the only region in the EU to report that fewer than 60.0% of young people had at least an intermediate level of educational attainment.

Map 3.2: People with at least an upper secondary education qualification, 2023
(% of people aged 20–24, by NUTS 2 regions)



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Cartography: Eurostat – IMAGE, 06/2024

Note: Montenegro and North Macedonia, 2020. Trier (DEB2), Ciudad de Ceuta (ES63), Ciudad de Melilla (ES64) and Corse (FRM0): low reliability.

Source: Eurostat (online data code: edat_lfse_04)

PEOPLE WITH A TERTIARY LEVEL OF EDUCATIONAL ATTAINMENT

Map 3.3 shows the regional distribution of tertiary (or higher) educational attainment in 2023. It is based on attainment levels for people aged 25–34 years, by when the vast majority of the population have completed their education. Within the strategic framework for European cooperation in education and training towards the European Education Area and beyond (2021–30), the EU has a target that, by 2030, the share of people aged 25–34 with a tertiary educational attainment should be at least 45%.

By 2023, 1 in 3 EU regions had reached the policy goal for tertiary educational attainment

In 2023, 43.1% of the EU population aged 25–34 had a tertiary level of educational attainment; some people within this age group might still be studying. Of the 240 NUTS level 2 regions for which data are available, 80 had already reached or surpassed the EU's policy target of 45.0% (as shown by 3 shades of teal in Map 3.3).

At the top end of the distribution, there were 17 regions where at least 60.0% of young people aged 25–34 had a tertiary level of educational attainment in 2023. Many of these regions appear to act as a magnet for highly-qualified people, exerting considerable 'pull effects' through the varied educational, employment and social/lifestyle opportunities that they offer. This group included the capital regions of Belgium, Czechia, Denmark, Ireland, Spain, France, Lithuania, Hungary, the Netherlands, Poland and Sweden; it also included Cyprus and Luxembourg. The remaining 4 regions with high shares were specialised in research and innovation activities and/or high-technology manufacturing

- Prov. Brabant Wallon in Belgium
- the northern Spanish regions of País Vasco and Cantabria
- Utrecht in the Netherlands.

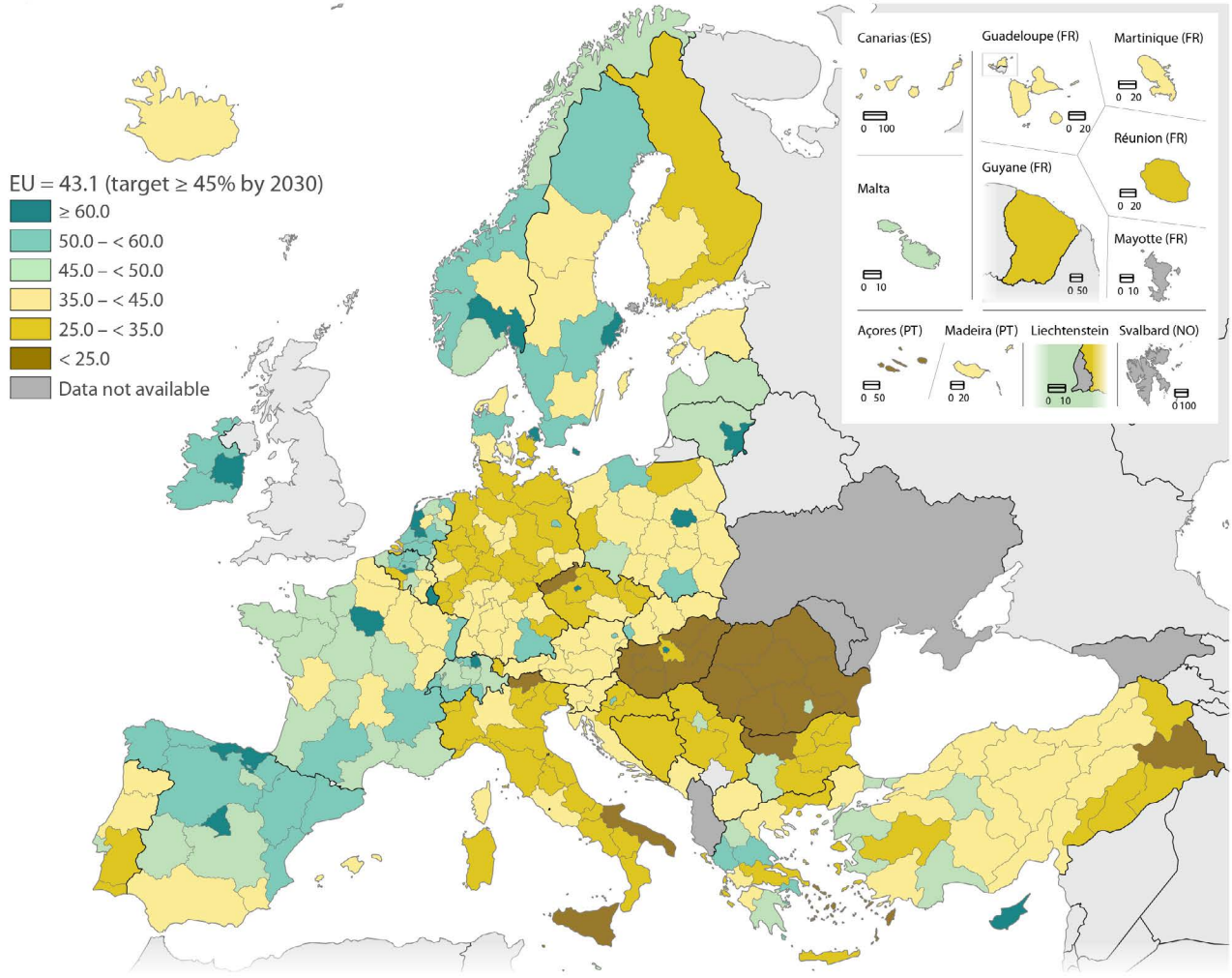
In 2023, there were 4 NUTS level 2 regions across the EU where more than 2 out of 3 people aged 25–34 had attained a tertiary level of educational attainment. These included the French capital region of Ile-de-France (67.2%), the Polish capital region of Warszawski stołeczny (67.5%), and the Spanish region of País Vasco (67.6%). However, the Lithuanian capital region of Sostinės regionas had the highest share, with 72.3% of this age group having a tertiary level of educational attainment.

At the bottom end of the distribution, there were 20 NUTS level 2 regions where fewer than 25% of all people aged 25–34 had a tertiary level of educational attainment in 2023 (as shown by the darkest shade of gold). Many of these regions were characterised as rural/isolated regions that had relatively large agricultural sectors, with a low level of highly-skilled employment opportunities. Others were characterised by their relatively high specialisation in vocational educational programmes, with students moving into the labour market through apprenticeships and training schemes rather than as a result of obtaining tertiary level qualifications. This group of 20 regions was concentrated in eastern and southern EU countries and was composed of

- 7 out of the 8 regions in Romania (the exception being the capital region of Bucureşti-Ilfov)
- 6 out of the 8 regions in Hungary (the 2 exceptions being the capital region of Budapest and its surrounding region of Pest)
- a single region from each of Bulgaria and Czechia
- 3 regions from Italy
- single regions from each of Greece and Portugal.

In 2023, the lowest regional levels of tertiary educational attainment among people aged 25–34 were recorded in the Hungarian region of Észak-Magyarország (16.3%) and the Romanian regions of Sud-Est (16.5%) and Sud-Muntenia (14.7%).

Map 3.3: Tertiary educational attainment, 2023
(% of people aged 25–34, by NUTS 2 regions)



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Cartography: Eurostat – IMAGE, 06/2024

Note: Montenegro and North Macedonia, 2020. Trier (DEB2), Ciudad de Ceuta (ES63), Corse (FRM0) and Região Autónoma dos Açores (PT20): low reliability.

Source: Eurostat (online data code: edat_lfse_04)

Transition from education to work

The penultimate section in this chapter provides information on the situation of young people as they aim to transition from education into work. When students complete their studies there may be several barriers that restrict their progression into the labour market, for example, a lack of relevant work experience, a lack of skills, a lack of job opportunities in the region where they reside, or high levels of unemployment during an economic downturn.

EARLY LEAVERS FROM EDUCATION AND TRAINING

Within the EU, education policy seeks to ensure that all people in the EU (irrespective of age) have the skills, knowledge and capabilities to develop their careers. The transition from education into work may prove particularly difficult for people with low levels of literacy and numeracy, those who leave education at an early age, and people coming from disadvantaged backgrounds. A particular area of concern is the proportion of early leavers from education and training. These are individuals aged 18–24 who have at most a lower secondary level of educational attainment (ISCED levels 0–2) and who weren't engaged in any further education and training (during the 4 weeks preceding the labour force survey). This indicator is one of 7 key targets outlined in the strategic framework for European cooperation in education and training towards the European Education Area and beyond (2021–30); the EU has set a goal to reduce the proportion of early leavers to less than 9% by 2030.

Over the last 2 decades, the share of early leavers from education and training declined across the EU. From a peak of 16.9% in 2002 (the start of the time series), this share fell each and every year through to 10.5% by 2017. Having remained unchanged in 2018, there were further falls in the following 5 years. By 2023, the share of young people in the EU who had at most a lower secondary level of educational attainment and who weren't engaged in any further education and training was 9.5%; as such, it stood 0.5 percentage points higher than the policy target set for 2030.

Across the EU, the share of early leavers from education and training was higher in 2023 among young men (11.3%) than among young women (7.7%)

There is both a spatial and a gender dimension to the issue of early leavers from education and training.

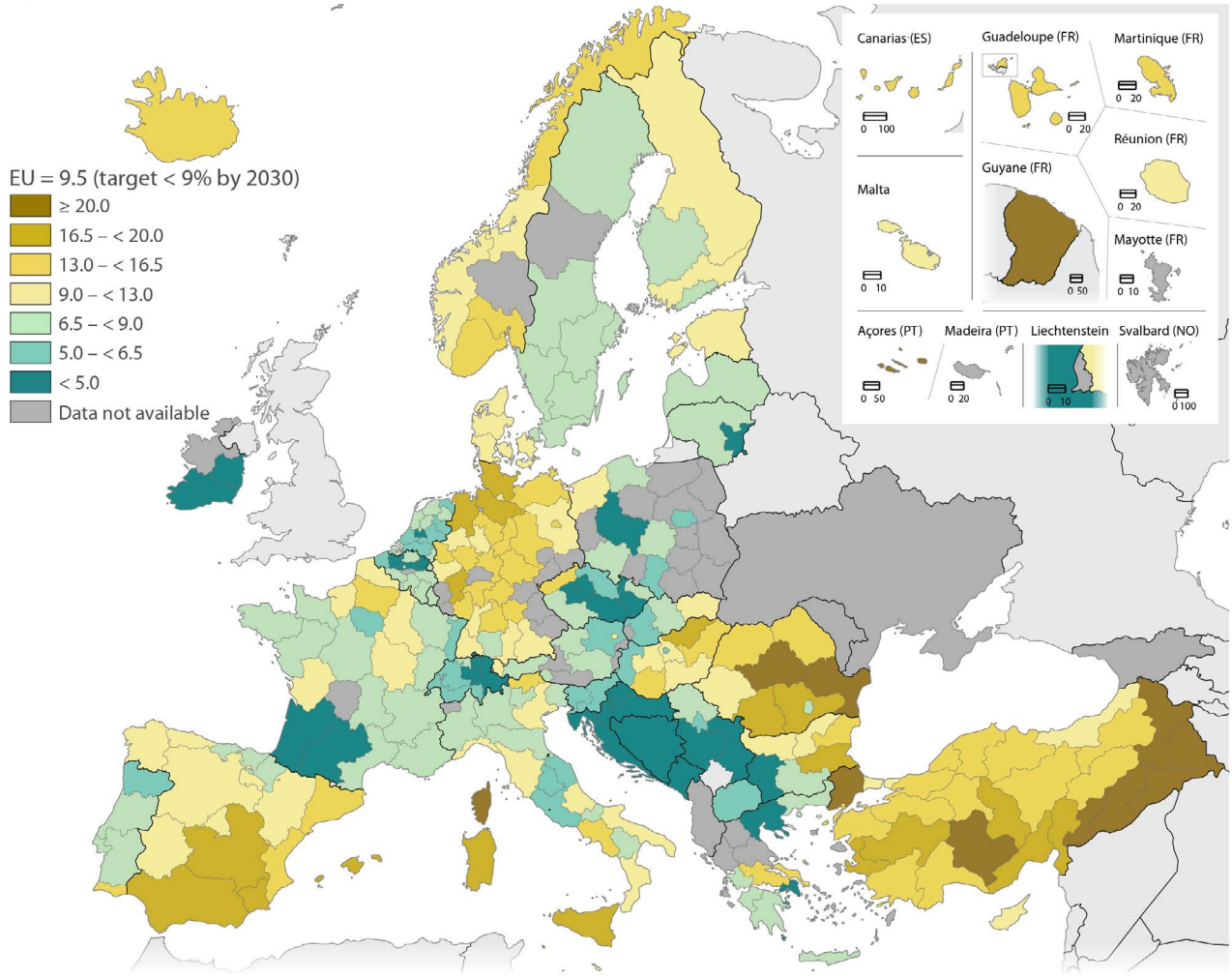
- The proportion of early leavers tends to be higher in rural and sparsely-populated regions of the EU, as well as in regions characterised as former industrial heartlands. Among other reasons, this pattern may be a reflection of fewer educational opportunities and weak local labour markets, which may discourage people from staying longer in education and also act as a 'push factor' to encourage people with higher levels of educational attainment to move away.
- For the gender dimension, a higher proportion of young men (compared with young women) tend to be early leavers. Across the EU in 2023, the share of early leavers from education and training was 11.3% among young men, which was 3.6 percentage points higher than the corresponding share among young women (7.7%). This gender gap had narrowed at quite a fast pace between 2020 and 2022, as the rate for young men decreased rapidly while the rate for young women experienced only a modest reduction. However, this development appears to have been short lived, as the latest information available shows the share of early leavers among young women falling 0.3 percentage points in 2023 while the rate for young men increased 0.1 points.

Already by 2023, more than 50% of EU regions had attained the EU's policy target for early leavers

In 2023, the share of early leavers from education and training was already less than the 9.0% policy target in more than 50% (106 out of 204) of the NUTS level 2 regions for which data are available – as shown by 3 shades of teal in Map 3.4. These regions were widely dispersed across the EU. Looking in more detail, the share of early leavers from education and training was less than 9.0% for every region (for which data are available) of Belgium, Ireland, Croatia, Lithuania, the Netherlands, Slovenia and Sweden; shares of less than 9.0% were recorded in Cyprus, Latvia and Luxembourg too.

At the other end of the range, there were 7 NUTS level 2 regions where the share of early leavers from education and training in 2023 was at least 20.0%; they are denoted by the darkest shade of gold in Map 3.4. This group included several sparsely populated, island and/or peripheral regions (it is likely that a disproportionately high share of students from island and/or peripheral regions have to leave home if they wish to follow a particular course or programme, leaving behind a higher concentration of early leavers). Outside of this group, relatively high shares of early leavers from education and training – upwards of 16.5% – were observed in at least 2 regions from each of Germany, Spain, Italy and Romania.

Map 3.4: Early leavers from education and training, 2023
(% of people aged 18–24, by NUTS 2 regions)



Administrative boundaries: © EuroGeographics © UN–FAO © Turkstat
Cartography: Eurostat – IMAGE, 06/2024

Note: includes earlier reference years for some regions (too many to document). Includes data with low reliability for some regions (too many to document).

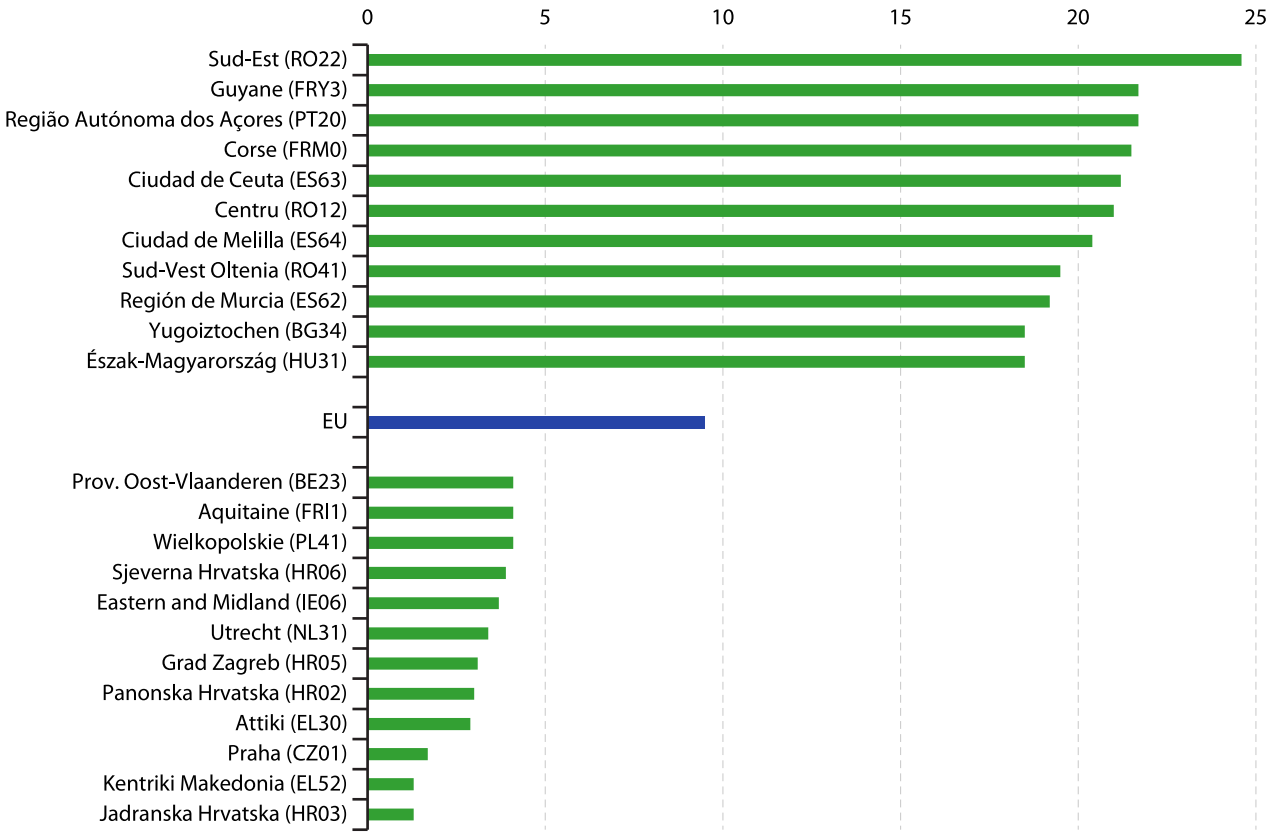
Source: Eurostat (online data code: edat_lfse_16)

Figure 3.2 highlights the NUTS level 2 regions with the highest and lowest regional shares of early leavers from education and training in 2023. At the top end of the distribution, the Romanian region of Sud-Est had the highest share, with 24.6% of its individuals aged 18–24 classified as early leavers. Shares of more than 20.0% were also recorded in the French regions of Guyane (21.7%) and Corse (21.5%), the Portuguese Região Autónoma dos Açores (21.7%), the Spanish autonomous regions of Ciudad de Ceuta (21.2%) and Ciudad de Melilla (20.4%), as well as an additional region from Romania – Centru (21.0%).

At the lower end of the distribution, there were 21 NUTS level 2 regions where the share of early leavers from education and training among people aged 18 to 24 was less than 5.0% in 2023. These regions were often grouped together, with clusters of regions with low shares in Ireland, south-west France, Belgium, Czechia, Croatia and Greece. The lowest shares of early leavers from education and training were recorded in

- the Czech capital region of Praha (1.7%)
- the Greek region of Kentriki Makedonia (1.3%)
- the Croatian coastal region of Jadranska Hrvatska (also 1.3%; 2022 data).

Figure 3.2: Early leavers from education and training, 2023
(% of people aged 18–24, by NUTS 2 regions)



Note: the figure shows those EU regions with the highest and lowest shares of early leavers among people aged 18–24. The rankings include more than 10 regions if several regions have identical values. Jadranska Hrvatska (HR03): 2022. Grad Zagreb (HR05) and Wielkopolskie (PL41): 2021. There are 38 regions for which data aren't available or are only partially available. Includes data with low reliability for some regions (too many to document).

Source: Eurostat (online data code: edat_lfse_16)

EMPLOYMENT RATE OF RECENT GRADUATES FROM VOCATIONAL PROGRAMMES

A Council Recommendation on vocational education and training (VET) for sustainable competitiveness, social fairness and resilience (2020/C 417/01) set an EU benchmark for the employment rate of recent graduates from vocational programmes. The policy target – defined in relation to people aged 20–34 having completed an upper secondary or post-secondary non-tertiary vocational education qualification (as covered by ISCED levels 3 and 4) within the previous 1–3 years (hereafter referred to as recent graduates) – is for the employment rate of this cohort to be at least 82% by 2025.

Between 2015 and 2019, the EU employment rate of recent graduates from vocational education programmes in upper secondary or post-secondary non-tertiary education increased from 72.3% to 79.2%. However, it subsequently fell 3.4 percentage points in 2020 as the COVID-19 crisis likely impacted on the number of (new) job opportunities that were open to young people. There was a modest recovery in 2021, with the employment rate rising to 76.1%, with the recovery accelerating a year later, rising by a further 3.7 points to 79.8%. In 2023, the EU's employment rate for recent vocational graduates continued to increase and reached a historic high of 81.0%; as such, it was 1.0 points below the 82.0% target for 2025.

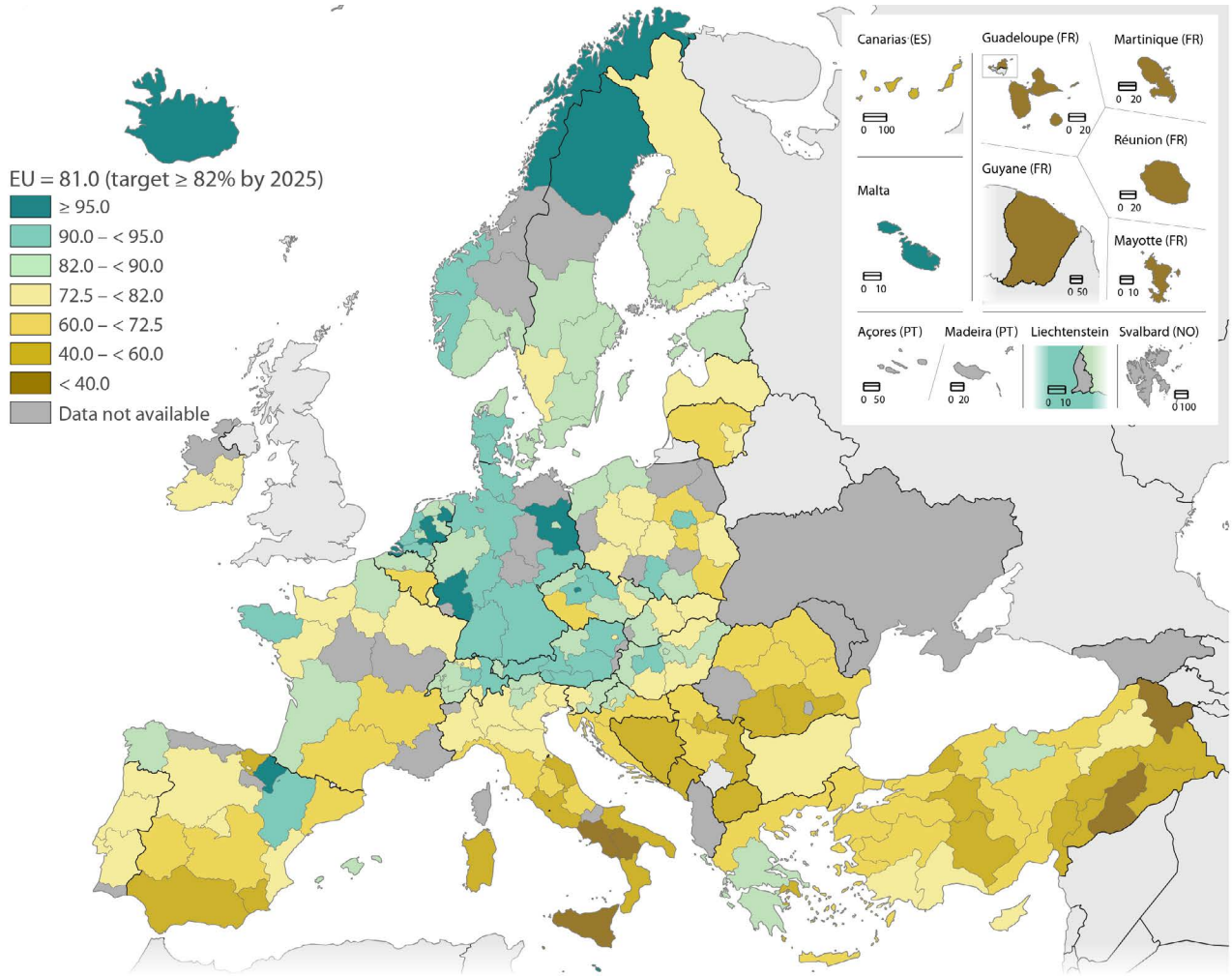
Map 3.5 shows that the employment rate of recent vocational graduates was already at or above the EU's policy target of 82.0% in approximately half (75 out of 153) of the EU regions for which data are available in 2023; the statistics presented for Belgium, Germany, Greece and France relate to NUTS level 1 regions, while only national data are available for Bulgaria and earlier reference years are used for some regions. These 75 regions with relatively high employment rates are shaded using 3 different teal tones in Map 3.5: they included every region (among those for which data are available) of Denmark, Germany and the Netherlands, as well as Malta and all but one of the regions in Belgium, Austria, Slovenia and Sweden. At the top end of the distribution, there were 10 regions in the EU where the employment rate of recent vocational graduates was at least 95.0% (as shown by the darkest shade of teal in Map 3.5). This group included

- the Czech capital region of Praha
- the German regions of Brandenburg and Rheinland-Pfalz
- Comunidad Foral de Navarra in Spain
- Malta
- the Dutch regions of Drenthe, Flevoland, Gelderland and Zeeland
- Övre Norrland in Sweden.

In 3 of these regions, practically all (100.0%) recent vocational graduates were in work in 2023: Praha in Czechia, Comunidad Foral de Navarra in Spain, and Flevoland in the Netherlands.

At the lower end of the distribution, there were 16 NUTS level 2 regions where fewer than 60.0% of all recent vocational graduates were in work in 2023 (as shown by the darkest 2 golden shades in Map 3.5). The lowest employment rates for this cohort were concentrated in southern EU countries: 8 (predominantly southern) regions of Italy, 4 regions in Spain and the Greek capital region of Attiki; the others included 2 regions from Romania and Régions Ultrapériphériques Françaises in France. Within this group of 16 regions, there were 9 which had employment rates of recent vocational graduates that were below 50.0% in 2023 and 4 regions where rates were below 40.0%. The lowest employment rates were observed in the Italian regions of Campania (38.1%), Basilicata (37.5%; 2021 data) and Sicilia (35.6%), as well as the French Régions Ultrapériphériques Françaises (21.2%).

Map 3.5: Employment rate of recent graduates from vocational programmes, 2023
(% of graduates aged 20 to 34 having left education and training 1 to 3 years earlier, by NUTS 2 regions)



Administrative boundaries: © EuroGeographics © UN–FAO © Turkstat
Cartography: Eurostat – IMAGE, 06/2024

Note: upper secondary or post-secondary non-tertiary level of vocational educational attainment (ISCED levels 3 and 4). Belgium, Germany, Greece and France: NUTS level 1. Bulgaria: national level. Includes earlier reference years and data with low reliability for some regions (too many to document).

Source: Eurostat (online data code: edat_lfse_33)

Adult education and training

Lifelong learning seeks to improve an individual's knowledge, skills, competences and/or qualifications for personal, social and/or professional reasons. For many occupations, it is increasingly important for the labour force to develop existing skills and learn new ones that are relevant to a specific job or which provide opportunities for new career paths. Some jobs/occupations will likely cease to exist in the future as a result of technological change.

The strategic framework for European cooperation in education and training towards the European Education Area and beyond (2021–30) has a specific EU policy target in this area; by 2025, at least 47% of people aged 25–64 should have participated in adult learning during the previous 12 months. This target was revised in June 2021 as a result of its inclusion as one of the EU 2030 social targets within the European Pillar of Social Rights Action Plan; the revised goal is to have, by 2030, at least 60% of people aged 25–64 participating in education and training every year.

More about the data: adult participation in education and training

Up until 2021, the data collected by the labour force survey included information on the share of the population that received formal or non-formal education and training during the 4 weeks prior to the survey; this indicator is presented below ([3]).

As of reference year 2022, labour force survey statistics have been collected for people participating in education and training during the 12 months prior to the survey. However, at the time of writing (May 2024), this new dataset isn't yet available with a regional breakdown. As such, the regional statistics presented below concern people aged 25–64 participating in education and training during the 4 weeks prior to the (labour force) survey.

During the last 2 decades, the proportion of adults (aged 25–64) in the EU participating in education and training has more than doubled. At the start of the time series in 2002, around 1 in 20 people participated in education and training during the 4 weeks prior to the (labour force) survey, with the participation rate standing at 5.3%. The rate increased gradually and by 2019 had reached 10.8%. However, following the onset of the COVID-19 crisis, it fell back to 9.1% in 2020, before subsequently rebounding to 10.8% in 2021. Thereafter, the EU's adult participation rate for education and training continued to increase, growing at a relatively rapid pace, reaching 11.9% in 2022 and 12.7% in 2023.

The regional distribution of participation rates in education and training among people aged 25–64 was somewhat skewed insofar as almost 60% of NUTS level 2 regions – or 139 out of 241 regions – reported a rate in 2023 that was below the EU average (see Map 3.6). The lowest participation rates were concentrated in southern and eastern EU countries. By contrast, the highest participation rates were primarily located in a band of regions running from the Nordic EU countries, down through the Netherlands. Most of the other countries with regions also having participation rates already above the EU average were in a band continuing down through Belgium and Luxembourg into France and on to the Iberian Peninsula, while another group included several regions around Austria, parts of northern and central Italy, and Slovenia. Elsewhere, relatively high rates were recorded in many capital regions.

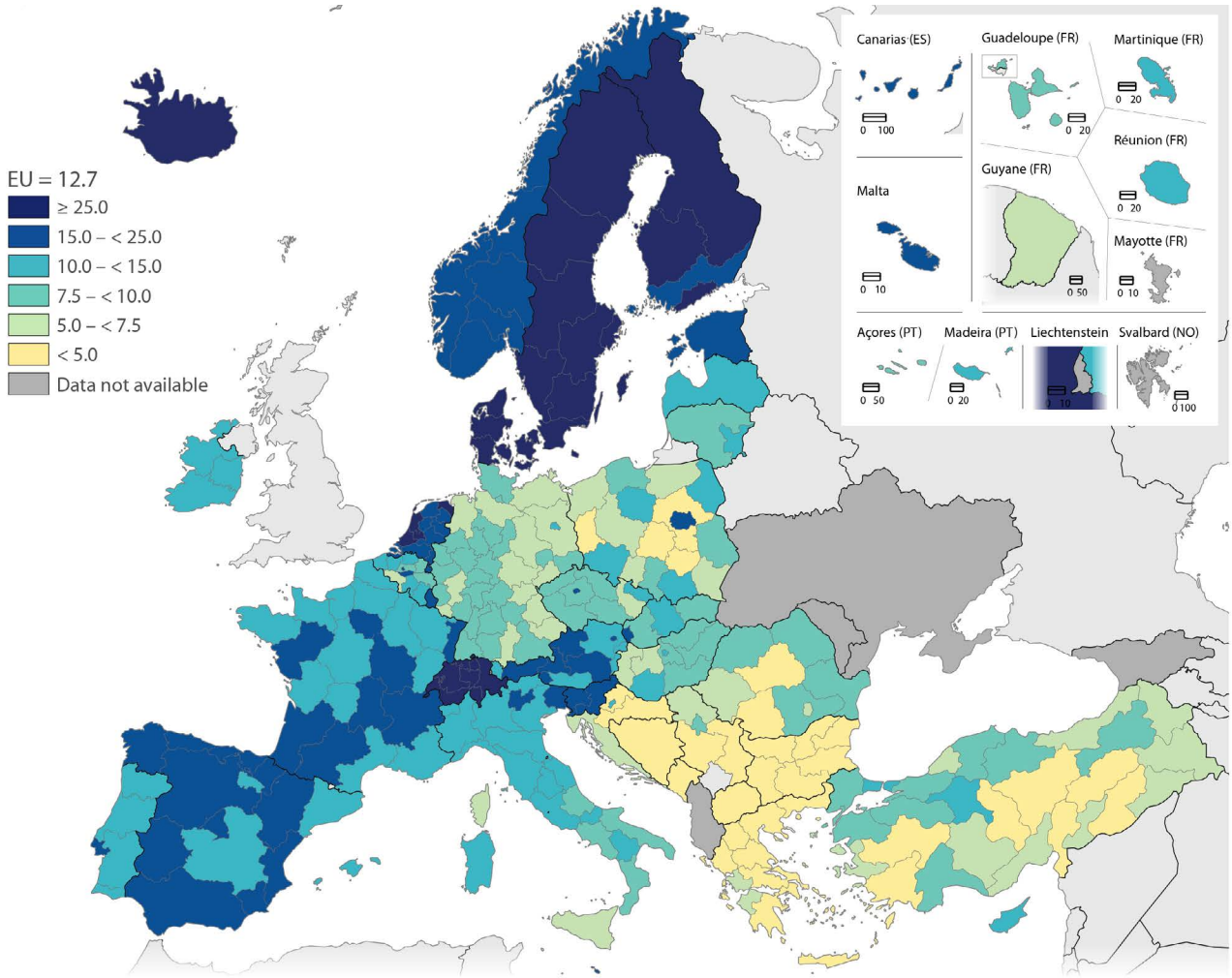
In 2023, the 8 highest levels of adult participation in education and training were all recorded in Sweden

Map 3.6 shows participation rates in education and training for people aged 25–64 for 2023. The regional distribution of adult participation rates was relatively homogeneous within individual EU countries, at least in part reflecting national rather than regional education and training initiatives. There were 20 NUTS level 2 regions that had participation rates that were equal to or above 25.0% (as shown by the darkest shade of blue); this group included every region of Denmark and Sweden, as well as 4 Dutch regions and 3 Finnish ones. The 8 highest regional participation rates in education and training were recorded in Sweden. The Swedish capital region of Stockholm had the highest participation rate, at 41.3%, followed by Västsverige, Sydsverige and Östra Mellansverige (all within the range of 38.0–38.9%). The Danish capital region of Hovedstaden had the highest participation rate outside of Sweden (35.2%). It was followed by the Finnish capital region of Helsinki-Uusimaa (29.2%), while Utrecht in the Netherlands (26.5%) had the highest participation rate outside of the Nordic countries.

There were 25 NUTS level 2 regions where the participation rate for adult education and training was below 5.0% in 2023 (they are indicated by the yellow shade in Map 3.6). This group was principally concentrated in south-eastern Europe: Bulgaria (all 6 regions) and Greece (11 out of 13 regions), but also included 4 regions from Poland, as well as 2 regions from each of Croatia and Romania. At the bottom end of the range, the lowest rates were recorded in the Bulgarian regions of Severoiztochen (1.1%), Severozapaden (1.0%) and Severen tsentralen (0.9%).

([3]) The data presented cover a shorter recall period (4 weeks prior to the survey) compared with the recall period of 12 months that is used for the targets that form part of the European Pillar of Social Rights Action Plan or the strategic framework for European cooperation in education and training.

Map 3.6: Participation rate in education and training, 2023
(% of people aged 25–64, by NUTS 2 regions)



Administrative boundaries: © EuroGeographics © UN–FAO © Turkstat
Cartography: Eurostat – IMAGE, 06/2024

Note: participation during the 4 weeks prior to the survey. Montenegro and North Macedonia: 2020. Severozapaden (BG31), Severen tsentralen (BG32), Severoiztochen (BG33), Trier (DEB2), Ionia Nisia (EL62), Sterea Elláda (EL64), Corse (FRM0), Lubuskie (PL43), Świętokrzyskie (PL72) and Åland (FI20): low reliability.

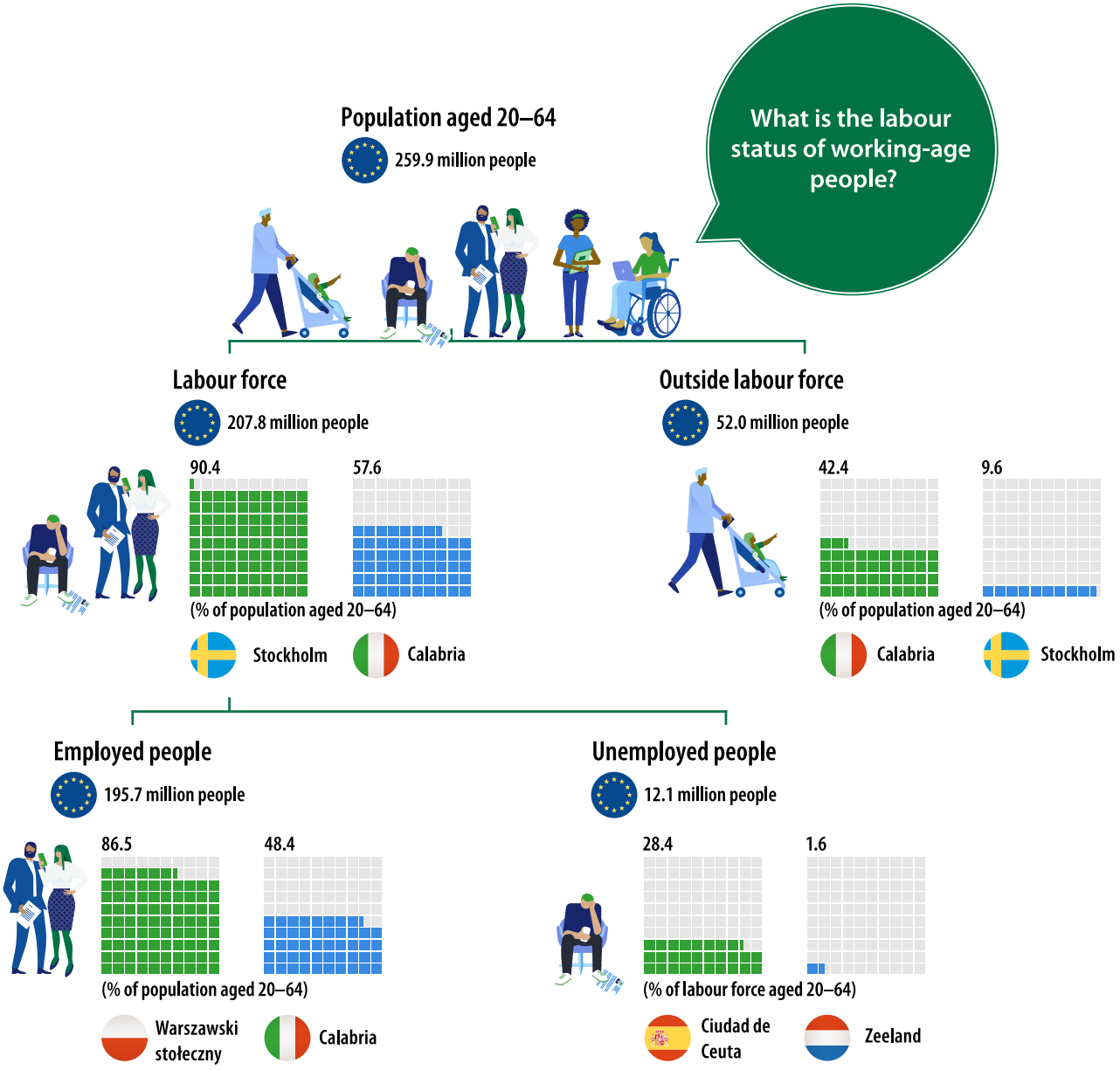
Source: Eurostat (online data code: trng_lfse_04))

4. Labour market

On 4 March 2021, the European Commission set out its ambition for a stronger, social EU to focus on jobs and skills, paving the way for a fair, inclusive and resilient socioeconomic recovery from the COVID-19 crisis. The *European Pillar of Social Rights Action Plan* (COM(2021) 102 final) outlines a set of specific actions and headline targets for employment, skills and social protection across the EU.

The European Year of Skills 2023/24 was designed to 'promote reskilling and upskilling, helping people to get the right skills for quality jobs'. A principal aim of the European year was to provide fresh impetus to help the EU reach 2 targets that form part of the European Pillar of Social Rights Action Plan, namely – by 2030 – to have

- at least 60% of adults in training over the course of a year
- an employment rate for people aged 20–64 of at least 78%.



(people aged 20–64, 2023, by NUTS 2 regions)

Note: due to rounding, some totals may not correspond with the sum of the separate figures. Mayotte (FRY5): not available. Niederbayern (DE22), Oberpfalz (DE23), Kassel (DE73), Trier (DEB2) and Lubuskie (PL43): unemployed people, not available (low reliability). Åland (FI20): unemployed people and people outside the labour force, not available (low reliability). Includes data with low reliability for some regions (too many to document).

Source: Eurostat (online data code: lfst_r_lfsd2pwn)

In 2023, the core working-age population of the EU (defined here as people aged 20–64) numbered 259.9 million, of which 52.0 million people were outside the labour force (in other words, economically inactive); this latter group is composed, among others, of students, pensioners, people caring for other family members, as well as volunteers and people unable to work because of long-term sickness or disability.

The EU's labour force of core working age in 2023 was composed of 195.7 million employed people, in contrast to 12.1 million unemployed people who weren't working but were actively seeking and available for work. The highest regional employment rate among NUTS level 2 regions was recorded in the Polish capital region of Warszawski stołeczny (86.5%), while the lowest rate was observed in the southern Italian region of Calabria (48.4%). The infographic above provides more details on the composition of the EU's labour force, as well as other regional highlights.

Employment

More about the data: employment rate targets in the European Pillar of Social Rights

The employment rate is the percentage of employed people (of a given age) relative to the total population (of the same age).

Increasing the number and share of people in work is a principal policy objective for the EU. This goal formed part of the European employment strategy (EES) from its outset in 1997 and was subsequently incorporated into the Lisbon and Europe 2020 strategies. Subsequently, the employment rate was included as an indicator in the social scoreboard which is used to monitor the implementation of the European Pillar of Social Rights. The EU's employment rate target is to have, by 2030, at least 78% of the population aged 20–64 in work. The choice of this age range reflects the growing proportion of young people who remain within education into their late teens (and beyond), potentially restricting their participation in the labour market. At the other end of the age spectrum, the vast majority of people in the EU are retired after the age of 64.

Individual EU countries have been set different employment rate targets. For those countries with relatively high employment rates, national targets are generally higher than the overall EU target, for example, the target in Hungary has been set at 85.0%, in Germany at 83.0% and in the Netherlands at 82.5%.

The EU employment rate was 75.3% in 2023

Prior to the onset of the COVID-19 crisis, the EU's employment rate for the core working-age population (20–64 years) had increased for 6 consecutive years, reaching 73.1% by 2019. This pattern came to an abrupt end in 2020 as the rate fell 0.9 percentage points. However, almost all of the losses during the initial stages of the pandemic were recovered in 2021. The EU's employment rate continued to increase in 2022 and 2023, rising 1.6 and 0.7 points, respectively, to stand at an historical high of 75.3% in 2023.

Map 4.1 shows the employment rate in 2023 for NUTS level 2 regions: those regions with rates already equal to or above the EU target of 78.0% are shown in shades of teal. In 2023, approximately 45% of EU regions (109 out of the 241 for which data are available) had already reached or surpassed this level. These regions were mainly concentrated in Czechia (all 8 regions), Denmark (all 5 regions), Germany (35 out of 38 regions; the exceptions being Berlin, Düsseldorf and Bremen), Hungary (6 out of 8 regions), the Netherlands (all 12 regions), Slovakia (3 out of 4 regions) and Sweden (all 8 regions); the group included Estonia, Cyprus and Malta too.

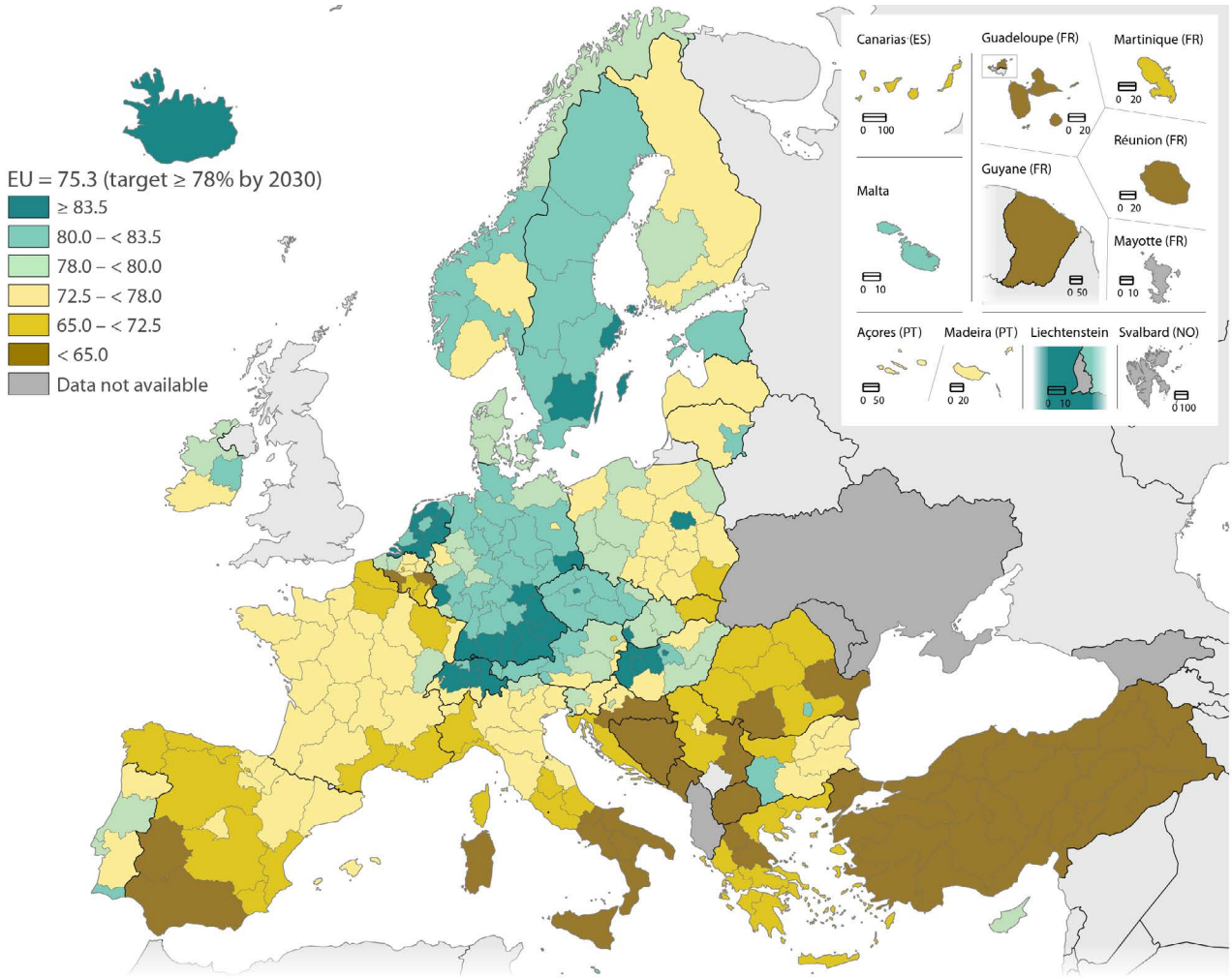
In 2023, the Polish capital region of Warszawski stołeczny had the highest employment rate among NUTS level 2 regions of the EU, at 86.5%. The 2nd highest rate was also recorded in a capital region, Bratislavský kraj in Slovakia (85.8%). The 3rd highest rate was observed in the western German region of Trier (85.4%), where a relatively high proportion of people commute across a national border to work in Luxembourg. Several other capital regions boasted relatively high employment rates, including: Stockholm in Sweden (85.2%), Praha in Czechia (84.8%), Budapest in Hungary (84.4%), Noord-Holland in the Netherlands (84.0%) and Sostinės regionas in Lithuania (83.2%).

Many of the regions with relatively low employment rates were characterised as rural, sparsely-populated, or peripheral regions. This pattern was particularly apparent in southern regions of Spain and Italy, much of Greece, some regions in Romania, and the outermost regions of France. These areas typically suffered from limited employment opportunities, especially for individuals with intermediate and high skill levels.

Another group of regions characterised by relatively low employment rates are former industrial heartlands that haven't adapted economically. Some of these have witnessed the negative impact of globalisation on traditional sectors of their economies (such as coal mining, steel or textiles manufacturing). Examples include a band of regions running from north-east France into the Région wallonne (Belgium).

Approximately a quarter (65 out of the 241 regions for which data are available) of all EU regions had an employment rate that was below 72.5% in 2023 (as shown by the 2 darkest shades of gold in Map 4.1). This group included the capital regions of Belgium, Italy, Greece and Austria, with rates of 66.5%, 68.1%, 69.0% and 70.8%, respectively. This group also included 3 regions in southern Italy where less than half of the core working-age population was employed: Calabria (48.4%), Campania (48.4%) and Sicilia (48.7%).

Map 4.1: Employment rate, 2023
(%, people aged 20–64, by NUTS 2 regions)



Administrative boundaries: © EuroGeographics © UN–FAO © Turkstat
Cartography: Eurostat – IMAGE, 06/2024

Note: Montenegro and North Macedonia, 2020. Corse (FRM0): low reliability.
Source: Eurostat (online data code: lfst_r_lfe2emprtn)

In 2023, the highest regional disparities for employment rates were observed in Italy

In 2023, all of the multi-regional eastern and Baltic countries, as well as Denmark, Ireland, Spain and Sweden reported that their highest employment rate was in their capital region. By contrast, in Belgium, Germany and Austria the situation was more or less the opposite, as their capital regions recorded some of the lowest employment rates.

Several EU countries face considerable labour market disparities across regions, with labour shortages in some regions contrasted against persistently high unemployment in others. A population-weighted coefficient of variation provides a means to analyse these intra-regional disparities. Figure 4.1 shows that Italy had the highest regional disparities in 2023, with a coefficient of variation of 16.3%. Broadly, there was a north-south split: the Alpine region of Provincia Autonoma di Bolzano/Bozen recorded the highest employment rate (79.6%), while the southern regions of Calabria and Campania had the lowest rates (both 48.4%).

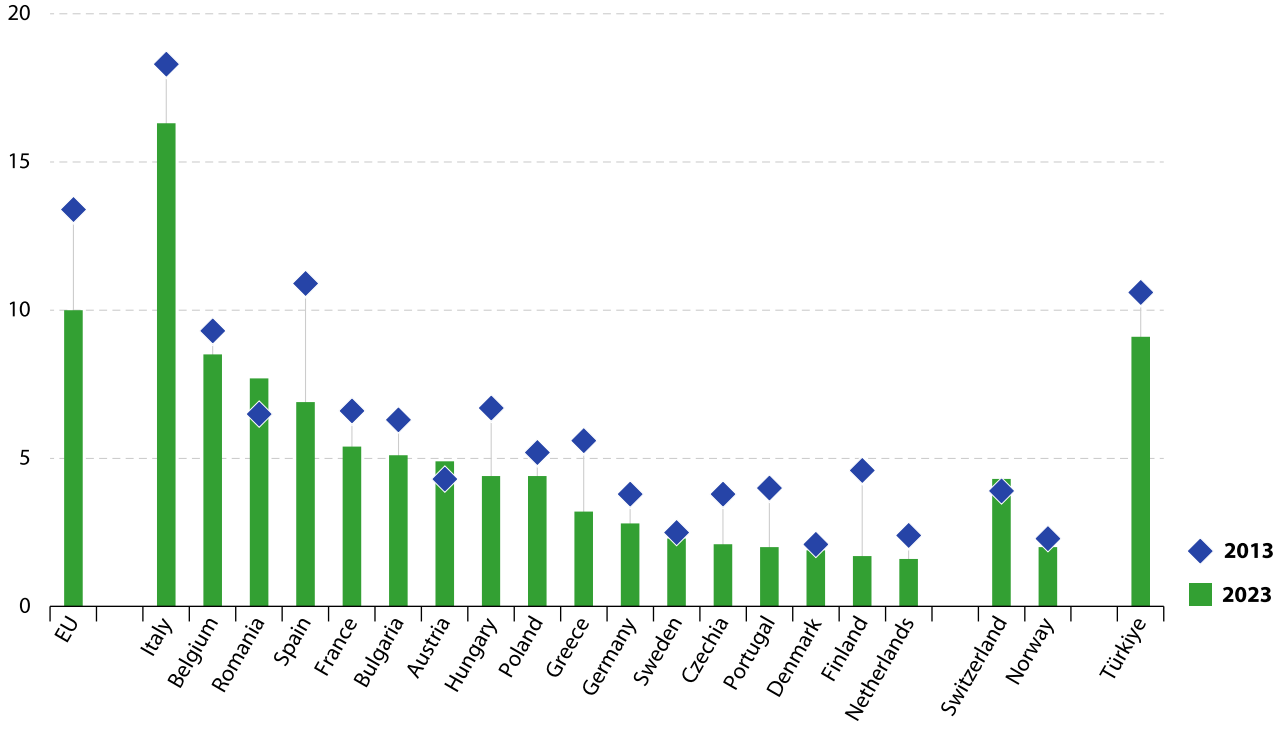
Belgium (8.5%), Romania (7.7%) and Spain (6.9%) had the next highest coefficients of variation for regional employment rates in 2023

- in Belgium, some of the highest regional employment rates were recorded across the regions of Vlaams Gewest, while lower rates were observed in the capital Région de Bruxelles-Capitale / Brussels Hoofdstedelijk Gewest and across the regions of Région wallonne
- in Romania, by far the highest regional employment rate was recorded in the capital region of Bucureşti-Ilfov, while notably lower rates were observed in 2 southern regions
- in Spain, the highest regional employment rates were recorded in northern and eastern regions as well as the capital city region in the centre; while most lower rates were observed in peripheral, southern and western regions.

At the other end of the range, the lowest regional disparities for employment rates – with a coefficient of variation of 2.0% or less – were recorded in Portugal, Denmark, Finland and the Netherlands.

Figure 4.1 also shows some convergence in regional employment rates across the EU. Between 2013 and 2023, the coefficient of variation fell from 13.4% to 10.0%. In 15 (out of 17) EU countries for which data are available, there was a decrease in intra-regional disparities for employment rates. The biggest falls – in relative terms – were observed in Finland, Portugal, Czechia and Greece, where regional disparities fell by more than 40.0%. By contrast, the largest increase was recorded in Romania, as regional disparities increased by 18.5%.

Figure 4.1: Regional disparities in employment rates, 2013 and 2023
(coefficient of variation in %, people aged 20–64, by NUTS 2 regions)



Note: as measured by population-weighted coefficient of variation for EU, EFTA and non-EU countries with more than 4 level 2 regions (Estonia, Ireland, Croatia, Cyprus, Latvia, Lithuania, Luxembourg, Malta, Slovenia, Slovakia, Iceland, Liechtenstein, Bosnia and Herzegovina, Montenegro, Moldova, North Macedonia, Georgia and Ukraine: not applicable)

Source: Eurostat (online data code: lfst_r_lfe2emprtn)

The EU's gender employment gap was 10.2 percentage points in 2023

In 2023, the EU's gender employment gap was 10.2 percentage points: this gap is defined as the difference between the employment rates of men and women aged 20-64. The European Pillar of Social Rights Action Plan set a subgoal of halving the EU's gender employment gap, as part of its overall target to increase the employment rate to 78% by 2030. The subgoal foresees reducing the gender employment gap to 5.6 percentage points by 2030, equivalent to an average fall of 0.5 points each year (over the period 2019–30).

Long-standing challenges linked to female participation in the labour force are illustrated by persistent gender gaps for employment and pay. These gaps between the sexes exist for a variety of reasons, among which

- women often bear a disproportionate share of unpaid care and household chores that may limit their availability for paid employment
- gender bias and discrimination when hiring, promoting and paying women
- fewer women in leadership positions to draw attention to gender-related policies or mentor more junior female staff
- a lack of affordable childcare and support for working parents
- disincentives in tax and benefit system that can lead to 2nd earners bearing a higher tax burden when they choose to participate in the labour market
- occupational segregation, with women often concentrated in specific activities that are characterised by lower wages and/or fewer opportunities for career development.

The gender employment gap is also included in the EU's sustainable development goals (SDGs) indicator set. Goal 5 seeks to achieve gender equality by, among other actions, ending all forms of discrimination, violence, and any harmful practices against women and girls, while promoting women's social and economic empowerment.

In Finland, there were 3 regions where a higher proportion of women (aged 20–64) than men (of the same age) were employed in 2023

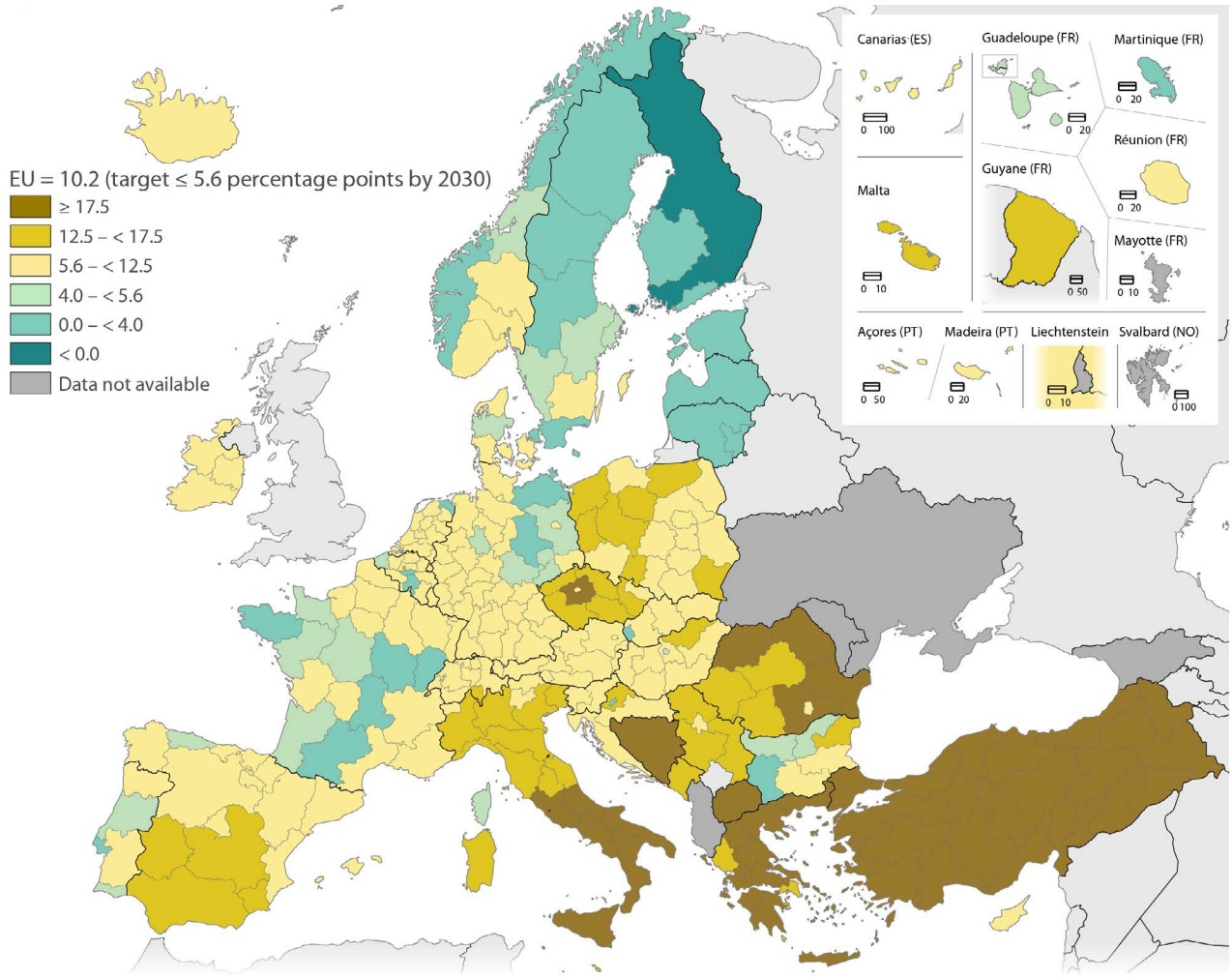
In 2023, 52 out of 241 NUTS level 2 regions for which data are available reported a gender employment gap that was already 5.6 percentage points or lower; they are shown in different shades of gold in Map 4.2. This group of 52 regions was mainly concentrated in France (13 regions), Germany (7 regions), Sweden (7 out of 8 regions) and Finland (all 5 regions). Those regions with relatively small gender employment gaps were often characterised by high overall employment rates.

In 2023, there were only 3 regions within the EU that reported a higher employment rate for women (than for men): Åland, Etelä-Suomi and Pohjois- ja Itä-Suomi (all in Finland). In the Slovak capital region of Bratislavský kraj, there was no difference in employment rates between the sexes.

Despite some progress, female employment rates still lag behind male rates in the vast majority of EU regions. The European Commission's Gender Equality Strategy 2020–25 is designed, among other goals, to counter gender stereotypes and promote women's participation in decision-making, while closing gender gaps in the labour market.

EU regions with relatively large gender employment gaps were often characterised by higher unemployment rates and levels of women outside the labour force. In 2023, there were 24 NUTS level 2 regions that had gaps of at least 17.5 percentage points (as shown by the darkest shade of teal in Map 4.3). This group was concentrated in Greece (11 out of 13 regions), central/southern Italy (8 regions) and Romania (4 regions); the other region was Střední Čechy in Czechia. The Italian regions of Campania and Puglia (both 29.5 points) and the Greek region of Sterea Elláda (29.3 points) had the highest gender employment gaps in the EU.

Map 4.2: Gender employment gap, 2023
(percentage points, people aged 20–64, by NUTS 2 regions)



Administrative boundaries: © EuroGeographics © UN–FAO © Turkstat
Cartography: Eurostat – IMAGE, 06/2024

Note: employment rate of men minus the employment rate of women. Montenegro and North Macedonia: 2020.
Corse (FRM0): low reliability.

Source: Eurostat (online data code: lfst_r_lfe2emprtn)

EMPLOYMENT – FOCUS ON QUALIFICATIONS AND SKILLS

More about the data: young people who are neither in employment nor in education and training (NEET)

The share of young people (aged 15–29) who are neither in employment nor in education and training (NEET) provides a useful measure for studying the vulnerability of young people in terms of their labour market participation and social exclusion.

The NEET rate is expressed relative to the total population of the same age (15–29); the numerator includes not only young people who are unemployed but also young people who are outside the labour force for reasons other than education or training (for example, because they are caring for family members, volunteering or travelling, or unable to work for health reasons).

Within the European Pillar of Social Rights Action Plan, the EU set a policy target whereby the NEET rate should decrease to less than 9% by 2030. Having peaked at 16.1% in 2013, the rate subsequently fell during 6 consecutive years. With the onset of the COVID-19 pandemic, it climbed to 13.8% in 2020, after which a downward trend returned. In 2023, the EU's NEET rate stood at 11.2%.

Economic crises tend to hit young people disproportionately, as young people are more likely to work with temporary and other forms of atypical contracts that are easier to terminate. The NEET rate can be used to investigate the share of young people who haven't transitioned from education/training to employment. It is generally considered a more comprehensive measure than the unemployment rate, insofar as it is more closely linked to young people's risk of social and labour exclusion.

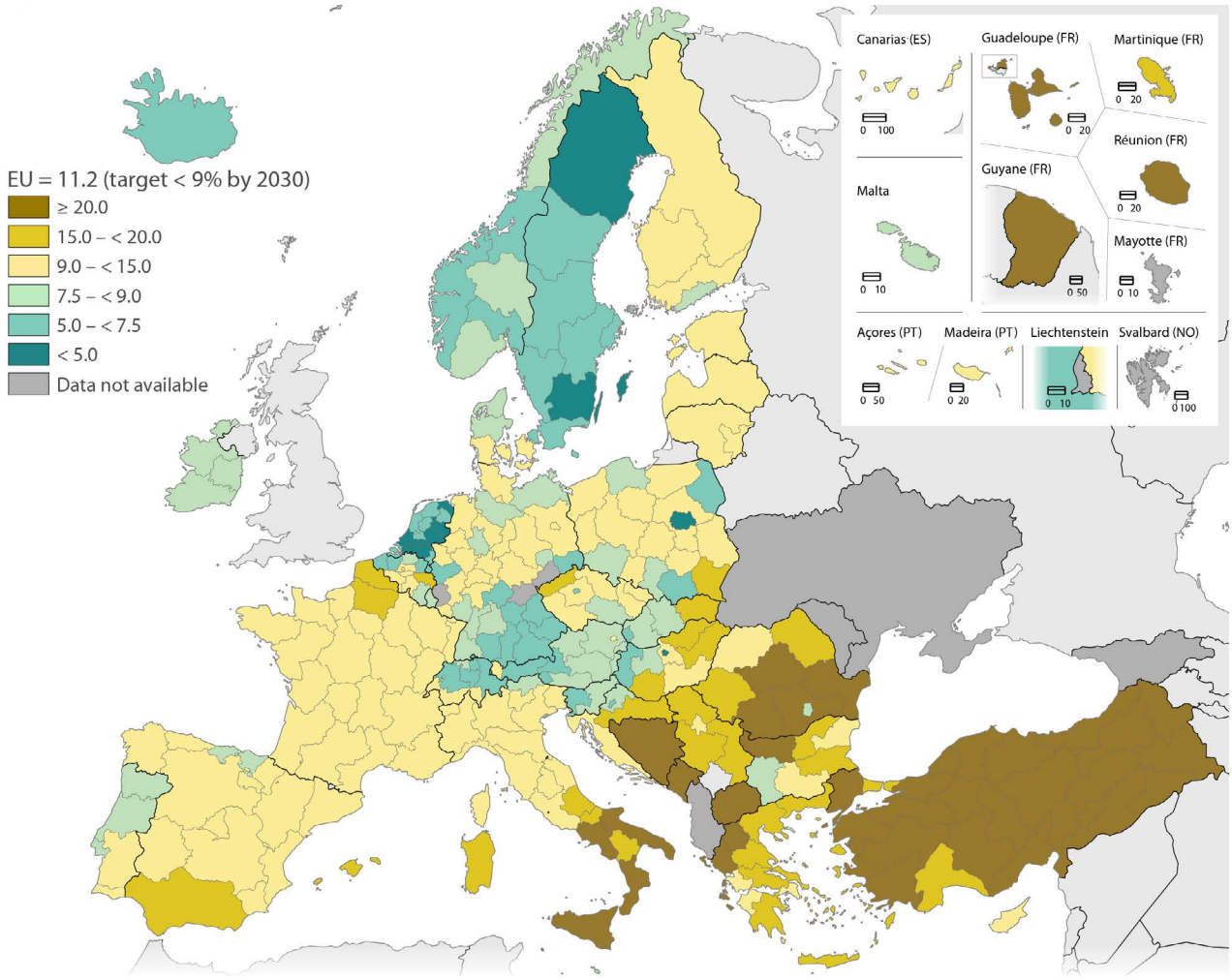
In 15 out of the 237 NUTS level 2 regions for which data are available, at least 20.0% of all young people aged 15–29 were neither in employment, nor in education or training in 2023 (these regions are shaded in the darkest shade of teal in Map 4.3). Some of the highest NEET rates were recorded in predominantly rural regions located in southern and eastern EU countries, as well as the outermost regions of France. More narrowly, there were 7 regions where more than 25.0% of all young people were neither in employment, nor in education or training

- 3 of these were located in Italy – Campania (26.9%), Calabria (27.2%) and Sicilia (27.9%)
- 3 were located in Romania – Centru (25.5%), Sud-Est (26.8%) and Sud-Vest Oltenia (27.7%)
- however, the highest NEET rate was recorded in the French outermost region of Guyane, where 29.7% of all young people were neither in employment, nor in education or training.

In 2023, there were 84 NUTS level 2 regions that reported a NEET rate that was already below the EU's policy target of 9.0% (to be reached by 2030); they are shown in golden shades within Map 4.3. This group of 84 regions was concentrated in Ireland (all 3 regions), the Netherlands (all 12 regions), Austria (7 out of 9 regions), Slovenia (both regions), Slovakia (3 out of 4 regions) and Sweden (all 8 regions); it included Luxembourg and Malta too. There were 9 regions within the EU where the NEET rate was less than 5.0% in 2023 (as shown by the darkest shade of gold). A majority of these were located in the Netherlands. They were joined by 2 regions from Sweden and the capital regions of Hungary and Poland. The lowest NEET rates were recorded in Småland med öarna in Sweden (3.7%) and Overijssel in the Netherlands (3.9%).

Capital regions generally recorded lower than (national) average shares of young people who were neither in employment nor in education or training. In 2023, the only exceptions – among multi-regional EU countries – were in Austria, Germany, Belgium and the Netherlands; the difference in the latter was minimal.

Map 4.3: Share of young people neither in employment nor in education and training (NEET), 2023
(%, people aged 15–29, by NUTS 2 regions)



Administrative boundaries: © EuroGeographics © UN–FAO © Turkstat
Cartography: Eurostat – IMAGE, 06/2024

Note: Oberpfalz (DE23) and Bratislavský kraj (SK01), 2022. Niederbayern (DE22): 2021. Montenegro and North Macedonia: 2020.
Includes data with low reliability for some regions (too many to document).

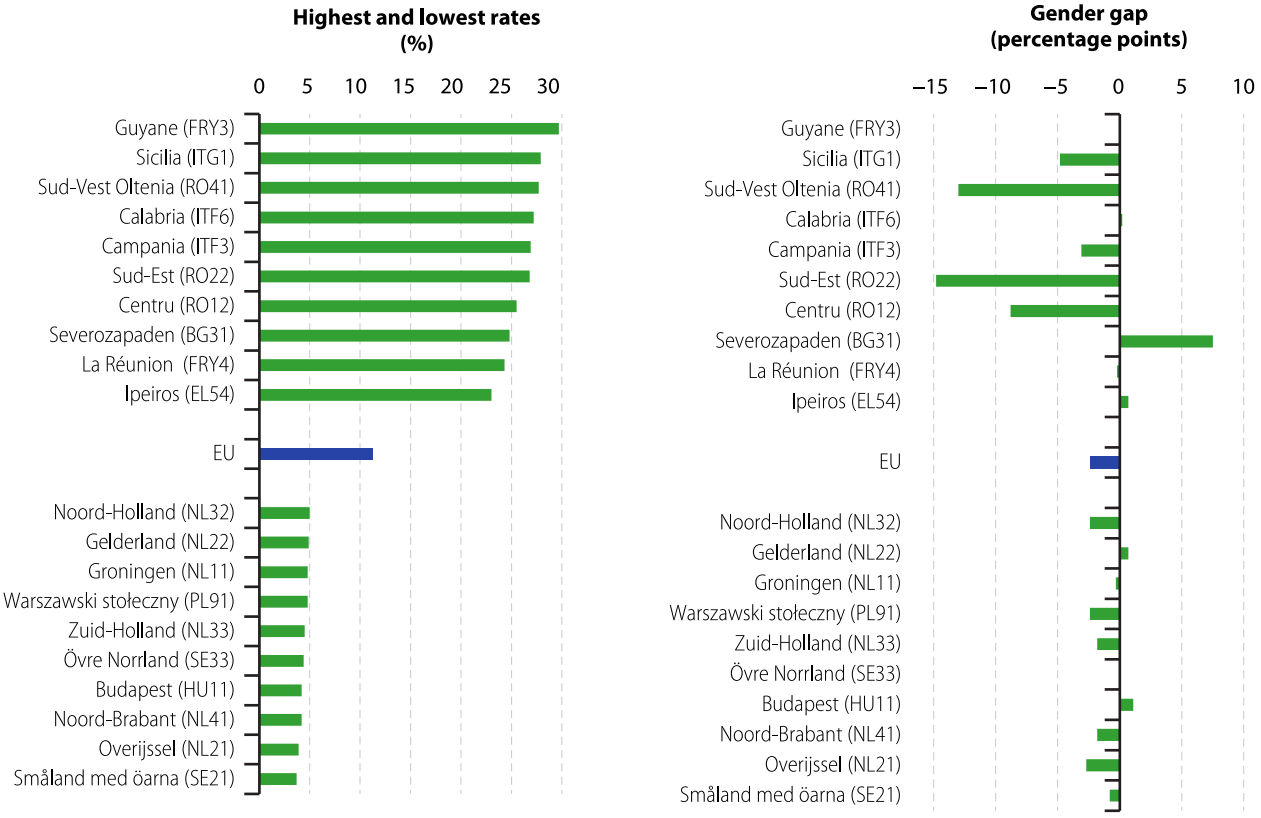
Source: Eurostat (online data code: edat_lfse_22)

In 2023, the EU's NEET rate was 2.4 percentage points higher among young females than young males

Figure 4.2 confirms that among NUTS level 2 regions in 2023, the NEET rate ranged from a high of 29.7% in the French outermost region of Guyane down to a low of 3.7% in the south-eastern Swedish region of Småland med öarna. It also shows that some but not all regions characterised by high NEET rates displayed considerable gender differences, with NEET rates generally higher for females (than males). The right-hand chart doesn't necessarily show the largest gender gaps, rather it presents gender gaps for those regions with the highest/lowest regional shares.

In the EU, the share of young females aged 15–29 who were neither in employment nor in education and training was 12.5% in 2023. This figure was 2.4 percentage points higher than the corresponding figure for young males, which stood at 10.1%. Across NUTS level 2 regions, it was more common to find higher NEET rates for young females (than for young males). This gender gap was most pronounced in regions located in eastern EU countries and Greece, where cultural, economic and societal factors may play a role in acting as barriers for young females to enter the workforce. The highest NEET rates among young females were recorded in the Romanian regions of Sud-Est (34.5%) and Sud-Vest Oltenia (34.4%), and the southern Italian region of Sicilia (30.4%). For young males, the highest NEET rates were observed in the French outermost region of Guyane (29.7%), Severozapaden in Bulgaria (28.5%) and Calabria in southern Italy (27.3%).

Figure 4.2: Share of young people neither in employment nor in education and training (NEET), 2023
(%, people aged 15–29, by NUTS 2 regions)



Note: the first part of the figure shows the EU regions with the highest and lowest shares of young people neither in employment nor in education and training (NEET) among people aged 15–29, while the second part shows the gender gap for young people neither in employment nor in education and training in the same regions (calculated as the share for males minus the share for females). Oberfranken (DE24), Trier (DEB2), Chemnitz (DED4), Mayotte (FRY5) and Åland (FI20): not available. Warszawski stołeczny (PL91): gender gap, 2022. Småland med öarna (SE21): gender gap, 2021. Övre Norrland (SE33): gender gap, not available.

Source: Eurostat (online data code: edat_lfse_22)

More about the data: employment rates by educational attainment

An individual's level of educational attainment plays a key role when seeking employment. People with a tertiary level of educational attainment (as defined by the international standard classification of education (ISCED 2011 levels 5–8)) generally enjoy the most success when trying to find work. They also tend to be better shielded from the risks of unemployment than their peers with lower levels of attainment.

The data presented in this section are for the age group 25–64 as this represents a cohort of individuals who have generally completed their education or training and are most likely to be actively participating in the labour market. As such, it excludes younger individuals who may still be studying, as well as older individuals who may be in retirement.

In 2023, there were 182.9 million people aged 25–64 employed in the EU. The highest share of this cohort was composed of people with an upper secondary or post-secondary non-tertiary education (ISCED levels 3–4; 44.9%), followed by people with a tertiary education (ISCED levels 5–8; 39.7%), while a relatively small share had no more than a lower secondary education (ISCED levels 0–2; 15.3%). The strong links between educational attainment and employment opportunities are demonstrated by the employment rates

- 58.7% for people with no more than a lower secondary education (hereafter referred to as a low level of education)
- 77.8% for people with an upper secondary or post-secondary non-tertiary education (a medium level of education)
- 87.6% for people with a tertiary level of education (a high level of education).

Map 4.4 shows employment rates for people aged 25–64 according to these 3 different levels of educational attainment. In 2023, there were 46 NUTS level 2 regions that recorded employment rates for people with a low level of education that were below 50.0%. By contrast, employment rates for people with a medium or a high level of education exceeded 50.0% in every region of the EU. At the other end of the spectrum, there were 72 regions that recorded employment rates for people with a high level of education that were equal to or above 90.0%. By contrast, employment rates for people with a medium or a low level of education were consistently below 90.0% in every region of the EU.

In 2023, Východné Slovensko in Slovakia had the lowest employment rate for people with a low level of education …

The 1st part of Map 4.4 details employment rates for people aged 25–64 with a low level of education. In 2023, there were 46 NUTS level 2 regions with employment rates below 50.0%. They were mainly concentrated in eastern EU countries (other than Hungary and Slovenia), Belgium, France and southern Italy; this group also included the Greek and Austrian capital regions of Attiki and Wien, as well as the 2 autonomous regions of Ciudad de Ceuta and Ciudad de Melilla in Spain. In the easternmost region of Slovakia, Východné Slovensko, 25.3% of all people with a low level of education were employed. There were 3 other regions that reported no more than 1 in 3 people with a low level of education in employment: Severozapaden in Bulgaria (31.1%), Stredné Slovensko in Slovakia (31.8%) and Małopolskie in Poland (33.3%).

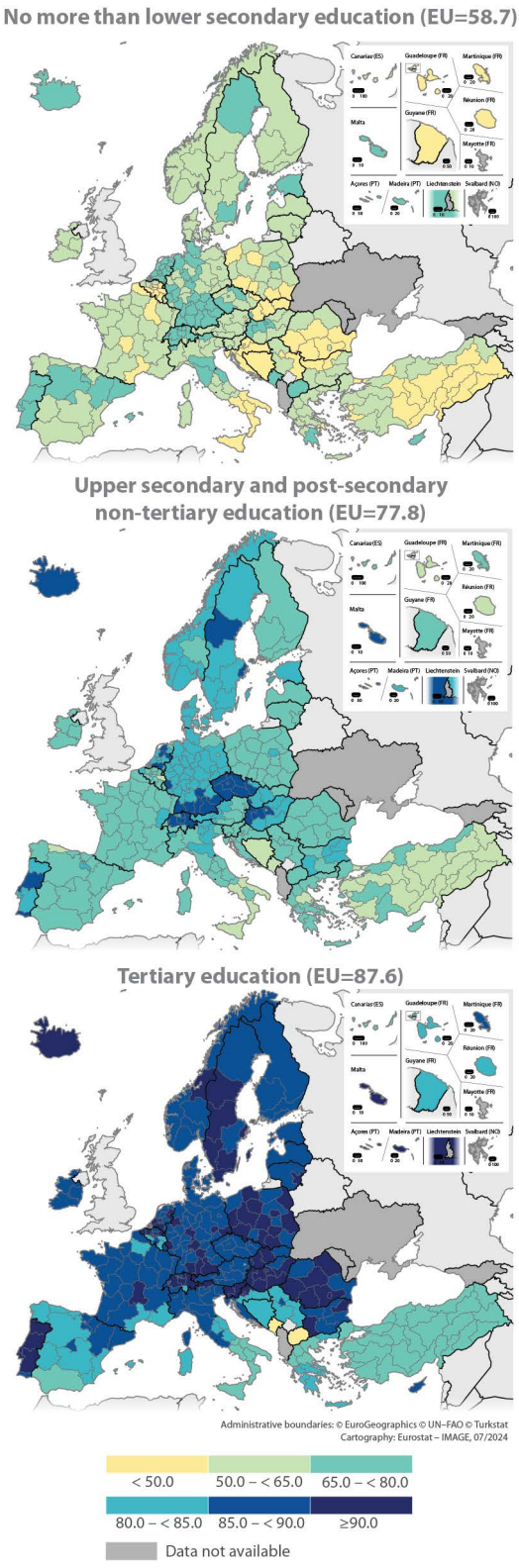
… while the highest employment rate for people with a medium level of education were recorded in the Czech region of Praha and the Portuguese Região Autónoma dos Açores

The 2nd map shows employment rates for people aged 25–64 with a medium level of education. In 2023, there were 29 NUTS level 2 regions where the employment rate for this cohort was equal to or above 85.0%. These regions were principally located in southern Germany, Czechia, western Hungary, the Netherlands and Portugal. The highest employment rates were recorded in the Czech capital region of Praha and the Portuguese island Região Autónoma dos Açores (both 87.8%), while rates of more than 87.0% were also observed in the Hungarian regions of Közép-Dunántúl and Nyugat-Dunántúl.

In 2023, employment rates for people with a high level of education were highest in the Polish capital region of Warszawski stołeczny and in the Nord-Est region of Romania

The 3rd map shows employment rates for people aged 25–64 with a high level of education. In 2023, there were 72 NUTS level 2 regions across the EU where the employment rate for this cohort was at least 90.0% (as shown by the darkest shade of blue). Approximately half of this group was concentrated in eastern EU countries: Poland (12 regions), Hungary (7 out of 8 regions), Romania (6 out of 8 regions), Slovakia (3 out of 4 regions), Slovenia (both regions), Croatia, Bulgaria (both 2 regions) and Czechia (a single region). This group of 72 also included 10 regions from Germany, 6 regions from each of Portugal and Sweden, 5 regions from the Netherlands, as well as 4 regions from Belgium, alongside single regions from France, Italy, Lithuania, Malta, Austria and Finland. The highest employment rates for people with a high level of education were recorded in the Polish capital region of Warszawski stołeczny and in the Nord-Est region of Romania (both 93.7%).

Map 4.4: Employment rate by educational attainment, 2023
(%, people aged 25–64, by NUTS 2 regions)



Note: Montenegro and North Macedonia, 2020. Corse (FRM0): low reliability. Grad Zagreb (HR05), Lubuskie (PL43), Opolskie (PL52), Świętokrzyskie (PL72) and Bratislavský kraj (SK01): low reliability for no more than lower secondary education. Åland (FI20): low reliability for tertiary education.

Source: Eurostat (online data codes: lfst_r_lfsd2pop and lfst_r_lfe2eedu)

In 2023, employment rates for people aged 25–64 with a high level of education were generally higher in capital regions than national averages. Indeed, capital regions often act as a magnet for highly qualified people, exerting considerable 'pull effects' through the varied educational, employment and social/lifestyle opportunities that they offer. This was particularly the case in Greece, as the employment rate for people with a high level of education was 3.2 percentage points higher than the national average in the capital region of Attiki; this pattern was also notable in Spain, Bulgaria, Croatia, Poland and Czechia. By contrast, the opposite pattern was observed in several western EU countries – Belgium, Austria, Germany and the Netherlands – and also in Portugal.

There were 13 NUTS level 2 regions where the employment rate for people aged 25–64 with a high level of education was less than 80.0% in 2023. These regions were exclusively located in southern EU countries: Italy, Greece and Spain. Almost all of the 13 regions in this group were characterised as rural regions, with relatively large agricultural sectors and few employment opportunities for highly skilled people. The lowest employment rate was recorded in the north-western Greek region of Dytiki Makedonia, at 66.3%.

A New Skills Agenda for Europe (COM(2016) 381 final) and the *European Skills Agenda for sustainable competitiveness, social fairness and resilience* (COM(2020) 274 final) define EU policy priorities and actions to be undertaken to improve the anticipation, development and activation of skills. The European Year of Skills 2023/24 was designed to 'promote reskilling and upskilling, helping people to get the right skills for quality jobs'. Among their principal goals, these initiatives seek to ensure that the skills available in the labour market match those required by businesses and the economy.

A recent communication from the European Commission, *Harnessing talent in Europe's regions* (COM(2023) 32 final), highlighted increasing global competition for talent, as many developed world economies are expected to face shrinking populations in the years to come. The communication identified demographic transformation as a cause for concern in several EU regions (for more information on population developments, see Chapter 1), with shrinking working-age populations and the potential departure of young and skilled workforces to other regions/territories leading to a talent development trap. With this in mind, the European Commission launched a talent booster mechanism in early 2023 with the aim of supporting EU regions that were affected by a decline in their working-age populations through training, in order to retain and attract the people, skills and competences needed to address the demographic transition.

More about the data: highly skilled people

Employed people with high-skills are defined – for the purpose of this publication – as people aged 25–64 who are employed in the following occupations: managers; professionals; or technicians and associate professionals (ISCO-08 major groups 1–3).

In 2023, there were approximately 81 million highly skilled people aged 25–64 employed within the EU; they accounted for 44.9% of the total number of employed people of the same age. Map 4.5 shows that the regional distribution of highly skilled people across NUTS level 2 regions was somewhat skewed: 105 out of 241 regions for which data are available, or 43.6% of all regions, reported a share of highly skilled employed people that was above the EU average.

Capital regions attract highly qualified talent

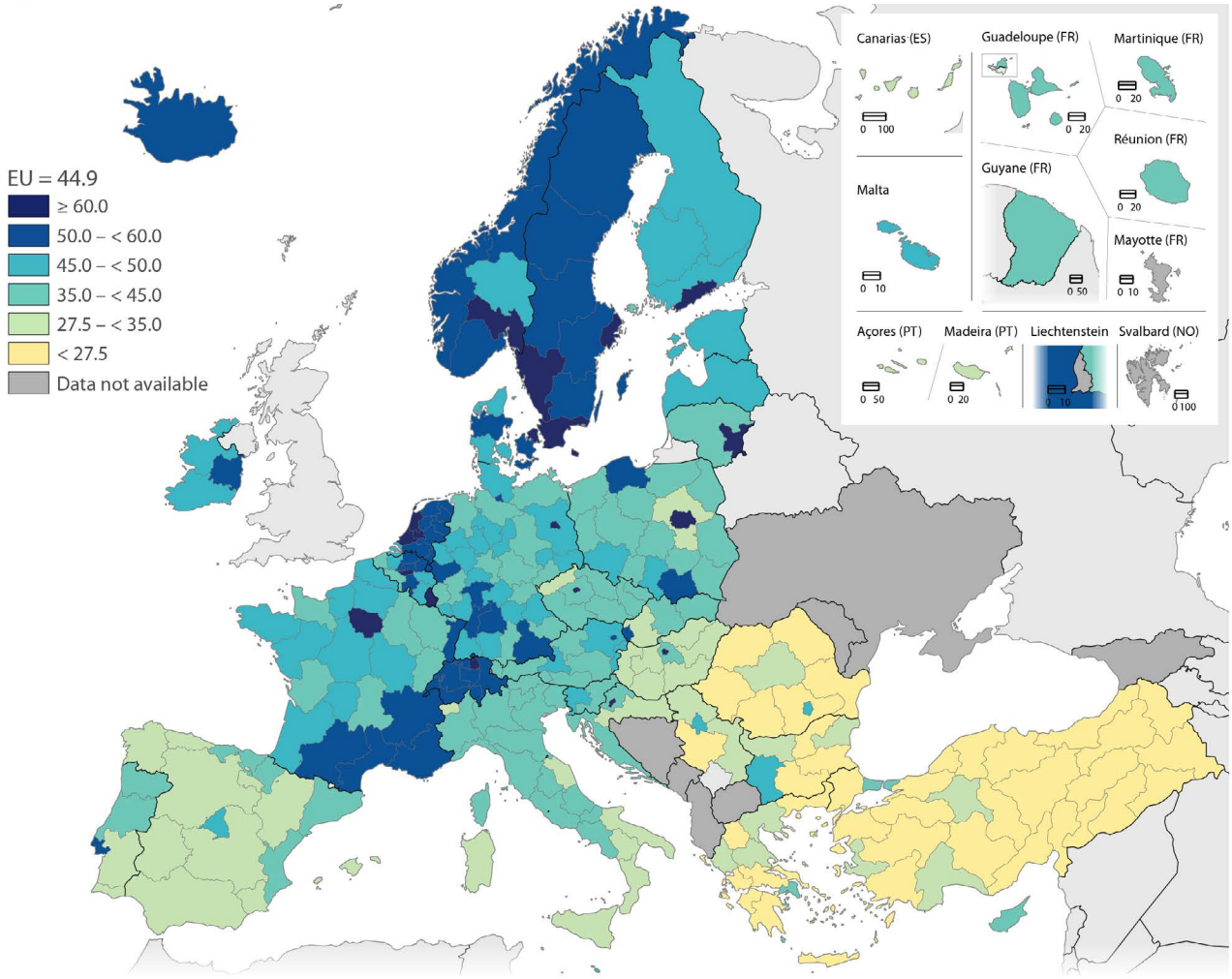
At the upper end of the distribution, there were 18 NUTS level 2 regions in 2023 where at least 60.0% of all employed people aged 25–64 were considered to be highly skilled. Looking in more detail, 13 out of these 18 regions were capitals. These regions tend to 'pull' highly qualified individuals through a wide array of job prospects in dynamic sectors of the economy and may also offer a diverse range of cultural and social opportunities

- the highest share was observed in the Swedish capital region of Stockholm (73.3%)
- more than 2 out of 3 employed people in the capital regions of Poland, Czechia and Denmark were considered to be highly skilled, this was the case in Luxembourg too
- the capital regions of the Netherlands, Finland, France, Lithuania, Hungary, Germany, Croatia and Belgium also reported shares that were higher than 60.0%
- there were 5 non-capital regions with shares of more than 60.0%, including the Dutch regions of Utrecht (69.8%) and Zuid-Holland (62.8%), the Belgian Prov. Brabant Wallon (65.1%) and the Swedish regions of Sydsverige (62.4%) and Västsverige (60.1%).

Many of the EU regions experiencing the impact of declining working-age populations and struggling to retain and attract highly skilled individuals are predominantly rural regions. However, outermost and peripheral regions, as well as former industrial heartlands struggling with the transition to new industrial structures are also affected. In 2023, there were 19 NUTS level 2 regions where highly skilled employed people accounted for less than 27.5% of total employment among those aged 25–64 (these regions are denoted by a yellow

shade in Map 4.5). This group was principally concentrated in the south-eastern corner of Europe, with 9 regions in Greece, 6 in Romania and 3 in Bulgaria; the remaining region was the autonomous Spanish region of Ciudad de Melilla. The lowest regional shares of highly skilled employed people were recorded in 3 Greek regions – Sterea Elláda (20.9%) Voreio Aigaio (22.0%) and Notio Aigaio (22.4%) – and the southern Romanian region of Sud-Muntenia (21.8%). The lowest share of highly skilled employed people among western EU countries was recorded in the southern German region of Niederbayern (38.5%), while the lowest share among northern EU countries was recorded in the Finnish region of Åland (40.6%).

Map 4.5: Highly skilled employed people, 2023
(% of people employed aged 25–64, by NUTS 2 regions)



Administrative boundaries: © EuroGeographics © UN–FAO © Turkstat
Cartography: Eurostat – IMAGE, 07/2024

Note: highly skilled employed people covers people employed as managers (ISCO 01), professionals (ISCO 02), technicians and associate professionals (ISCO 03). The indicator excludes people who gave no response when asked about their occupation. Corse (FRM0) and Åland (FI20): low reliability.

Source: Eurostat (labour force survey)

Unemployment

Unemployment can have a bearing not just on the macroeconomic performance of a country or a region, for example lowering productive capacity, but also on the well-being of individuals without work and their families. Rising unemployment results in a loss of income for individuals, increased pressure on government spending for social benefits and a reduction in tax revenues. Furthermore, the personal and social costs of unemployment are varied and include a higher risk of poverty and social exclusion, debt or homelessness, while the stigma of being unemployed may have a potentially detrimental impact on (mental) health.

More about the data: the unemployment rate

Within this section, data are presented for people aged 15–74; this is the standard age range employed by Eurostat and the International Labour Organization (ILO) for studying unemployment rates within the labour force.

Contrary to what may be thought, the unemployment rate isn't the direct opposite of the employment rate, since the 2 measures don't have the same denominator; the unemployment rate uses the labour force and the employment rate uses the total population.

The EU unemployment rate was 6.1% in 2023

From a peak of 11.6% in 2013, the EU's unemployment rate among people aged 15–74 fell during 6 consecutive years to 6.8% in 2019. With the onset of the COVID-19 crisis, the EU's unemployment rate increased 0.4 percentage points in 2020, followed by almost no change in 2021, as the pandemic continued to impact some parts of the EU economy. Having witnessed a marked decrease in unemployment during 2022 – with labour shortages apparent in certain sectors of the economy – unemployment continued to fall, albeit at a relatively modest pace in 2023. There were 13.2 million unemployed people across the EU in 2023, while the unemployment rate stood at 6.1%.

Map 4.6 shows unemployment rates across NUTS level 2 regions in 2023: the highest rates were observed in southern EU countries, outermost regions of the EU and the Belgian capital region. By contrast, the lowest rates were largely concentrated in a cluster of regions that stretched from Germany into Poland, Czechia and Hungary. The distribution of unemployment rates exhibited a certain degree of skewness: there were 98 regions (out of 238 for which data are available) that had unemployment rates equal to or above the EU average of 6.1%, while almost 60% of all regions (140 out of 238) recorded rates that were below the EU average.

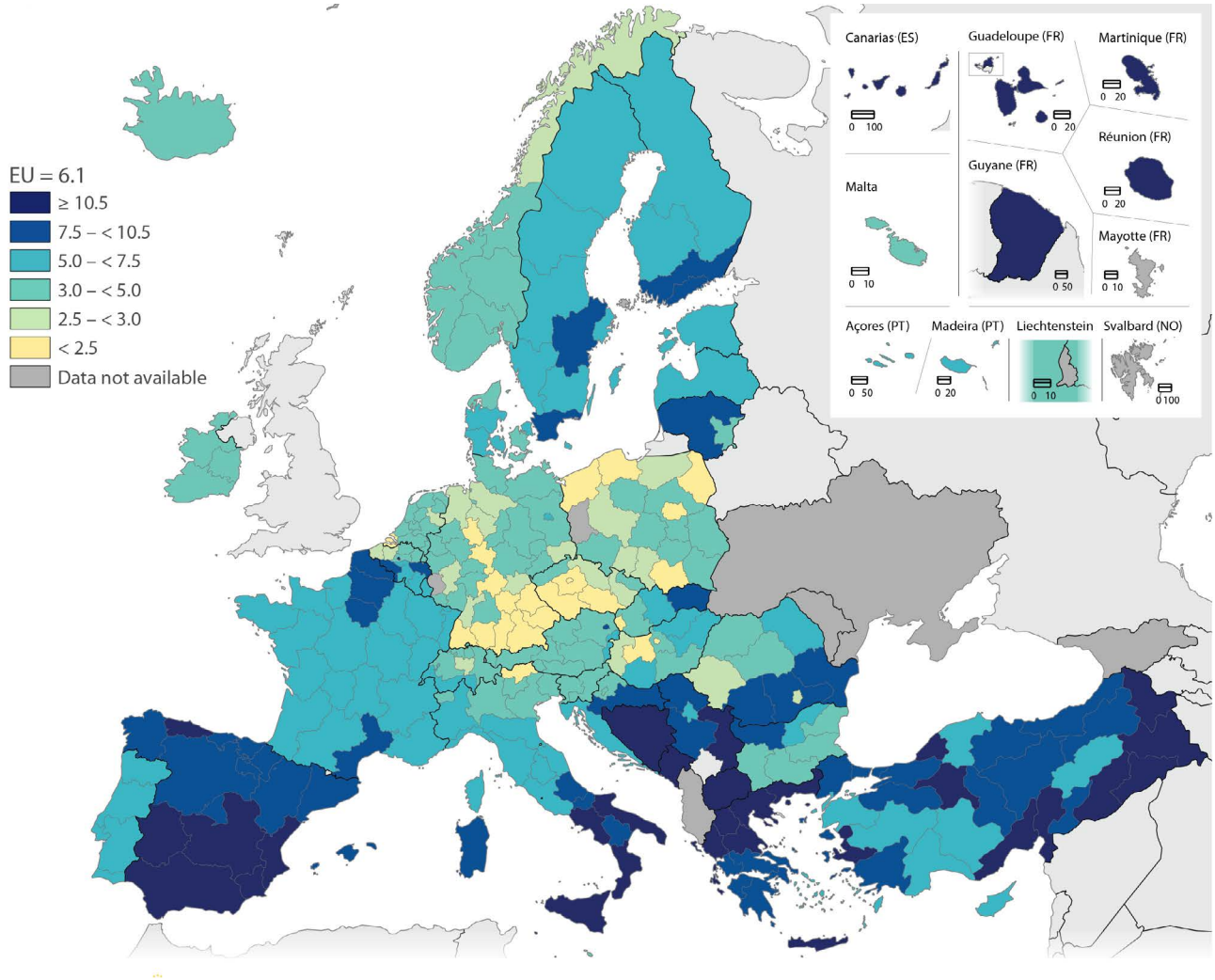
In 2023, there were 25 NUTS level 2 regions that reported unemployment rates of at least 10.5%, as shown by the darkest shade of blue in Map 4.6. The Spanish autonomous regions of Ciudad de Ceuta and Ciudad de Melilla were the only regions where the unemployment rate was higher than 20.0%. Leaving these 2 regions and the French outermost regions aside, the next highest unemployment rates were in Andalucía (18.3%) and Extremadura (17.4%) in the south-west of Spain and in Campania (17.4%) in Italy.

At the lower end of the distribution, there were 24 NUTS level 2 regions where the unemployment rate was less than 2.5% in 2023; these regions are shown with a yellow shade in Map 4.6. The lowest regional unemployment rates were concentrated in Germany, Poland, Czechia and Hungary (as noted above), while there were also relatively low rates observed in Provincia Autonoma di Bolzano/Bozen (northern Italy), Zeeland (the Netherlands) and Bratislavský kraj (the capital region of Slovakia). The lowest rate in the EU was recorded in the Czech region of Střední Čechy (that surrounds the capital of Praha), at 1.7%, while there were 5 other regions with rates that were less than 2.0%: Niederbayern (2021 data) and Schwaben in southern Germany, Warszawski stołeczny and Pomorskie in Poland, and Jihozápad in Czechia.

In 2023, Croatia, Lithuania, Slovenia and Slovakia all reported their lowest regional unemployment rate within their capital region; in Poland and Romania, the lowest rate was recorded jointly in the capital region and in 1 other region. Unemployment rates for the capital regions of the multi-regional eastern and Baltic EU countries were consistently lower than their national unemployment rates. This pattern was particularly notable in Slovakia and Romania, where the national unemployment rate was at least twice as high as the unemployment rate of the capital region.

By contrast, the highest regional unemployment rates in 2023 in Belgium, Germany, Ireland, Austria, Portugal and Finland were recorded within their capital regions. This pattern was particularly apparent in Germany, Austria and Belgium, as the unemployment rates in their capital regions were 1.7–1.9 times as high as their respective national averages.

Map 4.6: Unemployment rate, 2023
(% of labour force, people aged 15–74, by NUTS 2 regions)



Administrative boundaries: © EuroGeographics © UN–FAO © Turkstat
Cartography: Eurostat – IMAGE, 06/2024

Note: Niederbayern (DE22), 2021. Montenegro and North Macedonia: 2020. Includes data with low reliability for some regions (too many to document).

Source: Eurostat (online data code: lfst_r_lfur2gan)

In 2023, the highest regional disparities for unemployment rates were observed across Italy

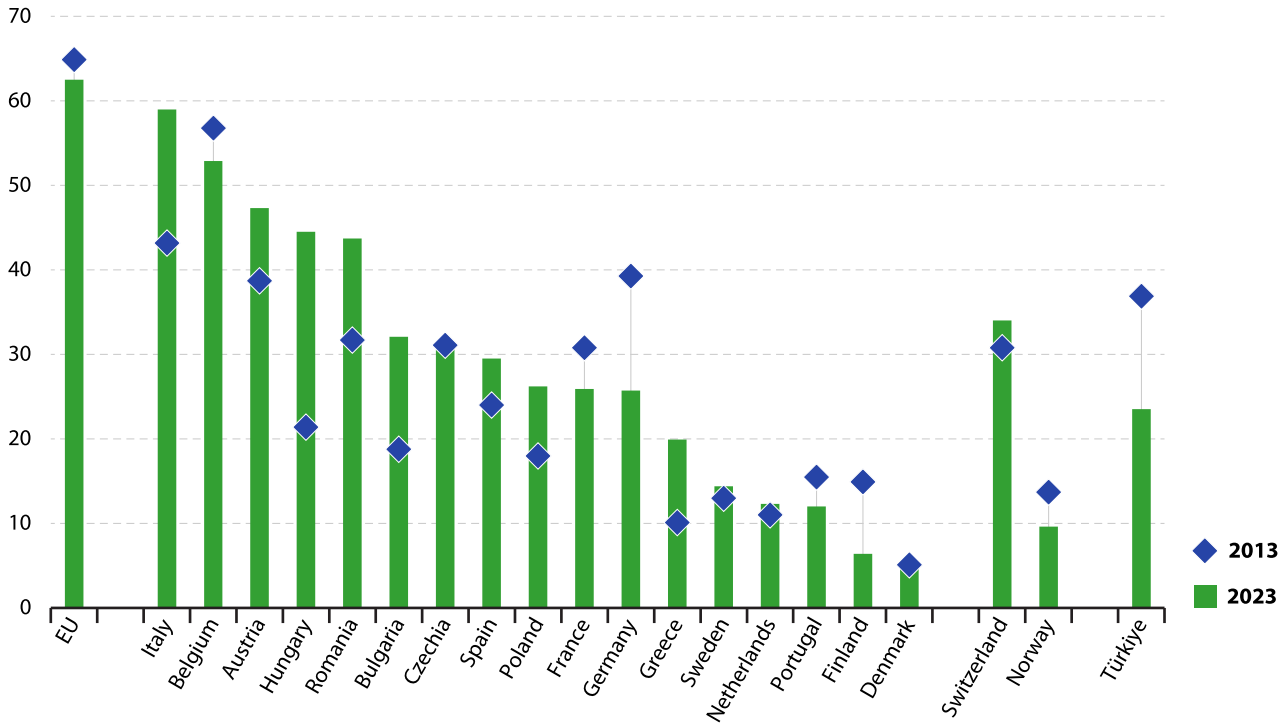
Some EU countries are characterised by considerable variations in regional unemployment rates. A population-weighted coefficient of variation provides a means to analyse such intra-regional disparities (see Figure 4.3). Italy, Belgium, Austria, Hungary and Romania recorded the largest regional disparities in 2023, with coefficients of variation of 59.0%, 52.9%, 47.3%, 44.5% and 43.7%, respectively

- in Italy, the highest regional unemployment rate was recorded in Campania (17.4%) and the lowest in Provincia Autonoma di Bolzano/Bozen (2.0%), with a clear north–south divide
- in Belgium, the highest regional unemployment rate was recorded in Région de Bruxelles-Capitale / Brussels Hoofdstedelijk Gewest (10.6%) and the lowest in Prov. West-Vlaanderen (2.8%), with a clear divide between the regions of Région wallonne and Vlaams Gewest
- in Austria, the capital region of Wien had by far the highest regional unemployment rate (9.6%), while the lowest rates – no more than 3.5% – were observed in the westernmost regions of Salzburg, Tirol, Vorarlberg and Oberösterreich
- in Hungary, the highest unemployment rate was recorded in the north-eastern region of Észak-Alföld (6.7%), while the lowest rates were recorded in the north-western region of Közép-Dunántúl (2.1%) and the capital region of Budapest (2.3%)
- in Romania, the highest regional unemployment rate was recorded in Sud-Est (9.1%), while the lowest rates were in Vest and the capital region of Bucureşti-Ilfov (both 2.8%).

At the other end of the range, the lowest regional disparities – with coefficients of variation below 10.0% – were observed in Finland and Denmark. For example, the highest regional unemployment rate in Finland was recorded in Helsinki-Uusimaa (7.6%) and the lowest in Länsi-Suomi (6.7%).

Figure 4.3 also shows that regional disparities for unemployment rates were marginally lower across the EU as a whole in 2023 than in 2013, as the coefficient of variation fell from 64.9% to 62.5%. During this period, regional disparities increased in relative terms at their most rapid pace in Hungary and Greece, as their coefficients of variation approximately doubled. By contrast, regional disparities for unemployment rates decreased in 5 out of 17 EU countries for which data are available. The most rapid convergences in regional unemployment rates were observed in Finland, Germany and Portugal.

Figure 4.3: Regional disparities in unemployment rates, 2013 and 2023
(coefficient of variation in %, people aged 15–74, by NUTS 2 regions)



Note: as measured by population-weighted coefficient of variation for EU, EFTA and non-EU countries with more than 4 level 2 regions (Estonia, Ireland, Croatia, Cyprus, Latvia, Lithuania, Luxembourg, Malta, Slovenia, Slovakia, Iceland, Liechtenstein, Bosnia and Herzegovina, Montenegro, Moldova, North Macedonia, Georgia and Ukraine: not applicable).

Source: Eurostat (online data code: lfst_r_lmdur)

5. Living conditions

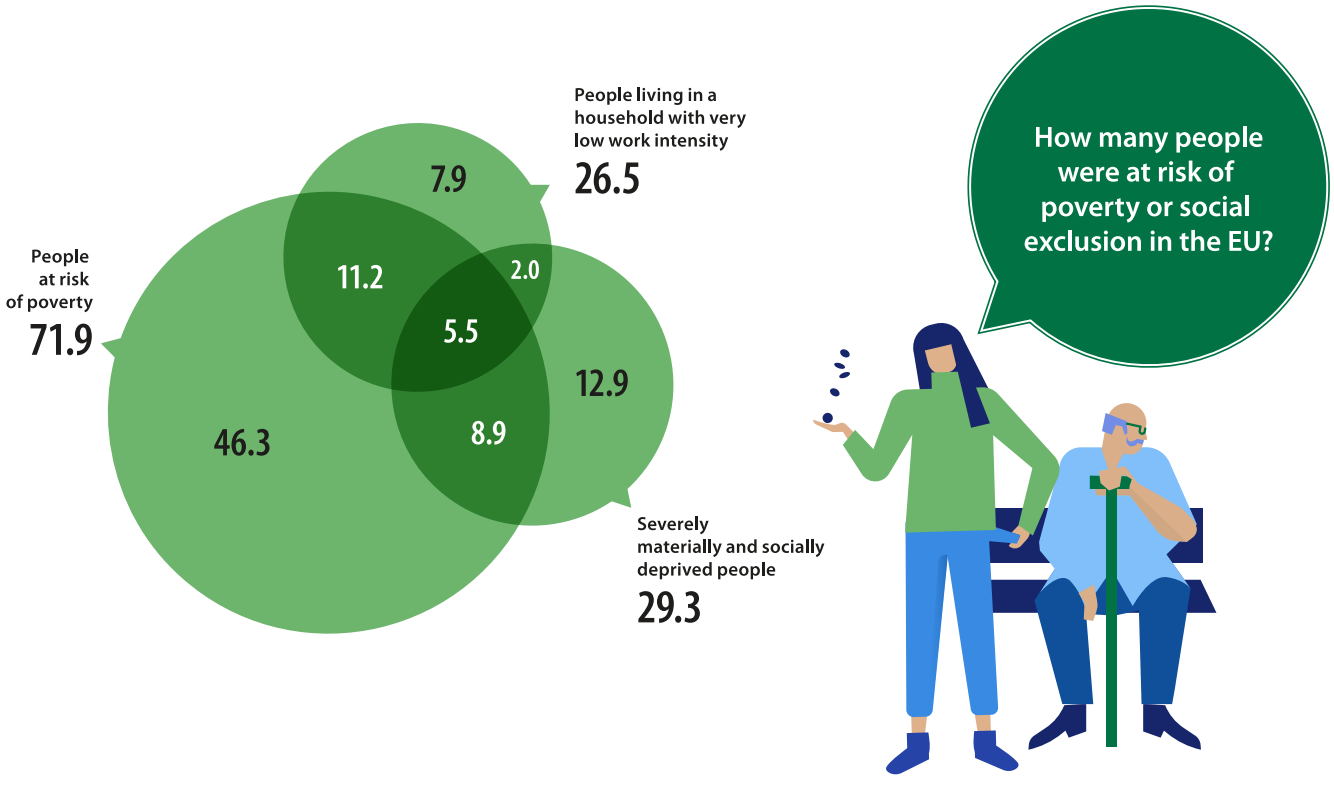
By global standards, most people living in the European Union (EU) are relatively prosperous. This reflects the EU's high income/wealth levels and its network of established social protection systems that provide a safety net for many less fortunate people. That said, 94.6 million people in the EU (21.4% of the population) were at risk of poverty or social exclusion in 2023 (see the infographic below for more information).

Sociodemographic characteristics like age, educational attainment, sex and country of birth / citizenship can play an important role in shaping an individual's living conditions. Wider societal developments, such as the impact of globalisation, coupled with unexpected shocks – for example, the global financial and economic crisis, the COVID-19 crisis, the impact of Russia's war of aggression against Ukraine, or the cost-of-living crisis – can also have a considerable impact. In some cases, these events can rapidly undo long-term decreases in inequality, thereby reinforcing or exacerbating patterns of inequality and exclusion.

Since late 2021, there has been a considerable increase in the cost of living across much of the EU. Some of the most rapid increases in prices were experienced for goods like energy and food. Price increases for these goods generally had a greater impact on the poorest individuals in society, as they tend to allocate a larger proportion of their disposable income to such 'essential goods'. The EU's annual inflation rate accelerated from 0.7% in 2020 to 9.2% by 2022, before falling back to 6.4% in 2023. This surge in prices could be attributed, at least in part, to Russia's war of aggression against Ukraine. For example, the price of energy products increased because of concerns over supply shortages (with international sanctions placed on Russian energy exports), while prices for foodstuffs and fertilisers also rose strongly. Another contributing factor to rising inflation was a post-pandemic surge in demand.

People at risk of poverty or social exclusion

Absolute poverty is the lack of basic human needs, for example, food, shelter, water, sanitation facilities, health or education; in other words, a situation where a household's income is insufficient to afford the basic necessities of life. By contrast, relative poverty concerns a situation where a household's income is below a certain percentage of the median household income of the country where they live.



(million, 2023)

Source: Eurostat (online data code: ilc_pees01n)

More about the data: at risk of poverty or social exclusion

The indicator for people at risk of poverty or social exclusion is based on measures of relative poverty, severe material and social deprivation, and quasi-joblessness. The number/share of people at risk of poverty or social exclusion (see the infographic at the start of this chapter) combines these criteria to cover people who are in at least 1 of the following situations

- at risk of poverty – people with an equivalised disposable income (after social transfers) below the at-risk-of-poverty threshold, which is set at 60% of the national median equivalised disposable income
- facing severe material and social deprivation – people unable to afford at least 7 out of 13 deprivation items (6 related to the individual and 7 related to the household) that are considered desirable – or even necessary – to lead an adequate quality of life
- living in a household with very low work intensity – where working-age adults (aged 18–64, excluding students aged 18–24 and those who are retired) worked for 20% or less of their combined potential working time during the previous 12 months.

For the data based on EU statistics on income and living conditions (EU-SILC)

- the reference period for statistics on income generally refers to the calendar year before the year in which the survey took place
- data for the Finnish regions of Länsi-Suomi and Åland are aggregated (the same value is shown for both regions)
- there is no information for Mayotte in France
- an earlier reference year is sometimes used for individual EU countries (see specific footnotes under each map/figure for more information).

On 4 March 2021, the European Commission set out its ambition for a stronger social EU to focus on education, skills and jobs, paving the way for a fair, inclusive and resilient socioeconomic recovery from the COVID-19 crisis, while fighting discrimination, tackling poverty and alleviating the risk of exclusion for vulnerable groups. The European Pillar of Social Rights Action Plan outlines a set of commitments from policymakers and provides 3 key targets for monitoring progress; one of the targets is to reduce, between 2019 and 2030, the number of people in the EU at risk of poverty or social exclusion by at least 15 million people (of which, at least 5 million should be children).

In 2023, more than 1 in 5 (21.4%) of the EU's population was at risk of poverty or social exclusion

Map 5.1 shows the regional distribution of people at risk of poverty or social exclusion across NUTS level 2 regions. In 2023, the regional distribution of this indicator was somewhat skewed, as close to 40% of all EU regions (101 out of the 241 for which data are available) recorded shares of people at risk of poverty or social exclusion that were higher than the EU average.

The highest risks of poverty or social exclusion were typically observed in southern, eastern and outermost regions of the EU. At the top end of the distribution, there were 19 NUTS level 2 regions that recorded shares of at least 35.0% in 2023; they are shown by the darkest shade of blue in Map 5.1. These 19 regions were concentrated in Bulgaria, Spain, Italy, Romania (3 regions each) and the outermost regions of France (4 regions; 2022 data); this group was completed by 2 regions from western Greece and the Belgian capital region.

In 2023, Guyane in France (49.5%; 2022 data) and Calabria in southern Italy (48.6%) had the highest regional shares of people at risk of poverty or social exclusion. They were followed by Sud-Est in Romania (45.3%), Campania in southern Italy (44.4%) and La Réunion in France (43.2%; 2022 data). These were the only regions in the EU where the share of people at risk of poverty or social exclusion was more than twice as high as the EU average (21.4%).

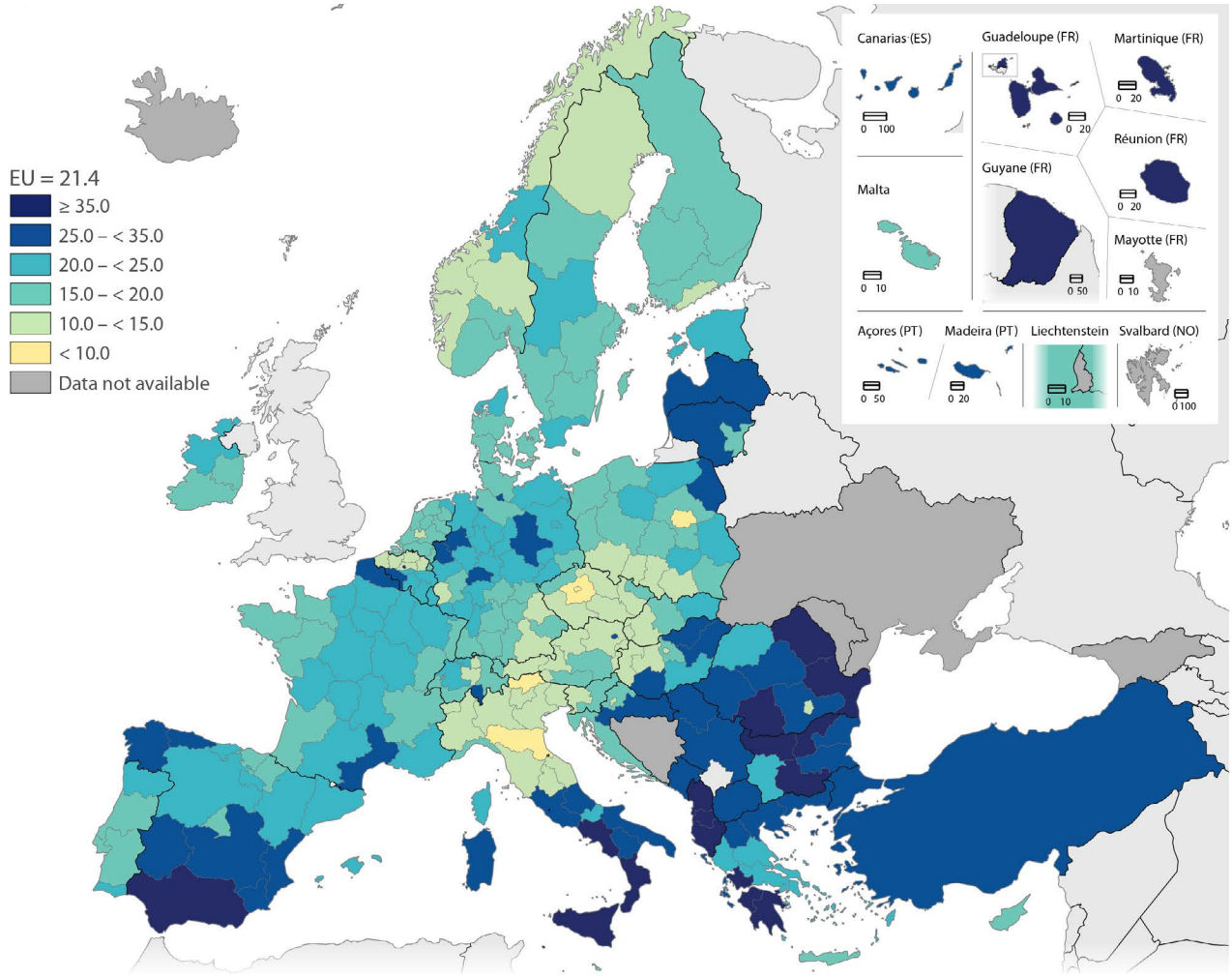
At the other end of the distribution, there were 5 NUTS level 2 regions where less 10.0% of the population was at risk of poverty or social exclusion in 2023; they are shown in a yellow shade in Map 5.1. This group included

- 2 regions from northern Italy – Provincia Autonoma di Bolzano/Bozen (5.8%; the lowest regional share in the EU) and Emilia-Romagna (7.4%)
- 2 regions from Czechia(2022 data) – Střední Čechy (8.7%) which surrounds the capital region of Praha (8.9%)
- the Polish capital region of Warszawski stołeczny (8.9%).

In 2023, people living in the capital regions of eastern EU countries were generally less likely to be at risk of poverty or social exclusion than their counterparts living in the remainder of the country. For example, the proportion of people at risk of poverty or social exclusion across Romania (32.0%) was 2.6 times as high as the share recorded in its capital region of Bucureşti-Ilfov (12.3%). A similar pattern was observed in Poland and in Croatia. In the former, the share of people at risk of poverty or social exclusion was 16.3%, which was 1.8 times as high as the share recorded in Warszawski stołeczny (8.9%). More than 20.7% of the population in Croatia was at risk of poverty or social exclusion, which was 1.7 times as high as the share recorded in Grad Zagreb (11.9%). This pattern was repeated, although to a lesser extent, in the other eastern EU countries.

By contrast, the situation was reversed in several western EU countries. In Germany, Ireland, France and the Netherlands, the risk of poverty or social exclusion was somewhat higher in capital regions (than the national average); this was also the case in Italy. The difference was more marked in Belgium and Austria, where the share of people at risk of poverty or social exclusion in the capital regions of Région De Bruxelles-Capitale/Brussels Hoofdstedelijk Gewest (37.6%) and Wien (29.5%) was considerably higher than their respective national average (18.6% and 17.7%).

Map 5.1: People at risk of poverty or social exclusion, 2023
(%, by NUTS 2 regions)



Administrative boundaries: © EuroGeographics © UN–FAO © Turkstat
Cartography: Eurostat – IMAGE, 06/2024

Note: Serbia, NUTS level 1. Türkiye: national data. Länsi-Suomi (FI19) and Åland (FI20) are aggregated (same value for both regions).
Czechia, France, Slovakia, Switzerland, Montenegro and Serbia: 2022. Albania and Türkiye: 2021. North Macedonia: 2020.

Source: Eurostat (online data codes: ilc_peps11n and ilc_peps01n)

Figure 5.1 identifies the NUTS level 2 regions that had the biggest changes in their respective shares of people at risk of poverty or social exclusion between 2022 and 2023. There was a modest reduction across the EU, as the share fell 0.2 percentage points from 21.6% to 21.4%. Among the 203 regions for which data are available (at the time of the data extraction, there was no information for 2023 for Czechia, France and Slovakia), the share of people at risk of poverty or social exclusion rose in 88 regions between 2022 and 2023, remained unchanged in 8 regions, and fell in 107 regions.

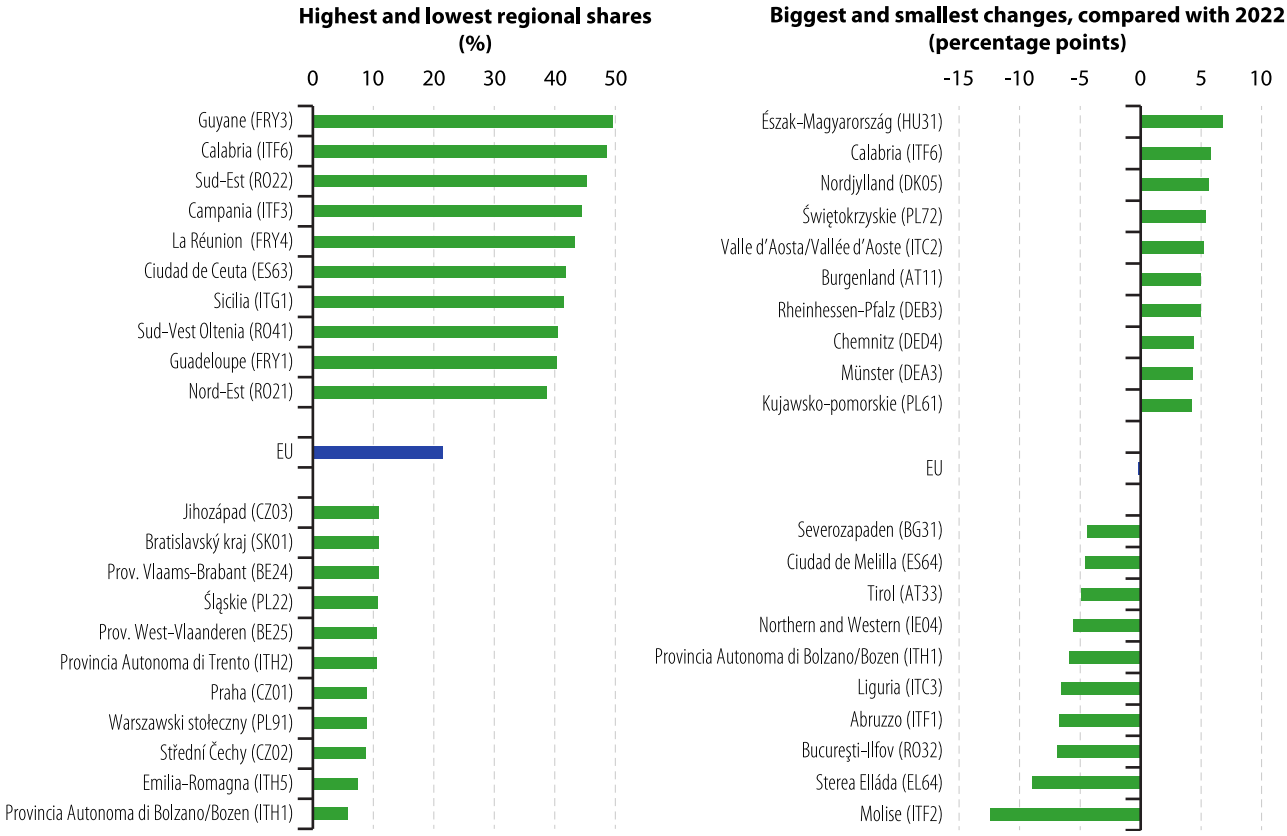
There were 7 NUTS level 2 regions where the risk of poverty or social exclusion increased by at least 5.0 percentage points between 2022 and 2023. The highest increase was recorded in north-eastern Hungarian region of Észak-Magyarország, up 6.8 points (from 25.0% to 31.8%). The other regions with relatively high increases were

- Calabria and Valle d'Aosta/Vallée d'Aoste in Italy (up 5.8 and 5.2 points)
- Nordjylland in Denmark (up 5.6 points)
- Świętokrzyskie in Poland (up 5.4 points)
- Rheinhessen-Pfalz in Germany (up 5.0 points)
- Burgenland in Austria (also up 5.0 points).

Most of the regions with the biggest falls in their respective shares of people at risk of poverty or social exclusion were in eastern and southern EU countries. Between 2022 and 2023, the biggest decrease in the share of people at risk of poverty or social exclusion was recorded in the southern Italian region of Molise, down 12.4 percentage points (from 37.2% to 24.8%). There were 6 other regions that reported falls of more than 5.0 points

- Sterea Elláda in Greece (down 9.0 points)
- the Romanian capital region of Bucureşti-Ilfov (down 6.9 points)
- Abruzzo (down 6.7 points), Liguria (down 6.6 points) and Provincia Autonoma di Bolzano/Bozen (down 5.9 points) in Italy
- the Irish region of Northern and Western (down 5.6 points).

Figure 5.1: People at risk of poverty or social exclusion, 2023
(by NUTS 2 regions)



Note: the first part of the figure shows the EU regions with the highest and lowest shares in 2023, while the second part shows the regions with the biggest and smallest changes compared with 2022. The rankings include more than 10 regions if several regions have identical values. Länsi-Suomi (FI19) and Åland (FI20) are aggregated (same value for both regions). Czechia, France and Slovakia: 2022 instead of 2023. Czechia, France and Slovakia: not available for the comparison with 2022. Croatia: break in series, 2023.

Source: Eurostat (online data codes: ilc_peps11n and ilc_peps01n)

People at risk of poverty

In 2023, there were 71.9 million people in the EU who were at risk of poverty (after social transfers); this was equivalent to 16.2% of the population. The highest regional shares of people at risk of poverty were principally recorded in southern, eastern and Baltic countries, while the lowest shares were concentrated in northern Belgium, southern Germany, northern Italy, western Czechia and western Hungary, as well as several capital regions.

More about the data: at-risk-of-poverty rate

The at-risk-of-poverty rate (after social transfers) is 1 of 3 criteria used to identify people who are at risk of poverty or social exclusion. This rate doesn't directly measure poverty; instead, it provides information on the share of the population with a level of income that is below a threshold set relative to the median income.

The at-risk-of-poverty rate identifies the proportion of the population who live in a household with an annual equivalised disposable income that is below 60% of the national median. While the threshold is the same for all EU countries in percentage terms (60%), it varies in monetary terms as national median incomes differ between countries.

Map 5.2 shows the at-risk-of-poverty rate for NUTS level 2 regions. In 2023, the regional distribution of this rate was relatively skewed: there were 89 regions (just over a third of the total) that

recorded a rate equal to or above the EU average of 16.2%, while the remaining 152 regions had lower than average rates.

In 2023, the lowest at-risk-of-poverty rate was recorded in Romanian capital region of Bucureşti-Ilfov

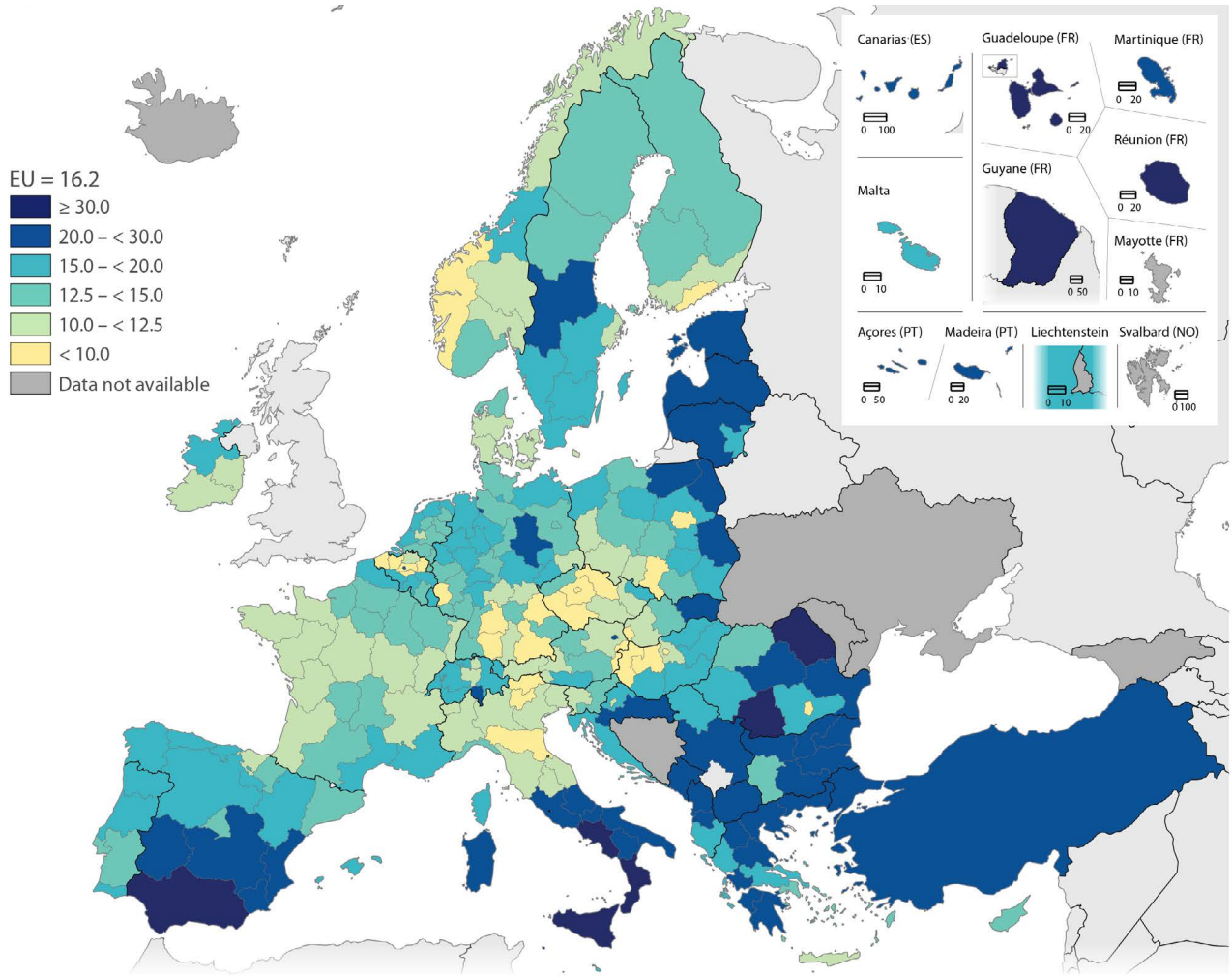
The French outermost region of Guyane recorded the highest at-risk-of-poverty rate among NUTS level 2 regions, at 42.0% (2022 data). In 2023, the highest rates were observed in the southern Italian regions of Calabria (40.6%), Sicilia (38.0%) and Campania (36.1%). By contrast, at the other end of the distribution, there were 9 regions where the at-risk-of-poverty rate was no higher than 7.5%

- the Czech and Romanian capital regions of Praha (6.9%) and Bucureşti-Ilfov (2.1%), the latter recording the lowest rate in the EU
- the Hungarian regions of Nyugat-Dunántúl (7.3%) and Közép-Dunántúl (6.3%)
- the Belgian regions of Prov. West-Vlaanderen (6.9%) and Prov. Oost-Vlaanderen (5.4%)
- the Italian regions of Provincia Autonoma di Trento (7.5%), Emilia-Romagna (5.8%) and Provincia Autonoma di Bolzano/Bozen (3.9%).

There was considerable degree of inter-regional variation in at-risk-of-poverty rates for the different regions of Belgium, Italy and Romania

- the rate in the Belgian capital Région de Bruxelles-Capitale/ Brussels Hoofdstedelijk Gewest was 5.1 times as high as that recorded in Prov. Oost-Vlaanderen
- the rate in the southern Italian region of Calabria was 10.4 times as high as that recorded in northern region of Provincia Autonoma di Bolzano/Bozen
- the rate in Sud-Vest Oltenia was 14.9 times as high as that recorded in the Romanian capital region of Bucureşti-Ilfov.

Map 5.2: At-risk-of-poverty rate, 2023
(%, by NUTS 2 regions)



Administrative boundaries: © EuroGeographics © UN–FAO © Turkstat
Cartography: Eurostat – IMAGE, 06/2024

Note: Serbia, NUTS level 1. Türkiye: national data. Länsi-Suomi (FI19) and Åland (FI20) are aggregated (same value for both regions).
France, Switzerland, Montenegro and Serbia: 2022. Albania and Türkiye: 2021. North Macedonia: 2020.

Source: Eurostat (online data codes: ilc_li41 and ilc_li02)

In 2023, the risk of monetary poverty in the EU was reduced from 24.8% to 16.2% as a result of the redistributive impact of social transfers

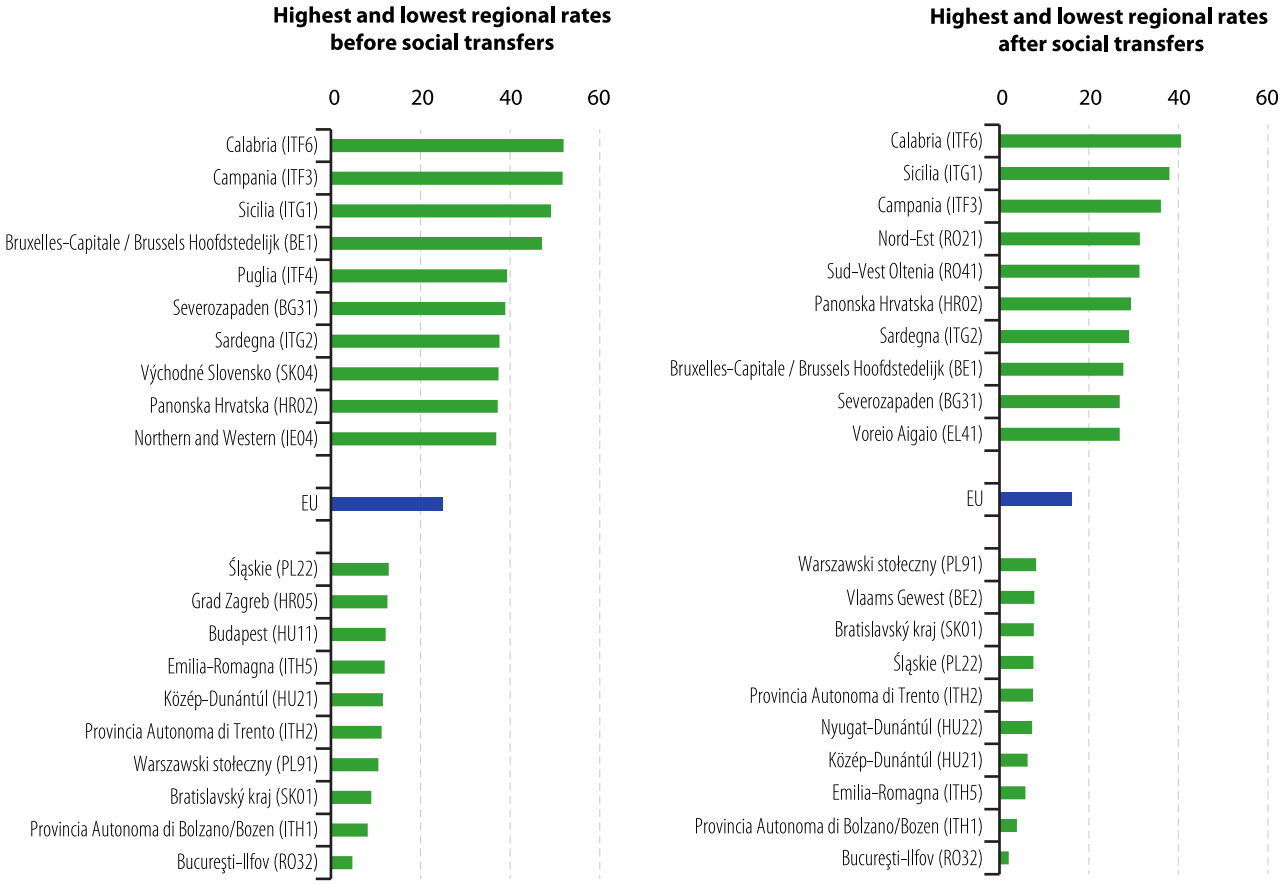
More about the data: social transfers

The at-risk-of-poverty rate before social transfers measures a hypothetical situation where social transfers are absent; pensions, such as old-age and survivors' (widows' and widowers') benefits, are counted as income (before social transfers) and not as social transfers. It is possible to assess the impact and redistributive effects of welfare policies by comparing at-risk-of-poverty rates before and after social transfers. Such transfers cover assistance that is given by central, state or local institutional units and include, among other types of transfers, unemployment benefits, sickness and invalidity benefits, housing allowances, social assistance and tax rebates.

Figure 5.2 shows the redistributive impact of social transfers and the extent to which they reduce the risk of monetary poverty, reflecting, among other influences, historical, political, economic and cultural factors. In 2023, the EU's at-risk-of-poverty rate before social transfers was 24.8%. It was reduced by 8.6 percentage points to 16.2% after social transfers. Social transfers had a high impact on reducing the risk of poverty across many regions of Belgium, Denmark, Ireland, southern Italy and Poland.

Figure 5.2 is split into 2 parts: the left-hand side presents the regions in the EU with the highest and lowest at-risk-of-poverty rates before social transfers. Prior to social transfers, there were 4 NUTS level 2 regions that recorded considerably higher rates than in any other region of the EU, with upwards of 40.0% of their populations facing the risk of monetary poverty in 2023: the southern Italian regions of Calabria (51.9%), Campania (51.7%) and Sicilia (49.1%), and the Belgian capital Région de Bruxelles-Capitale/Brussels Hoofdstedelijk Gewest (47.1%). At the lower end of the distribution, there were 3 EU regions where less than 10.0% of the population faced the risk of monetary poverty: the Romanian capital region of Bucureşti-Ilfov (4.8%), the northern Italian region of Provincia Autonoma di Bolzano/Bozen (8.2%) and the Slovak capital region of Bratislavský kraj (9.0%).

Figure 5.2: At-risk-of-poverty rate before and after social transfers, 2023
(%, by NUTS 2 regions)



Note: the first part of the figure shows the EU regions with the highest and lowest rates before social transfers, while the second part shows the regions with the highest and lowest rates after social transfers. Belgium and the Netherlands: NUTS level 1. Czechia, Germany, Spain, France, Austria and Portugal: national data. Länsi-Suomi (FI19) and Åland (FI20) are aggregated (same value for both regions).

Source: Eurostat (online data codes: ilc_li10_r, ilc_li41, ilc_li10 and ilc_li02)

The right-hand side of Figure 5.2 shows the regions with the highest and lowest at-risk-of-poverty rates after social transfers. Having taken account of the redistributive impact of social transfers, only Calabria continued to report that more than 40.0% of its population was at risk of monetary poverty, while Sicilia and Campania were the only other regions in the EU where the risk of monetary poverty after social transfers was more than twice as high as the EU average (16.2%).

Social transfers played an important role in reducing the risk of poverty across several Belgian, Danish, Irish and Italian regions

- the biggest reduction – in percentage point terms – was recorded in the Irish region of Northern and Western (where the at-risk-of-poverty rate fell by 19.8 points), while Southern (down 16.7 points) and the capital region of Eastern and Midland (down 15.0 points) also recorded considerable falls
- large reductions were recorded in 2 out of the 3 NUTS level 1 regions of Belgium, as the redistributive impact of social transfers was considerable in Région de Bruxelles-Capitale/Brussels Hoofdstedelijk Gewest (down 19.4 percentage points) and Région wallonne (down 15.8 points)
- in 4 out of 5 Danish regions – the exception being the capital region of Hovedstaden – social transfers reduced the share of the population facing the risk of poverty by more than 10.0 percentage points, the biggest fall was recorded in Nordjylland (down 15.6 points)
- there were 7 southern Italian regions where the redistributive impact of social transfers reduced the risk of monetary poverty by more than 10.0 percentage points, the biggest fall was recorded in Campania (down 15.6 points).

At the other end of the scale, there were 29 regions in the EU where the redistributive impact of social transfers resulted in the at-risk-of-poverty rate falling by no more than 5.0 percentage points in 2023. These 29 regions were principally concentrated in Greece, Croatia, northern Italy, Portugal (national data) and Romania.

Severe material and social deprivation

The severe material and social deprivation rate provides information on people experiencing an enforced lack of items that are necessary and desirable to lead an adequate life (individuals who can't afford a certain good, service or social activity). The 2024 edition of the *Eurostat Regional Yearbook* marks the 1st time that regional data have been published for this indicator.

In 2023, there were 29.3 million people across the EU that were facing severe material and social deprivation; this was equivalent to 6.8% of the total population. The severe material and social deprivation rate had previously stood at 6.3% in 2021 but increased by 0.4 percentage points in 2022 and by a further 0.1 points in 2023; these recent rises may be linked, at least in part, to the cost-of-living crisis.

More about the data: severe material and social deprivation

The severe material and social deprivation rate is 1 of 3 criteria used to identify people at risk of poverty or social exclusion. It is defined as the share of people who are unable to afford at least 7 out of 13 items (6 related to the individual and 7 related to the household) that are considered desirable – or even necessary – to lead an adequate quality of life

List of items related to the individual

- Having an internet connection
- Replacing worn-out clothes by some new ones
- Having 2 pairs of properly fitting shoes (including a pair of all-weather shoes)
- Spending a small amount of money each week on him/herself
- Having regular leisure activities
- Getting together with friends/family for a drink/meal at least once a month

List of items related to the household

- Capacity to face unexpected expenses
- Capacity to afford paying for 1-week annual holiday away from home
- Capacity to being confronted with payment arrears (on mortgage or rental payments, utility bills, hire purchase instalments or other loan payments)
- Capacity to afford a meal with meat, chicken, fish or vegetarian equivalent every 2nd day
- Ability to keep home adequately warm
- Have access to a car/van for personal use
- Replacing worn-out furniture

Sud-Est in Romania had the highest severe material and social deprivation rate among NUTS level 2 regions, at 30.8% in 2023

Figure 5.3 shows the regional distribution of severe material and social deprivation rates. Many of the highest regional rates were observed in the south-eastern corner of the EU, while the lowest rates tended to be concentrated in Czechia, northern/central Italy, the Netherlands, Austria and Poland.

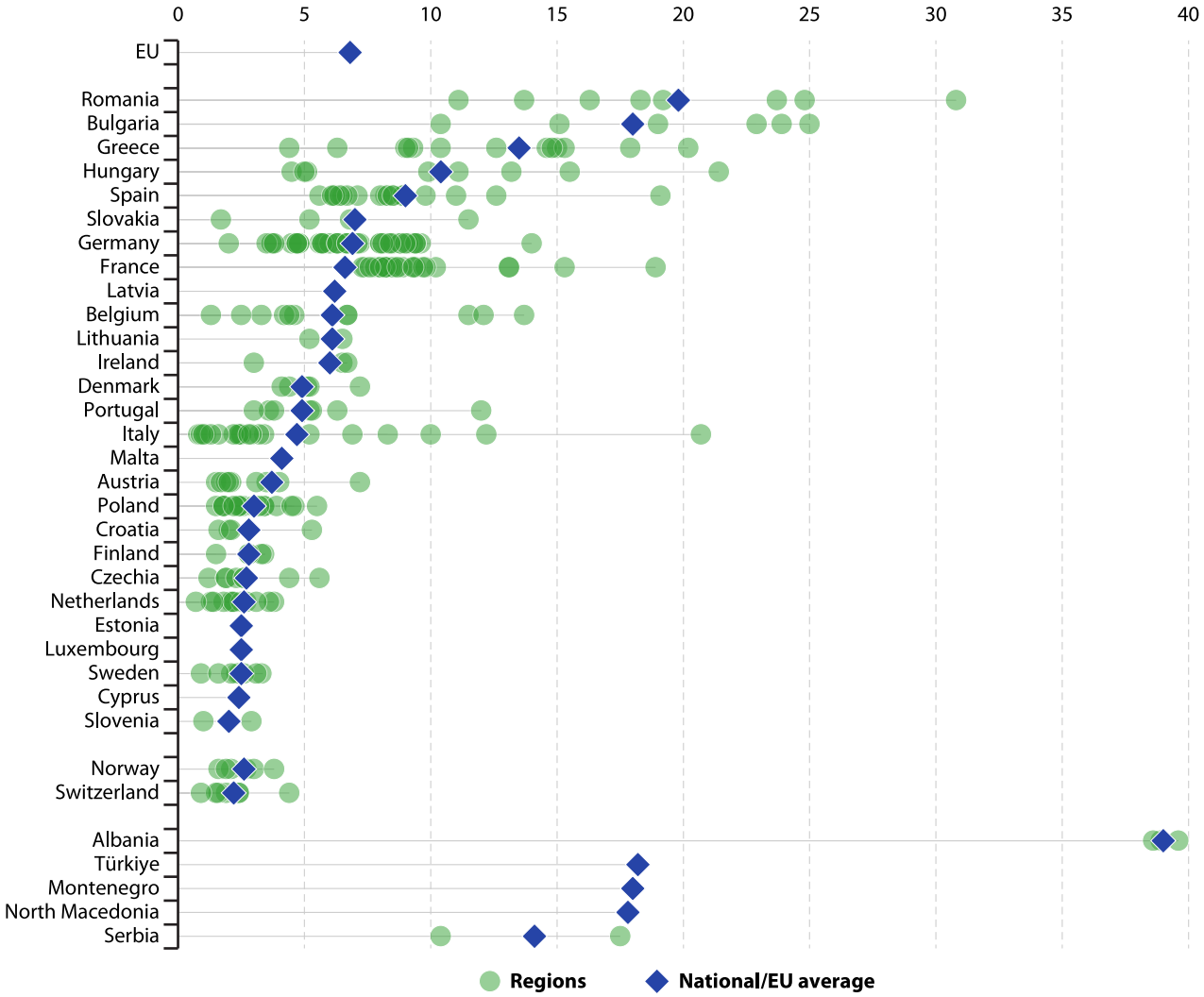
In 2023, the highest regional share of people experiencing severe material and social deprivation was recorded in Sud-Est in Romania (30.8%). There were 8 other regions in the EU where more than 20.0% of the population faced severe material and social deprivation

- Severen tsentralen (25.0%), Yuzhen tsentralen (23.9%) and Yugoiztochen (22.9%) in Bulgaria
- Sud-Vest Oltenia (24.8%) and Sud-Muntenia (23.7%) in Romania
- Észak-Magyarország (21.4%) in Hungary
- Calabria (20.7%) in Italy
- Dytiki Elláda (20.2%) in Greece.

At the other end of the distribution, every region in Czechia, Ireland, Croatia, Lithuania, the Netherlands, Poland, Slovenia, Finland and Sweden had a severe material and social deprivation rate that was less than the EU average of 6.8% in 2023; this was also the case in Estonia, Cyprus, Latvia, Luxembourg and Malta. There were 4 regions in the EU where the severe material and social deprivation rate was less than 1.0%

- Flevoland (0.7%) in the Netherlands that had the lowest rate in the EU
- Provincia Autonoma di Bolzano/Bozen (0.8%) and Emilia-Romagna (0.9%) in Italy
- Mellersta Norrland (0.9%) in Sweden.

Figure 5.3: Severe material and social deprivation rate, 2023
(%, by NUTS 2 regions)



Note: Länsi-Suomi (FI19) and Åland (FI20) are aggregated (same value for both regions). France, Switzerland, Montenegro and Serbia: 2022. Albania and Türkiye: 2021. North Macedonia: 2020. Mayotte (FRY5): not available.

Source: Eurostat (online data codes: ilc_mdsd18 and ilc_mdsd11)

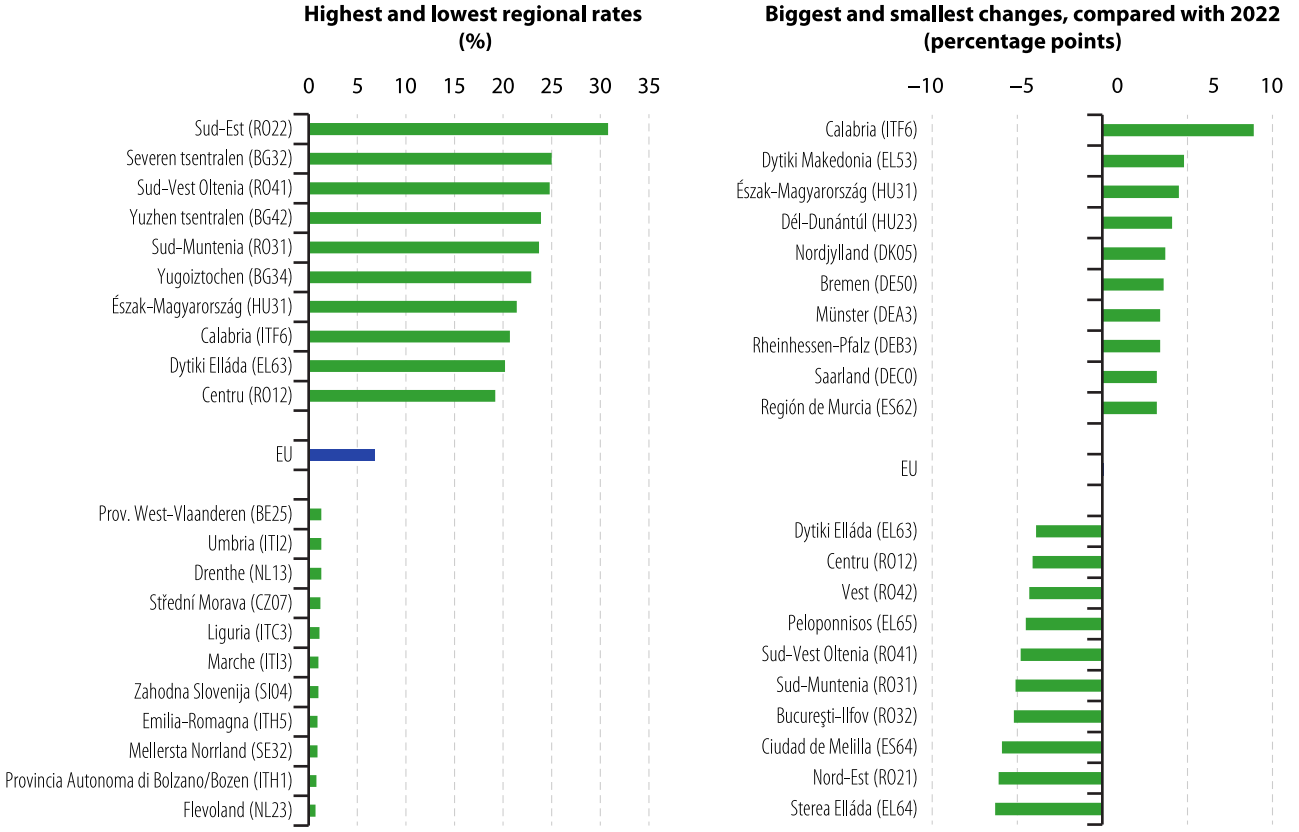
As noted above, the EU's severe material and social deprivation rate was 0.1 percentage points higher in 2023 than in 2022, with the rate increasing in 122 out of the 215 regions for which data are available. By far the biggest increase was observed in the southern Italian region of Calabria (up 8.9 percentage points). The next highest increases were recorded in the Greek region of Dytiki Makedonia (up 4.8 points) and the Hungarian regions of Észak-Magyarország (up 4.5 points) and Dél-Dunántúl (up 4.1 points). There were 9 more regions across the EU where the severe material and social deprivation rate increased by at least 3.0 points between 2022 and 2023

- 5 that were principally located in northern and western Germany – Bremen, Münster, Rheinhessen-Pfalz, Saarland and Gießen
- Nordjylland, the northernmost region of Denmark
- the southern Spanish Región de Murcia
- the Austrian capital region of Wien
- the southern Italian region of Puglia.

The largest fall for the severe material and social deprivation rate between 2022 and 2023 was reported in the Greek region of Sterea Elláda, where the rate fell from 15.4% to 9.1% (down 6.3 percentage points). There were 4 other regions across the EU where the severe material and social deprivation rate fell by more than 4.0 points

- 3 regions located in Romania – Nord-Est, Bucureşti-Ilfov and Sud-Muntenia
- the autonomous Spanish region of Ciudad de Melilla.

Figure 5.4: Severe material and social deprivation rate, 2023
(by NUTS 2 regions)



Note: the first part of the figure shows the EU regions with the highest and lowest rates in 2023, while the second part shows the regions with the biggest and smallest changes compared with 2022. The rankings include more than 10 regions if several regions have identical values. Länsi-Suomi (FI19) and Åland (FI20) are aggregated (same value for both regions). France: 2022 instead of 2023 (Mayotte (FRY5): not available). France: not available for the comparison with 2022.

Source: Eurostat (online data codes: ilc_mdsd18 and ilc_mdsd11)

People living in a household with very low work intensity

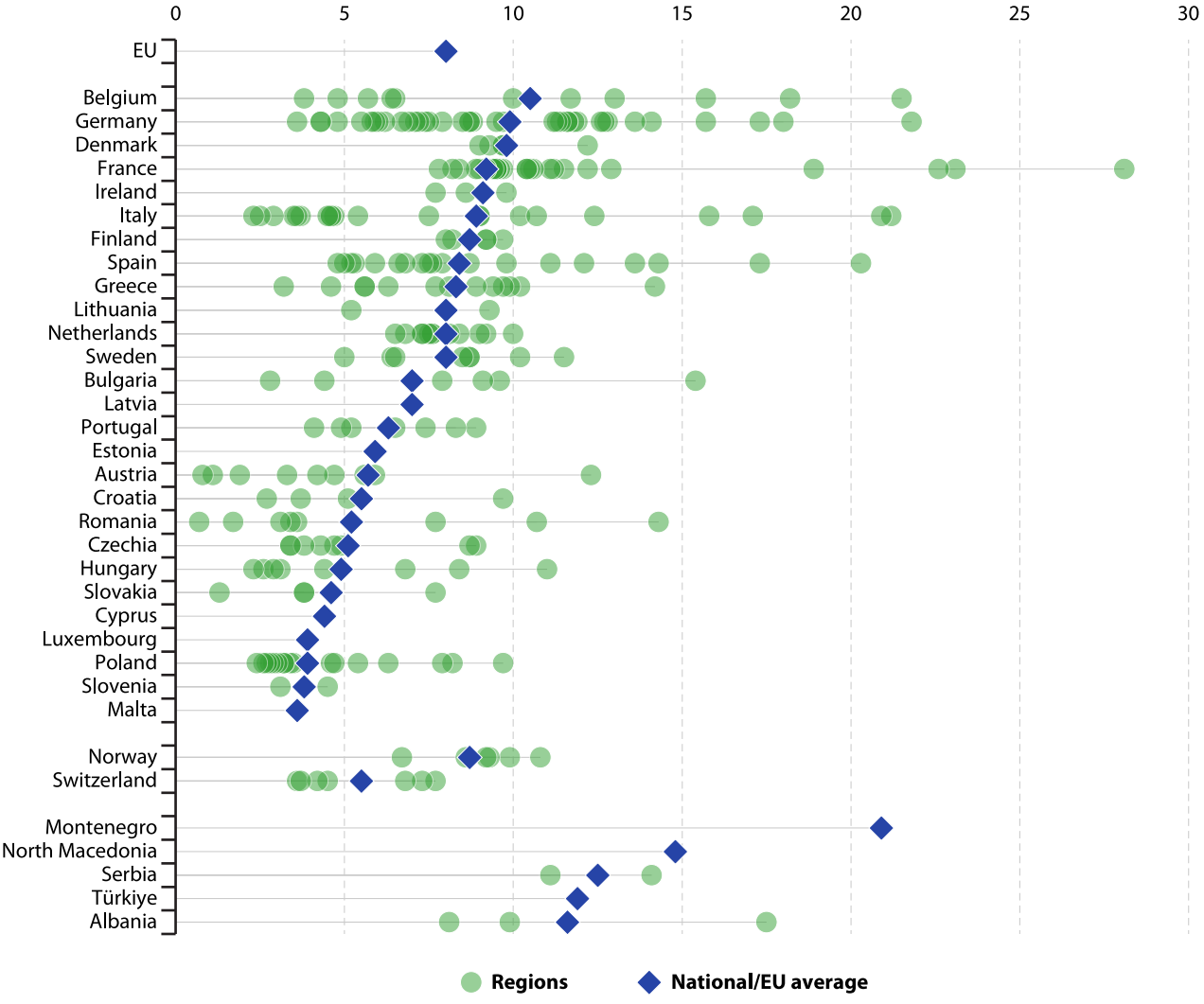
In 2023, there were 26.5 million people (aged 0–64) in the EU living in a household with very low work intensity, this equated to 8.0% of this subpopulation. In 2021, the share of people living in a household with very low work intensity had been 9.0%: it fell at a relatively fast pace in 2022 (down 0.7 percentage points), with a more modest reduction in 2023 (down a further 0.3 points).

More about the data: very low work intensity

The share of people living in a household with very low work intensity is 1 of 3 criteria used to identify people at risk of poverty or social exclusion. Working-age adults with low work intensity are defined as people aged 18–64 (excluding students aged 18–24 and those who are retired) who worked for 20% or less of their combined potential working time during the previous 12 months. Households composed only of children, of students aged less than 25 and/or of people aged 65 or more are excluded from the calculation of this indicator.

Figure 5.5 shows there was a relatively high degree of regional variation for the share of people living in households with very low work intensity. Across multi-regional EU countries the difference between the highest and lowest shares – as measured in percentage point terms – peaked in France (at 20.3 points; 2022 data), while relatively large regional variations were also observed across Italy (18.9 points), Germany (18.2 points), Belgium (17.7 points) and Spain (15.5 points).

Figure 5.5: People living in a household with very low work intensity, 2023
(%, by NUTS 2 regions)



Note: Länsi-Suomi (FI19) and Åland (FI20) are aggregated (same value for both regions). France, Switzerland, Montenegro and Serbia: 2022. Albania and Türkiye: 2021. North Macedonia: 2020. Mayotte (FRY5): not available.

Source: Eurostat (online data codes: ilc_lvhl21n and ilc_lvhl11n)

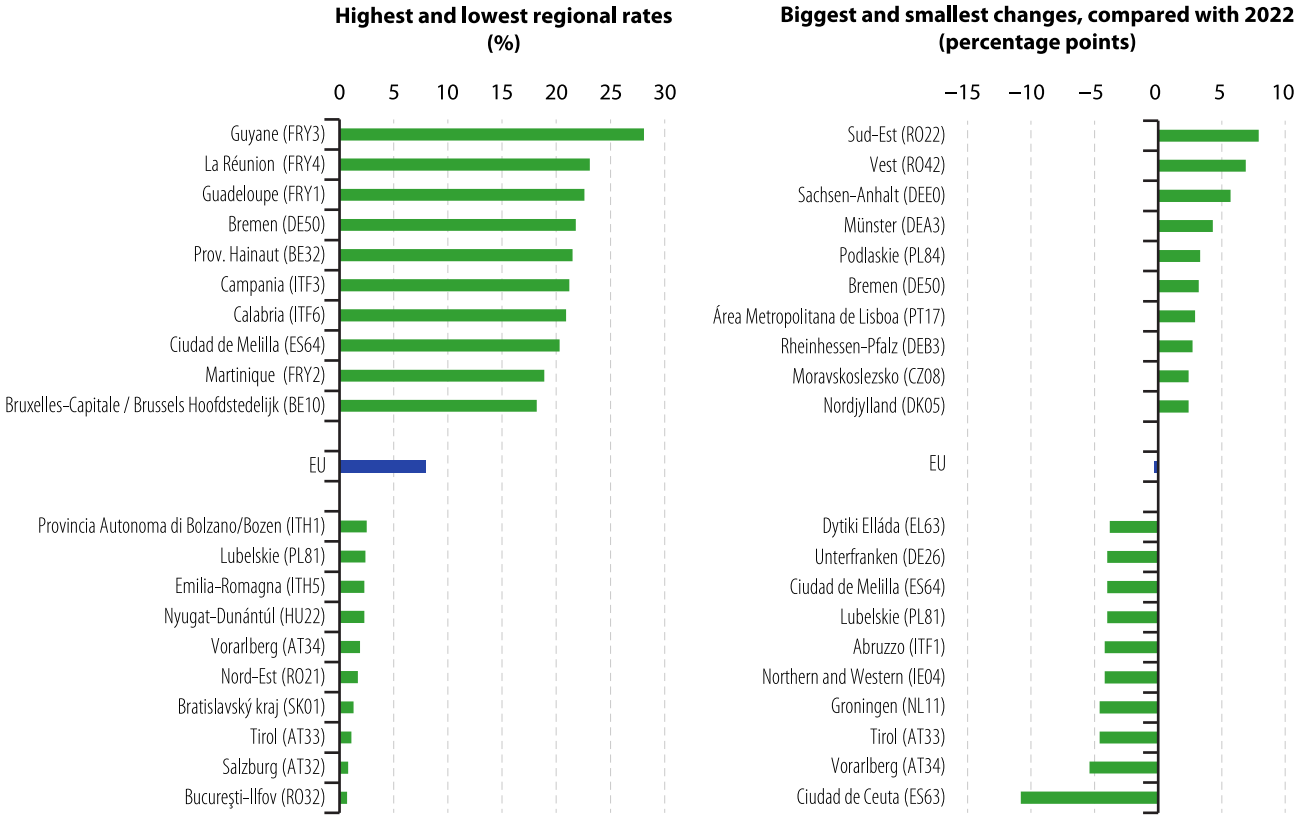
Guyane in France had the highest share of people living in a household with very low work intensity among NUTS level 2 regions, at 28.1%

Figure 5.6 is split into 2 parts: the left-hand side presents information for the NUTS level 2 regions with the highest and lowest shares of people living in a household with very low work intensity. In 2023, the highest share was recorded in the French outermost region of Guyane (28.1%; 2022 data), while there were 7 other regions across the EU with shares of more than 20.0%

- the French outermost regions of La Réunion (23.1%; 2022 data) and Guadeloupe (22.6%; 2022 data)
- Bremen (21.8%) in Germany
- Prov. Hainaut (21.5%) in Belgium
- Campania (21.2%) and Calabria (20.9%) in southern Italy
- the autonomous Spanish region of Ciudad de Melilla (20.3%).

At the lower end of the distribution, there were 10 NUTS level 2 regions where the share of people living in a household with very low work intensity was no more than 2.5% in 2023. This group was concentrated in Austria (3 regions), Romania and Italy (both 2 regions), while it also included single regions from each of Slovakia, Hungary and Poland. The Romanian capital region of Bucureşti-Ilfov (0.7%) and the Austrian region of Salzburg (0.8%) had the lowest values and were the only regions in the EU where the share of people living in a household with very low work intensity was less than 1.0%.

Figure 5.6: People living in a household with very low work intensity, 2023
(by NUTS 2 regions)



Note: the first part of the figure shows the EU regions with the highest and lowest rates in 2023, while the second part shows the regions with the biggest and smallest changes compared with 2022. Länsi-Suomi (FI19) and Åland (FI20) are aggregated (same value for both regions). France: 2022 instead of 2023 (Mayotte (FRY5): not available). France: not available for the comparison with 2022.

Source: Eurostat (online data codes: ilc_lvhl21n and ilc_lvhl11n)

The right-hand side of Figure 5.6 shows the regions that experienced the biggest and smallest changes in their share of people living in a household with very low work intensity between 2022 and 2023. Across the EU, this share fell 0.3 percentage points in 2023, with a fall reported in more than half (120 out of 215) of the NUTS level 2 regions for which data are available. The largest fall in the share of people living in a household with very low work intensity was recorded in the Spanish autonomous region of Ciudad de Ceuta (down 10.8 percentage points). It was followed, at some distance, by the Austrian regions of Vorarlberg (down 5.4 points) and Tirol (down 4.6 points), and the Dutch region of Groningen (also down 4.6 points).

Among the 92 NUTS level 2 regions that reported a rising share of people living in a household with very low work intensity between 2022 and 2023, the highest increases were recorded in the Romanian regions of Sud-Est (up 7.9 percentage points) and Vest (up 6.9 points), and the German regions of Sachsen-Anhalt (up 5.7 points) and Münster (up 4.3 points).

Income distribution

Gross domestic product (GDP) per inhabitant has traditionally been used to assess regional divergence/convergence in overall living standards. However, this commonly used measure doesn't account for income paid/received across borders. Nor does it capture the distribution of income within a population and thereby does little to reflect economic inequalities. Consequently, social scientists are increasingly using alternative/broader measures in their quest to gain a more comprehensive and nuanced understanding of economic and societal developments.

The unequal distribution of income/wealth has gained increasing importance in political and socioeconomic discourse since the global financial and economic crisis and, more recently, during the cost-of-living-crisis. It is also a key issue when examining regions that have been 'left behind'.

More about the data: income inequality

The income quintile share ratio (S80/S20) measures the inequality of income distribution. It is calculated as the ratio between the share of income received by the 20% of the population with the highest income (the top quintile) and the share of income received by the 20% of the population with the lowest income (the bottom quintile). High values for this ratio suggest that there are considerable disparities in the distribution of income between upper and lower income groups. The reference period for statistics on income refers to the calendar year before the year in which the survey took place.

In 2023, the EU's income quintile share ratio was 4.7 – in other words, the combined income received by the 20% of people with the highest incomes was 4.7 times as high as the combined income received by the 20% with the lowest incomes.

In 2023, the southern Italian region of Calabria had the highest income quintile share ratio, at 8.5

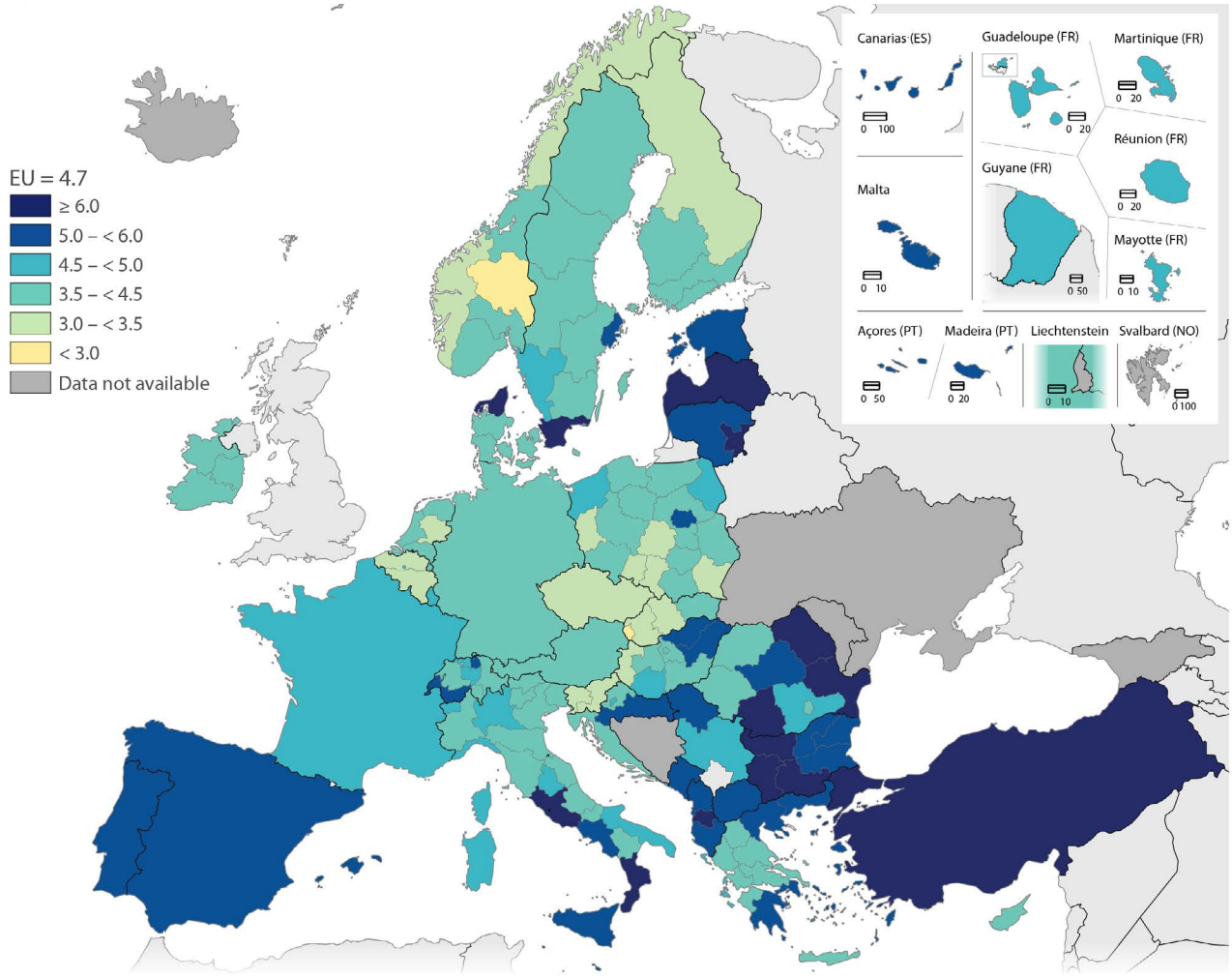
Map 5.3 shows the regional distribution of the income quintile share ratio. In 2023, its regional distribution was skewed: 83 out of 124 regions for which data are available had a ratio that was below the EU average, while there were 3 regions that had the same ratio, and 38 regions that reported income disparities that were greater than the EU average.

At the top end of the distribution, there were 12 NUTS level 2 regions where the income quintile share ratio was at least 6.0 in 2023 (as shown by the darkest shade of blue in Map 5.3). The highest ratios were concentrated in Bulgaria, Italy, the northern EU countries and Romania, with a peak registered in the southern Italian region of Calabria (where the income of the top 20% of earners was 8.5 times as high as the income of the bottom 20% of earners). The next highest ratios were observed in the Romanian region of Sud-Vest Oltenia (7.4) and the Bulgarian capital region of Yugozapaden (7.0).

At the other end of the range, the distribution of income was most equitable for a group of regions that spanned several eastern EU countries, while relatively low ratios were also recorded across several regions in the Benelux and Nordic EU countries. In 2023, the lowest income quintile share ratio was recorded in the Slovak capital region of Bratislavský kraj, where the share of total income held by the highest earning 20% of the population was 2.7 times as high as the share held by the lowest earning 20% of the population.

Within multi-regional EU countries, the distribution of income often had a different pattern in the capital region when compared with the rest of each territory. In 2023, it was commonplace to find that the capital region had the highest income quintile share ratio. This was the case in Belgium (4.6; NUTS level 1), Bulgaria (7.0), Ireland (3.9), Lithuania (6.8), the Netherlands (4.3; NUTS level 1), Poland (5.0), Slovenia (3.4) and Finland (4.2). By contrast, this pattern was reversed in Romania and Slovakia, where the lowest income quintile share ratios were recorded in the capital regions of Bucureşti-Ilfov (3.8) and Bratislavský kraj (2.7).

Map 5.3: Income quintile share ratio (S80/S20), 2023
(by NUTS 2 regions)



Administrative boundaries: © EuroGeographics © UN–FAO © Turkstat
Cartography: Eurostat – IMAGE, 07/2024

Note: Belgium, the Netherlands and Serbia, NUTS level 1. Czechia, Germany, Spain, France, Austria, Portugal and Türkiye: national data. Länsi-Suomi (FI19) and Åland (FI20) are aggregated (same value for both regions). Switzerland, Montenegro and Serbia: 2022. Albania and Türkiye: 2021. North Macedonia: 2020.

Source: Eurostat (online data codes: ilc_di11_r and ilc_di11)

Criminal justice

More about the data: crime and criminal justice statistics

The statistics presented in this section are based on official figures for police-recorded offences (criminal acts), classified according to the International Classification of Crime for Statistical Purposes (ICCS).

The data shown are based on crime rates: the number of police-recorded crimes per 100 000 inhabitants for NUTS level 2 regions. These rates were subsequently indexed to show deviations from the national average of each country (with the national average = 100).

The number of police-recorded crimes varies considerably across the EU: this may reflect, among other factors, different rates for reporting crimes to the police (especially for minor offences), different laws in each EU country, and different police practices for recording crimes.

Domestic burglary is defined as breaking in and stealing, in other words, getting unauthorised access to a dwelling for theft or intent of theft (with or without forcing locks, doors, windows, and so on).

More information about how crimes are classified across EU regions may be found in the metadata.

Based on the latest information available, there were an estimated 483 000 police-recorded domestic burglaries across the EU in 2022 (no information available for Ireland,

France, Cyprus and Hungary; 2021 data for Luxembourg and Poland). The number of domestic burglaries in the EU declined between 2014 and 2021, before increasing in 2022.

Figure 5.7 shows the regional distribution of burglaries of private residential premises, as recorded by the police. There were considerable regional variations in most multi-regional EU countries: this was particularly the case across Germany and Greece, where the region with the highest incidence of burglaries had a crime rate that was more than 10 times as high as the region with the lowest incidence.

In 2022, capital regions recorded the highest incidence of burglaries of private residential premises in Belgium, Czechia, Croatia, Lithuania, Austria, Romania, Slovenia and Slovakia. By contrast, the lowest incidence of burglaries was usually recorded in a predominantly rural region. For those EU countries where the capital region didn't have the highest incidence of burglaries, the highest rate was generally recorded in a predominantly urban region or a region known as a holiday destination. For example, the highest incidence

- in Germany was recorded in Bremen (2.60 times as high as the national average; 2019 data)
- in Spain was recorded in Comunitat Valenciana (1.58 times as high as the national average)
- in France was recorded in Provence-Alpes-Côte d'Azur (1.47 times as high as the national average)
- in Italy was recorded in Emilia-Romagna (1.43 times as high as the national average)
- in the Netherlands was recorded in Utrecht (1.14 times as high as the national average)
- in Portugal was recorded in Região Autónoma dos Açores (1.87 times as high as the national average).

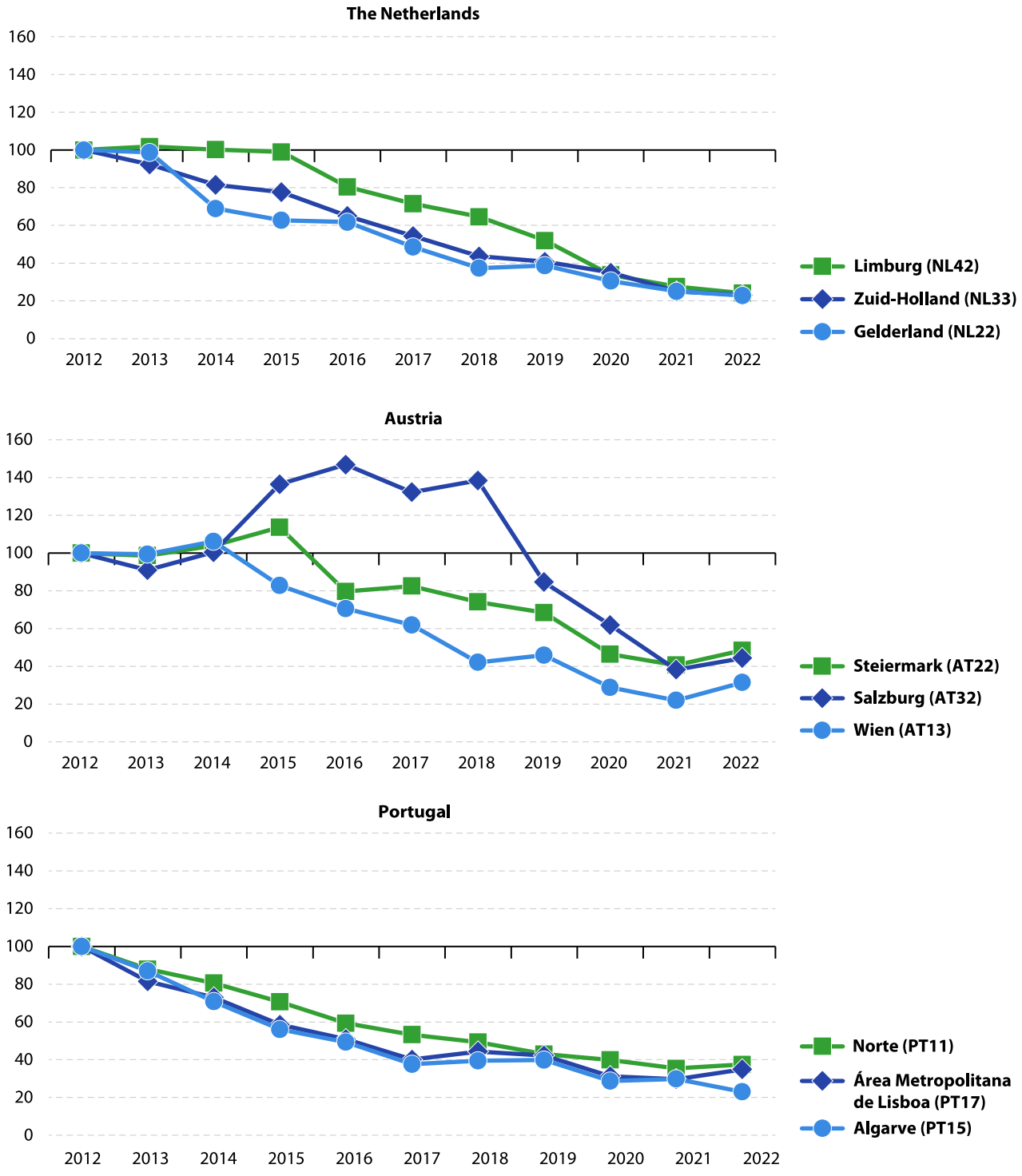
Figure 5.7: Burglary of private residential premises recorded by the police, 2022
(national average = 100, by NUTS 2 regions)

Note: index based on data per 100 000 inhabitants. Luxembourg: 2021. Germany: 2019. Estonia, Ireland, Cyprus and Hungary: not available.

Source: Eurostat (online data code: crim_gen_reg)

Figure 5.8 shows how crime rates for burglaries of private residential premises developed over the period 2012–22, with selected regional examples for the Netherlands, Austria and Portugal (that show the 3 NUTS level 2 regions with the largest falls in their crime rates). In both the Netherlands and Portugal there was a relatively steady decline in crime rates during the period under consideration, whereas rates initially rose in Austria, particularly in Salzburg, before following a downward trend.

Figure 5.8: Burglary of private residential premises recorded by the police, 2012–22
(2012 = 100, selected NUTS 2 regions)



Note: index based on data per 100 000 inhabitants. The figure shows, for each selected country, the 3 regions with the largest overall decreases in burglaries per 100 000 inhabitants.

Source: Eurostat (online data code: crim_gen_reg)

More about the data: statistics on theft

Theft is defined as taking property unlawfully – without violence, force, threat, coercion, or deception – with the intent to keep it permanently without consent

- it includes car theft, bicycle theft, animal theft, shoplifting and pickpocketing
- it excludes possession, receiving, handling, disposing, selling or trafficking stolen goods or money; using stolen parts for producing other goods; concealment of stolen goods; fraud, robbery, burglary, damage; intellectual property crimes, identity misuse.

Theft of motorised land vehicles includes stealing cars, motorcycles, buses, coaches, lorries, trucks, bulldozers, and so on.

More information about how crimes are classified across EU regions may be found in the metadata.

Police-recorded thefts across the EU numbered 5.09 million in 2022, which equates to an average of 1 140 thefts per 100 000 inhabitants. Only a partial set of data are available for the theft of motorised land vehicles, of which there were 309 730 in 2022 (this aggregate is based on 2021 data for Germany and excludes France, Cyprus and Hungary).

Figure 5.9 shows the regional distribution of thefts of motorised land vehicles as recorded by the police. It was relatively common for capital regions to record the highest incidence of theft for motorised land vehicles. For example, in the Polish capital region of Warszawski stołeczny, the crime rate was 84.0 thefts of motorised land vehicles per 100 000 inhabitants in 2022, which was more than 4 times as high as the national average (19.6 per 100 000 inhabitants). Where the capital region didn't record the highest incidence, it was nevertheless common for the capital region to record a relatively high crime rate, for example

- in Bulgaria, the eastern region of Severoiztochen had the joint highest rate with the capital region of Yugozapaden
- in Spain, only Ciudad de Ceuta and Illes Balears had higher rates
- in France, only Provence-Alpes-Côte d'Azur had a higher rate
- in Italy, only Campania, Puglia and Sicilia had higher rates
- in the Netherlands, only Limburg had a higher rate
- in Finland, only Åland had a higher rate
- in Sweden, only Norra Mellansverige and Västsverige had higher rates.

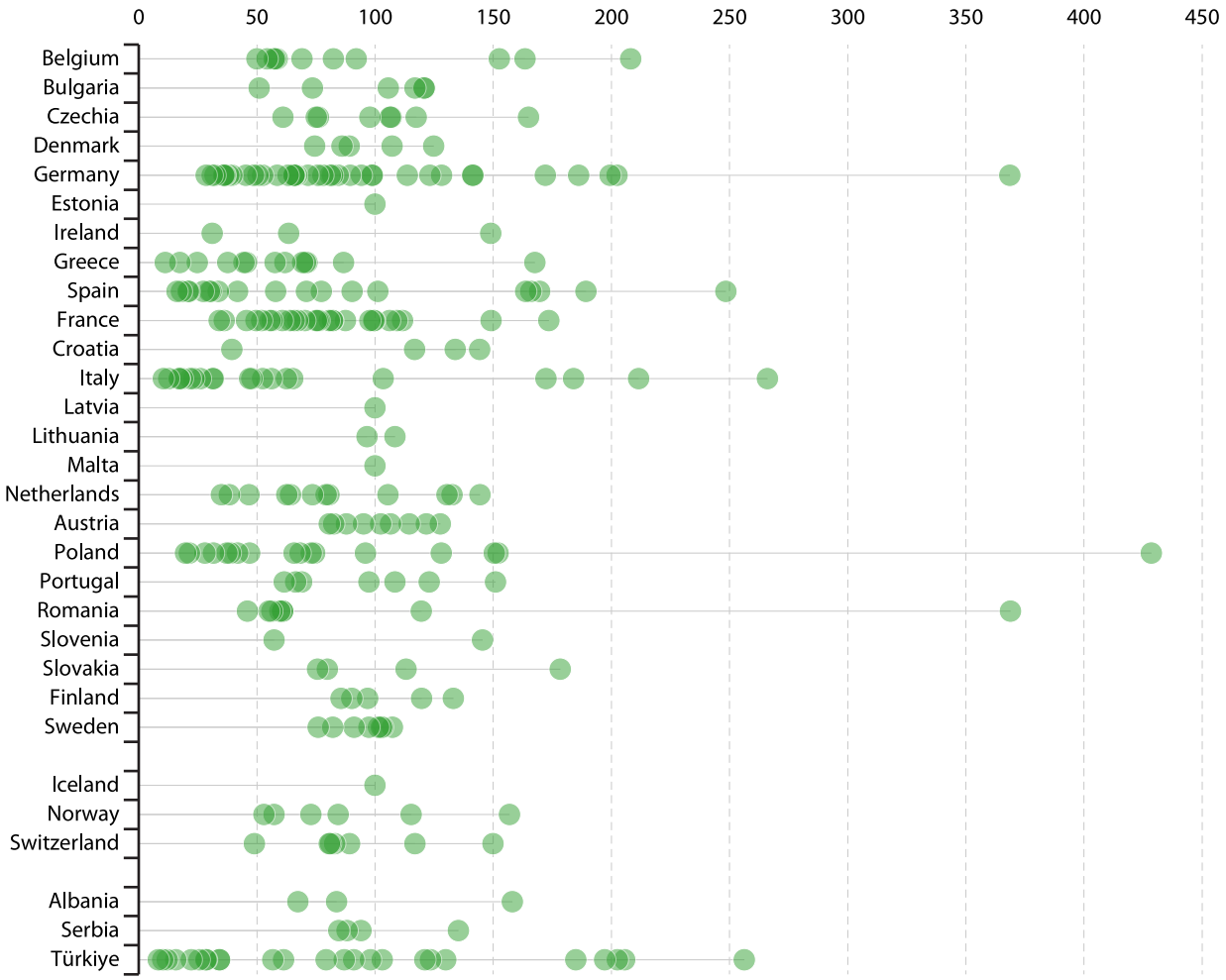
Among the EU countries, Wien in Austria and Área Metropolitana de Lisboa in Portugal were the only capital regions where crime rates for the theft of motorised land vehicles were below their respective national averages. In 2022, the highest rate in Austria was recorded in Tirol, while the highest rate in Portugal was recorded in Algarve.

In 2022, there were considerable variations in crime rates across the regions of Italy, Poland, Spain, Greece and Germany (2019 data), as the region with the highest incidence for the theft of motorised land vehicles had an index that was more than 10 times as high as the region with the lowest incidence. For example,

- the southern Italian region of Campania had a rate that was 2.66 times as high as the national average, while the northern region of Provincia Autonoma di Trento had a rate that was approximately 10% of the national average
- the Polish capital region of Warszawski stołeczny had a rate that was 4.29 times as high as the national average, while the relatively rural, south-eastern region of Podkarpackie had a rate that was approximately a 20% of the national average.

By contrast, there were relatively small inter-regional differences concerning the theft of motorised land vehicles in 2022 in Lithuania, Austria and the Nordic EU countries. For example, the central Swedish region of Norra Mellansverige had the highest rate (1.07 times as high as the national average), while the south-eastern region of Småland med öarna had the lowest rate (approximately 75% of the national average).

Figure 5.9: Theft of a motorised land vehicle recorded by the police, 2022
(national average = 100, by NUTS 2 regions)



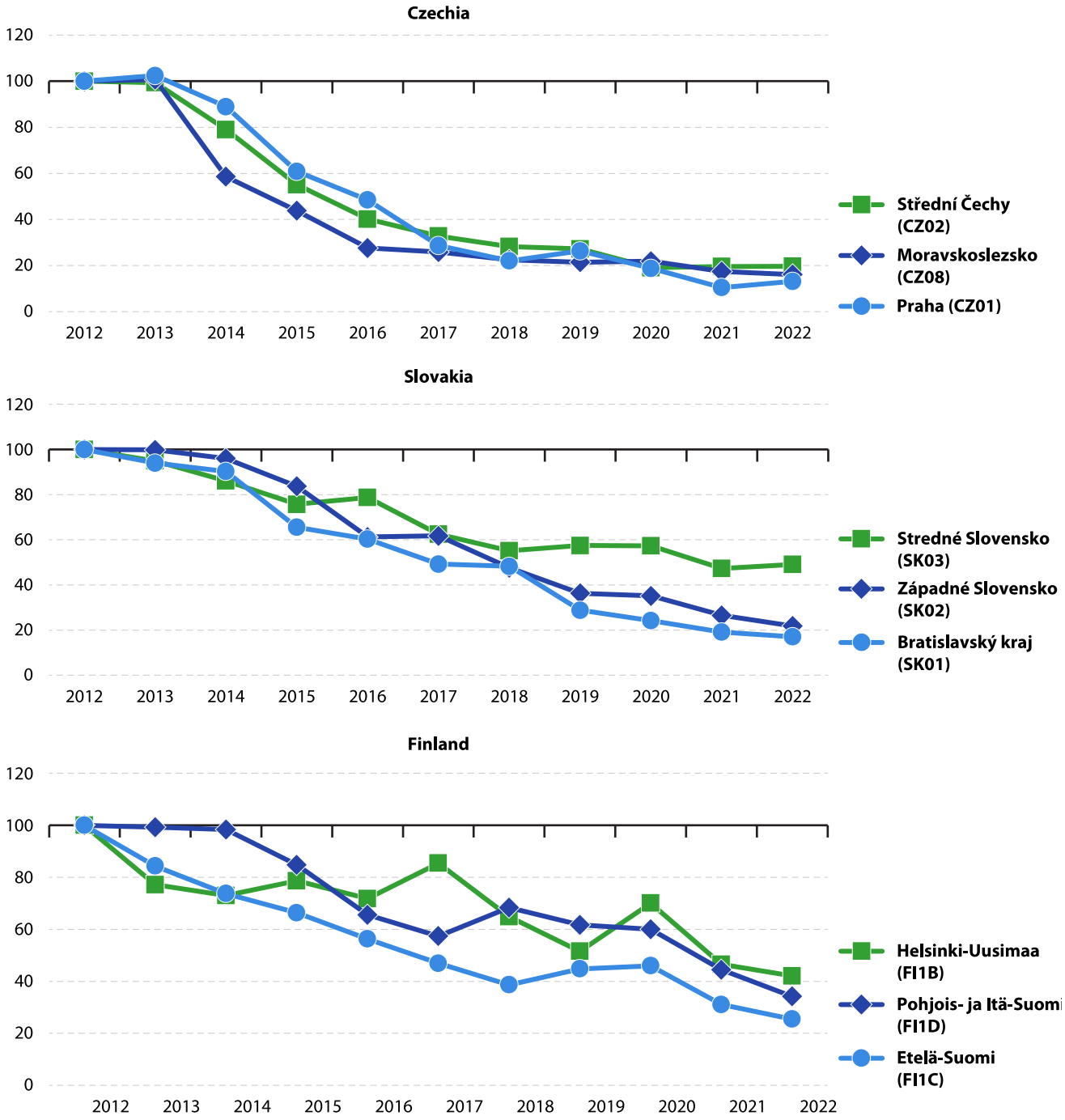
Note: index based on data per 100 000 inhabitants. Germany: 2019. Cyprus, Luxembourg, Hungary and Svalbard og Jan Mayen (NO0B): not available.

Source: Eurostat (online data code: crim_gen_reg)

Figure 5.10 shows how crime rates for the theft of motorised land vehicles developed during the period 2012–22, with selected regional examples for Czechia, Slovakia and Finland (based on the NUTS level 2 regions with the largest falls in their crime rates). Across all 3 countries, there was a marked reduction in the incidence of thefts of motorised land vehicles: for example, crime rates in the 3 Czech regions had fallen in 2022 to less than 20% of their original level from 2012.

In Czechia and in Slovakia, the largest falls in the incidence of theft of motorised land vehicles during the period 2012–22 were observed in the capital regions of Praha and Bratislavský kraj. By contrast, there were 2 regions in Finland – Etelä-Suomi and Pohjois- ja Itä-Suomi – which recorded falls in their crime rates that were larger than those experienced in the capital region of Helsinki-Uusimaa (where developments over the last decade followed a fluctuating but nevertheless downward trend).

Figure 5.10: Theft of a motorised land vehicle recorded by the police, 2012–22
(2012 = 100, selected NUTS 2 regions)



Note: index based on data per 100 000 inhabitants. The figure shows, for each selected country, the 3 regions with the largest overall decreases in thefts per 100 000 inhabitants.

Source: Eurostat (online data code: crim_gen_reg)

In 2022, there were 3 862 police-recorded intentional homicides across the EU; this figure marked an increase of 4.4% compared with a year before. Expressed in relation to its population, there were 0.86 intentional homicides per 100 000 inhabitants.

More about the data: statistics on intentional homicide

Intentional homicide is defined as killing a human being wilfully and illegally; in other words, the intent was to cause death or serious injury, but not necessarily that it was planned beforehand. This is a wider concept than murder, for which also planning and other criteria are considered. Intentional homicide statistics

- include murder, deadly assault, assassination, terrorism, femicide, infanticide, voluntary manslaughter, extrajudicial killings and illegal killing by police or military
- exclude attempted homicide, justifiable self-defence, assisted suicide, euthanasia and abortion.

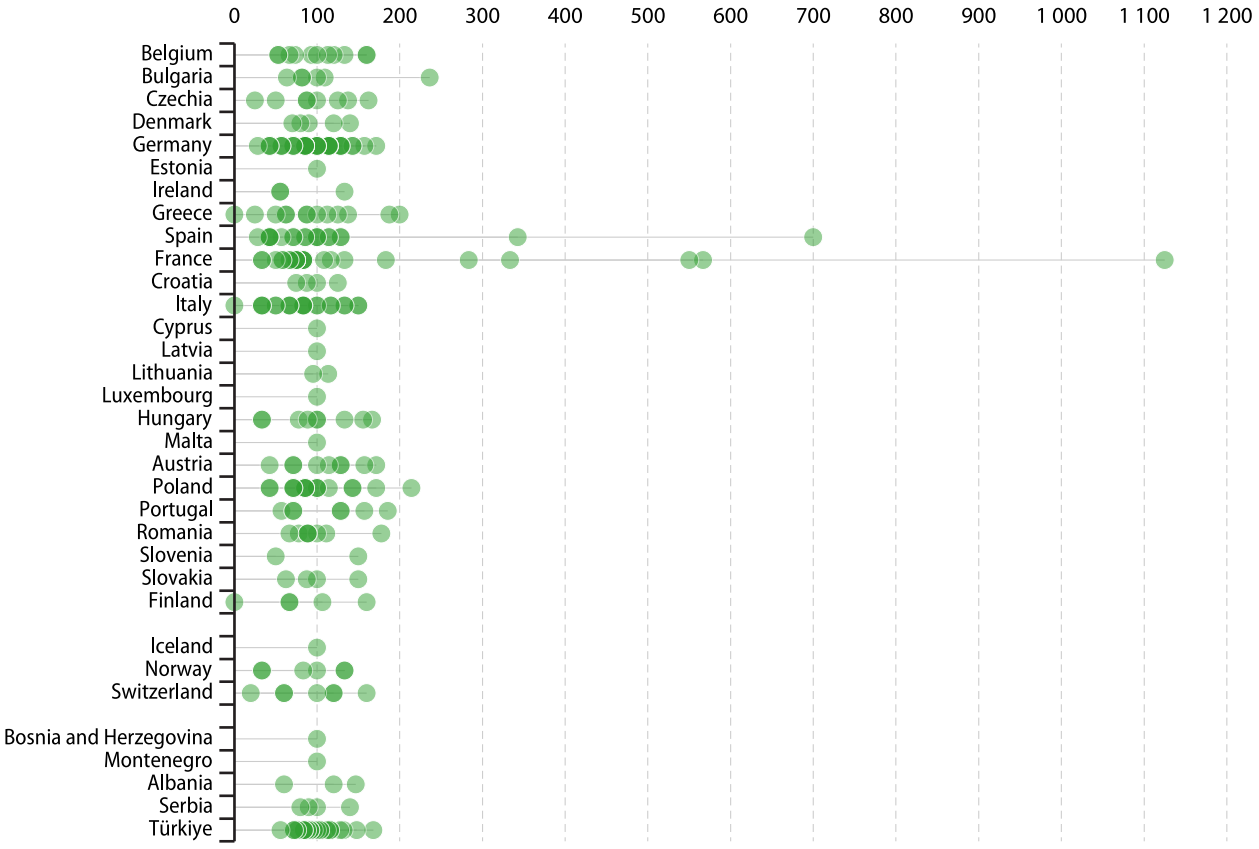
Special care should be taken when analysing the statistics presented below, as there may be very low counts of intentional homicides in some regions. Counts can vary considerably over time, especially in those jurisdictions with small populations, whereby a small increase/decrease in the number of homicides may lead to a relatively large change in crime rates.

Figure 5.11 shows the regional distribution of intentional homicides recorded by the police. In 2022, most EU countries were characterised by a relatively narrow range of inter-regional variations for crime rates concerning intentional homicides. A different pattern was observed in Spain and France, as the incidence of intentional homicide was substantially higher in the autonomous cities of Spain and most of the outermost regions of France (La Réunion was an exception). Most of these regions have relatively small populations, so an increase in the number of homicides would likely have a significant impact on their homicide rates per 100 000 inhabitants.

In 2022, the French outermost region of Guyane had the highest incidence of intentional homicide among NUTS level 2 regions, at 13.5 per 100 000 inhabitants. This was approximately twice as high as in any other region of the EU: the 2nd and 3rd highest rates were also recorded in French outermost regions, namely, Martinique (6.8 per 100 000 inhabitants) and Guadeloupe (6.6 per 100 000 inhabitants).

Within the multi-regional EU countries, the highest incidences of intentional homicide in 2022 were recorded in the capital regions of Belgium (joint highest with Prov. Hainaut), Czechia, Germany (2019 data), Ireland, Lithuania and Slovakia. By contrast, the capital regions of Bulgaria, Denmark, Greece, France, Italy, Poland, Romania and Slovenia recorded rates that were lower than their respective national averages.

Figure 5.11: Intentional homicide recorded by the police, 2022
(national average = 100, by NUTS 2 regions)



Note: index based on data per 100 000 inhabitants. Germany and Bosnia and Herzegovina: 2019. The Netherlands, Sweden and Svalbard og Jan Mayen (NO0B): not available.

Source: Eurostat (online data code: crim_gen_reg)

6. Digital society

Among other purposes, people use information and communication technologies (ICTs) to work, study, keep abreast of news, communicate, be entertained, interact with public authorities, pay bills or shop online. ICT innovations also provide new business opportunities. To benefit from technological innovations, people and businesses need fast and reliable internet access. However, using the internet can be challenging for some people, for example because of poor access or a lack of skills, creating a 'digital divide'.

More about the data: survey on the use of ICT in households and by individuals

Household surveys to collect data on ICT usage are usually conducted during the 2nd quarter of each year, although the precise date can vary between EU countries. In general, the data presented in this chapter usually refer to the 1st quarter of the reference year and they concern activities carried out by people during the 3 months prior to the survey.

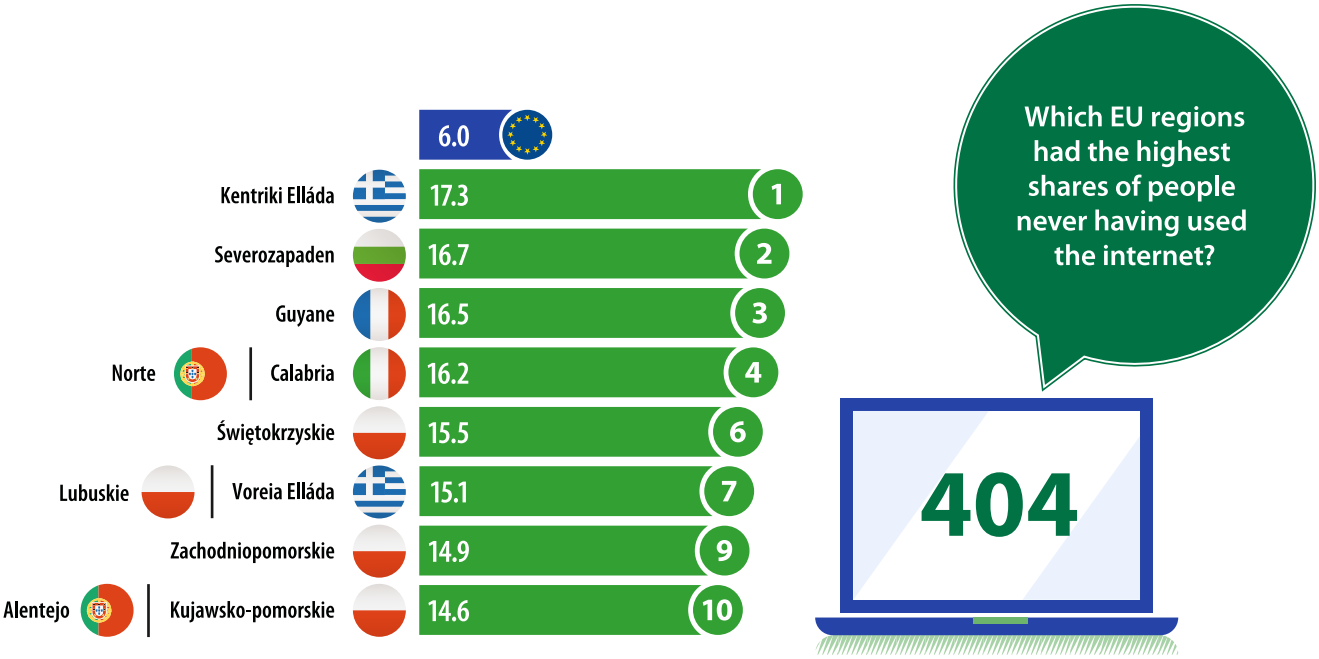
Most of the statistics presented below cover people aged 16–74, although the 1st section covers household internet access.

The data are generally presented for NUTS level 2 regions. Exceptions are Germany, Greece and Türkiye (where the data refer to NUTS level 1 regions) and Croatia, Norway and Albania (where national data are presented).

When making comparisons over time – Figures 1 to 4 compare the situation in 2023 with that in 2018 – there are breaks in series for the EU, Germany and Ireland in 2021.

The infographic below shows that, in 2023, 6.0% of people aged 16–74 in the EU had never used the internet. There may be several reasons why some people don't use the internet, including a lack of skills, opportunities, interest or cost. Among NUTS level 2 regions, the Greek region of Kentriki Elláda had the highest share of people never having used the internet (17.3%). The next highest shares – in the range of 16.2–16.7% – were recorded in Severozapaden (Bulgaria), Guyane (France), Calabria (Italy) and Norte (Portugal). By contrast, at the other end of the range, less than 0.5% of the population had never used the internet in 4 Dutch regions, 3 Swedish regions, 2 Danish regions and Luxembourg.

Note: the first part of the figure shows the EU regions with the highest and lowest shares in 2023, while the second part shows the regions with the biggest and smallest changes compared with 2018. Germany and Greece, NUTS level 1. Poland: comparison with 2018, NUTS level 1. Croatia: national data. EU, Germany and Ireland: breaks in series. Corse (FRM0): low reliability.



(%, people aged 16–74, 2023, by NUTS 2 region)

Note: Germany and Greece, NUTS level 1. Croatia: national data. Mayotte (FRY5) and Åland (FI20): not available.

Source: Eurostat (online data codes: isoc_r_iuse_i and tin00093)

Households with access to the internet

Internet access comes in a variety of forms

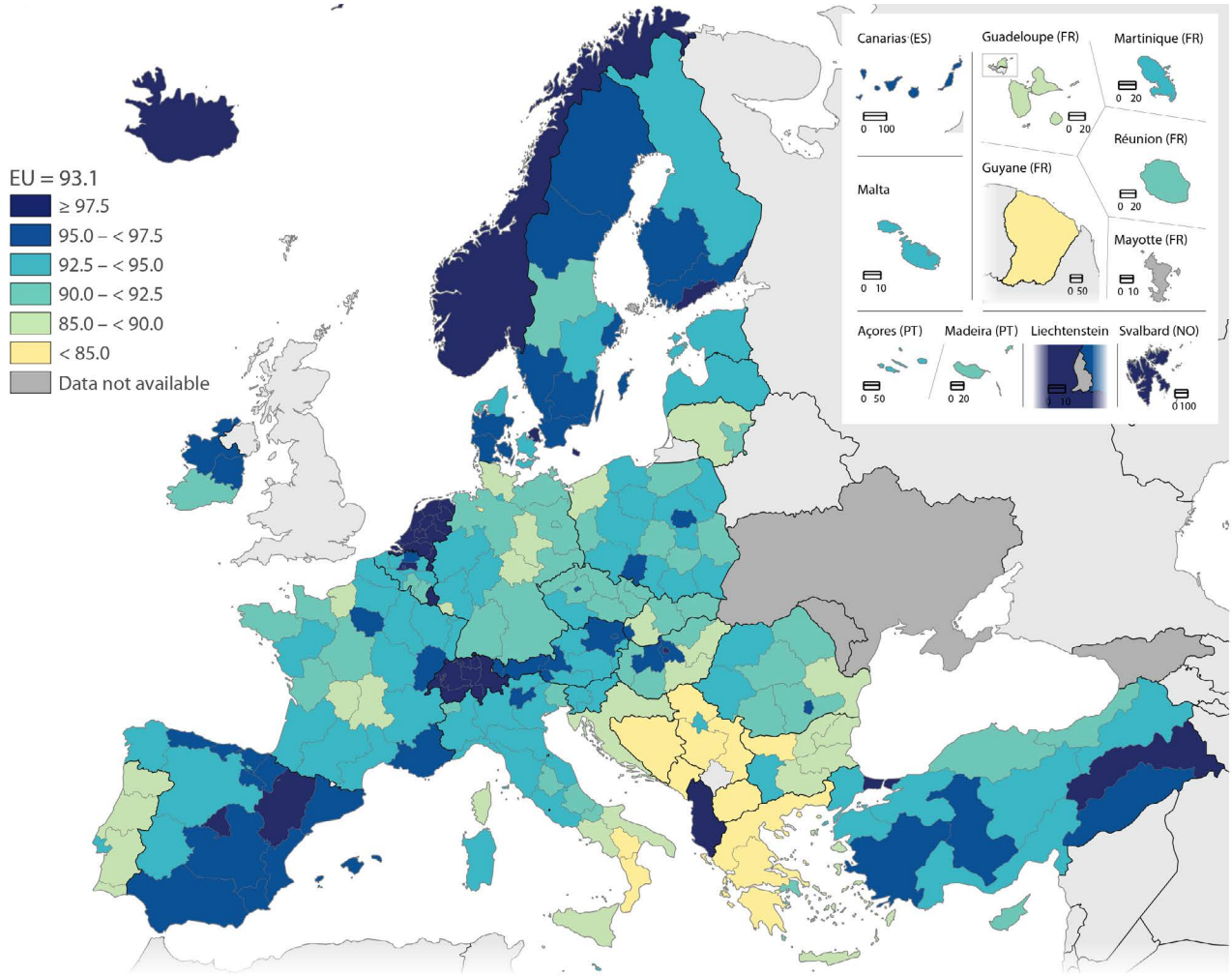
- broadband access includes cable and fibre-optic connections that deliver high-speed internet through traditional infrastructure
- wireless access includes options like Wi-Fi and mobile broadband that are generally accessed via routers or cellular networks
- satellite internet reaches remote areas and offers connectivity when other technological options are limited.

In 2023, more than 99.0% of households had access to the internet at home in Luxembourg and in 5 Dutch regions

In 2023, the share of EU households connected to the internet was 93.1%. Across the EU, households in rural areas were less likely to have internet access (90.5% in 2023) than households that were in towns and suburbs (92.7%) or in cities (94.9%). For the purpose of this publication, internet access doesn't refer to 'connectability' (can a connection be provided in the household's street or local area), but rather to whether anyone in the household is able to use the internet at home if so desired ('connectivity').

Map 6.1 shows the regional distribution of households with access to the internet at home. These data have considerable importance when considering the remainder of the information in this chapter: relatively low levels of internet access will restrict the share of people accessing the internet and making use of a range of internet activities.

Map 6.1: Households with access to the internet at home, 2023
(%, by NUTS 2 regions)



Administrative boundaries: © EuroGeographics © UN–FAO © Turkstat
Cartography: Eurostat – IMAGE, 06/2024

Note: Germany, Greece and Türkiye, NUTS level 1. Croatia, Norway and Albania: national data. Albania: 2022. Iceland and North Macedonia: 2021. Corse (FRM0): low reliability.

Source: Eurostat (online data codes: isoc_r_iacc_h and isoc_ci_in_h)

In 2023, the highest regional shares of households with access to the internet were concentrated in the Benelux and Nordic countries, Spain, (western) Hungary and several regions of Austria, as well as many capital regions. Overall, there were 63 NUTS level 2 regions in the EU where the share of households with access to the internet was at least 95% (as shown by the 2 darkest shades of blue in Map 6.1).

The 4 regions with the highest shares of households with access to the internet in 2023 were all located in the Netherlands: Utrecht (99.5%), Drenthe (99.4%), the capital region of Noord-Holland (also 99.4%) and Overijssel (99.2%). The top 10 regions also included Luxembourg (99.1%) and Prov. Vlaams-Brabant in Belgium (98.7%), as well as 4 more Dutch regions.

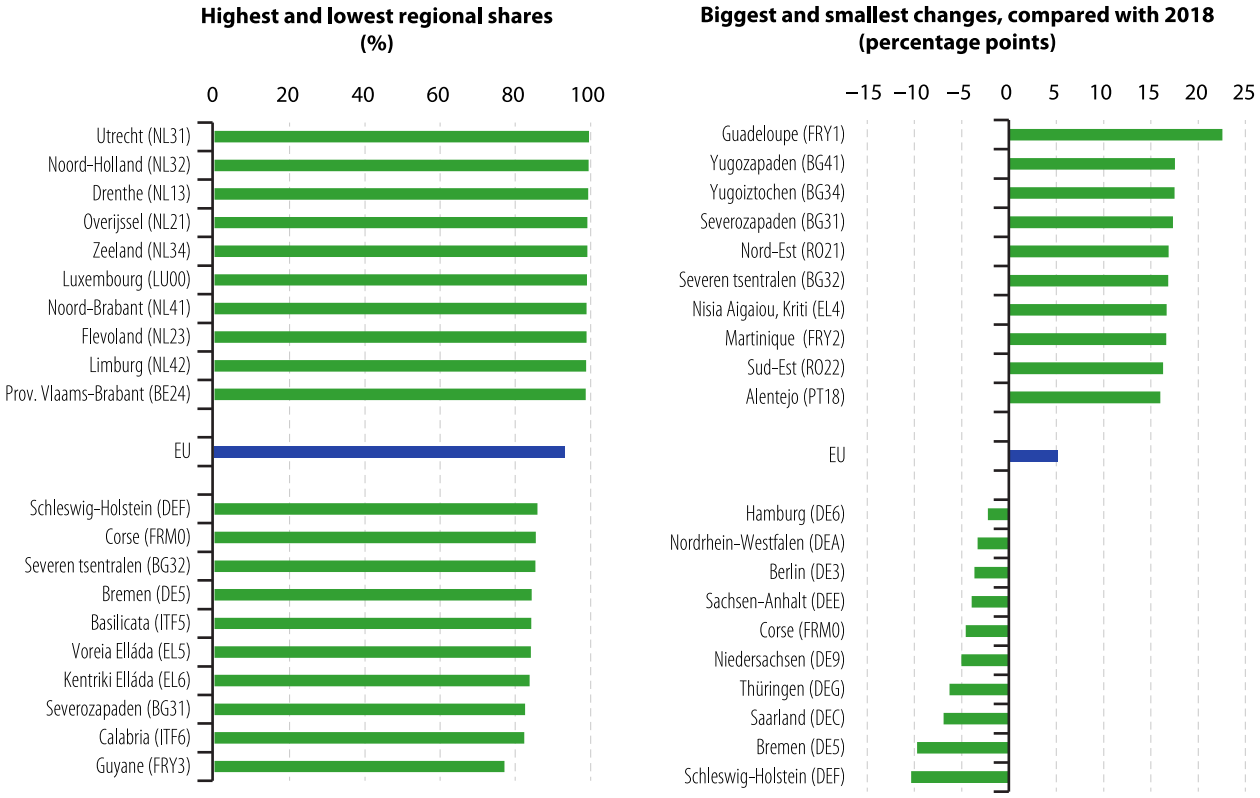
Overall, there were 35 regions in the EU where the share of households with access to the internet at home was less than 90% in 2023 (as shown by the 2 lightest shades in Map 6.1). The lowest shares were concentrated in France (6 regions), Bulgaria, Germany, Italy (5 regions in each), Portugal (4 regions) and Greece (3 regions). The French outermost region of Guyane was the only region in the EU to report that fewer than 4 out of 5 households had access to the internet at home (77.1%).

As well as showing those regions that had the highest and lowest shares of households with access to the internet, Figure 6.1 also provides information about those regions that experienced the biggest and smallest changes compared with 2018. The proportion of EU households connected to the internet had been 87.9% in 2018. This share rose 5.2 percentage points during the most recent 5-year period for which data are available, such that 93.1% of households had internet access at home in 2023.

The share of households with access to the internet at home increased 22.6 percentage points between 2018 (65.7%) and 2023 (88.3%) in the French outermost region of Guadeloupe – the largest increase among EU regions. Relatively large gains were also made in 3 Bulgarian regions – Yugozapaden, Yugoiztochen and Severozapaden – as their shares rose between 17.4 and 17.6 points during the same period.

By contrast, there were 19 regions in the EU where the share of households with access to the internet fell between 2018 and 2023. The biggest decreases were observed in German regions, with falls of at least 5.0 percentage points in Niedersachsen, Thüringen, Saarland, Bremen and Schleswig-Holstein (the latter had the biggest fall, down 10.4 points).

Figure 6.1: Households with access to the internet at home, 2023
(by NUTS 2 regions)



Note: the first part of the figure shows the EU regions with the highest and lowest shares in 2023, while the second part shows the regions with the biggest and smallest changes compared with 2018. Germany and Greece, NUTS level 1. Poland: comparison with 2018, NUTS level 1. Croatia: national data. EU, Germany and Ireland: breaks in series. Corse (FRM0): low reliability.

Source: Eurostat (online data codes: isoc_r_iacc_h and isoc_ci_in_h)

Internet users

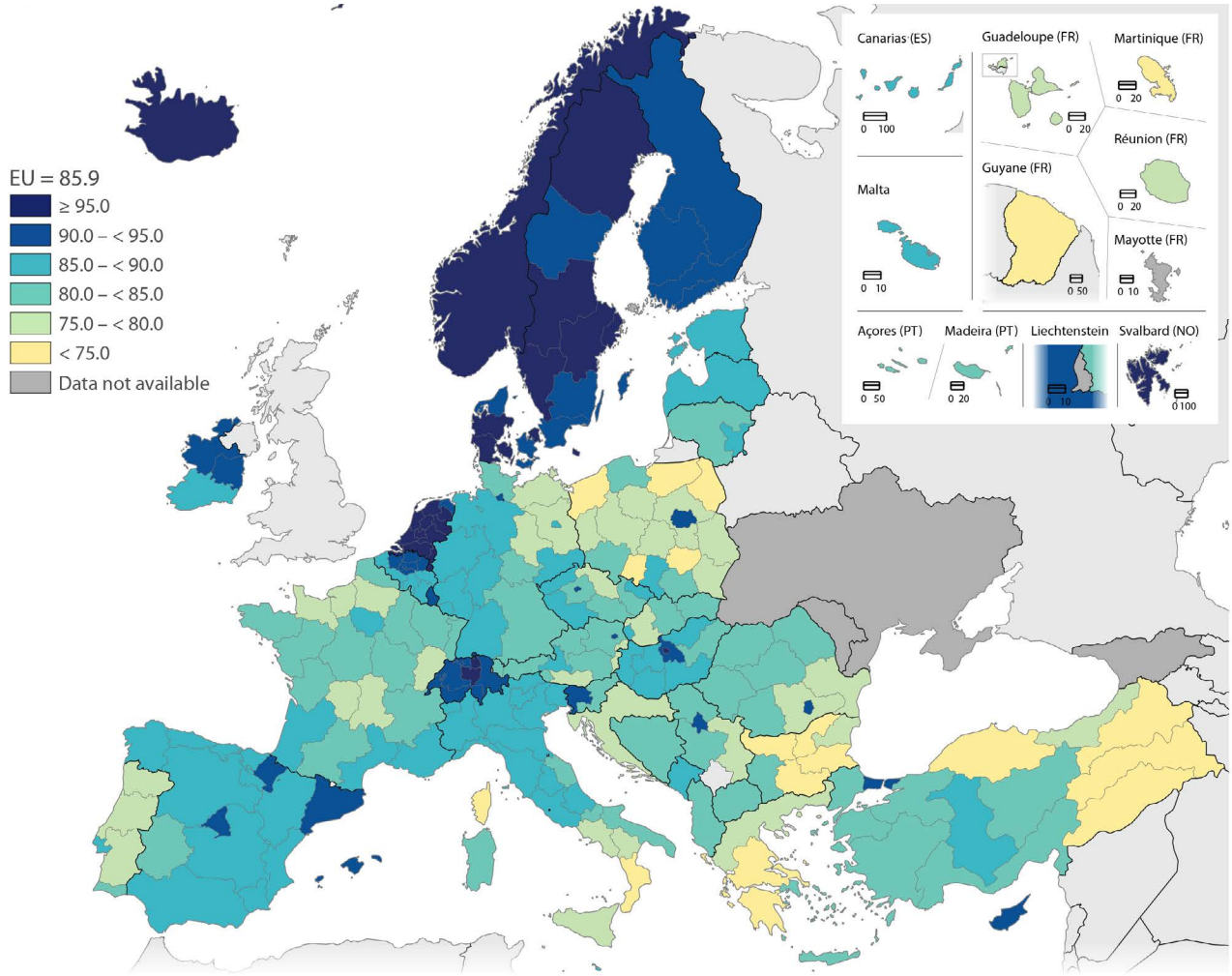
internet users are defined as people aged 16–74 using the internet: at home, at work, or elsewhere; for private or professional purposes, regardless of the device or the type of connection used.

More than 80% of people in the EU used the internet on a daily basis in 2023 – higher shares were recorded among the younger generations and people living in cities

In 2023, 85.9% of people in the EU reported that they had used the internet on a daily basis during the 3 months preceding the ICT survey. This share was 1.9 percentage points higher than in 2022, and 11.8 points higher than in 2018. The last few years have been characterised by slower growth in the share of people using the internet on a daily basis, as this indicator approaches saturation for many groups in society.

In the EU, internet use was particularly high among younger generations: 97.1% of people aged 16–24 used the internet daily in 2023. By contrast, the share for people aged 65–74 was 59.2%. In general, people living in rural areas were less likely to use the internet daily (80.3% in 2023) than those living in towns and suburbs (85.7%) or in cities (89.5%). Many rural areas have a higher proportion of older people, while some rural/remote areas face difficulties in accessing internet services, which may partly explain this digital divide.

Map 6.2: Daily internet users, 2023
(% of people aged 16–74 during the 3 months preceding the survey, by NUTS 2 regions)



Administrative boundaries: © EuroGeographics © UN–FAO © Turkstat
Cartography: Eurostat – IMAGE, 06/2024

Note: Germany, Greece and Türkiye, NUTS level 1. Croatia, Norway and Albania: national data. Albania: 2022. Iceland and North Macedonia: 2021. Corse (FRM0): low reliability.

Source: Eurostat (online data codes: isoc_r_iuse_i and isoc_ci_ifp_fu)

In every region of the EU, more than 2 out of 3 people used the internet daily in 2023

Map 6.2 shows the share of people making daily use of the internet within each NUTS level 2 region. In 2023, there were clear disparities along broad geographical lines: northern and western regions generally recorded higher levels of daily internet use than southern or eastern regions. Regional shares of people using the internet daily were distributed evenly around the EU average (85.9%), insofar as there were 102 regions with a share above the average, while an identical number had a share that was below.

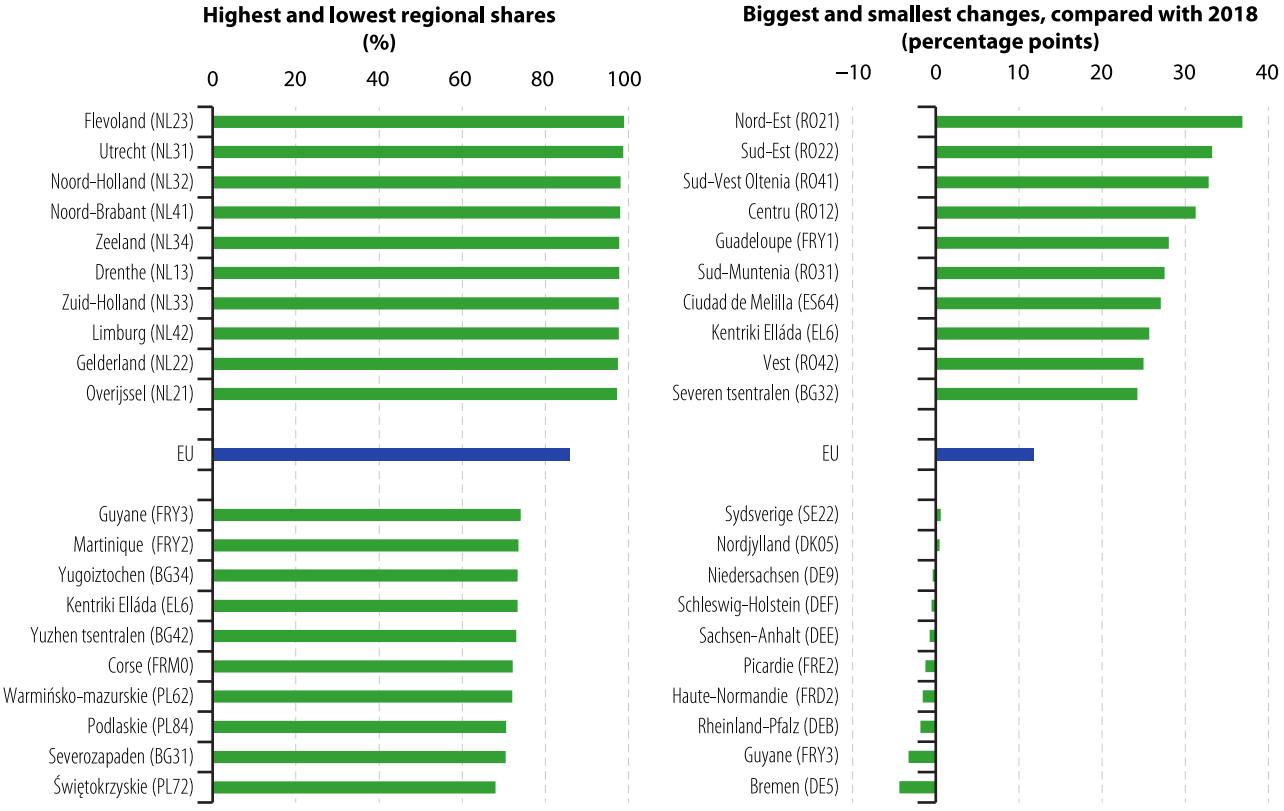
In 2023, the highest proportions of people using the internet every day were concentrated in the Netherlands. In fact, the 10 highest regional shares within the EU were all located in the Netherlands, with a peak of 99.0% in Flevoland. Outside of the Netherlands, the highest share of people using the internet on a daily basis was recorded in the Swedish capital region of Stockholm (97.0%).

In total, there were 14 regions in the EU where less than 75.0% of people used the internet on a daily basis in 2023 (they are shown with a yellow shade in Map 6.2). This group was composed of 5 regions from Poland, 4 regions from Bulgaria, 3 (island or outermost) regions of France, as well as a single region from each of Greece and Italy. The lowest proportion of people using the internet every day was registered in the southern Polish region of Świętokrzyskie (68.0%).

As well as showing those regions with the highest and lowest shares of daily internet users in 2023, Figure 6.2 also presents information for the overall change in the share of daily internet users between 2018 and 2023.

- In 4 regions, the share of daily internet users rose by more than 30.0 percentage points between 2018 and 2023. Nord-Est in Romania had the highest increase in its proportion of daily internet users, up 36.9 percentage points to 81.6%. Increases upwards of 30.0 points were also observed for 3 more Romanian regions, namely, Sud-Est, Sud-Vest Oltenia and Centru.
- The share of daily internet users fell in 8 regions across the EU. The largest declines were recorded in Bremen and Rheinland-Pfalz in Germany, as well as Guyane, Haute-Normandie and Picardie in France.

Figure 6.2: Daily internet users, 2023
(people aged 16–74 during the 3 months preceding the survey, by NUTS 2 regions)



Note: the first part of the figure shows the EU regions with the highest and lowest shares in 2023, while the second part shows the regions with the biggest and smallest changes compared with 2018. Germany and Greece, NUTS level 1. Poland: comparison with 2018, NUTS level 1. Croatia: national data. EU, Germany and Ireland: breaks in series. Corse (FRM0): low reliability.

Source: Eurostat (online data codes: isoc_r_iuse_i and isoc_ci_ifp_fu)

Activities on the internet

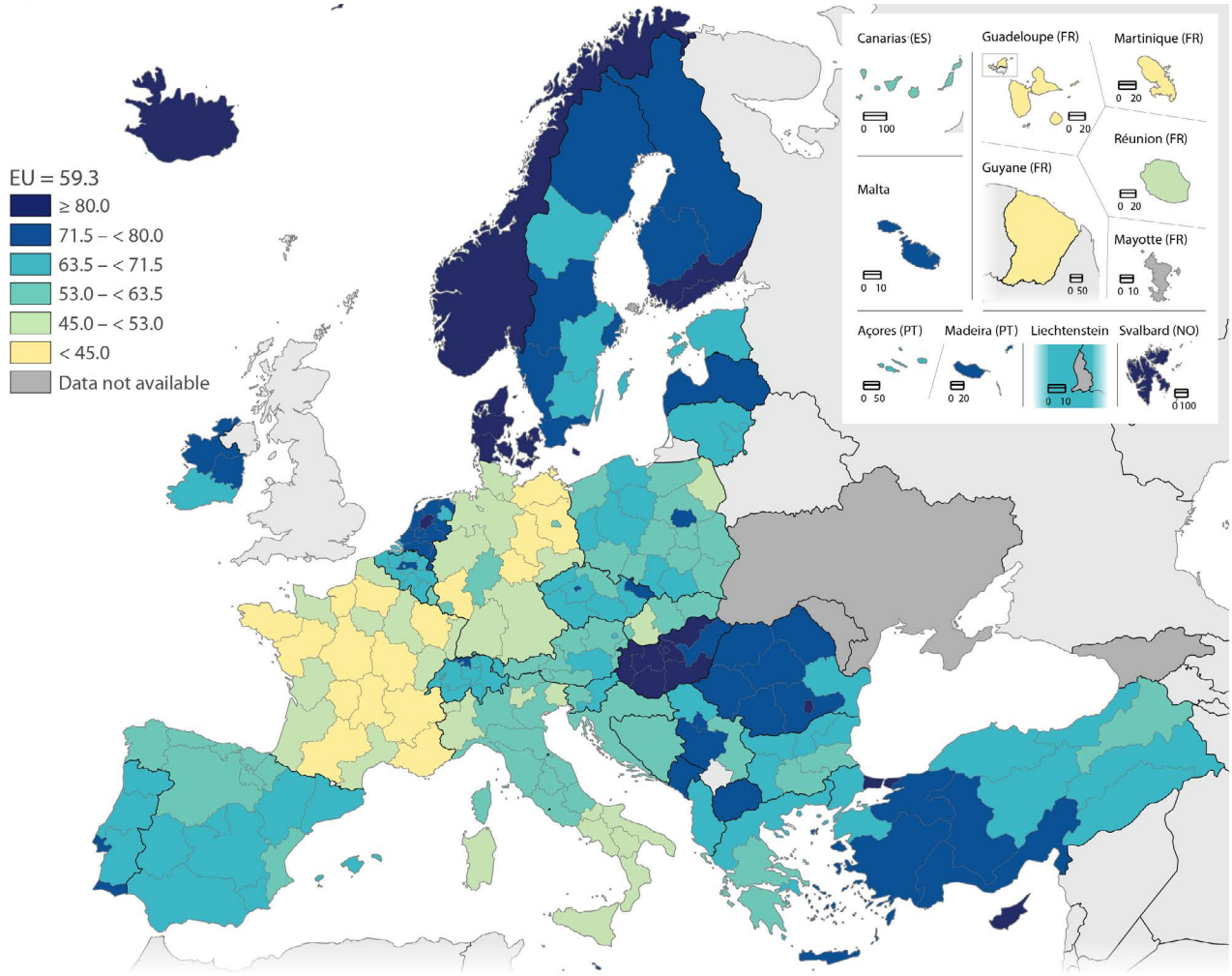
The frequency with which people use the internet has grown substantially with the prolific use of mobile devices such as smartphones and tablets. Furthermore, the range of (different) activities conducted over the internet has rapidly evolved. Some of the most popular activities on the internet include

- education and skills development
- working
- accessing information
- entertainment
- communicating with family and friends
- interacting with government services
- online shopping (e-commerce).

PARTICIPATION IN SOCIAL NETWORKS

Social networks are online platforms that enable individuals to connect, interact, and share content with others. Some of the most popular networks include Facebook, Instagram, TikTok, Snapchat or X (formerly Twitter). These platforms typically allow users to create personal profiles, share photos and videos, and communicate with others through messaging, comments or other forms of interaction.

Map 6.3: People participating in social networks, 2023
(% of people aged 16–74 during the 3 months preceding the survey, by NUTS 2 regions)



Administrative boundaries: © EuroGeographics © UN–FAO © Turkstat
Cartography: Eurostat – IMAGE, 06/2024

Note: Germany, Greece and Türkiye, NUTS level 1. Croatia, Norway and Albania: national data. Albania: 2022. Iceland and North Macedonia: 2021. Corse (FRM0): low reliability.

Source: Eurostat (online data codes: isoc_r_iuse_i and isoc_ci_ac_i)

In 2023, almost 60% of the EU's population used social networks

In 2017, 51.8% of the EU's population aged 16–74 used social networks during the 3 months preceding the ICT survey; this was the 1st time that a majority of the EU population used social networks. Participation in social networks grew thereafter and, despite a small fall in 2021, the share reached 59.3% by 2023.

Social networks are among the most popular activities on the internet for young people aged 16–24. In 2023, the share of young people using social networks across the EU was 3.2 times as high as the share recorded for older people aged 65–74. However, during recent years there was a fall in the proportion of young people who used social networks. Their share fell 3.6 percentage points from a peak of 87.0% in 2018 to 83.4% by 2023. During the same period, the proportion of older people using social networks increased each year, their share rising 9.1 points from 16.9% in 2018 to 26.1% by 2023.

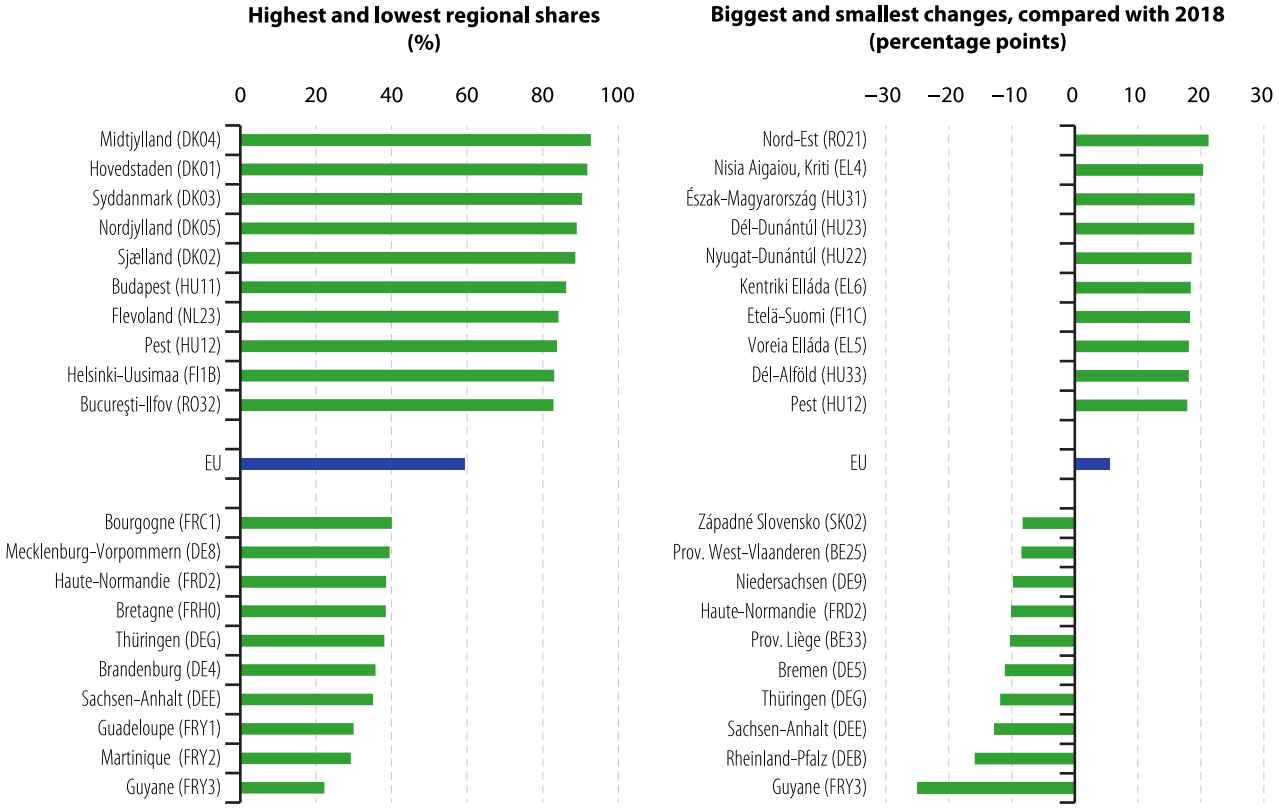
In 2023, around 9 in 10 people used social networks in every region of Denmark

Map 6.3 shows the regional distribution of people aged 16–74 using social networks. In 2023, the highest rates were concentrated in Denmark and Hungary: between 88.6% and 92.8% of the population used social networks in all 5 Danish regions; at least 80.0% of the population used social networks in 7 out of 8 Hungarian regions – the exception being Észak-Alföld. There were 5 more regions in the EU where at least 80.0% of the population participated in social networks

- Flevoland in the Netherlands
- the capital regions of Helsinki-Uusimaa (Finland) and Bucureşti-Ilfov (Romania)
- Cyprus
- Etelä-Suomi (also in Finland).

At the other end of the distribution, there were 37 regions across the EU where less than 50.0% of the population used social networks in 2023. Among these, a group of 20 reported shares that were less than 45.0% (they are shown with a yellow shade in Map 6.3). These 20 regions were located exclusively in Germany and France. In the latter, the lowest proportions of people using social networks were recorded in the outermost regions of Guadeloupe (30.0%), Martinique (29.2%) and Guyane (22.2%). Within Germany, the lowest proportions were recorded in the 3 neighbouring regions of Thüringen (38.1%), Brandenburg (35.7%) and Sachsen-Anhalt (35.1%).

Figure 6.3: People participating in social networks, 2023
(people aged 16–74 during the 3 months preceding the survey, by NUTS 2 regions)



Note: the first part of the figure shows the EU regions with the highest and lowest shares in 2023, while the second part shows the regions with the biggest and smallest changes compared with 2018. Germany and Greece, NUTS level 1. Poland: comparison with 2018, NUTS level 1. Croatia: national data. EU, Germany and Ireland: breaks in series.

Source: Eurostat (online data codes: isoc_r_iuse_i and isoc_ci_ac_i)

Between 2018 and 2023, the share of people using social networks rose in 154 out of 196 EU regions for which data are available; Figure 6.3 shows where the biggest and smallest changes took place. The largest increases were recorded in the Nord-Est region of Romania (up 21.2 percentage points) and the Greek region of Nisia Aigaiou, Kriti (up 20.4 points), followed by 3 regions in Hungary where the share of people using social networks rose by 18.5 to 19.0 points.
At the other end of the range, there were 42 regions across the EU where the proportion of people participating in social networks fell between 2018 and 2023. The biggest fall was observed in the French outermost region of Guyane (down 25.0 percentage points) and there were 6 other regions that registered double-digit falls

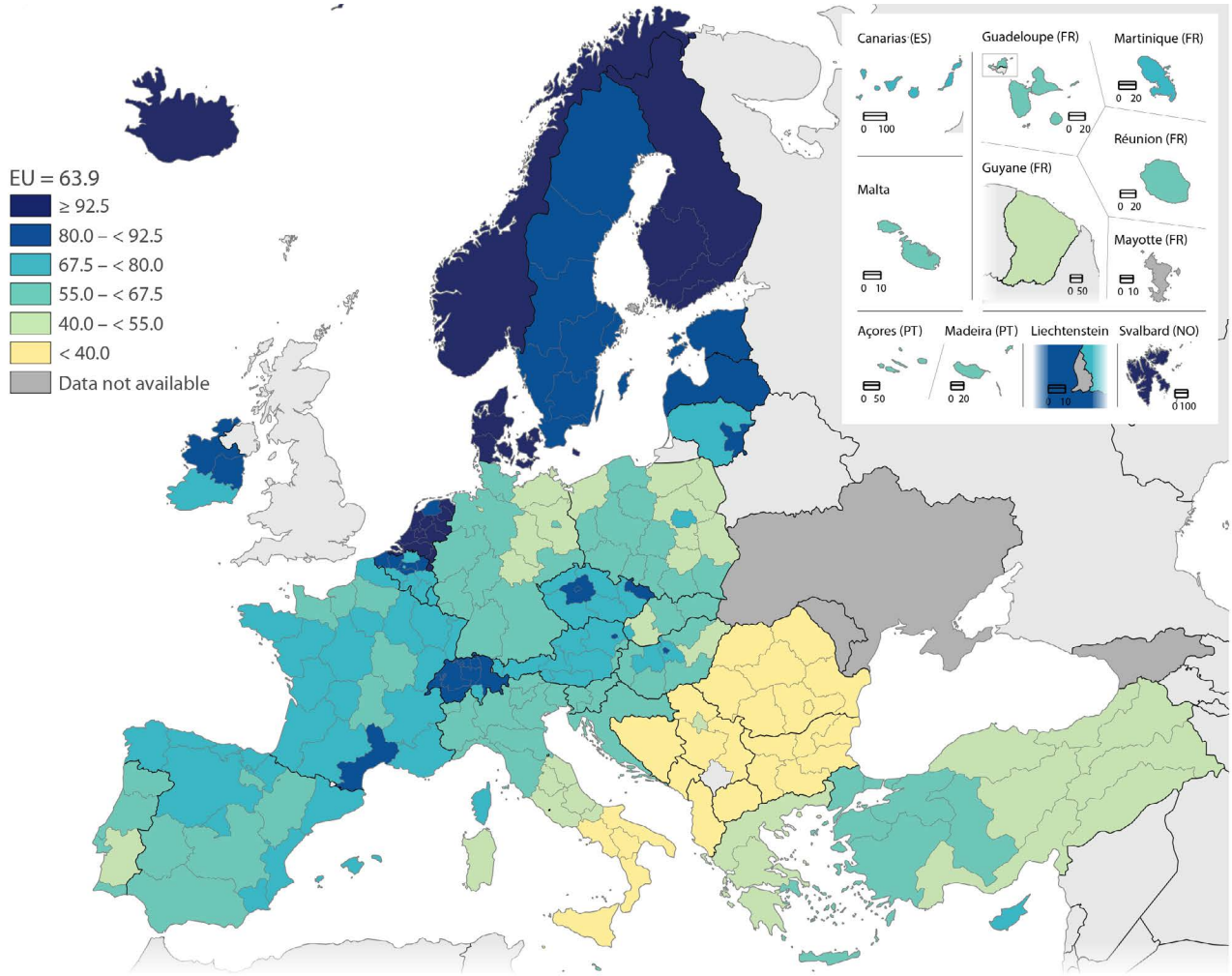
- 4 of these were located in Germany – Rheinland-Pfalz, Sachsen-Anhalt, Thüringen and Bremen
- they were joined by the eastern Belgian region of Prov. Liège and the northern French region of Haute-Normandie.

INTERNET BANKING

In recent years, one of the main developments within the EU's banking sector has been an expansion of online services. The frequency with which consumers visit their local branch has fallen rapidly, the number of branches has contracted, and online transfers and e-payments have become the norm. Internet banking eliminates the overheads associated with running local branches and may often be more convenient for consumers as transactions and other banking activities can be carried out at any time of day and from almost any location. While internet banking offers numerous advantages, it also presents a range of challenges and potential issues, including

- accessibility issues
- security and privacy concerns
- technical interruptions of services.

Map 6.4: People using internet banking, 2023
(% of people aged 16–74 during the 3 months preceding the survey, by NUTS 2 regions)



Administrative boundaries: © EuroGeographics © UN–FAO © Turkstat
Cartography: Eurostat – IMAGE, 06/2024

Note: Germany, Greece and Türkiye, NUTS level 1. Croatia, Norway and Albania: national data. Albania: 2022. Iceland and North Macedonia: 2021. Corse (FRM0): low reliability.

Source: Eurostat (online data codes: isoc_r_iuse_i and isoc_ci_ac_i)

Almost 2 out of 3 people in the EU made use of internet banking in 2023

In 2023, 63.9% of the EU's population aged 16–74 used the internet for banking during the 3 months preceding the ICT survey. As with most internet activities, there were some quite large differences in the use of internet banking across different age groups. Some young people don't (yet) have a bank account and therefore, by definition, have no need for internet banking. However, the share of the EU's adult population making use of the internet for banking rises quickly with age and peaked at 78.0% among people aged 25–29. By contrast, 41.1% of people aged 65–74 used internet banking.

Across NUTS level 2 regions, Map 6.4 shows the proportion of people aged 16–74 using internet banking during the 3 months preceding the ICT survey. In 2023, more than 90.0% of the population made use of internet banking in every region of Denmark, the Netherlands and Finland. Relatively high shares of people using internet banking were also recorded across Sweden, as well as in a majority of regions in Flanders (Belgium), the Baltic countries and Ireland. Internet banking was also widespread in several capital regions where its share was atypically high compared with neighbouring regions: this was the case, for example, in Praha (Czechia), Budapest (Hungary) and Wien (Austria).

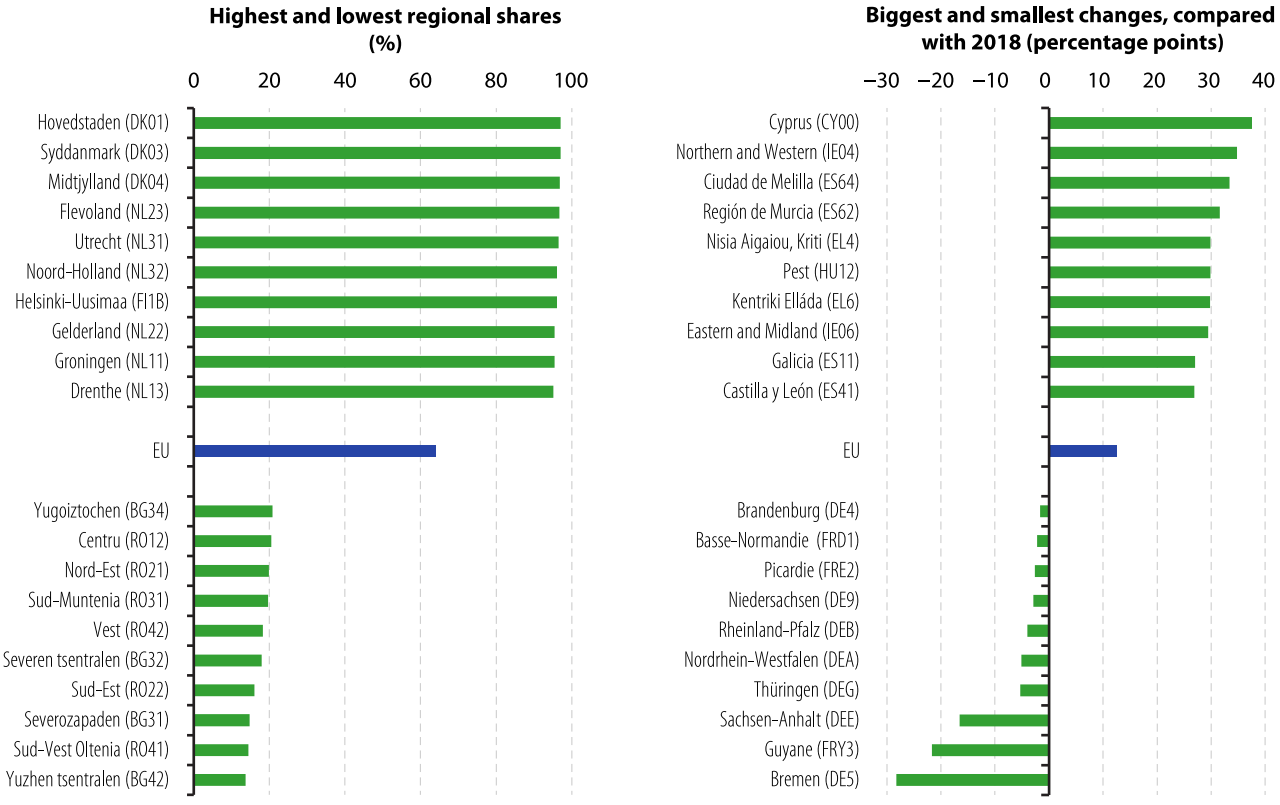
At the other end of the range, the share of the population using internet banking in 2023 was relatively low in several eastern and southern regions of the EU; the lowest shares were concentrated in Bulgaria, Romania and southern Italy.

In 2023, the highest shares of internet banking were recorded in Denmark

A more detailed investigation of the latest information shown in Map 6.4 reveals the highest proportions of people making use of internet banking in 2023 were recorded in Denmark. The highest shares (97.1%) were observed in the capital region of Hovedstaden and in Syddanmark, while Midtjylland (96.9%) had the 3rd highest share in the EU.

By contrast, there were 3 EU regions where, in 2023, the proportion of people using internet banking was below 15.0%; the Bulgarian regions of Yuzhen tsentralen (13.7%) and Severozapaden (14.7%), as well as the Romanian region of Sud-Vest Oltenia (14.4%). Outside of Bulgaria and Romania, some of the lowest penetration rates for online banking were recorded in regions characterised by a low level of internet connectivity and/or an older population age structure. For example, less than 40.0% of people from the southern Italian regions of Calabria, Campania, Sicilia, Basilicata and Puglia made use of internet banking in 2023.

Figure 6.4: People using internet banking, 2023
(people aged 16–74 during the 3 months preceding the survey, by NUTS 2 regions)



Note: the first part of the figure shows the EU regions with the highest and lowest shares in 2023, while the second part shows the regions with the biggest and smallest changes compared with 2018. Germany and Greece, NUTS level 1. Poland: comparison with 2018, NUTS level 1. Croatia: national data. EU, Germany and Ireland: breaks in series.

Source: Eurostat (online data codes: isoc_r_iuse_i and isoc_ci_ac_i)

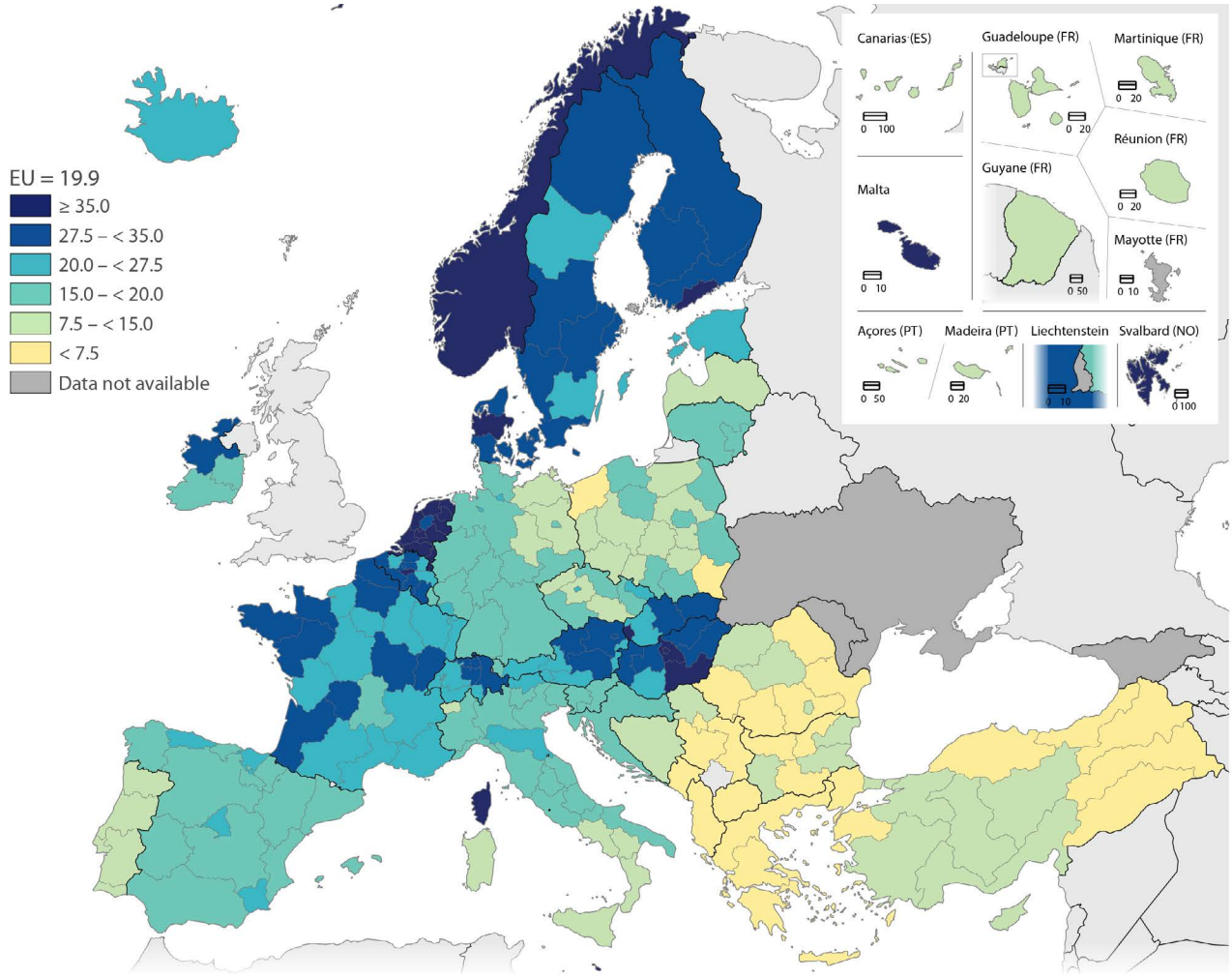
There was an increase in the use of internet banking across the EU between 2018 and 2023, as the share rose from 51.4% to 63.9% (up 12.4 percentage points). During this 5-year period, the proportion of people making use of internet banking increased in the vast majority of EU regions (182 out of 196), often a relatively fast pace. There were 126 regions that recorded double-digit increases during this period, with 48 of these reporting growth of more than 20.0 percentage points.

In Cyprus, the share of people making use of internet banking more than doubled from 33.3% in 2018 to 70.9% in 2023 (up 37.6 percentage points). This was the largest increase recorded across EU regions (see Figure 6.4), while the take-up of internet banking also increased at a rapid pace for most regions of Ireland, Greece, Spain and Hungary. By contrast, there were 14 regions in the EU where the penetration of online banking declined between 2018 and 2023. The largest falls were mainly concentrated in Germany, while the other regions with falling shares were located in France and Sweden.

E-commerce

E-commerce has the potential to make it easier for consumers to compare different retail offers. It can reconfigure the geography of consumption, for example, extending consumer choice and influencing price competition, not least in relatively remote regions of the EU. At the same time, e-commerce can transfer the time and cost burden of travelling to shops from consumers to distributors.

Map 6.5: People selling goods or services online, 2023
(% of people aged 16–74 during the 3 months preceding the survey, by NUTS 2 regions)



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Cartography: Eurostat – IMAGE, 06/2024

Note: Germany, Greece and Türkiye, NUTS level 1. Croatia, Norway and Albania: national data. Albania: 2022. Iceland and North Macedonia: 2021. Corse (FRM0): low reliability.

Source: Eurostat (online data codes: isoc_r_iuse_i and isoc_ci_ac_i)

More about the data: selling goods or services online

For statistical purposes, selling goods or services online doesn't require an electronic payment transaction. In other words, while the transaction is carried out online, the payment and/or delivery can take place offline. The selling goods or services online doesn't cover the situation where someone simply places an advertisement on a website, for example to sell a 2nd hand bicycle or a spare ticket for an event, as these transactions aren't generally concluded online in an automated manner. It does, however, encompass the selling of services (for example, babysitting, handymen services, gardening, or beauty services) via online marketplaces/platforms such as Facebook Marketplace.

PEOPLE SELLING GOODS OR SERVICES ONLINE

Approximately 1 in 5 of the EU's population sold goods or services over the internet in 2023

In 2023, 19.9% of the EU's population aged 16–74 reported that they had sold goods or services over the internet in the 3 months preceding the ICT survey. Younger people were generally more likely (than older people) to sell goods or services online. For example, 28.7% of people aged 25–34 used the internet to sell goods/services, which was 3.9 times as high as the corresponding share (7.4%) recorded for people aged 65–74.

Map 6.5 shows the regional distribution – at NUTS level 2 – of people selling goods or services online. Regional shares were distributed relatively evenly insofar as there were 97 regions with shares equal to or above the EU average (19.9%), compared with 109 regions with shares below the EU average.

At the upper end of the distribution, there were 20 regions in the EU where, in 2023, more than 35.0% of people sold goods or services over the internet (as shown by the darkest shade of blue in Map 6.5). This group of 20 regions was concentrated in the Netherlands (11 out of the 12 Dutch regions; Flevoland was the only exception), while the remainder of the group was composed of

- 3 regions from Hungary, including the capital region of Budapest
- 2 other capital regions – Bratislavský kraj (Slovakia) and Helsinki-Uusimaa (Finland)
- Prov. Brabant Wallon (Belgium), Midtjylland (Denmark), Corse (France; low reliability) and Malta.

In 2023, the highest proportion of people selling goods or services online was recorded in the Dutch capital region of Noord-Holland (44.5%). It was followed by 5 other Dutch regions – Limburg, Groningen, Overijssel, Drenthe and Friesland – with shares in the range of 42.3 to 43.4%. Outside of the Netherlands, the Hungarian capital region of Budapest had the highest share of people selling goods or services online (41.7%).

In total, there were 15 regions in the EU where less than 7.5% of the population sold goods or services online in 2023 (they are shown with a yellow shade in Map 6.5). This group was primarily concentrated in south-eastern Europe: it was composed of 5 regions from Romania, 4 regions from Greece and 3 regions from Bulgaria, as well as 2 Polish regions and a single (autonomous) region from Spain. The lowest proportion of people selling goods or services online was registered in the Vest region of Romania (2.5%).

PEOPLE ORDERING GOODS OR SERVICES OVER THE INTERNET FOR PRIVATE USE

More about the data: defining e-commerce

For statistical purposes, e-commerce is defined as 'buying goods or services through electronic transactions, including the placing of orders for goods or services over the internet; payment and the ultimate delivery of the goods or service may be conducted either online or offline. Orders via manually typed e-mails are excluded'.

In 2023, 58.1% of people aged 16–74 in the EU reported that they had bought/ordered goods or services over the internet in the 3 months preceding the ICT survey. As with many other internet activities, the propensity to make use of e-commerce is closely linked to age. For example, 74.4% of people aged 25–34 used the internet to buy/order goods or services; this was 2.5 times as high as the corresponding share (29.7%) recorded for people aged 65–74. Across the EU, the share of people reporting that they had bought/ordered goods or services over the internet was higher among those living in cities (61.9%) than it was for people living in rural areas (53.9%).

The share of people using the internet to buy/order goods or services in the 3 months preceding the ICT survey was higher than the EU average (58.1%) for every region of Czechia, Denmark, Ireland, France (except the outermost regions), the Netherlands, Slovakia, Finland and Sweden; this was also the case in Estonia, Luxembourg and Malta. By contrast, the share of the population making use of e-commerce was below the EU average for every region of Bulgaria, Greece, Italy, Lithuania, Portugal, Romania and Slovenia; this was also the case in Croatia (national data), Cyprus and Latvia.

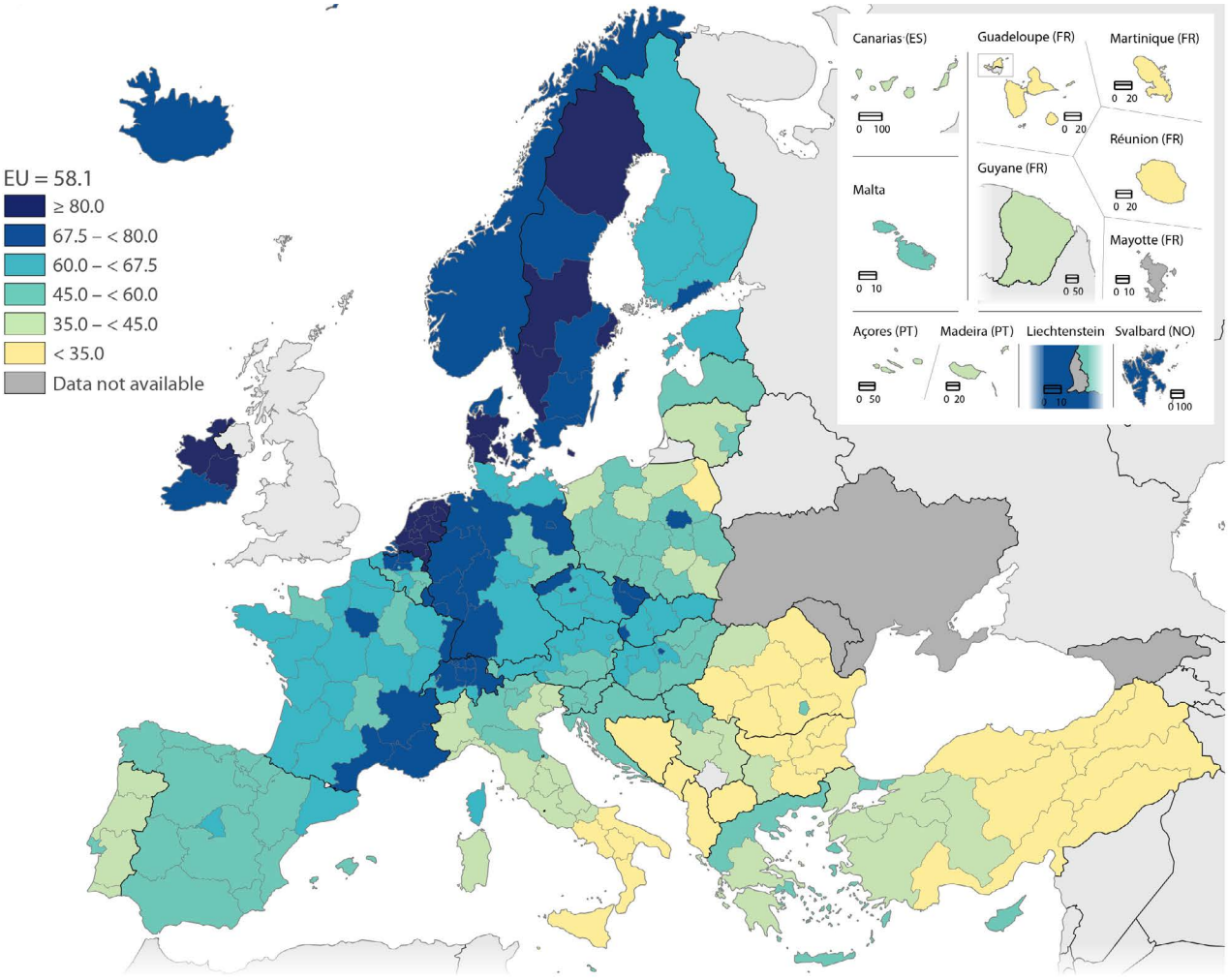
Almost 9 out of 10 people in the Dutch region of Utrecht bought/ordered goods or services over the internet in 2023

In 2023, there were 21 EU regions where at least 80.0% of people aged 16–74 had bought/ordered goods or services over the internet in the 3 months preceding the ICT survey (as shown by the darkest shade of blue in Map 6.6). Those regions characterised by a high propensity to use e-commerce were primarily concentrated in the Netherlands (11 regions), Sweden (4 regions) and Denmark (3 regions); this group was completed by 2 regions from Ireland (including the capital

region of Eastern and Midland) and a single region from Czechia (the capital region of Praha). At the top end of the distribution, the regions with the highest shares of people buying/ordering goods or services over the internet were all located in the Netherlands – Overijssel (85.9%), Noord-Holland (86.4%) and Utrecht (87.8%).

By contrast, there were 20 regions in the EU where less than 35.0% of the population bought/ordered goods or services over the internet in 2023 (they are shown with a yellow shade in Map 6.6). These regions were concentrated in eastern and southern regions of the EU – across Romania, Bulgaria and (southern) Italy – but also included 3 outermost regions of France and a single region in Poland. At the bottom end of the distribution, there were only 2 regions in the EU where fewer than 1 in 5 people made use of e-commerce – the Bulgarian region of Yugoiztochen (19.8%) and the French outermost region of Guadeloupe (18.7%).

Map 6.6: People ordering goods or services over the internet for private use, 2023
(% of people aged 16–74 during the 3 months preceding the survey, by NUTS 2 regions)



Administrative boundaries: © EuroGeographics © UN–FAO © Turkstat
Cartography: Eurostat – IMAGE, 06/2024

Note: Germany, Greece and Türkiye, NUTS level 1. Croatia, Norway and Albania: national data. Albania: 2022. Iceland and North Macedonia: 2021. Corse (FRM0): low reliability.

Source: Eurostat (online data codes: isoc_r_blt12_i and isoc_ec_ib20)

B

Economy and finance

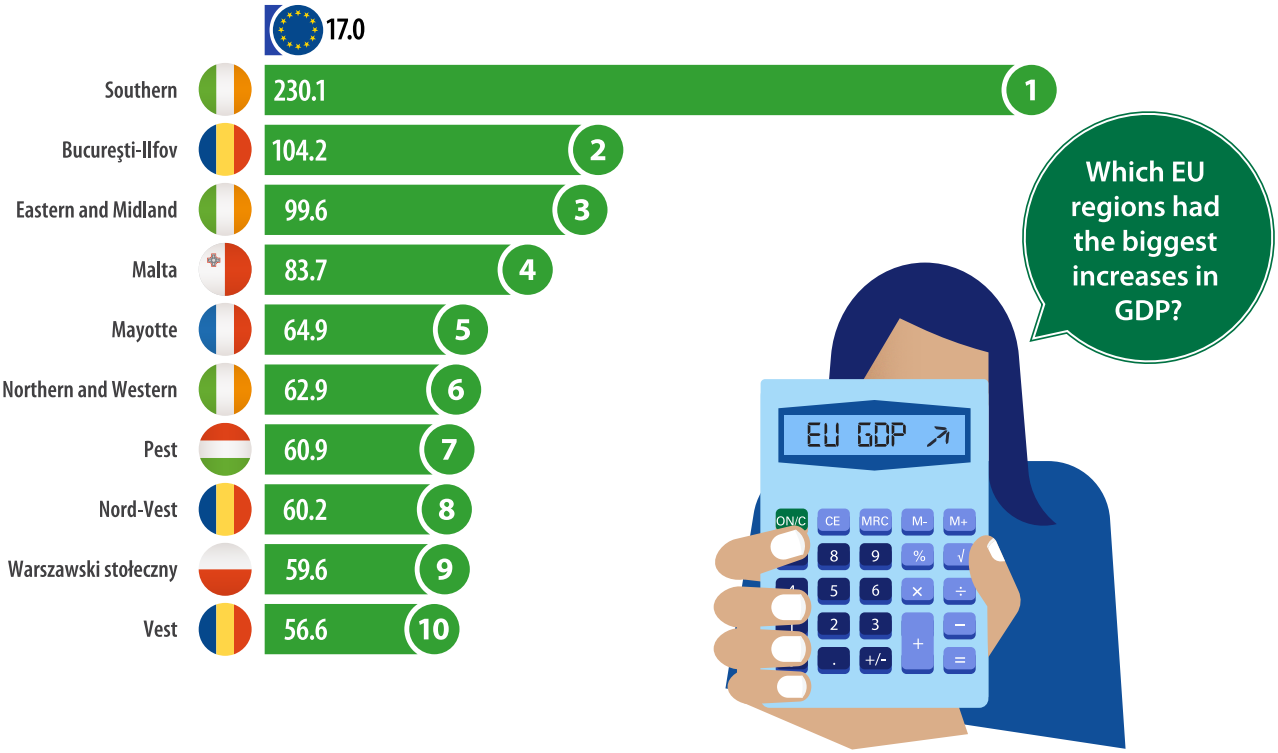
7. Economy

The COVID-19 crisis had a considerable impact on the EU economy. However, vaccine rollouts, extensive stimulus programmes, the easing of restrictions and a wave of delayed purchases led to a rebound in economic activity, with the EU's gross domestic product (GDP) growing 6.0% in real terms in 2021 and by a further 3.4% in 2022.

As the impact of the pandemic dissipated, the attention of policymakers and economists (re)turned to a number of longer-term, structural challenges: population ageing, climate change, weak productivity growth, rising income and wealth inequality, as well as territorial disparities within and among EU countries. However, in February 2022, Russia launched a war of aggression against Ukraine. The EU has and continues to provide Ukraine with financial, humanitarian and military support.

In July 2022, the European Central Bank (ECB) raised its key interest rates for the 1st time in 11 years, starting a period of successive interest rate hikes. At the end of 2022, double-digit inflation was recorded in the euro area, with price increases fuelled, among other factors, by rising energy costs and supply bottlenecks. The inflation rate in the euro area rose to levels that hadn't been seen during the previous 4 decades, before a relatively rapid decline ensued during the 2nd half of 2023.

Despite the geopolitical situation and several atypical economic shocks – such as the sovereign debt crisis, Brexit and the COVID-19 pandemic – the EU's economy grew, in real terms, by 17.0% between 2012 and 2022. The infographic below shows those EU regions – at NUTS level 2 – that experienced the largest overall increases in economic activity during this period. The Southern region of Ireland recorded the most rapid increase, as its GDP more than tripled. Very high growth rates – with economic output broadly doubling – were also recorded in the Romanian and Irish capital regions of, respectively, Bucureşti-Ilfov and Eastern and Midland.



(%, overall change in real terms, 2012–22, by NUTS 2 regions)

Source: Eurostat (online data code: nama_10r_2gvagr)

Regional gross domestic product (GDP)

The EU's GDP at market prices was €15.9 trillion in 2022, equivalent to an average of €35 400 per inhabitant. These latest figures marked a considerable rebound in economic activity: having fallen in real terms by 5.6% in 2020, the EU's GDP increased 6.0% in 2021 and by a further 3.4% in 2022. Behind these aggregated figures for the whole of the EU, there were considerable differences in the economic performance of the EU's regions – these are explored in more detail below.

LARGEST REGIONAL ECONOMIES IN THE EU

In 2022, there were 7 NUTS level 2 regions within the EU where GDP was in excess of €250 billion. The capital region of France – Ile-de-France – had, by far, the largest regional economy (€783 billion of GDP), followed by the northern Italian region of Lombardia (€440 billion) and the southern German region of Oberbayern (€320 billion). The other 4 regions within this group included Eastern and Midland (Ireland), Comunidad de Madrid, Cataluña (both Spain) and Rhône-Alpes (France).

These 7 regions with the highest levels of GDP collectively accounted for 16.2% of the EU's economic output in 2022. The concentration of economic activity in these 7 regions can be illustrated insofar as their combined output was approximately the same as that provided by the 121 regions with the lowest levels of GDP.

More about the data: measuring the size of an economy

The central measure of national accounts, GDP, summarises the economic position of a country or a region. This well-known balance has traditionally been divided by the total number of inhabitants to create a proxy measure for evaluating overall living standards, namely GDP per inhabitant.

While GDP continues to be used for monitoring economic developments, playing an important role in economic decision-making, it is complemented by other indicators to inform policy debates on, for example, social and environmental issues. This is because GDP doesn't take account of externalities such as environmental sustainability or other issues, like income distribution or social inclusion. These are increasingly seen as important drivers for sustainable development and the overall quality of life.

In order to compensate for price level differences between countries, GDP can be converted using conversion factors known as purchasing power parities (PPPs). The use of PPPs, rather than market exchange rates, results in data being denominated in an artificial common currency unit called a purchasing power standard (PPS). In contrast to euro-based (€) series, a series denominated in PPS tends to have a levelling effect, as countries and regions with very high GDP per inhabitant in euro also tend to have relatively high price levels. For example, the cost of living in Luxembourg is generally much higher than the cost of living in Bulgaria.

Regional economic statistics are generally reported in current price (or 'nominal') terms; in other words, their current value during the particular reference year in question. To make comparisons over time, it is usually more revealing to make use of data in constant price (or real) terms, where the values have been adjusted to take account of price changes; in other words, they have been deflated. During periods of high inflation – such as the on-going cost-of-living crisis – a time series are presented in current price terms will show faster growth than a series in constant price terms. For example, imagine GDP rose from 1 year to the next from €100.0 billion to €110.0 billion, while inflation was 8.0%. In constant price terms using the prices of the 1st year, GDP in the 2nd year would be €101.2 billion. This results in a growth rate of 1.2% in real terms, compared with a 10.0% growth rate in nominal terms.

In 2022, the Southern region of Ireland had a level of GDP per inhabitant in PPS that was 9.5 times as high as in the French archipelago of Mayotte

In 2022, the highest levels of GDP per inhabitant were located in

- isolated pockets, including most of the capital regions of EU countries and several other regions located in Ireland, Spain and France
- a band of regions running from the Nordic EU countries, down through Germany and the Benelux countries into Austria and northern Italy.

Map 7.1 is based on regional GDP per inhabitant (adjusted for purchasing power and then shown as an index based on a percentage of the EU average). The regional distribution of GDP per inhabitant was relatively skewed insofar as less than 40% of NUTS level 2 regions – or 90 out of 242 regions – reported a level of GDP per inhabitant in 2022 that was equal to or above the EU average (as shown by the teal shades in Map 7.1).

In 2022, there were 17 NUTS level 2 regions across the EU where GDP per inhabitant was at least 50% above the EU average – as shown by the darkest shade of teal in Map 7.1. Among these relatively 'wealthy' regions, the highest level of regional GDP per inhabitant was observed in the Southern region of Ireland; its ratio was 2.9 times as high as the EU average. There were 3 other regions where GDP per inhabitant was more than 2.0 times as high as the EU average, all of which were capital regions: Luxembourg, Eastern and Midland (Ireland), and Praha (Czechia).

More about the data: comparing GDP per inhabitant across EU regions

Some of the economic differences between regions may reflect the (sometimes artificial) administrative boundaries that are used to delineate each region. It is often the case that part of the income generated in 'wealthy' regions – that are hubs of business activity – may be attributed to labour input from commuters who live in surrounding regions where, among other possible advantages, the price of property and cost of living may be lower.

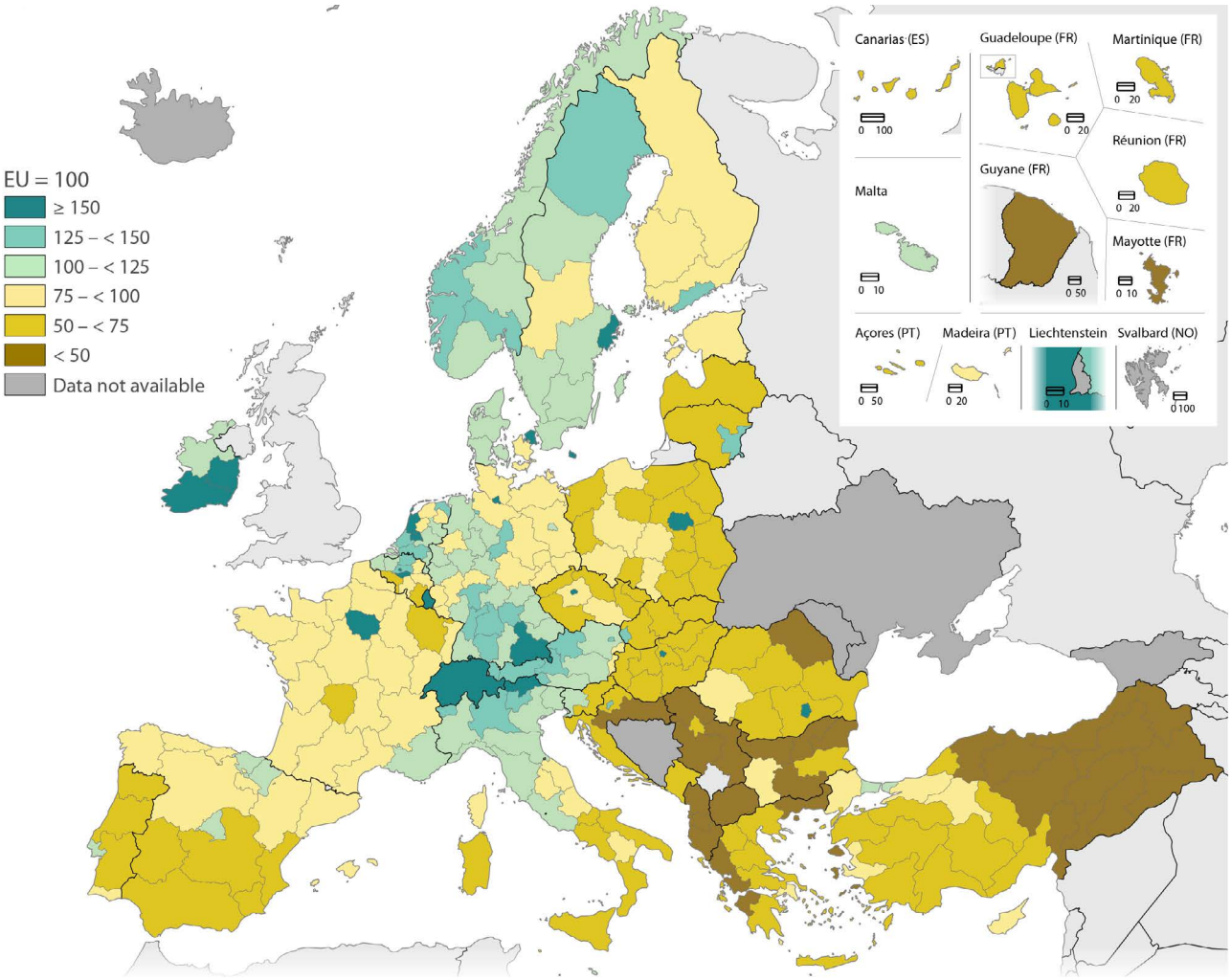
In addition, some regions with high levels of GDP are characterised by a strong presence of multinational enterprises. This may distort their levels of economic activity, especially if assets (for example, technology patents) are domiciled in a region. For example, the Southern region of Ireland is home to several of the world's top technology and pharmaceutical businesses.

Map 7.1 shows that most of the regions with relatively low levels of GDP per inhabitant were located in the south-east corner of Europe or outermost regions of the EU. There were 12 NUTS level 2 regions across the EU where GDP per inhabitant was less than 50% of the EU average in 2022; they are shown by the darkest shade of gold. These 12 regions were concentrated in Bulgaria and Greece (each 4 regions), but also included Panonska Hrvatska (Croatia), Nord-Est (Romania) and the outermost regions of Guyane and Mayotte (both France). The lowest level of regional GDP per inhabitant was recorded in Mayotte, at 30% of the EU average.

3 eastern EU countries – Romania, Czechia and Hungary – recorded the largest regional disparities for GDP per inhabitant in 2022

Figure 7.1 presents information on regional disparities in GDP per inhabitant. The coefficient of variation is defined, for a particular dataset, as the ratio of the standard deviation divided by the mean; a higher ratio indicates a greater degree of dispersion.

Map 7.1: GDP per inhabitant in purchasing power standards (PPS), 2022
(index in relation to the EU average = 100, by NUTS 2 regions)



Administrative boundaries: © EuroGeographics © UN–FAO © Turkstat
Cartography: Eurostat – IMAGE, 06/2024

Note: Switzerland, national data. Norway, North Macedonia and Albania: 2021. Switzerland: 2020.
Source: Eurostat (online data codes: nama_10r_2gdp and nama_10_pc)

In 2022, there were considerable regional disparities for GDP per inhabitant across 3 eastern EU countries: Romania, Czechia and Hungary. They each had coefficients of variation that were greater than 50.0%. Their coefficients of variation reflected particularly high levels of GDP per inhabitant in capital regions that could be contrasted against the remainder of the territory where GDP per inhabitant was less than the EU average. By contrast, GDP per inhabitant was much more uniformly distributed across the regions of Portugal, Austria, Finland and Sweden, where the coefficient of variation was within the range of 16.5–18.0%.

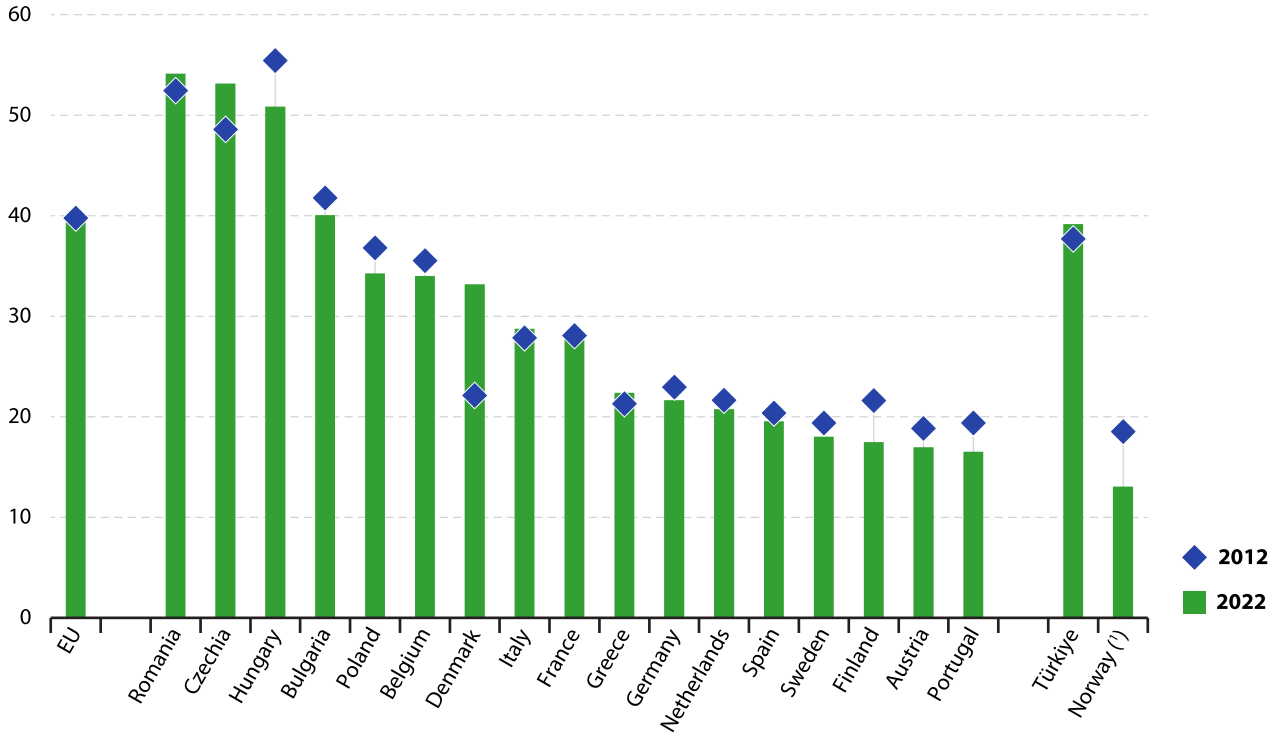
In the vast majority of EU countries for which data are available (the coefficient of variation is only computed for those countries composed of at least 5 NUTS level 2 regions), regional disparities for GDP per inhabitant fell over time. Figure 7.1 shows the largest falls were observed in Hungary, Finland, Portugal and Poland, where the coefficient of variation was at least 2.5 percentage points lower in 2022 than in 2012. This narrowing of regional disparities reflected faster than average growth in several relatively 'poor' regions that were 'catching-up' or converging with relatively 'wealthier' regions. Typically, this meant that there was slower than average growth in capital regions.

There were 5 EU countries where the coefficient of variation rose between 2012 and 2022. The largest increases were observed in Denmark and Czechia, up 11.0 and 4.6 percentage points, respectively, to 33.2% and 53.2%. The widening of regional disparities for GDP per inhabitant in Denmark and Czechia reflected faster than average growth in their capital regions of Hovedstaden and Praha. The only other EU countries to record an increase for the coefficient of variation were Romania, Greece and Italy.

The EU's GDP grew by 17.0% in real terms between 2012 and 2022

Despite the relatively unstable geopolitical situation, the EU's economy grew by 17.0% between 2012 and 2022. All of the rates of change presented in this section are in real terms; in other words, the effects of inflation have been removed. During the sovereign debt crisis, the EU's economic output contracted 0.7% and 0.1% in 2012 and 2013. However, the level of economic activity thereafter followed an upward path during 6 consecutive years, with a peak of 2.8% growth in 2017. The direct and indirect impact of the COVID-19 pandemic led to a contraction of 5.6% in 2020. The EU economy rebounded in 2021, with growth of 6.0%, while the EU economy expanded by a further 3.4% in 2022.

Figure 7.1: Regional disparities in GDP per inhabitant, 2012 and 2022
(coefficient of variation in %, by NUTS 2 regions)



Note: as measured by population-weighted coefficient of variation for EU, EFTA and non-EU countries with more than 4 level 2 regions (Estonia, Ireland, Croatia, Cyprus, Latvia, Lithuania, Luxembourg, Malta, Slovenia, Slovakia, Iceland, Liechtenstein, Bosnia and Herzegovina, Montenegro, Moldova and North Macedonia: not applicable).

(1) Excluding Svalbard og Jan Mayen (NO0B).

Source: Eurostat (online data code: nama_10r_2gdp)

Map 7.2 shows the overall change in regional GDP between 2012 and 2022. GDP developments were relatively skewed insofar as 147 NUTS level 2 regions had a growth rate that was below the EU average, compared with 95 regions where GDP growth was higher than the EU average.

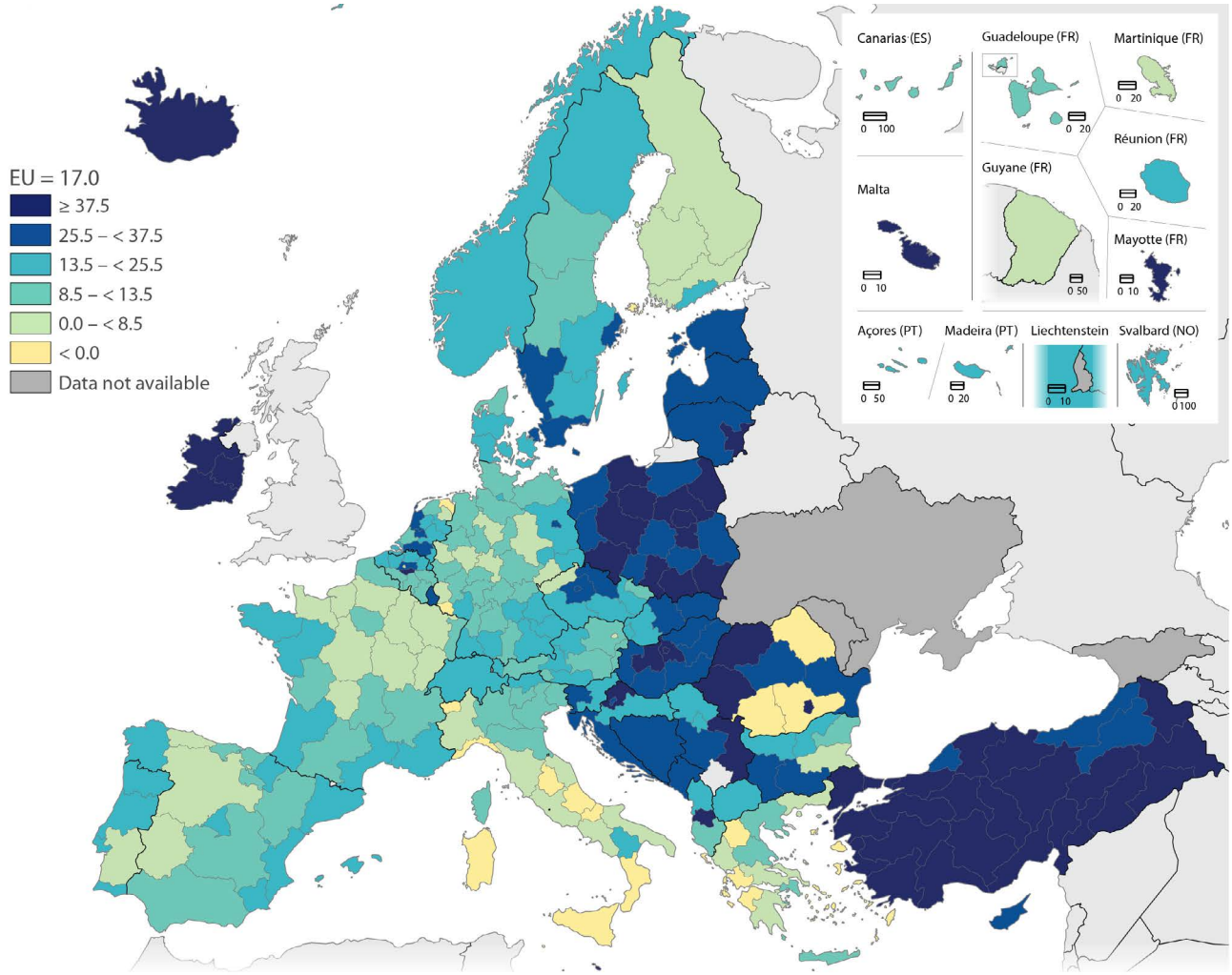
Between 2012 and 2022, economic output increased in the vast majority of NUTS level 2 regions (223 out of 242 regions). At the upper end of the distribution, there were 24 regions where GDP grew by at least 37.5% (as shown by the darkest shade of blue in Map 7.2). These 24 regions were concentrated in Ireland, Hungary, Poland and Romania. There were other pockets of high GDP growth: Prov. Brabant Wallon (Belgium), Mayotte (France), Sjeverna Hrvatska (Croatia), Sostinės regionas (Lithuania), as well as Malta. The highest growth rates were recorded in

- the Irish regions of Southern (growth of 230.1%) and Eastern and Midland (99.6%)
- the Romanian capital region of Bucureşti-Ilfov (104.2%).

There were 19 NUTS level 2 regions where GDP was lower in 2022 than it had been in 2012 (they are shown with a yellow shade in Map 7.2). These regions were concentrated in Greece, Italy and Romania, while economic activity also fell in Saarland (Germany), Groningen (the Netherlands) and Åland (Finland). The biggest contractions in GDP were recorded in

- the Greek region of Dytiki Makedonia (where GDP fell 38.7%)
- the Romanian region of Sud-Vest Oltenia (down 11.0%)
- the Finish archipelago of Åland (down 7.9%).

Map 7.2: Overall change in GDP, 2012–22
(%, change in real terms, by NUTS 2 regions)



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Cartography: Eurostat – IMAGE, 06/2024

Note: Norway and Switzerland, national data. Albania and Serbia: 2012–21.
Source: Eurostat (online data codes: nama_10r_2gvagr and nama_10_gdp)

Income

Having analsyed GDP from the output side, the focus of this section switches to income. Information is presented for primary income (from paid work and self-employment, as well as from interest, dividends and rents) and for disposable income.

HOUSEHOLD PRIMARY INCOME RELATIVE TO GDP

More about the data: analysing regional statistics for net primary income

Within regional accounts, GDP is recorded where it is generated (a person's place of work), whereas income is recorded at their residence (where people live). As a result, the ratio of net primary income to GDP is generally lower in regions that concentrate economic activity, such as capital regions and other major urban/metropolitan centres, and higher in regions where inter-regional commuters – people who work and live in 2 different regions – live.

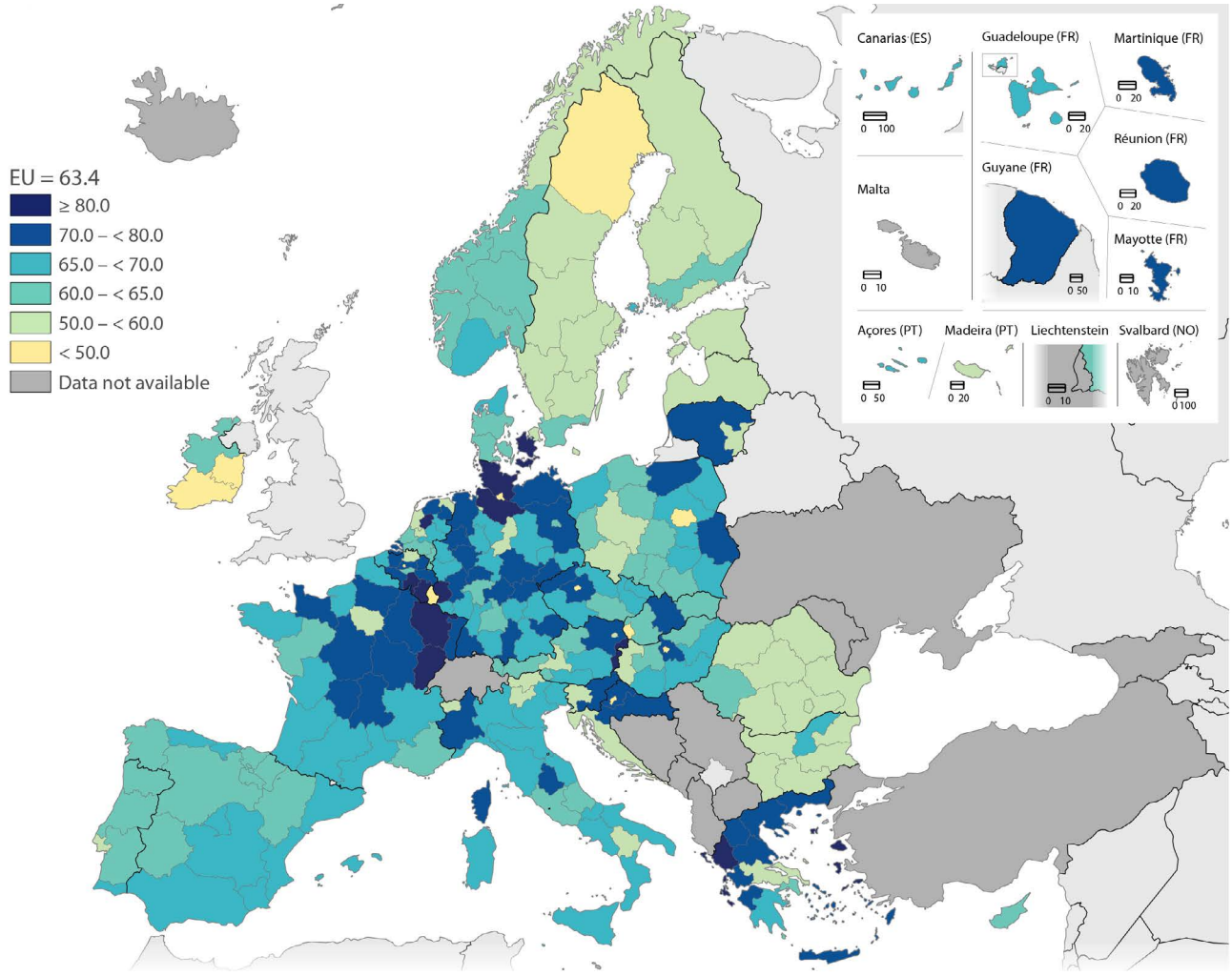
Furthermore, the kind of economic activity that takes place in a region affects the relationship between net primary income and GDP. For regions specialised in capital (tangible or intangible) intensive activities, the remuneration of workers will generally constitute a lower share of the value added than in regions that are specialised in more labour intensive activities.

Primary income covers income from paid work and self-employment, as well as from interest, dividends and rents. Household primary income in the EU was valued at €9.3 trillion in 2021, compared with GDP of €14.6 trillion; as such, a ratio composed of these 2 indicators was 63.4%. Household primary income relative to GDP was lower than the EU average in 85 out of 241 NUTS level 2 regions for which data are available (no information for Malta).

There were 11 regions that recorded a ratio of household primary income relative to GDP that was less than 50.0% in 2021 (they are shown with a yellow shade in Map 7.3). This group was primarily composed of capital regions – those of Belgium, Czechia, Ireland, Croatia, Hungary, Poland and Slovakia – and was completed by Hamburg (Germany), Southern (Ireland), Luxembourg and Övre Norrland (Sweden). The Irish region of Southern (26.7%) had the lowest ratio in the EU, reflecting that it's home to several of the world's top multinational technology and pharmaceutical businesses. The low ratios of household primary income relative to GDP in the other 10 regions reflected, at least to some degree, a commuting effect. For example, the GDP of the Czech capital region is boosted by commuters living in the surrounding region of Střední Čechy. This pattern was also apparent across national borders: for example, a relatively high proportion of the economic output in Luxembourg is generated by cross-border commuters who travel from neighbouring regions, such as Prov. Luxembourg (Belgium), Trier (Germany) and Lorraine (France).

In 2021, there were 13 NUTS level 2 regions where the ratio of household primary income relative to GDP was equal to or above 80.0% (as shown by the darkest shade of blue in Map 7.3). The highest ratio was recorded in the Belgian region of Prov. Luxembourg (96.9%); as noted above, a relatively high proportion of its resident population works in neighbouring Luxembourg. The next highest ratios were recorded in the German regions of Lüneburg (93.3%) and Trier (91.8%); a relatively high share of their resident populations work in Hamburg and in Luxembourg, respectively.

Map 7.3: Household primary income relative to GDP, 2021
(%, by NUTS 2 regions)



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Cartography: Eurostat – IMAGE, 06/2024

Note: Norway, 2020.

Source: Eurostat (online data codes: nama_10r_2hhinc and nama_10r_2gdp)

NET PRIMARY INCOME PER INHABITANT

Wealth creation in the EU is often concentrated in economic hubs, where part of the output generated may be attributed to commuters living in surrounding regions. As a result, income per inhabitant in these surrounding regions tends to be relatively high when contrasted with their economic output (as measured by GDP per inhabitant).

In 2021, EU primary income per inhabitant averaged 20 700 PPS. The use of data in PPS, rather than in euro (€), takes account of price level differences between countries; the conversion to PPS takes into account the fact that household expenditure is predominantly related to consumption.

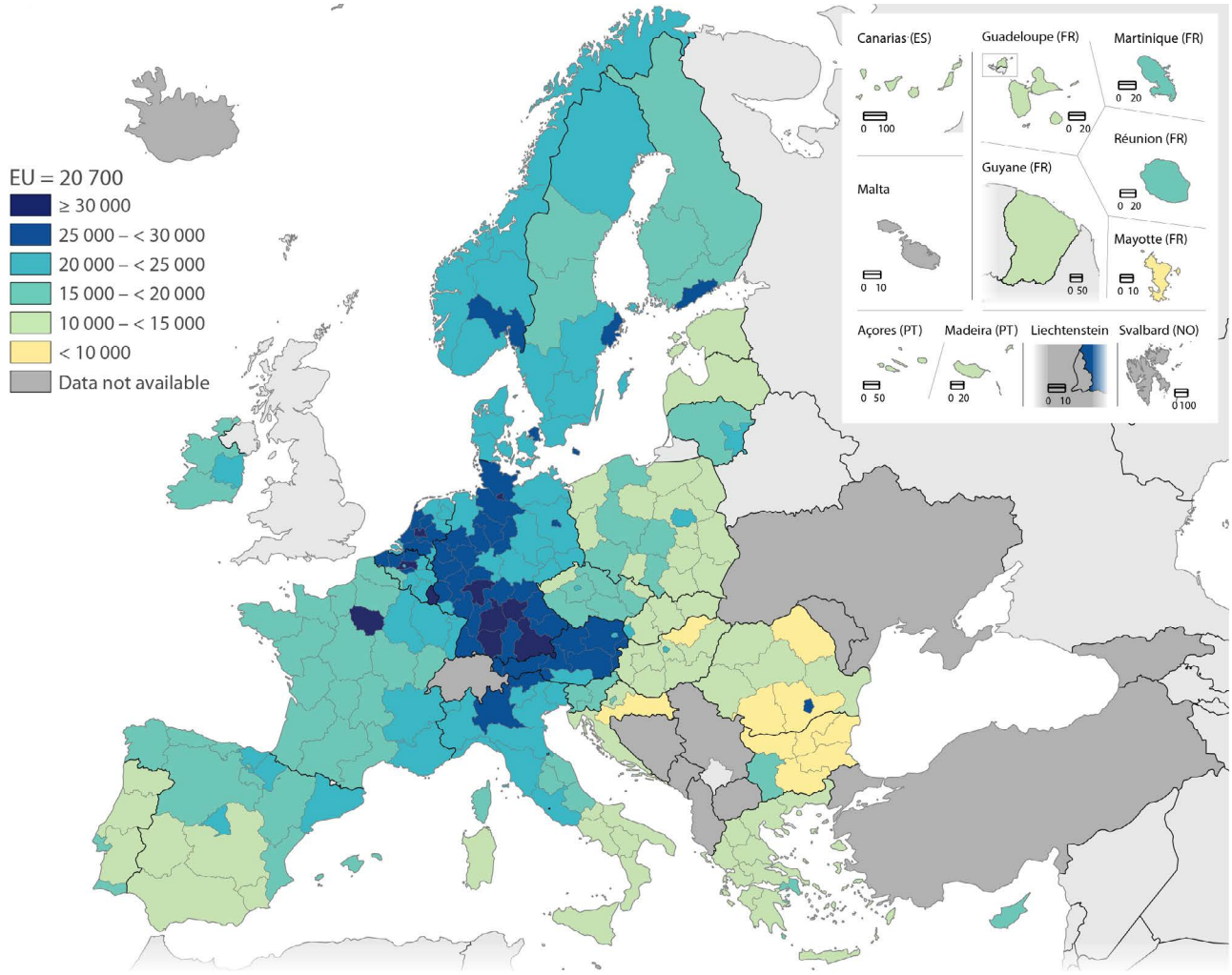
In 2021, there were 10 NUTS level 2 regions with a ratio of net primary income per inhabitant of at least 30 000 PPS; these are shown by the darkest shade of blue in Map 7.4.

These regions were concentrated in Germany (6 out of the 10 regions), with the highest income levels exclusively found in western regions of the EU.

The highest level of primary income per inhabitant was recorded in Oberbayern (southern Germany), at 38 300 PPS in 2021. After Oberbayern, there were 3 more German regions that featured at the top of the ranking: Hamburg, Stuttgart and Darmstadt. They were followed by Luxembourg, Ile-de-France (the French capital region), Prov. Vlaams-Brabant (in Flanders, Belgium) and Utrecht (in the Netherlands). It's worth noting that in euro terms, Luxembourg had the highest level of income (€43 700 per inhabitant). This was somewhat above the figure recorded for Oberbayern (€41 300 per inhabitant), while the 3rd highest value was recorded in the Danish capital region of Hovedstaden (€39 500 per inhabitant). The relatively high cost of living in both Luxembourg and Hovedstaden meant that they ranked 5th and 24th, respectively, when based on data in PPS terms (that compensate for price level differences).

There were 11 NUTS level 2 regions where the ratio of net primary income per inhabitant was lower than 10 000 PPS in 2021 (they are shown with a yellow shade in Map 7.4). These regions were concentrated in eastern EU countries, with the lowest level of primary income per inhabitant recorded in Yuzhen tsentralen (southern Bulgaria), at 6 800 PPS. There were 4 other regions where primary income per inhabitant was less than 8 000 PPS, 3 of these were also located in Bulgaria, while the other was the French outermost region of Mayotte.

Map 7.4: Net primary income per inhabitant, 2021
(in purchasing power standards (PPS), by NUTS 2 regions)



Administrative boundaries: © EuroGeographics © UN–FAO © Turkstat
Cartography: Eurostat – IMAGE, 06/2024

Note: Norway, 2020.
Source: Eurostat (online data code: nama_10r_2hhinc)

DISPOSABLE INCOME PER INHABITANT

More about the data: analysing regional statistics for net disposable income

The previous section described regional differences in primary income per inhabitant across EU regions. This section focuses on regional income differences within EU countries. Rather than using net primary income, a more appropriate measure for this purpose is net disposable income, which is calculated by deducting income taxes and net social contributions from primary income while net social benefits and net current transfers are added.

Regional differences in income levels tend to be less pronounced in terms of disposable (rather than net primary) income, due to the redistributive nature of tax and welfare systems. For example, regions with relatively high levels of income may be expected to pay higher (or a greater share of) taxes and social contributions, whereas regions with higher unemployment, a high share of elderly people, or a generally more vulnerable population are likely to receive proportionally more social protection benefits. As such, the regional distribution of disposable income per inhabitant depends on the inequalities in primary income as well as other factors such as income tax, social benefits and transfer systems, as well as differences in age structure and unemployment rates between regions.

Although Eurostat collects and publishes regional data on net disposable income, it isn't recommended to use this information to evaluate income differences across the EU. Rather, these statistics are primarily used to examine regional differences within a single country. This is because most national statistical offices don't compile regional data for social transfers in kind. The latter are goods and services provided by government for free or at prices that aren't economically significant. They mainly include education, health and some social security services, as well as housing, cultural or recreational services.

Figure 7.2 shows the overall changes in net disposable income per inhabitant and GDP per inhabitant between 2019 and 2021. As such, this comparison covers a period impacted by the COVID-19 crisis, contrasting the situation pre-pandemic with that during the early stages of the recovery. Figure 7.2 confirms the redistributive nature of tax and welfare systems across EU regions insofar as rates of change for disposable income per inhabitant were usually less dispersed than for GDP per inhabitant.

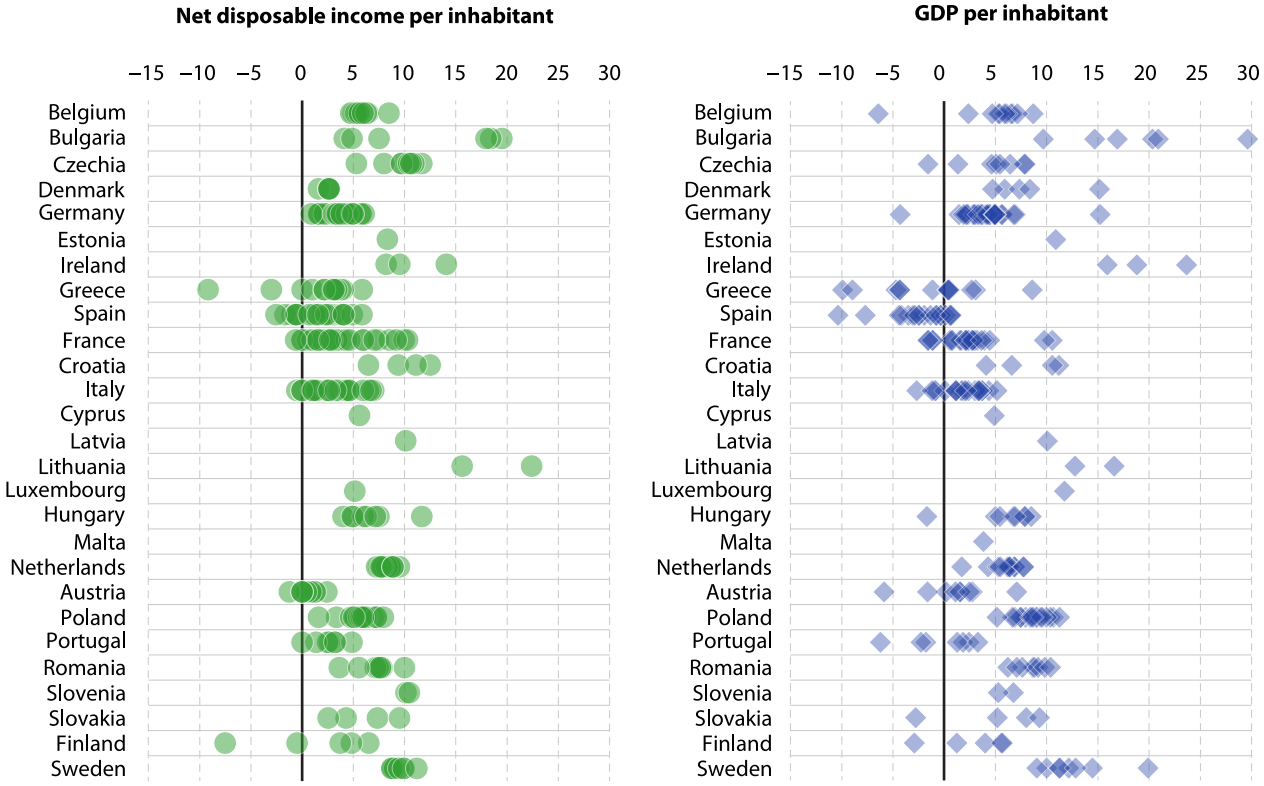
In 2021, disposable income in the EU averaged €17 800 per inhabitant, while GDP per inhabitant averaged €32 700; these values are in current price terms and therefore don't take into account price changes during the period under consideration. The EU's disposable income per inhabitant grew 4.1% between 2019 and 2021, which was slightly lower than the corresponding rate of change for GDP per inhabitant (up 4.5%).

Across NUTS level 2 regions, disposable income per inhabitant peaked in 2021 at €36 700 in Luxembourg. Between 2019 and 2021, the most rapid growth for disposable income per inhabitant was recorded in Sostinės regionas (the capital region of Lithuania), up 22.4%. In 2021, the lowest levels of disposable income per inhabitant were recorded in the Bulgarian regions of Yugoiztochen and Yuzhen tsentralen (both €4 300). Between 2019 and 2021, the biggest contraction in disposable income per inhabitant was observed in the Greek island region of Notio Aigaio, down 9.2%.

Within individual EU countries, there were sometimes considerable differences in regional developments for disposable income per inhabitant between 2019 and 2021. For example, Severen tsentralen registered the most rapid expansion of disposable income per inhabitant in Bulgaria (up 19.5%). This was 15.4 percentage points higher than the rate of change recorded in the capital region of Yugozapaden (up 4.1%), which was the lowest rate among Bulgarian regions. Greece, Finland and France were also characterised by a wide variation in regional developments for disposable income per inhabitant between 2019 and 2021.

There was a relatively rapid recovery from the impact of the COVID-19 crisis across most regions of the EU, which reflected (at least in part) a shift towards remote work and hybrid work models. GDP per inhabitant was higher in 2021 than it had been in 2019 for 202 out of 242 NUTS level 2 regions. The highest growth rate between 2019 and 2021 was recorded in the Bulgarian region of Severozapaden (up 29.6%). Many of the regions with lower levels of GDP per inhabitant in 2021 (compared with 2019) were popular tourist destinations that continued to feel the impact of lockdown measures and travel restrictions, with reduced visitor numbers. They were concentrated in southern EU countries – Greece, Spain, Italy and Portugal – but also included (among others) Ile-de-France, Midi-Pyrénées (both France), Salzburg and Tirol (both Austria).

Figure 7.2: Net disposable income per inhabitant and GDP per inhabitant, 2021
(%, overall change (based on data in €) compared with 2019, by NUTS 2 regions)



Note: Malta, not available for net disposable income per inhabitant.
Source: Eurostat (online data codes: nama_10r_2hhinc and nama_10r_2gdp)

Productivity indicators

This final section provides information about the compensation of employees per hour worked and labour productivity (defined here as gross value added per person employed); these indicators may be used to analyse patterns/developments of regional competitiveness.

COMPENSATION OF EMPLOYEES

One of the principal areas of interest/concern for many employees is their level of remuneration; this has become an even greater preoccupation during the cost-of-living crisis. Employee compensation is defined (within national accounts) as remuneration, in cash or in kind (such as a company car or vouchers for meals), payable by an employer to an employee in return for work done; it also includes payments linked to social contributions (such as health or pension contributions). The data presented in Figure 7.3 refer to gross (in other words, before tax) hourly compensation in euro (€).

In 2021, the highest level of employee compensation was recorded in Luxembourg

In 2021, employees working in the EU received an average gross compensation of €25.3 per hour that they worked. The highest level of employee compensation across NUTS level 2 regions was recorded in Luxembourg (€51.7 per hour), while the lowest was registered in the Nord-Est region of Romania (€5.5 per hour). As such, the ratio between the highest and lowest levels of employee compensation was 9.4 : 1.

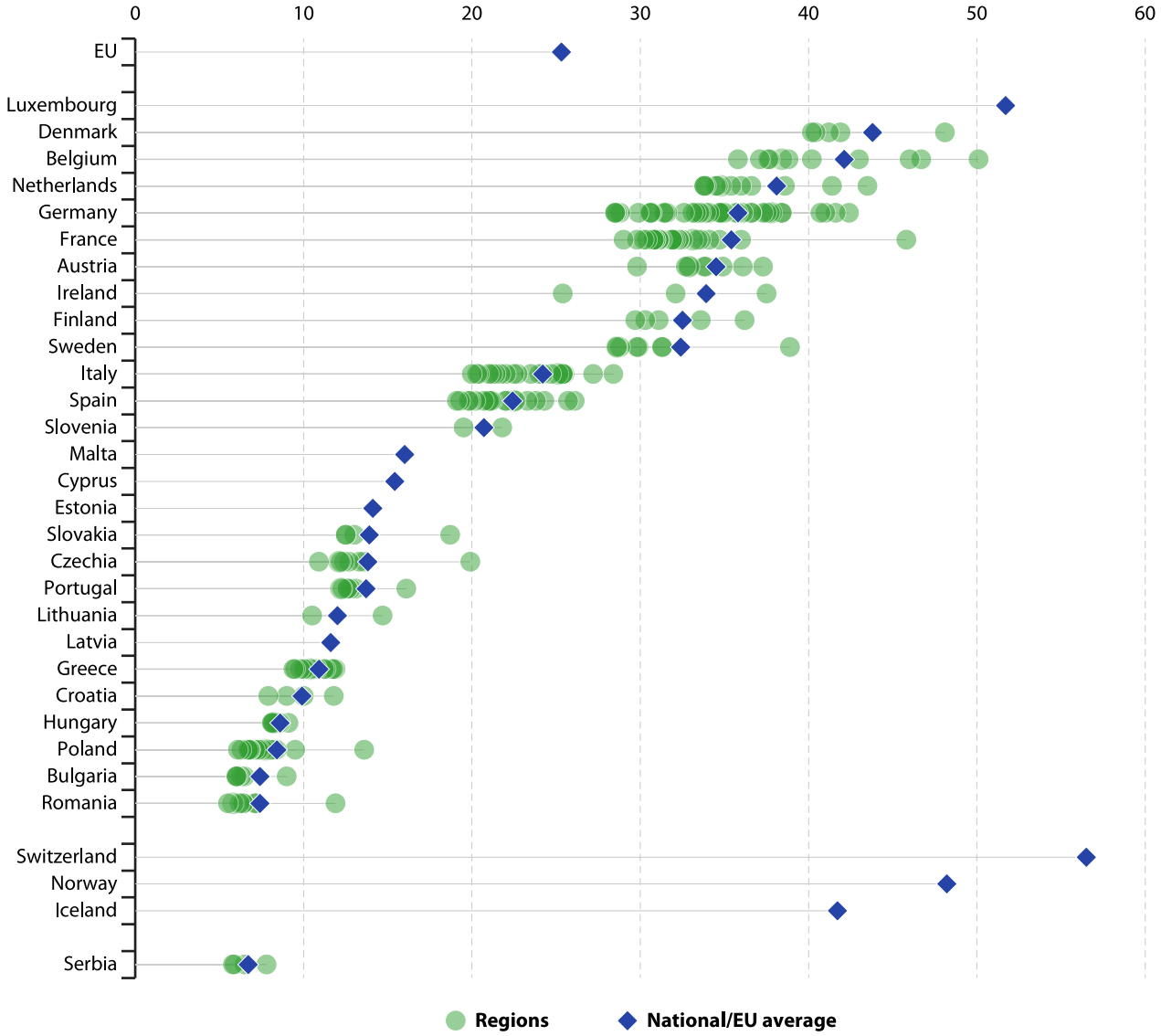
There were 18 NUTS level 2 regions in the EU where the average level of employee compensation was at least €40.0 per hour in 2021. These 18 regions were principally concentrated in Belgium (5 regions), Denmark (all 5 regions) and Germany (4 regions). The other 4 regions were located in Luxembourg, France and the Netherlands (2 regions).

A more detailed analysis reveals the highest regional levels of employee compensation were usually recorded in capital regions. This pattern was repeated in 18 of the 22 multi-regional EU countries. This is unsurprising given the high cost of living in many capitals, while most also play an important role as the location for company headquarters, financial services and national administrations, which tend to offer above average levels of compensation. The only exceptions, where the highest level of employee compensation wasn't recorded in the capital region, were

- Oberbayern in Germany (€42.4 per hour)
- Dytiki Makedonia in Greece (€11.9 per hour)
- País Vasco in Spain (€26.1 per hour)
- Provincia Autonoma di Bolzano/Bozen in Italy (€28.4 per hour).

The regional distribution of employee compensation was heavily skewed in several EU countries. This was generally because the capital region had a much higher level of compensation. For example, someone working in the Polish capital region of Warszawski stoleczny (€13.6 per hour) could expect to earn more than twice as much as an someone working in Warminsko-Mazurskie (€6.1 per hour), where the lowest levels of compensation in Poland was recorded. There was a relatively low level of regional variation in the average hourly compensation of employees across Slovenia (which is composed of just 2 regions), Hungary, Denmark and Finland.

Figure 7.3: Compensation of employees, 2021
(€ per hour worked, by NUTS 2 regions)



Note: regional data for Norway and Switzerland, not available.
Source: Eurostat (online data codes: nama_10r_2lp10 and nama_10_lp_ulc)

LABOUR PRODUCTIVITY

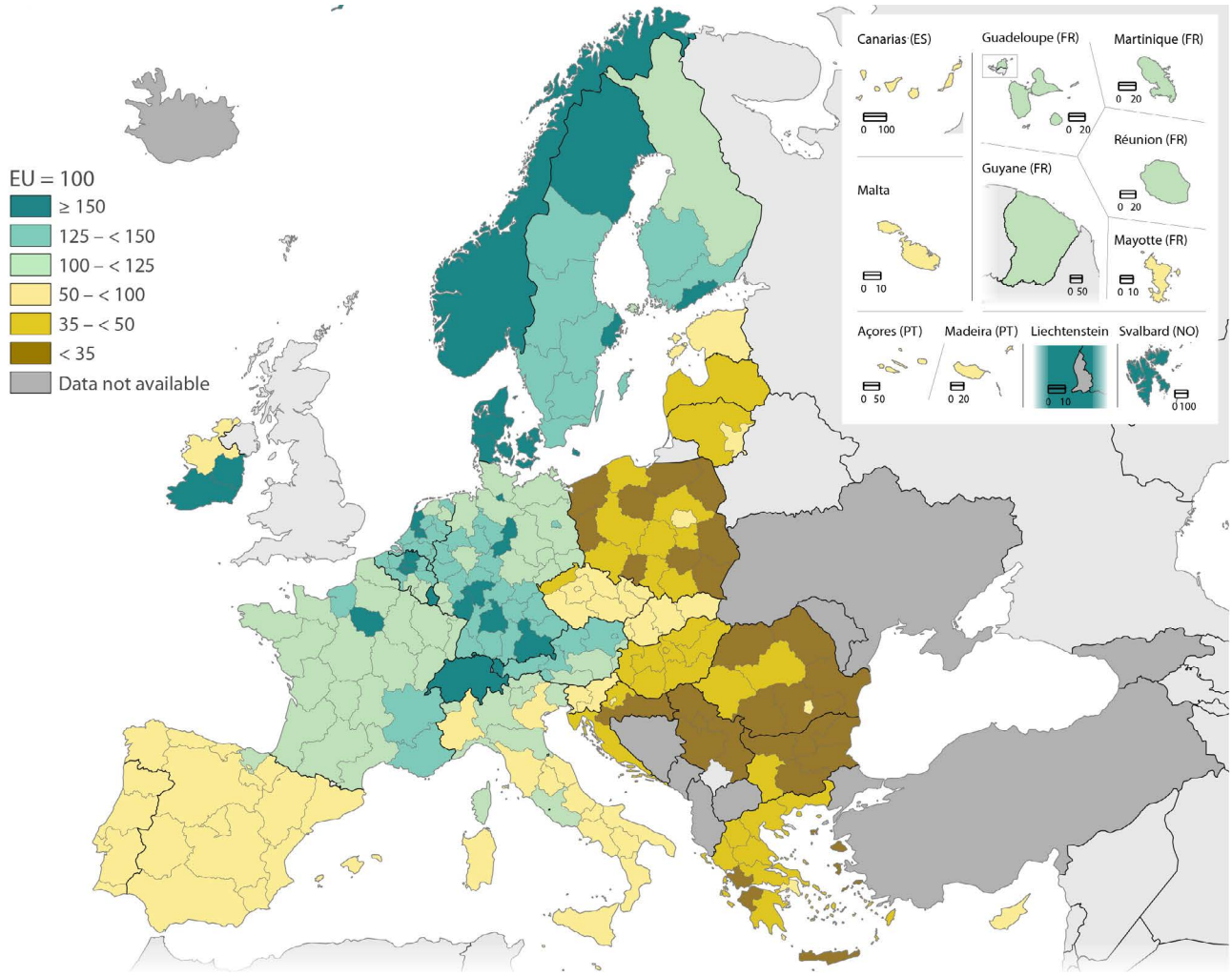
More about the data: analysing regional statistics for labour productivity

Labour productivity can be defined as GDP (or gross value added) divided by a measure of labour input, typically the number of people employed or the total number of hours worked. The information presented in Map 7.5 is based on labour productivity per hour worked, which shouldn't be influenced by changes in the structure of the employment market. For instance, the ratio isn't impacted if there is a shift from full-time to part-time work, or if working hours are curtailed (for example, due to restrictions such as those imposed during the COVID-19 crisis).

High labour productivity may be linked to the efficient use of labour and/or reflect the skills and experience of the labour force. These in turn may result from the specific mix of activities present in each regional economy as some activities: for example, knowledge-intensive industrial activities, business or financial services tend to be characterised by higher levels of labour productivity (as well as higher levels of employee compensation).

In 2021, an average of €43.8 of value was added for each hour worked in the EU. This figure – based on GDP per hour worked – can be used to derive a set of nominal labour productivity indices, which are presented relative to the EU average = 100.

Map 7.5: Nominal labour productivity, 2021
(index in relation to the EU average = 100, based on € per hour worked, by NUTS 2 regions)



Administrative boundaries: © EuroGeographics © UN–FAO © Turkstat
Cartography: Eurostat – IMAGE, 06/2024

Note: Norway and Switzerland, national data.

Source: Eurostat (online data codes: nama_10r_2nlp, nama_10_gdp and nama_10_a10_e)

Labour productivity was relatively evenly distributed across EU regions, insofar as 126 (out of 242) NUTS level 2 regions had an index that was above the EU average in 2021, while 116 regions had indices that were below the EU average. At the top end of the distribution, there were 25 regions where regional levels of labour productivity were at least 50% above the EU average (as shown by the darkest shade of blue in Map 7.5). They were exclusively in western and northern EU countries. The highest counts were recorded in Germany (6 regions), Denmark (all 5 regions) and Belgium (4 regions), while the remainder of this group was composed of

- 2 regions from each of Ireland, the Netherlands and Sweden
- the capital regions of France and Finland
- Luxembourg (a single region)
- the westernmost region of Austria – Vorarlberg.

The Southern region of Ireland had the highest level of labour productivity in 2021: for each hour worked, an average of €139.2 of value was added; this was 3.2 times as high as the EU average. There were 3 other regions where labour productivity was more than twice as high as the EU average: the Eastern and Midland region of Ireland (2.7 times), Luxembourg (2.3 times) and the Danish capital region of Hovedstaden (2.2 times). As noted above, the relatively high levels of GDP and labour productivity in Irish regions may be linked to the presence of multinational enterprises (especially when capital assets are domiciled in a region).

There were 23 regions where labour productivity was less than 35% of the EU average in 2021 (they are shown with a yellow shade in Map 7.5). These regions were located in eastern and southern EU countries, with the highest concentrations in Poland (9 regions), Bulgaria (5 out of 6 regions, the exception being the capital region of Yugozapaden), Romania (also 5 regions) and Greece (3 regions). The remaining region in this group of 23 was the easternmost region of Croatia – Panonska Hrvatska.

In 2021, the lowest level of labour productivity was observed in the Bulgarian region of Yuzhen tsentralen, where for each hour worked an average of €8.9 of value was added; this was 20% of the EU average. There were 3 other regions in the EU with labour productivity indices that were less than 25% of the EU average: Nord-Est in Romania (21%) and 2 other Bulgarian regions – Severozapaden and Severen tsentralen (both 22%).

8. Business

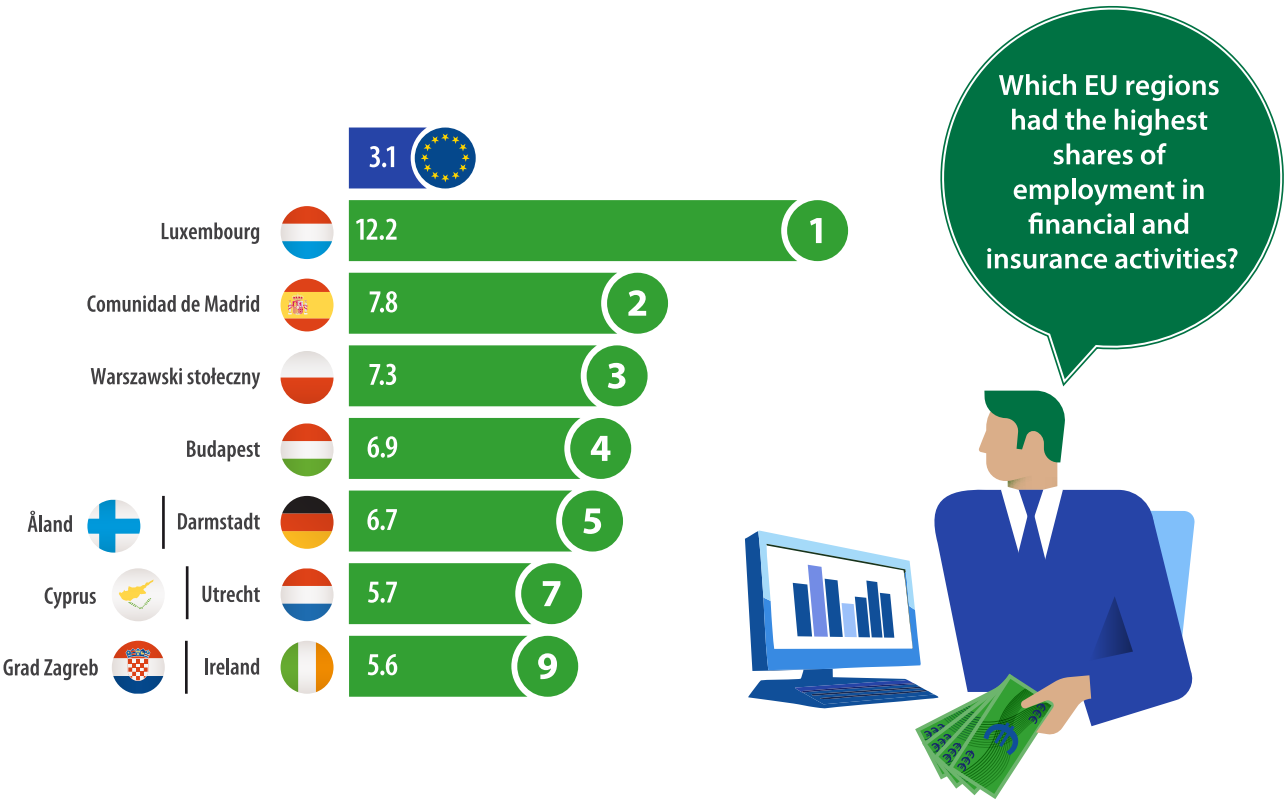
The EU's business and industrial policy is designed to

- strengthen its industrial base
- stimulate an entrepreneurial culture and job creation
- promote the transition to a zero-carbon economy
- reduce red tape and help small businesses to do business
- support innovative enterprises
- open-up external markets by developing trade agreements
- prevent unfair competition.

The EU's industrial strategy was updated in the aftermath of the COVID-19 crisis – *Updating the 2020 New Industrial Strategy: Building a stronger Single Market for Europe's recovery* (COM(2021) 350 final) – with actions designed to assist in the transition towards a green, digital and resilient economy. The crisis illustrated the need for a more robust industrial model, as businesses suffered from disruptions to global supply chains. It also highlights a need to address strategic dependencies – both technological and industrial – across a broad range of activities, such as those concerning energy, raw materials, semiconductors, pharmaceuticals and other health-related products.

Presented according to the activity classification NACE, the 1st part of this chapter is based on a selection of regional business demography statistics. Indicators from this dataset include enterprise birth and death rates, as well as the share of high-growth enterprises. The 2nd half of the chapter presents structural business statistics for the business economy, manufacturing and market services. These statistics provide valuable information about regional patterns of specialisation and concentration.

Regulation (EU) 2019/2152 on European business statistics lays the groundwork for a number of developments in this domain, such as a broader coverage of service activities. This is the 1st edition of the *Eurostat regional yearbook* to make use of statistics collected under this revised legal basis. Financial and insurance activities are among the services activities now included in structural business statistics as a result of these recent changes. In 2021, financial and insurance activities accounted for 3.1% of the total number of people employed within the EU's business economy. The infographic below shows that Luxembourg had the highest regional share for these services, at 12.2% (almost 4 times as high as the EU average).



(%, share of regional business economy employment, 2021, by NUTS 2 regions)

Note: financial and insurance activities are covered by NACE Section K. Ireland: national data. Région de Bruxelles-Capitale/Brussels Hoofdstedelijk Gewest (BE10) and France: not available. The infographic is based on non-confidential data (some activities are not available for a limited number of regions).

Source: Eurostat (online data codes: sbs_r_nuts2021 and sbs_sc_ovw)

Business demography

Business demography statistics provide information about the events in the life cycle of an enterprise. They cover, among others

- the birth (and other creations) of new enterprises
- the growth and survival of existing enterprises (with particular interest centred on their employment impact)
- enterprise deaths (and other cessations).

These indicators provide an important insight into business dynamics, as new enterprises / fast-growing enterprises tend to be innovators that may improve the overall level of efficiency and productivity of an economy.

More about the data: business demography statistics

Business demography statistics are presented for the whole of the business economy – defined here as NACE Sections B to N and P to R and Divisions 95 and 96 – covering industry, construction, distributive trades and other market services.

High-growth enterprises are of particular interest to policymakers insofar as they can improve the economic performance of a region, create employment opportunities and, if sustained, change its economic structure. A high-growth enterprise is an enterprise that grows at a rapid pace when measured in terms of its number of employees. In this publication, these enterprises are specifically defined as those with

- at least 10 employees in 2018
- and average employee growth of more than 10% per year between 2018 and 2021.

This indicator should be examined with caution as it fails to capture potential downsides, insofar as high-growth enterprises may displace incumbents and/or disrupt markets, possibly lowering overall economic performance.

ENTERPRISE BIRTHS AND DEATHS

The EU's enterprise birth rate was 10.70% in 2021

The enterprise birth rate measures the number of new enterprises born during a year in relation to the total population of active enterprises in the same year. In 2021, there were 3.4 million enterprise births within the EU's business economy. When expressed relative to the total number of enterprises (31.5 million), this equated to an enterprise birth rate of 10.70%.

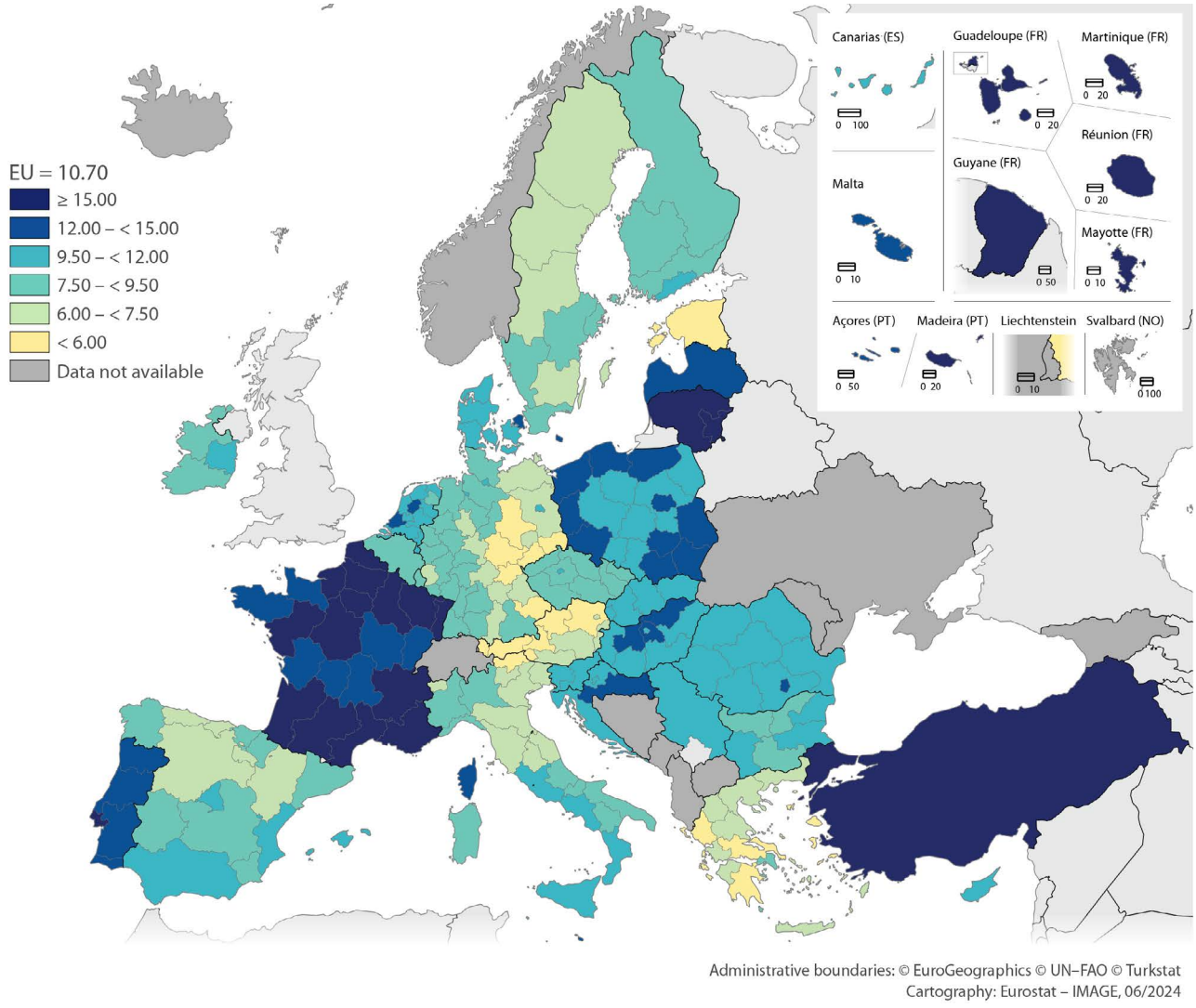
In 2021, the regional distribution of enterprise birth rates for the business economy was relatively skewed insofar 37.5% of NUTS level 2 regions (87 out of 232) reported a rate that was equal to or above the EU average, while the remaining 62.5% of regions had rates below the average. Map 8.1 shows that enterprise birth rates were relatively homogeneous in some EU countries, highlighting that the underlying national business environment, administrative, macro- and socioeconomic conditions likely have an important impact. For example, every NUTS level 2 region of France, Lithuania and Portugal had an enterprise birth rate of at least 12.00%; similarly high rates were also recorded in Latvia and Malta.

By contrast, there were other EU countries where enterprise birth rates for the business economy were relatively heterogenous. These were usually characterised by higher enterprise birth rates in predominantly urban regions, particularly in and around capital cities. High rates of enterprise creation may reflect, among other factors, the presence of an innovative environment, research clusters, technology hubs, easier access to markets, modern infrastructure, or the concentration of skilled labour. For example, the highest enterprise birth rates in 2021 in Bulgaria, Denmark, Germany, Ireland, Greece, Poland, Romania and Finland were recorded in their capital regions.

In 2021, there were 23 NUTS level 2 regions where the enterprise birth rate for the business economy was at least 15.00% (as shown by the darkest shade of blue in Map 8.1). These 23 regions were concentrated in France (19 regions), with the highest rates recorded in the French outermost regions – Mayotte (43.24%) had the highest rate in the EU. Within metropolitan/mainland France, the capital region of Ile-de-France (18.09%) and Nord-Pas de Calais (16.80%) registered the highest rates. Outside of France, the remaining 4 regions with enterprise birth rates of at least 15.00% included both regions in Lithuania and 2 regions from Portugal. In each case, the capital region posted the highest rate – Sostinės regionas (20.37%) and Área Metropolitana de Lisboa (16.60%).

Rural and less economically developed regions are often characterised by lower enterprise birth rates. This may reflect, among other factors, structural challenges, cultural attitudes towards risk-taking and entrepreneurship, as well as limited access to capital or skilled labour that impacts entrepreneurial activity. There were 18 NUTS level 2 regions where the enterprise birth rate for the business economy was below 6.00% in 2021 (they are shown with a yellow shade in Map 8.1). These 18 regions were concentrated in Germany (6 regions), Austria and Greece (both 5 regions). The lowest rates in each of these 3 countries were registered in Chemnitz (4.65%), Salzburg (5.38%) and Voreio Aigaio (5.79%). The other 2 regions with rates less than 6.00% were Estonia – which had the lowest rate (3.06%) in the EU – and the Italian region of Provincia Autonoma di Bolzano/Bozen (5.81%).

Map 8.1: Enterprise birth rate, 2021
(% of active enterprises in the business economy, by NUTS 2 regions)



Administrative boundaries: © EuroGeographics © UN–FAO © Turkstat
Cartography: Eurostat – IMAGE, 06/2024

Note: Belgium, Serbia and Türkiye, national data.
Source: Eurostat (online data codes: bd_hgnace_r and bd_l_form)

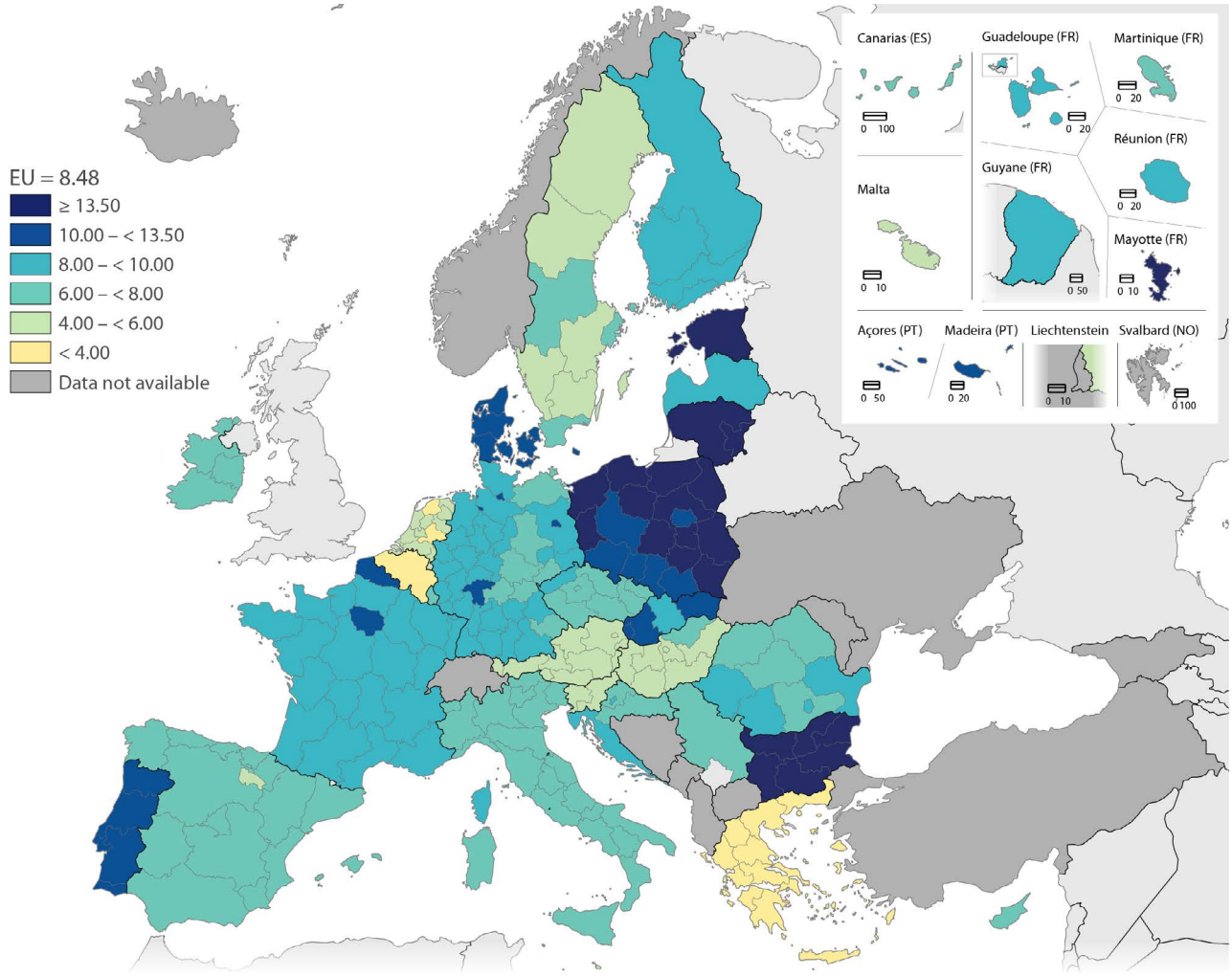
The EU's enterprise death rate was 8.48% in 2021

There were 2.7 million enterprises that definitively ceased activity within the EU's business economy in 2021; expressed relative to the total enterprise population, this equated to an enterprise death rate of 8.48%. Enterprise death rates for the business economy tended to be within a relatively narrow range across most EU countries. There was generally less variation in enterprise death rates between different regions of the same country than was the case for enterprise birth rates. Nevertheless, it was relatively common for regions with high enterprise birth rates to also record high enterprise death rates. This isn't surprising, as dynamic and innovative enterprises entering a market may be in a position to drive less productive incumbents out of the market ('creative destruction').

In 2021, the highest enterprise death rates were concentrated across the business economies of Bulgaria, Estonia, Lithuania and Poland. Every NUTS level 2 region of Bulgaria, Estonia and Lithuania had a rate of at least 13.50% (as shown by the darkest shade of blue in Map 8.2). This group also included 11 out of the 17 regions in Poland, as well as the French outermost region of Mayotte. At the top end of the distribution, the highest rates were observed in Estonia (23.35%), while the only other regions with rates above 20.00% were the 2 Lithuanian regions.

The distribution of enterprise death rates for the business economy was somewhat skewed, insofar as a majority of the NUTS level 2 regions (133 out of 232, equivalent to 57.3%) reported rates below the EU average. In 2021, there were 16 regions across the EU where rates were less than 4.00% (they are shown with a yellow shade in Map 8.2). This group included Belgium (only national data available) and the Dutch regions of Friesland and Gelderland. However, the 13 lowest enterprise death rates in the EU were all located in Greece, with the lowest values registered in the island regions of Kriti (1.65%) and Notio Aigaio (1.64%).

Map 8.2: Enterprise death rate, 2021
(% of active enterprises in the business economy, by NUTS 2 regions)



Administrative boundaries: © EuroGeographics © UN–FAO © Turkstat
Cartography: Eurostat – IMAGE, 06/2024

Note: Belgium and Serbia, national data.
Source: Eurostat (online data codes: bd_hgnace_r and bd_l_form)

HIGH-GROWTH ENTERPRISES

In 2021, high-growth enterprises accounted for approximately 1 out of every 11 enterprises

There were 151 300 high-growth enterprises across the EU in 2021 (see the shaded box above for a definition). High-growth enterprises accounted for 9.18% of the total number of active enterprises with at least 10 employees in the EU's business economy. There was a relatively even distribution of high-growth enterprises among NUTS level 2 regions: 119 out of the 232 regions for which data are available (or 51.3%) recorded shares that were equal to or above the EU average; while 113 regions (48.7%) had shares below the average.

In 2021, the capital regions of Bulgaria, Czechia, Germany, Ireland, Croatia, Lithuania, Hungary, Poland, Portugal, Romania, Slovakia and Finland recorded the highest shares of high-growth enterprises on their national territories. This bias towards capital regions might reflect, among other factors, the availability of capital for business start-ups, highly qualified people to staff rapidly growing enterprises, and a critical mass of potential business and/or household clients.

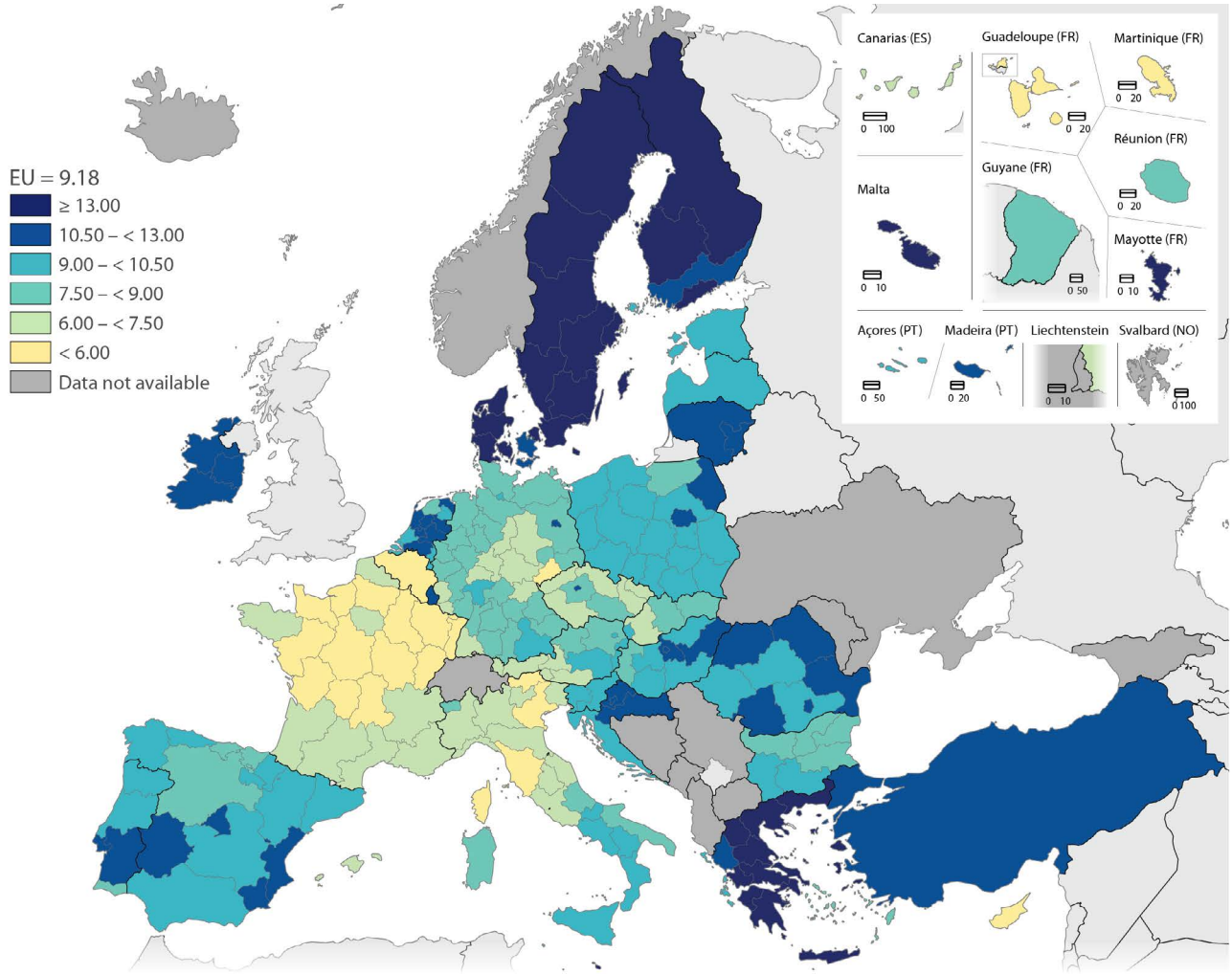
The existence of high-growth enterprises reflects, at least in part, the business enterprise structure of each region. It is generally easier for a relatively small enterprise (compared with a relatively large enterprise) to grow at a rapid pace; this pattern is often referred to as the 'catch-up' process.

The darkest shade of blue in Map 8.3 shows those NUTS level 2 regions where high-growth enterprises accounted for 13.00% or more of all active enterprises in 2021. Mayotte (an outermost region of France) had the highest regional share in the EU, at 21.88%. However, the other regions above this threshold were concentrated in Nordic and southern EU countries

- 4 out of 5 regions in Denmark, 3 out of 5 regions in Finland, and all 8 regions of Sweden
- 10 out of 13 regions in Greece, and Malta.

In 2021, there were 23 NUTS level 2 regions in the EU where the share of high-growth enterprises was less than 6.00%. This group was composed of 16 regions from France, 3 from Italy, Belgium (only national data available), single regions from Germany and Spain, as well as Cyprus. The lowest share of high-growth enterprises was recorded in Cyprus (1.67%), while the 12 next lowest shares were all located in France (ranging from 4.52% to 5.60%).

Map 8.3: High-growth enterprises, 2021
(%, share of total number of enterprises in the business economy measured in employment terms, by NUTS 2 regions)



Administrative boundaries: © EuroGeographics © UN–FAO © Turkstat
Cartography: Eurostat – IMAGE, 06/2024

Note: Belgium and Türkiye, national data.
Source: Eurostat (online data codes: bd_hgnace_r and bd_l_form)

Regional patterns of employment specialisation and concentration in the business economy

Map 8.4 is split into 4 parts and shows the relative importance of industry (defined as NACE Sections B to E), construction (NACE Section F), distributive trades (NACE Section G) and other market services (NACE Sections H to N and P to R, and Divisions 95 and 96). These 4 maps use the same legend / class boundaries to make them easier to compare and help identify regional patterns of specialisation and concentration. In 2021, there were 156.1 million people employed in the EU's business economy. More than half (51.4%) of the EU's workforce was employed in other market services, with industry (21.1%) and distributive trades (18.9%) both accounting for close to a fifth of the total; construction had a much lower share (8.6%).

More about the data: structural business statistics

Structural business statistics are available at a very detailed sectoral level (several hundred economic activities), by enterprise size class (for micro, small, medium and large-sized enterprises) or, as here, by region. They provide data covering issues such as labour input, value added, productivity, profitability and investment. This information can be used to explore (among other issues) structural shifts in an economy, national or regional specialisations, and sectoral patterns.

The consolidation of European business statistics took a step forward with the adoption of Regulation (EU) 2019/2152 in November 2019. It creates a cross-cutting legal framework for the collection, compilation, transmission and dissemination of statistics, covering the economic activities of market producers within the business economy (as defined by NACE Rev. 2 Sections B to N, P to R and Divisions 95 and 96).

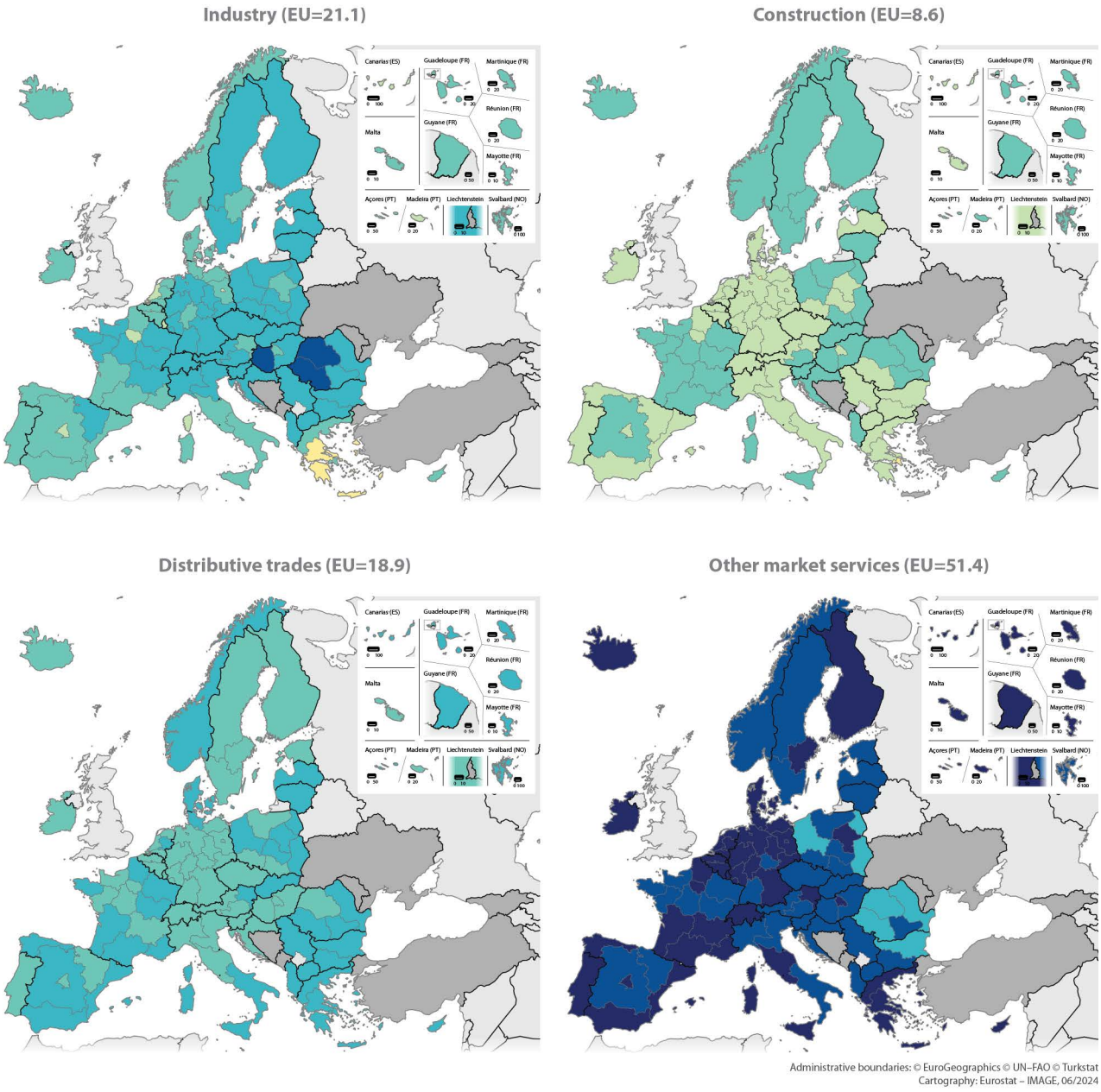
There were 33.0 million people employed in 2021 within the EU's industrial sector, equivalent to 21.1% of the business economy workforce. Across NUTS level 1 regions, the 13 highest regional shares were all registered in eastern EU countries, namely, Bulgaria, Czechia, Hungary, Poland, Romania, Slovenia and Slovakia. The relative importance of industry in terms of its contribution to business economy employment peaked in 2 Romanian regions – Macroregiunea Patru and Macroregiunea Unu (37.7% and 36.7%, respectively) – while Dunántúl in Hungary (36.2%) had the 3rd highest share. At the other end of the range, there were 11 regions where industrial activities accounted for a single-digit share of the business economy workforce. This group was composed primarily of capital regions and/or regions that are well-known tourist destinations. The lowest share was observed in the Greek island region of Nisia Aigaiou, Kriti (0.9%).

In 2021, there were 13.4 million people employed in the EU's construction sector (defined as NACE Section F); this equated to 8.6% of the business economy workforce. Across NUTS level 1 regions, the highest regional share was recorded in the island region of Corse (France), where construction accounted for 16.7% of the business economy workforce. The Swedish region of Norra Sverige (14.0%), Luxembourg (13.7%) and the Portuguese Região Autónoma da Madeira (13.3%) recorded the next highest shares. By contrast, the contribution of construction to the business economy workforce was relatively low in several predominantly urban regions. The lowest shares were registered in the Greek capital region of Attiki (where 4.7% of the business economy workforce was employed within the construction sector) and the northern German regions of Bremen (4.4%) and Hamburg (4.0%).

There were 29.5 million people employed in the EU's distributive trades sector in 2021; this represented 18.9% of the business economy total. Distributive trades accounted for a relatively high share of business economy employment in several NUTS level 1 regions across Greece. More than 25.0% of the business economy workforce was employed within distributive trades in: Kentriki Elláda (28.0%); Nisia Aigaiou, Kriti (27.3%); the capital region of Attiki (26.7%); and Voreia Elláda (26.3%).

In 2021, there were 80.2 million people in the EU employed in other market services: this equated to a 51.4% share of the business economy workforce. An analysis by NUTS level 1 region shows that employment within other market services was particularly concentrated in predominantly urban regions, especially in capital regions. The highest share was recorded in the Belgian Région de Bruxelles-Capitale/Brussels Hoofdstedelijk Gewest, where 73.0% of people employed within the business economy worked in other market services. The 2nd highest share was recorded in the German capital region of Berlin (72.0%), while 3 other capital regions – those of West-Nederland (the Netherlands), Comunidad de Madrid (Spain) and Ile-de-France (France) – also featured among the 10 regions with the highest shares.

Map 8.4: Employment in the business economy, 2021
(%, share of business economy employment, by NUTS 1 regions)



Note: Serbia, national data. Industry: NACE Sections B-E. Construction: NACE Section F. Distributive trades: NACE Section G. Other market services: NACE Sections H-N and P-R, Divisions 95 and 96. Based on non-confidential data (some activities are not available for a limited number of regions).

Source: Eurostat (online data codes: sbs_r_nuts2021 and sbs_sc_ovw)

Regional patterns of employment specialisation and concentration in manufacturing

The EU's manufacturing base has migrated eastwards

Manufacturing (NACE Section C) produces goods and provides industrial services. These may be for domestic use (investment, further processing or consumption) and/or for export. Manufacturing has traditionally been considered a cornerstone of economic prosperity within the EU. However, over several decades this sector has experienced wide-ranging transformations, through outsourcing, globalisation, changes to business paradigms (such as just-in-time manufacturing), the growing importance of digital technologies, or concerns linked to sustainable production and the environment.

There has been an eastward shift in the EU's manufacturing base during the last 2 to 3 decades, reflecting, among other factors, differences in: labour costs; taxes and subsidies; flows of foreign direct investment (FDI) and the presence of multinational enterprises; natural resource endowments; environmental standards. Eastern EU countries have been increasingly used as manufacturing bases by enterprises from other EU countries (in particular neighbouring countries such as Germany) and by enterprises from non-EU countries that would like to establish a manufacturing base within the EU's single market. These enterprises often form an integral part of international supply chains, with relatively highly skilled workforces.

In 2021, manufacturing employed 19.0% of the EU's business economy workforce. The 3 largest manufacturing subsectors in the EU – in employment terms and as defined by NACE divisions – were the manufacture of food products (2.7% of the business economy total), the manufacture of fabricated metal products, except machinery and equipment (2.3%), and the manufacture of machinery and equipment not elsewhere classified (1.9%). There were only 3 other manufacturing subsectors which accounted for at least 1.0% of the EU's business economy workforce: the manufacture of motor vehicles, trailers and semi-trailers (1.6%), the manufacture of rubber and plastic products (1.1%) and the manufacture of electrical equipment (1.0%).

Figure 8.1 shows information for 24 different manufacturing activities (as defined by NACE divisions). The bars show the number of people employed in a specific manufacturing activity as a share of the non-financial business economy workforce, with the right- and left-hand ends of each bar providing information on the regions with the highest/lowest regional shares; the point where the blue and green parts of each bar meet indicates the EU average. For example, in the Greek region of Ipeiros, the manufacture of food products employed 9.0% of the business economy workforce in 2021; this was 3.3 times as high as the EU average (2.7%).

Primary processing activities are often located close to the source of raw materials

Figure 8.1 also shows that the distribution of employment across the various manufacturing divisions was often highly skewed. In some manufacturing activities, particularly high levels of employment were concentrated in just a handful of regions.

Activities that involve primary processing were often located close to the source of their raw materials. This was the case for the manufacture of food products, as there were 5 agricultural regions where the manufacture of food products accounted for at least 7.5% of employment within the business economy in 2021, Ipeiros – as mentioned above – and Thessalia (both in Greece), Bretagne in France, Dél-Alföld in Hungary, and Mazowiecki regionalny in Poland. La Rioja in Spain (2.9%), Champagne-Ardenne in France (2.1%), Alentejo in Portugal (1.7%) and Trier in Germany (1.6%) had the highest employment shares for the manufacturing of beverages (NACE Division 11). Regions specialised in the manufacture of textiles (NACE Division 13) were often located close to an abundant supply of water; Norte in Portugal (2.7%) had the highest regional share in the EU. The Croatian region of Panonska Hrvatska had the highest employment share (4.4%) for the manufacture of wood and wood products, except furniture (NACE Division 16), while Mellersta Norrland in Sweden had the highest employment share (3.7%) for the manufacture of paper and paper products (NACE Division 17).

German regions often specialise in export-orientated subsectors

Germany exports a high proportion of its manufacturing output; this is particularly the case for its motor vehicles, electrical, engineering and chemical subsectors. In 2021 and among NUTS level 2 regions of the EU

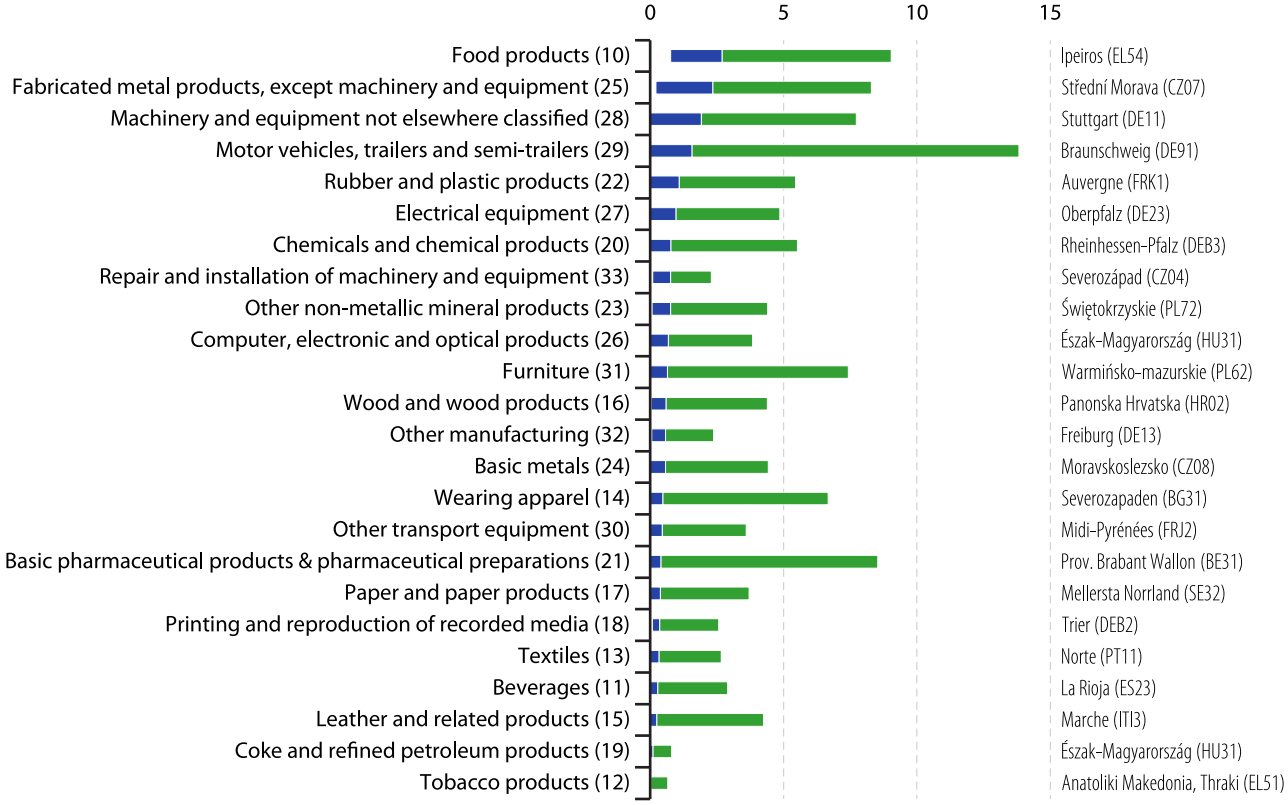
- Braunschweig in northern Germany had the highest employment share (13.8%) for the manufacture of motor vehicles, trailers and semi-trailers (NACE Division 29)
- Stuttgart in south-west Germany had the highest employment share (7.7%) for the manufacture of machinery and equipment not elsewhere classified (NACE Division 28)
- Rheinhessen-Pfalz in western Germany had the highest employment share (5.5%) for the manufacture of chemicals and chemical products (NACE Division 20).

The manufacture of transport equipment is characterised by clusters of economic activity

The manufacture of transport equipment in the EU is characterised by clusters of economic activity and highly integrated production chains. Over time, some production has moved abroad, to exploit efficiency gains in global value chains. For example, this process has seen a redeployment of production towards several eastern EU countries.

In 2021, aside from Braunschweig in Germany (mentioned above), the highest degrees of employment specialisation for the manufacture of motor vehicles, trailers and semi-trailers were recorded in the Romanian region of Vest (with an 11.6% share of business economy employment), Střední Čechy in Czechia (10.7%) and the westernmost Hungarian region of Nyugat-Dunántúl (9.9%). The French region of Midi-Pyrénées was the most specialised region in the EU for the manufacture of other transport equipment (NACE Division 30), as these activities provided employment to 3.6% of its business economy workforce, with a significant presence in the aerospace sector.

Figure 8.1: Regional specialisation among manufacturing activities, 2021
(%, share of business economy employment, by NUTS 2 regions)



Note: includes estimates made for the purpose of this publication. The EU average is shown by the point within each bar where the green and blue parts of each bar meet; the range of regional values across NUTS level 2 regions is shown by the bar (above/below the EU average in green/blue); the name of the region with the highest value is also shown. NACE codes are given in brackets after each of the activity labels. Ireland: national data. The figure is based on non-confidential data (some activities are not available for a limited number of regions).

Source: Eurostat (online data codes: sbs_r_nuts2021 and sbs_sc_ovw)

Regional patterns of employment specialisation and concentration in market services

Market services (defined here as NACE Sections G to N, P to R and Divisions 95 and 96) provided work to 109.7 million people across the EU in 2021; this equated to 70.3% of the total number of people employed in the business economy.

In 2021, there were 10 NUTS level 2 regions across the EU where the contribution of market services to the business economy workforce was higher than 85.0%. This group included

- the capital regions of Région de Bruxelles-Capitale/Brussels Hoofdstedelijk Gewest (Belgium), Berlin (Germany), Noord-Holland (the Netherlands) and Área Metropolitana de Lisboa (Portugal)
- the popular holiday destinations of Voreio Aigaio, Notio Aigaio and Ionia Nisia (all in Greece)
- and 3 more regions within the Netherlands – Groningen, Utrecht and Zuid-Holland.

At the other end of the range, there were 10 NUTS level 2 regions in the EU where market services provided employment to less than 50.0% of the business economy workforce in 2021. They were concentrated in eastern EU countries: 4 from Czechia, 2 from Croatia, and a single region from each of Poland, Romania, Slovenia and Slovakia. The lowest share (45.3%) was recorded in the northern Czech region of Severovýchod, which is characterised by heavy industry.

Some market service activities are commonly spread across the EU territory, whereas others are concentrated within close proximity to a mass of potential clients

Figure 8.2 provides information for 43 different market service activities, presenting those NUTS level 2 regions with the highest degree of employment specialisation (based on regional shares for each activity in the business economy workforce). Some of the variations in employment specialisation may reflect, among other issues, access to skilled employees, the adequate provision of infrastructure, climatic and geographic conditions, proximity to a critical mass of customers, access to markets or legislative constraints.

Retail trade (NACE Division 47) accounted for 10.5% of the EU's business economy workforce in 2021. This was followed by wholesale trade (NACE Division 46) with a 6.1% share, human health activities (NACE Division 86) with a 5.2% share, and food and beverage service activities (NACE Division 56) with 4.9%. These are all examples of service activities that are ubiquitously found in every NUTS level 2 region of the EU.

Capital regions were among some of the most specialised regions for a range of service activities that rely on the close proximity of a large number of potential clients (be these other businesses, households or governments). For example, in 2021

- the Área Metropolitana de Lisboa (Portugal) had the highest employment share for office administrative/support and other business support activities (8.4%)
- Yugozapaden (Bulgaria) for computer programming, consultancy and related activities (7.7%)
- Bruxelles-Capitale/Brussels Hoofdstedelijk (Belgium) for the activities of head offices and management consultancy activities (6.4%) and insurance and pension funding, except social security (3.2%)
- Comunidad de Madrid for activities auxiliary to financial services and insurance activities (4.6%)
- Bratislavský kraj (Slovakia) for legal and accounting activities (4.5%) and for telecommunications (2.1%)
- Praha (Czechia) for other professional, scientific and technical activities (2.4%)
- Warszawski stołeczny (Poland) for advertising and market research (2.2%).

One of the most significant changes resulting from the introduction of a new legal basis for structural business statistics in the EU is an expansion in activity coverage to encompass a broader range of services. Map 8.5 presents information for 4 selected service activities, 2 of which are among the newly covered activities. The map highlights regional patterns of specialisation and concentration.

There were 16.3 million people employed in the EU's retail trade sector in 2021; as such, it accounted for just over a tenth (10.5%) of the EU's business economy workforce. In absolute terms, the highest numbers of people employed in retail trade – across NUTS level 2 regions – were registered in the French capital region of Ile-de-France (394 600), Lombardia in northern Italy (315 100), and the Spanish regions of Cataluña and Andalucía (294 200 and 289 800, respectively). In relative terms, there were 21 regions in the EU where the retail trade sector accounted for at least 15.0% of the business economy workforce. This group (as shown by the darkest shade of blue in the 1st part of Map 8.5) was principally composed of remote, predominantly rural and island regions, although it also included the Greek capital region of Attiki.

Administrative and support services (NACE Section N) provide assistance to general business operations, for example, through the provision of rental and leasing activities, employment activities, or office support. In 2021, these activities provided employment to 13.6 million people across the EU (8.7% of the business economy total). The French capital region of Ile-de-France had the highest number of people employed in the administrative and support services sector (572 700). There were 5 other NUTS level 2 regions in the EU with more than 250 000 people employed: the capital regions of Comunidad de Madrid (Spain) and Área Metropolitana de Lisboa (Portugal), Lombardia (Italy), Cataluña (also in Spain) and Düsseldorf (Germany). In relative terms, administrative and support services accounted for 19.0% of the business economy workforce in the Portuguese capital region – the highest share in the EU. By contrast, administrative and support services accounted for no more than 2.0% of the business economy workforce in 4 mainland regions of Greece.

In 2021, there were 13.1 million people employed across the EU in human health and social work activities (NACE Section Q); this equated to 8.4% of the business economy total. In absolute terms, the highest numbers of people employed in human health and social work activities were observed in 2 neighbouring regions in Germany – Düsseldorf and Köln (360 300 and 303 500, respectively) – and in the Dutch region of Zuid-Holland (314 600). The regional distribution of employment in human health and social work activities was heavily skewed, insofar as 72 out of 240 NUTS level 2 regions had shares that were equal to or above the EU average, compared with 168 regions that recorded lower than average shares. At the top end of the distribution, there were 35 regions where human health and social work activities provided work to at least 15.0% of the business economy workforce (as shown by the darkest shade of blue in the map). These regions were concentrated in 3 western EU countries: 17 regions in Germany, all 12 regions of the Netherlands, and 6 regions from Belgium. The northern Dutch region of Groningen had the highest regional share, as 26.9% of its business economy workforce was employed in human health and social work activities.

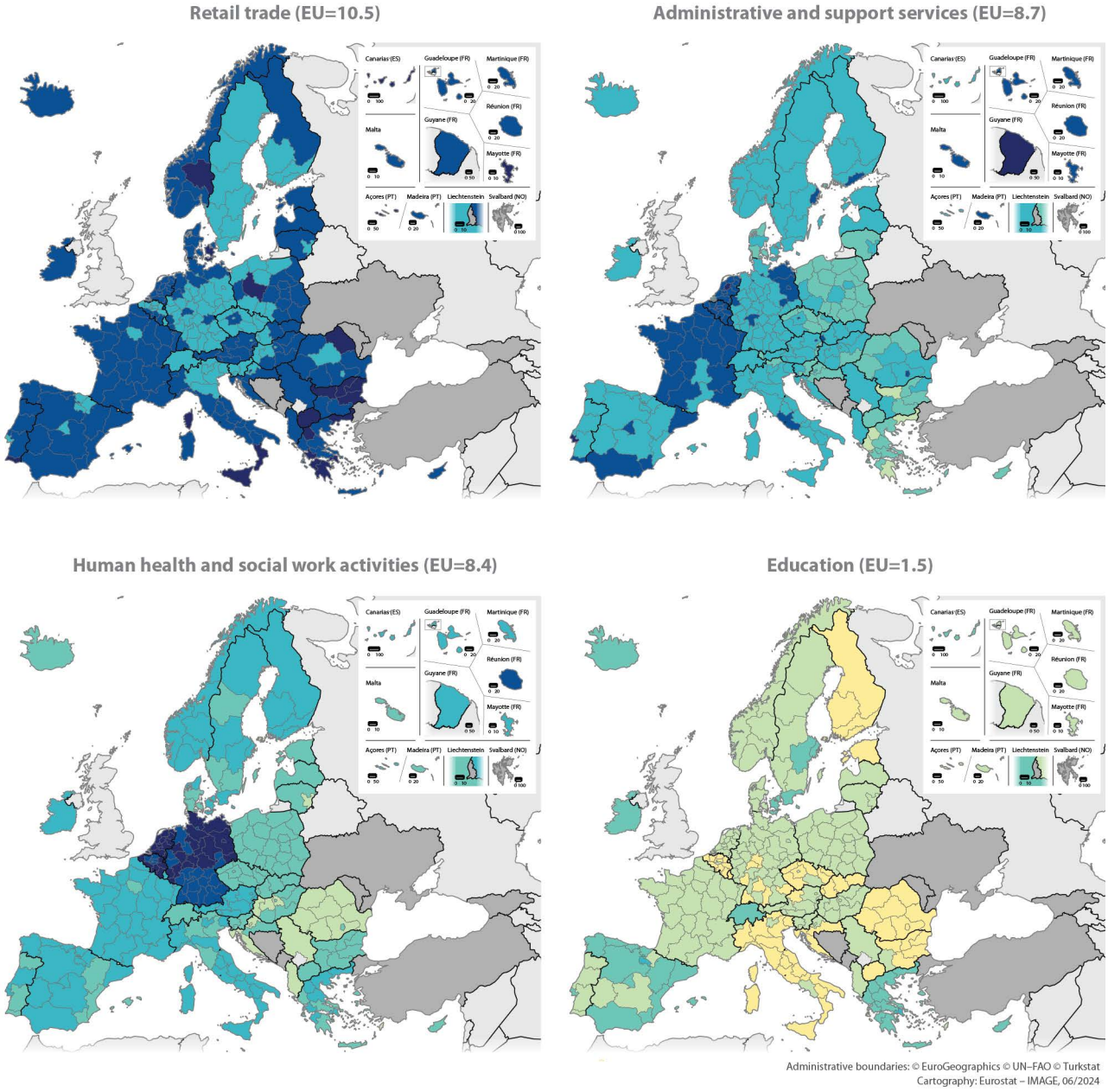
Figure 8.2: Regional specialisation among market service activities, 2021
(%, share of business economy employment, by NUTS 2 regions)

Note: includes estimates made for the purpose of this publication. The EU average is shown by the point within each bar where the green and blue parts of each bar meet; the range of regional values across NUTS level 2 regions is shown by the bar (above/below the EU average in green/blue); the name of the region with the highest value is also shown. NACE codes are given in brackets after each of the activity labels. Ireland: national data. The figure is based on non-confidential data (some activities are not available for a limited number of regions).

Source: Eurostat (online data codes: sbs_r_nuts2021 and sbs_sc_ovw)

Compared with the other selected market services shown in Map 8.5, education (NACE Section P) accounted for a much smaller share (1.5%) of the EU's business economy workforce in 2021. Across NUTS level 2 regions, this share ranged from a low of 0.2% in the Finnish archipelago of Åland up to a high of 5.4% in the northern Spanish region of La Rioja. The regional distribution of employment in education was skewed, insofar as 95 out of 240 NUTS level 2 regions had shares that were equal to or above the EU average, compared with 145 regions that recorded lower than average shares.

Map 8.5: Employment in selected service activities, 2021
(%, share of business economy employment, by NUTS 2 regions)



Note: Ireland, Switzerland, Albania and Serbia, national data. Retail trade: NACE Division 47. Administrative and support services: NACE Section N. Human health and social work activities: NACE Section Q. Education: NACE Section P. Based on non-confidential data (some activities are not available for a limited number of regions).

Source: Eurostat (online data codes: sbs_r_nuts2021 and sbs_sc_ovw)

FOCUS ON ACCOMMODATION SERVICES

The COVID-19 crisis had an unprecedented impact on accommodation service activities, with most EU governments closing or strictly limiting access to hotels and other forms of accommodation in March 2020. Despite the gradual re-opening of accommodation services and the roll-out of vaccination programmes, many hoteliers continued to face weak demand in 2021. This was especially the case for foreign tourists, who were reluctant to plan/book holidays abroad. Business travel also remained below pre-pandemic levels as trade fairs / conferences took time to restart (after restrictions were lifted) and some businesses continued to favour online meetings. More detailed information on regional tourism statistics is presented in Chapter 10.

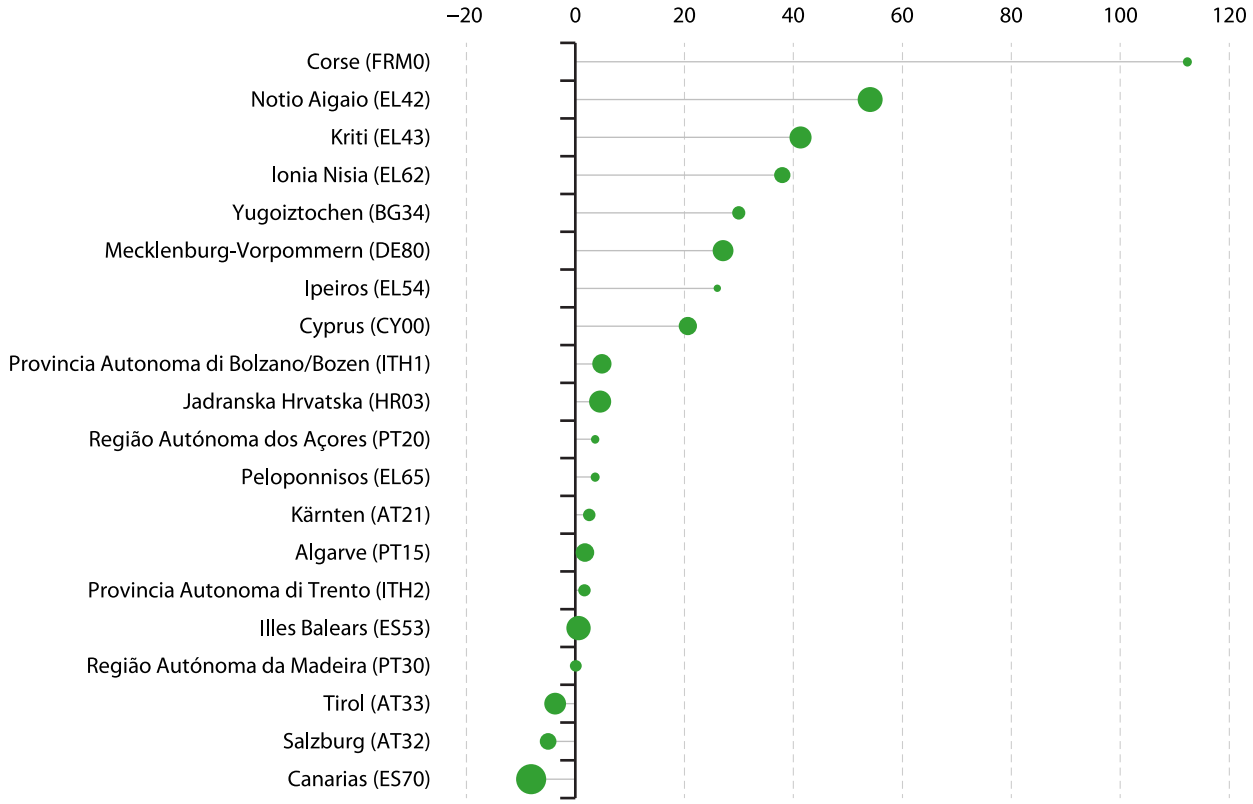
In 2021, accommodation service activities employed 2.2 million people across the EU; this represented 1.4% of the business economy workforce. Figure 8.3 shows the 20 NUTS level 2 regions in the EU where accommodation services accounted for the highest share of business economy employment; only regions with at least 3 000 people employed in accommodation services were taken into consideration. These 20 regions were concentrated in some of the EU's most well-known tourist destinations, particularly southern coastal and island regions, and Alpine regions. The highest share was recorded in the Greek island region of Notio Aigaio (25.7%). Double-digit shares were also observed in

- 2 other Greek regions – Ionia Nisia (21.4%) and Kriti (15.1%)
- Provincia Autonoma di Bolzano/Bozen in northern Italy (11.5%)
- the Portuguese regions of Algarve (11.3%) and Região Autónoma da Madeira (10.2%).

The COVID-19 crisis disproportionately affected the economies of regions that were reliant on tourism and hospitality services. This reflected, among other factors, a dramatic fall in demand for accommodation services and the relatively insecure nature of work (for example, among young people and/or those with temporary employment contracts). Among the 20 regions where accommodation services accounted for their highest share of business economy employment, the information presented in Figure 8.3 is ranked according to the change in employment for accommodation services between 2020 and 2021. It shows a considerable rebound in activity for some regions, as they returned to some form of normality after the crisis. For example, the number of people employed in accommodation services more than doubled in the French island region of Corse (up 112.3%), while very high growth rates were also recorded in 3 Greek regions – Notio Aigaio (54.1%), Kriti (41.3%) and Ionia Nisia (38.0%). By contrast, employment levels remained unchanged or continued to fall in other regions. For example, Illes Balears (Spain) and Região Autónoma da Madeira (Portugal) both reported growth of less than 1.0%, while employment levels fell in Tirol, Salzburg (both Austria) and Canarias (Spain); many of these regions with low or negative rates of change are year-round destinations.

Figure 8.3 also provides information on the relative size of the accommodation services workforce. In 2021, 2 Spanish island regions – Canarias and Illes Balears (56 000 and 36 100) – had the highest and 3rd highest numbers of people employed in accommodation services; the 2nd highest figure was recorded in the Greek region of Notio Aigaio (38 100 people).

Figure 8.3: Employment in accommodation services, 2021
(%, annual change compared with 2020, by NUTS 2 regions)



Note: the figure shows the EU regions where accommodation services (NACE Division 55) accounted for the highest share of business economy employment among those regions with at least 3 000 persons employed in accommodation services. The figure is ranked on the change in employment between 2020 and 2021. The area of each circle represents the number of persons employed in accommodation services in 2021; the highest count among the 20 regions shown was recorded in Canarias (ES70) with 55 980 persons employed. Ireland: national data. Région de Bruxelles-Capitale/Brussels Hoofdstedelijk Gewest (BE10): not available.

Source: Eurostat (online data codes: sbs_r_nuts2021, sbs_r_nuts06_r2, sbs_sc_ovw and sbs_na_sca_r2)

9. Research and development

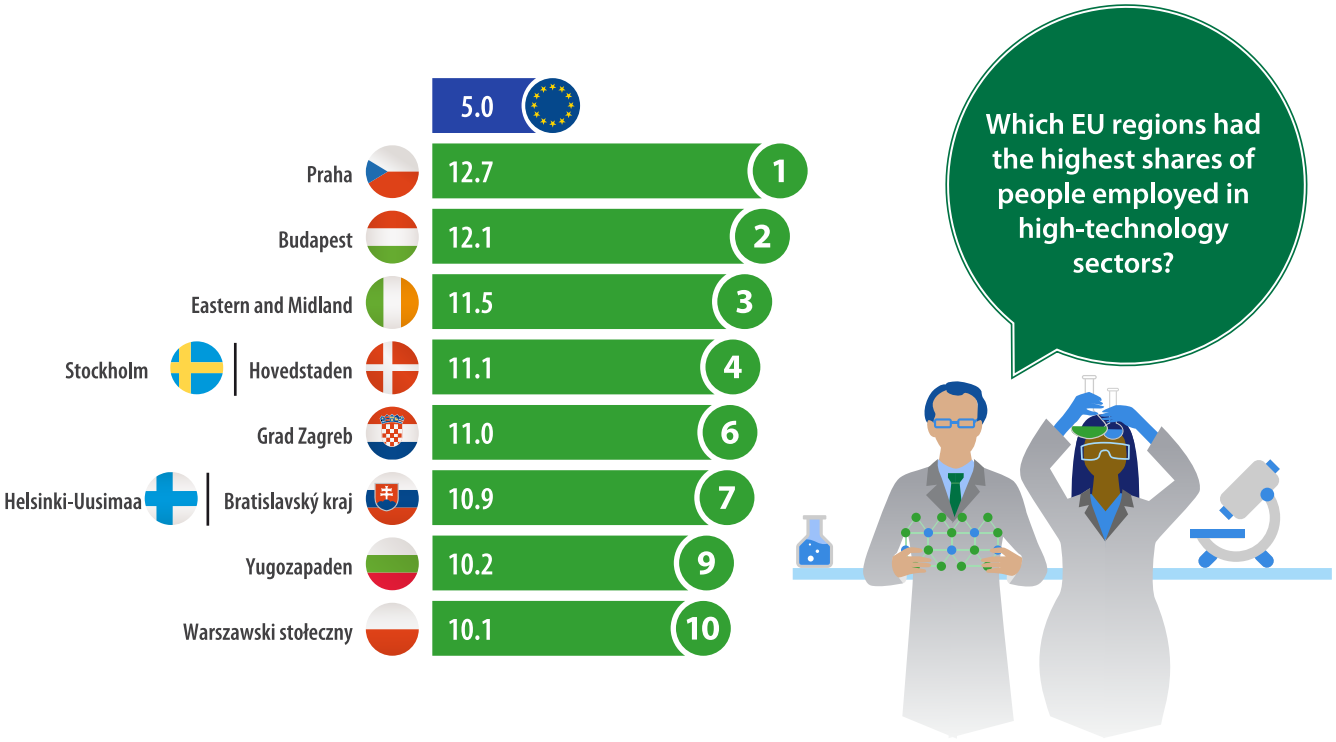
Research and development (R&D) has the potential to improve the daily lives of millions of people, both within the European Union (EU) and elsewhere, by helping to solve some of the world's largest societal, ecological and economic challenges.

The European Research Area (ERA) was created in 2000 to address the fragmentation of the EU's research and innovation ecosystem; it was reinforced in 2020. The ERA is an ambitious project to create a single, borderless market for research, innovation and technology across the EU.

A Pact for Research and Innovation in Europe (Council Recommendation (EU) 2021/2122) reaffirmed the EU's long-held target of investing at least 3% of its GDP on R&D. It provides a vision, setting-out a range of principles for research and innovation in the EU and 16 priority areas for action, with the overarching goals of

- prioritising investments and reforms to accelerate the green and digital transformations
- improving access to excellence and stronger research though an innovation ecosystem where best practice is disseminated faster
- transferring research and innovation results to help boost the resilience and competitiveness of the EU economy and society
- deepening the ERA to make further progress on the free circulation of knowledge in an efficient and effective research and innovation ecosystem.

Education, training and lifelong learning are considered vital to developing a region's capacity to innovate, with universities across the EU implicated in the commercialisation of research and collaboration with businesses. To develop and expand its knowledge-based economy, the EU requires a consistent supply of highly skilled/qualified people. The infographic below shows the NUTS level 2 regions in the EU with the highest shares of employment within high-technology sectors. In 2023, a peak of 12.7% was recorded in the Czech capital region of Praha.



(% of total employment, 2023, by NUTS 2 regions)
Note: several regions are not available (too many to document).
Source: Eurostat (online data code: htec_emp_reg2)

R&D expenditure

R&D may be defined as creative and systematic work undertaken to increase the stock of knowledge or to devise new applications of existing knowledge. Gross domestic expenditure on R&D (GERD) includes research expenditure made by businesses, higher education institutions, governments and private non-profit organisations. In 2021, the EU's GERD was valued at €331.0 billion; this is the latest year for which regional statistics are available. Fresher data are available for the EU total, which show that GERD increased 7.1% (in current price terms) to €354.7 billion in 2022.

R&D tends to be concentrated in clusters. Research-intensive regions are often situated around academic institutions, science parks, high-technology industrial activities and/or knowledge-based services. Regions with clusters of innovative activity tend to develop self-perpetuating systems: the concentration of competitive and cooperative enterprises in related activities may attract start-ups, other market players and highly qualified personnel which, in turn, drives the creation of new technologies and innovative output. Indeed, Europe's predominantly urban regions are a magnet for R&D expenditure and personnel. The bustling, innovative atmosphere of urban centres has long attracted people seeking to take part in business/innovation/ecosystems – for example, countless people gravitated towards Renaissance Florence or 1920s Paris. Today that tradition continues in urban regions characterised

- as major business and university hubs – like Stuttgart (Germany), Paris (France) or Rīga (Latvia)
- by governmental institutions – like Brussels (Belgium) or Frankfurt (Germany).

In 2021, R&D activity was clustered in a small number of regions; more than 3 out of 4 regions had an R&D intensity below the EU average

The regional distribution of R&D expenditure underlines the significance of clusters of scientific and technological excellence. In 2021, the highest level of R&D expenditure was recorded in the French capital region of Ile-de-France (€21.7 billion), followed by the German regions of Stuttgart (€15.5 billion) and Oberbayern (€13.2 billion). The skewed nature of R&D activity was such that the 39 NUTS level 2 regions (out of 225 for which data are available) with R&D expenditure above €2.5 billion, together accounted for 64.9% of all the EU's intramural R&D expenditure.

More about the data: R&D statistics

Starting from reference year 2021, regional business statistics on R&D expenditure and employment have a new legal basis – the EBS Regulation (*Regulation (EU) 2019/2152 of the European Parliament and of the Council of 27 November 2019 on European business statistics*); it has resulted in improved coverage for regional statistics on R&D.

The methodology for R&D statistics is laid down in the *Frascati manual* (OECD, 2015). It provides guidelines for collecting and reporting data on research and experimental development, with definitions of basic concepts and classifications for compiling R&D statistics.

Regional R&D statistics are generally presented for NUTS level 2 regions. Exceptions are the Netherlands (where the data refer to NUTS level 1 regions) and Denmark, Norway and Switzerland (where national data are presented). These different territorial levels are included in the analyses when describing the counts of regions that meet specific criteria.

R&D intensity is frequently used as a measure to determine an economy's creative/innovative capacity; it is the ratio of R&D expenditure to gross domestic product (GDP). Despite modest annual increases over the last couple of decades, R&D intensity in the EU remains below a long-established target of 3.00%. Having increased somewhat during the COVID-19 crisis – reflecting a larger downturn in GDP than R&D expenditure – R&D intensity returned to its pre-pandemic levels, with ratios of 2.27% in 2021 and 2.24% in 2022.

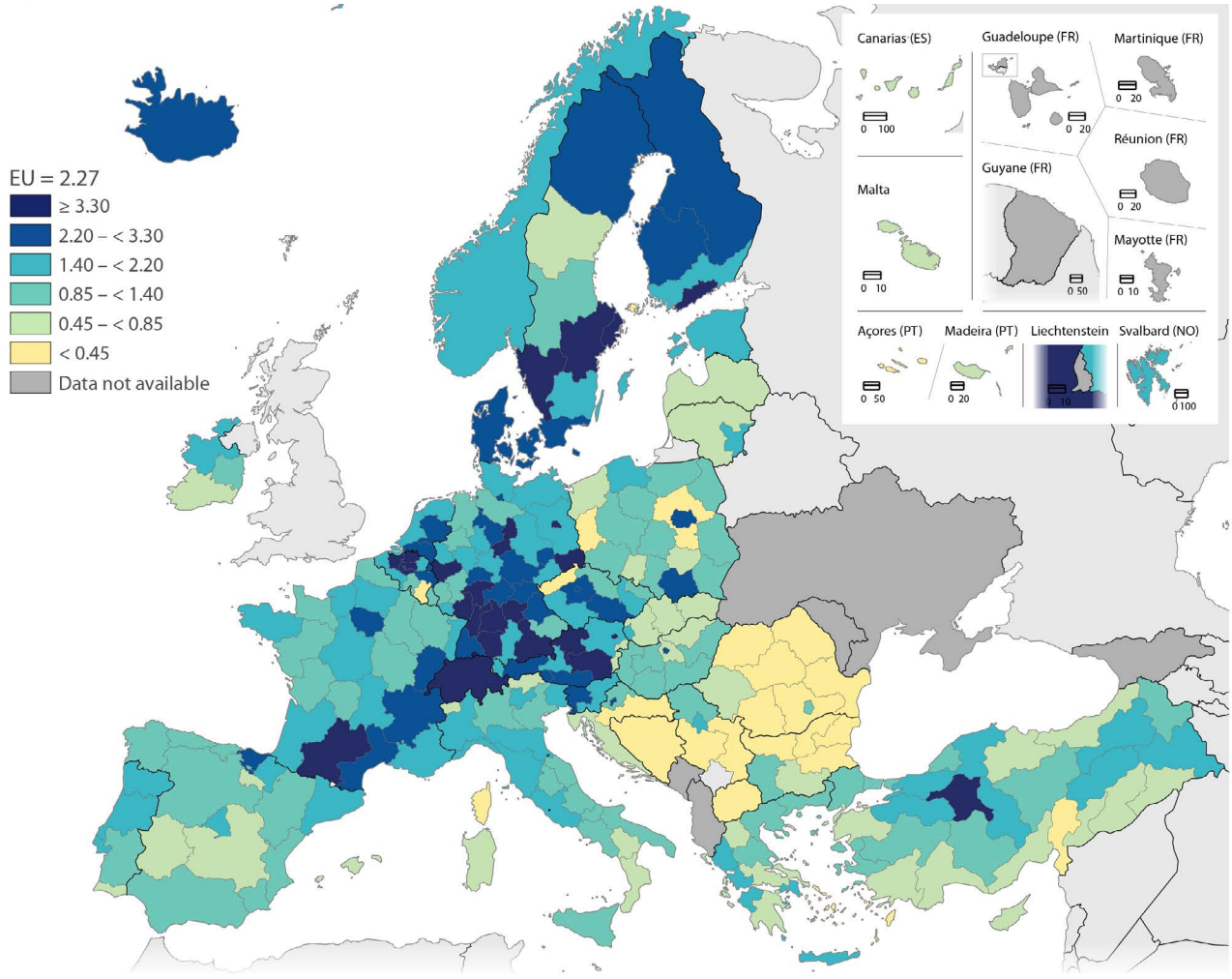
Compared with an analysis of R&D expenditure patterns, a study based on the regional distribution of R&D intensity is less influenced by the size of different regions, or the use of different NUTS levels or national data for some EU countries. Nevertheless, the regional distribution of R&D intensity was also heavily skewed: in 2021, fewer than a quarter (53 out of 225) of all regions for which data are available had an intensity ratio above the EU average of 2.27%.

There were 23 NUTS level 2 regions within the EU that recorded R&D intensity of at least 3.30% in 2021 – as shown by the darkest shade of blue in Map 9.1. They were concentrated exclusively in western and northern EU countries: Germany (11 regions), Belgium (4 regions), Austria and Sweden (both 3 regions), with single regions located in each of France and Finland. There were 4 capital regions within this group of 23, namely: Wien in Austria (4.04%), Helsinki-Uusimaa in Finland (3.77%), Stockholm in Sweden (3.57%) and Berlin in Germany (3.37%).

In 2021, the highest ratio of R&D intensity among NUTS level 2 regions was recorded in the Belgian region of Prov. Brabant Wallon (11.39%); its research activities are centred on pharmaceuticals, university research, life sciences, medical imagery, computing and telecommunications. The next highest ratios were recorded in 3 German regions: Stuttgart (6.81%), Braunschweig (6.09%) and Tübingen (5.47%). These regions are characterised by clusters of innovative automotive manufacturers, engineering and component suppliers, as well as companies specialising in bio and nanotechnologies and artificial intelligence. For example, the Stuttgart region is home, among others, to the headquarters of Bosch, Mercedes-Benz and Porsche, while Tübingen has research institutes attached to its university, the Max Planck Institute and technology parks specialising in, among other fields, bio- and nanotechnologies and artificial intelligence.

At the other end of the scale, there were 21 NUTS level 2 regions in the EU where R&D intensity was less than 0.45% (they are shown in a yellow shade in Map 9.1). This group was concentrated in eastern EU countries: Romania (6 regions), Bulgaria (4 regions), Poland (2 regions), Czechia and Croatia (single regions). It also included 2 regions from Spain, as well as a single region in each of Belgium, Greece, Fance, Portugal and Finland. Most of these regions with very low R&D intensity were characterised as predominantly rural regions or islands.

Map 9.1: R&D intensity, 2021
(%, based on gross domestic expenditure on R&D (GERD) relative to gross domestic product (GDP), by NUTS 2 regions)



Administrative boundaries: © EuroGeographics © UN–FAO © Turkstat
Cartography: Eurostat – IMAGE, 06/2024

Note: the Netherlands, NUTS level 1. Denmark, Norway and Switzerland: national data. North Macedonia: 2022.
Source: Eurostat (online data code: rd_e_gerdreg)

In 2021, R&D expenditure per inhabitant peaked at €5 901 per inhabitant in the Belgian region of Prov. Brabant Wallon

An alternative measure for the relative importance of R&D expenditure is provided by the ratio of expenditure to the population size. In 2021, R&D expenditure across the whole of the EU averaged €740 per inhabitant. Although 2021 is the latest reference year for which regional statistics are available, fresher data have already been published for the EU total, which shows R&D expenditure increasing, in 2022, to an average of €794 per inhabitant.

In 2021, there were 26 NUTS level 2 regions where the ratio of R&D expenditure per inhabitant was at least €1 500 (as shown by the darkest shade of blue in Map 9.2). These regions were located in northern and western EU countries: Germany (12 regions), Belgium (4 regions), Austria and Sweden (both 3 regions), and single regions from each of Denmark (national data), France, the Netherlands and Finland. As was the case for R&D intensity, the 3 highest ratios of R&D expenditure per inhabitant were recorded in the Belgian region of Prov. Brabant Wallon (€5 901 per inhabitant) and the German regions of Stuttgart (€3 742 per inhabitant) and Braunschweig (€3 075 per inhabitant).

The skewed nature of R&D expenditure was apparent insofar as 7 out of every 10 regions (161 out of 225 for which data are available) in the EU had a level of R&D expenditure per inhabitant that was below the EU average in 2021. This was the case in most eastern and southern EU countries, including

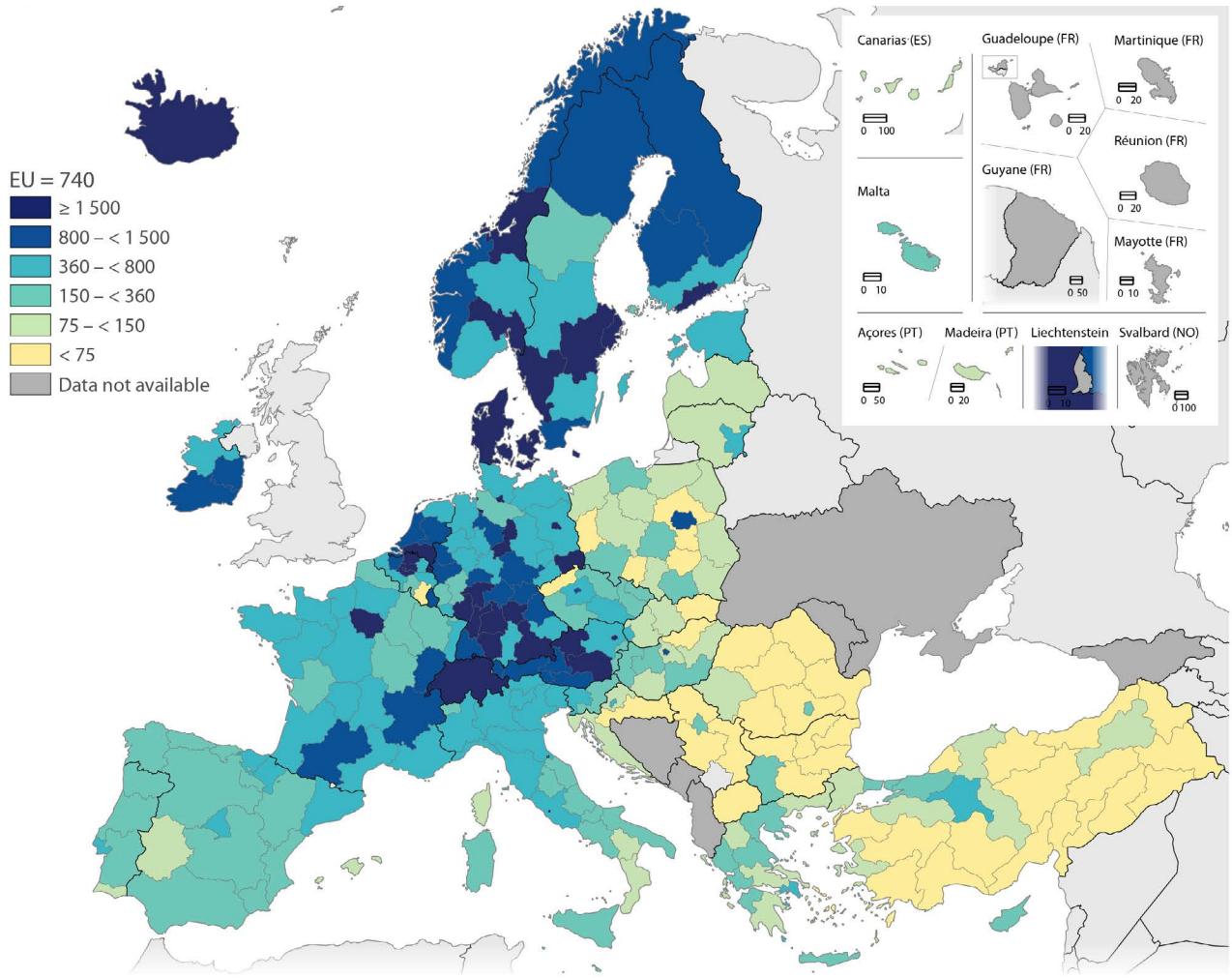
- every region of Bulgaria, Greece, Croatia, Lithuania, Portugal, Romania and Slovakia
- all but one of the regions in Czechia, Spain, Italy, Hungary, Poland and Slovenia – the exceptions being their capital regions, except for Spain and Italy where they were País Vasco and Emilia-Romagna, respectively
- Estonia, Cyprus, Latvia and Malta.

In 2021, there were 23 NUTS level 2 regions where R&D expenditure averaged less than €75 per inhabitant (as shown by the yellow shade in Map 9.2). They were concentrated in Romania (6 regions), Bulgaria (5 regions) and Poland (4 regions), while this group also included 2 regions from Spain and single regions from each of Belgium, Czechia, Greece, Croatia, Hungary and Slovakia. The lowest ratios were recorded in Romania: Sud-Est (€10 per inhabitant) and Sud-Vest Oltenia (€11 per inhabitant).

The skewed nature of R&D expenditure may be further underlined by contrasting expenditure per inhabitant in the Belgian region of Prov. Brabant Wallon – the EU region with the highest level of expenditure per inhabitant – to that of other regions, for example

- Prov. Luxembourg – the Belgian region with the lowest level of expenditure per inhabitant – with expenditure 86 times as high in Brabant Wallon
- Sud-Est in Romania – the EU region with the lowest level of expenditure per inhabitant – with expenditure 590 times as high in Brabant Wallon.

Map 9.2: R&D expenditure per inhabitant, 2021
(€, by NUTS 2 regions)



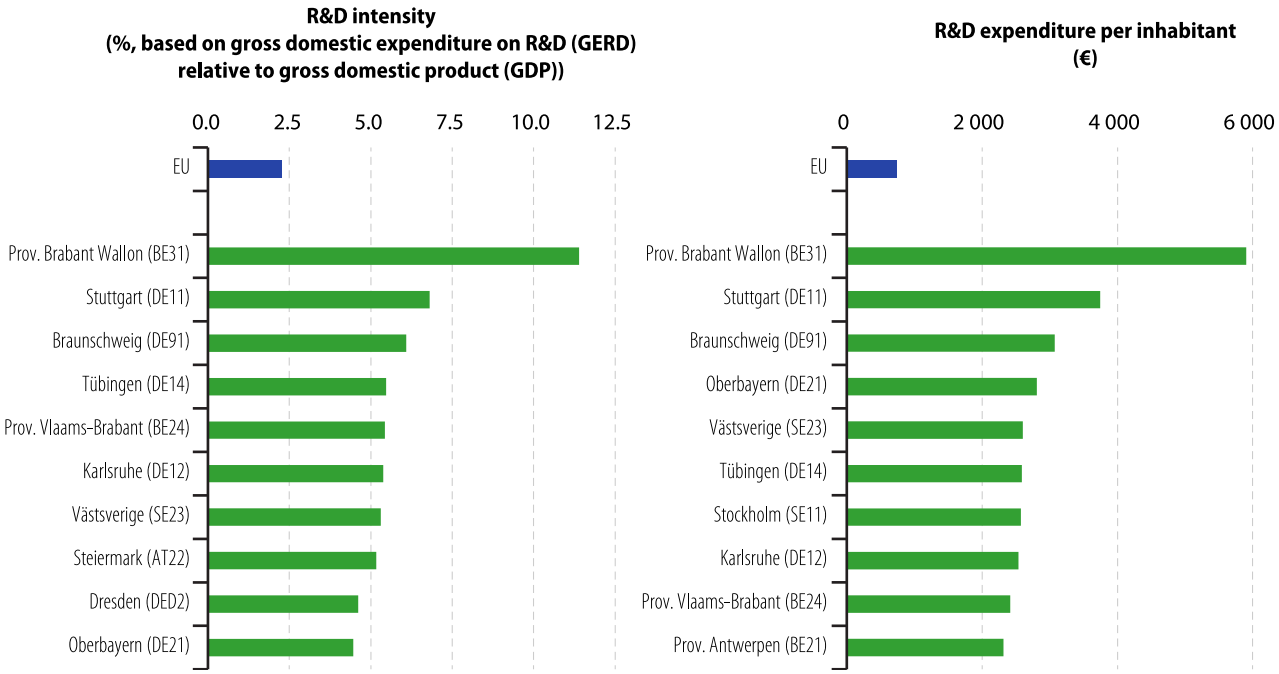
Administrative boundaries: © EuroGeographics © UN–FAO © Turkstat
Cartography: Eurostat – IMAGE, 06/2024

Note: the Netherlands, NUTS level 1. Denmark and Switzerland: national data. North Macedonia: 2022.
Source: Eurostat (online data code: rd_e_gerdreg)

Figure 9.1 confirms that regions with high levels of R&D intensity also tend to record high levels of R&D expenditure per inhabitant. As noted above, Prov. Brabant Wallon, Stuttgart and Braunschweig had the highest ratios of R&D intensity and R&D expenditure per inhabitant in 2021. A closer look at the results presented in Figure 9.1 confirms that 8 out of 10 regions were present in both rankings. The only exceptions were

- Steiermark in Austria and Dresden in Germany that only featured among the 10 regions with the highest ratios of R&D intensity
- Stockholm in Sweden and Prov. Antwerpen in Belgium that only featured among the 10 regions with the highest ratios of R&D expenditure per inhabitant.

Figure 9.1: R&D intensity and R&D expenditure per inhabitant, 2021
(by NUTS 2 regions)



Note: the figure shows the EU regions with the highest ratios. The Netherlands: NUTS level 1. Denmark: national data.
Source: Eurostat (online data code: rd_e_gerdreg)

R&D personnel and researchers

There were 3.1 million full-time equivalents (FTEs) in the EU who were categorised as R&D personnel in 2021. To put this figure into context, R&D personnel accounted for 1.61% of total employment. In 2022, these figures increased to 3.2 million FTEs and a share of 1.64%.

More about the data: R&D personnel

R&D personnel consists of all individuals employed directly in the field of R&D. Alongside researchers, this also includes technicians and equivalent staff as well as supporting staff (such as managers, administrators and clerical staff). R&D personnel are employed in public and private sectors (in businesses, governments, higher education and private non-profit organisations) to create new knowledge, products, processes and methods, as well as to manage and support the projects concerned.

Researchers are people engaged in R&D activities. They are defined as '… professionals engaged in the conception or creation of new knowledge, products, processes, methods and systems, as well as in the management of the projects concerned … They conduct research and improve or develop concepts, theories, models, techniques instrumentation, software or operational methods'.

For statistical purposes, indicators on R&D personnel and researchers are compiled as both head counts and as full-time equivalents (FTEs); the latter are used as the numerator for the indicators presented in this section.

Regional statistics on R&D personnel are generally presented for NUTS level 2 regions. Exceptions are the Netherlands (where the data refer to NUTS level 1 regions) and Denmark, Switzerland and Türkiye (where national data are presented). Regional statistics on researchers are generally presented for NUTS level 2 regions. Exceptions are Belgium (where the data refer to NUTS level 1 regions), and Denmark and the Netherlands (where national data are presented).

In 2021 (the latest reference year for which regional statistics are available), there were 68 (out of 223) NUTS level 2 regions in the EU that had shares of R&D personnel (measured in FTEs) equal to or above the EU average. As such, and in common with many other science and technology indicators, the regional distribution of R&D personnel was highly skewed.

In 2021, there were 23 NUTS level 2 regions where R&D personnel (measured in FTEs) accounted for at least 2.55% of total employment; they are shown with the darkest shade of blue in Map 9.3. At the top end of the distribution, R&D personnel accounted for 6.10% of total employment in the Belgian region of Prov. Brabant Wallon (which also had the highest ratios of R&D expenditure – see above). There were 5 other regions where shares of more than 4.00% were observed, all within the relatively narrow range of 4.03–4.25%

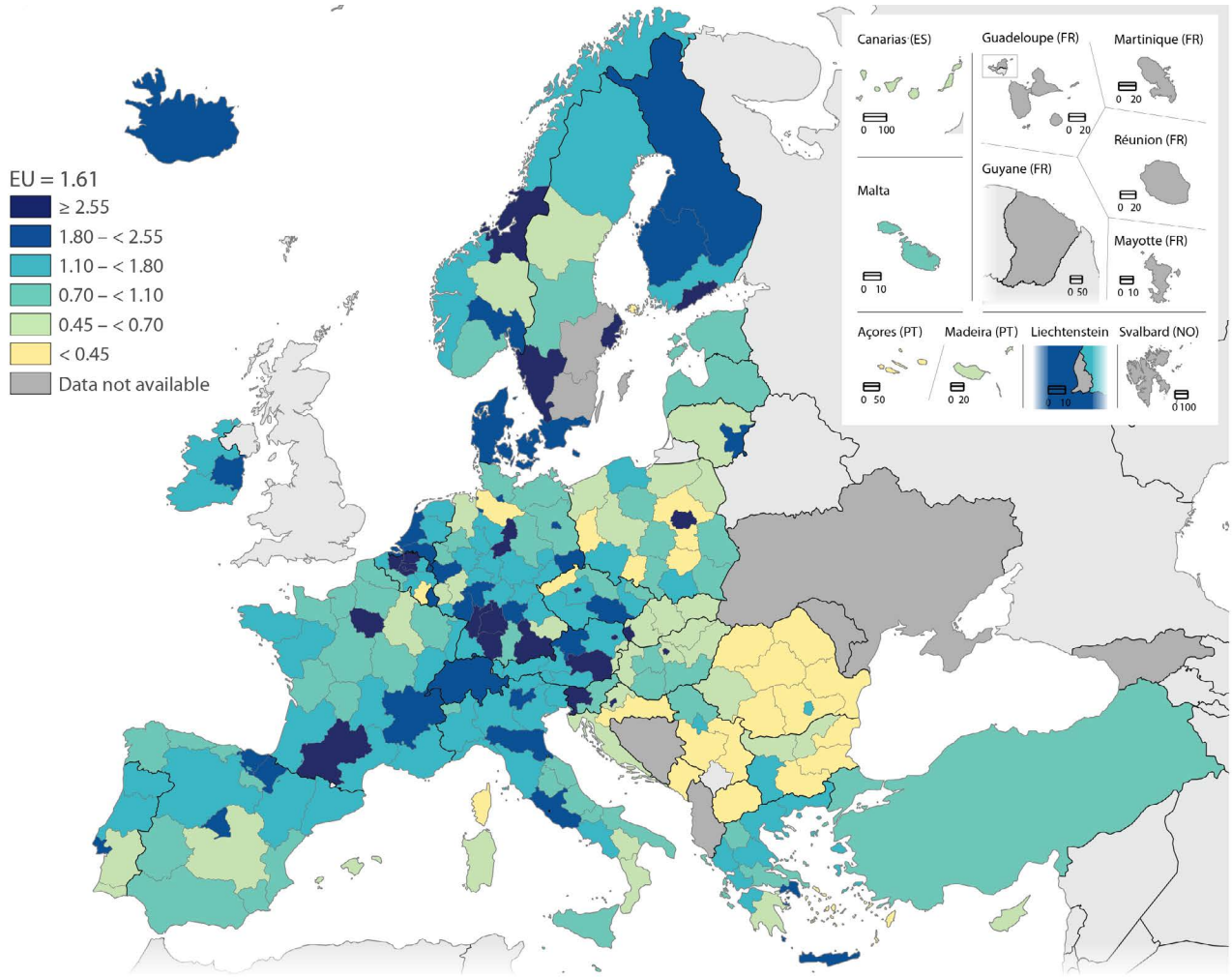
- the capital regions of Praha and Budapest in Czechia and Hungary
- the Belgian region of Prov. Vlaams-Brabant
- the German regions of Stuttgart and Braunschweig.

Capital regions made up almost half (11 out of 23) of this group of 23 regions where R&D personnel accounted for at least 2.55% of total employment. Alongside the capital regions of Czechia and Hungary (mentioned above), there were

- 4 other capital regions from eastern EU countries, namely, those of Poland, Slovakia, Croatia and Slovenia
- 3 capital regions from western EU countries, namely, those of Belgium, France and Austria
- 2 capital regions from Nordic EU countries, namely, those of Finland and Sweden.

The remaining 12 regions where R&D personnel accounted for at least 2.55% of total employment were almost all in western EU countries, with 1 exception located in Sweden.

Map 9.3: R&D personnel, 2021
(% of total employment (numerator measured in full-time equivalents), by NUTS 2 regions)



Administrative boundaries: © EuroGeographics © UN–FAO © Turkstat
Cartography: Eurostat – IMAGE, 07/2024

Note: the Netherlands, NUTS level 1. Denmark, Switzerland and Türkiye: national data. North Macedonia and Türkiye: 2020. Montenegro: 2019.

Source: Eurostat (online data code: rd_p_persreg)

By contrast, there were 23 NUTS level 2 regions where, in 2021, the share of R&D personnel (measured in FTEs) in total employment was less than 0.45% (as shown by the yellow shade in Map 9.3). A majority of this group was concentrated in eastern EU countries, principally across Romania (6 out of 8 regions, the only exceptions being the capital region of Bucureşti-Ilfov and Vest) and Poland (4 regions). The lowest shares were recorded in 2 Romanian regions – Sud-Vest Oltenia (0.11%) and Sud-Est (0.14%).

There were 2.0 million researchers working in the EU in 2021

As a leading global producer of scientific knowledge, the EU welcomes researchers from all over the world. In May 2021, the European Commission's adopted a communication on a *Global Approach to Research and Innovation – Europe's strategy for international cooperation in a changing world* (COM(2021) 252 final).

In 2021 (the latest year for which regional statistics are available), there were 2.0 million researchers in the EU; this figure is also expressed in terms of FTEs. Fresher data are available for the EU total, which show that the number increased 4.8% to 2.1 million in 2022. The skewed nature of research activity was such that 26 NUTS level 2 regions (out of 208 for which data are available) accounted for more than half of all researchers in the EU in 2021. This group of 26 regions was principally composed of capital regions and other urban regions: it included 6 regions from Germany, 4 regions from France and 2 regions from each of Spain, Italy, Poland, Portugal and Sweden. By contrast, at the other end of the distribution there were 117 regions where the number of researchers was fewer than 5 000 each; their cumulative share of the total number of researchers in the EU was 13.6%.

In absolute terms, the highest numbers of researchers were, unsurprisingly, recorded in some of the most populous and research-intensive regions of the EU. In 2021, there were 12 regions (including national data for Denmark and the Netherlands) that had more than 30 000 researchers (measured in FTEs), with a peak recorded in the French capital region of Ile-de-France (135 500 researchers). These 12 regions were spread across 9 different EU countries.

In 2021, Budapest had the highest share of researchers in total employment, at 3.07%

By normalising the data, it's possible to reduce the influence of those territories for which only national or NUTS level 1 data are available. In 2021, the Hungarian capital region of Budapest had the highest share of researchers (measured in FTEs) in total employment, at 3.07%. The next highest shares were observed in Västsverige (which includes the city of Gothenburg) in Sweden (2.71%), and the Czech and Polish capital regions of Praha and Warszawski stołeczny (both 2.59%). This high concentration of research activity in capital regions may be attributed to several reinforcing factors including, among others: a concentration of research institutions, universities, and scientific organisations; state-of-the-art research infrastructure and equipment; high levels of funding for research and innovation; collaborative and networking opportunities; a broad range of job opportunities for researchers.

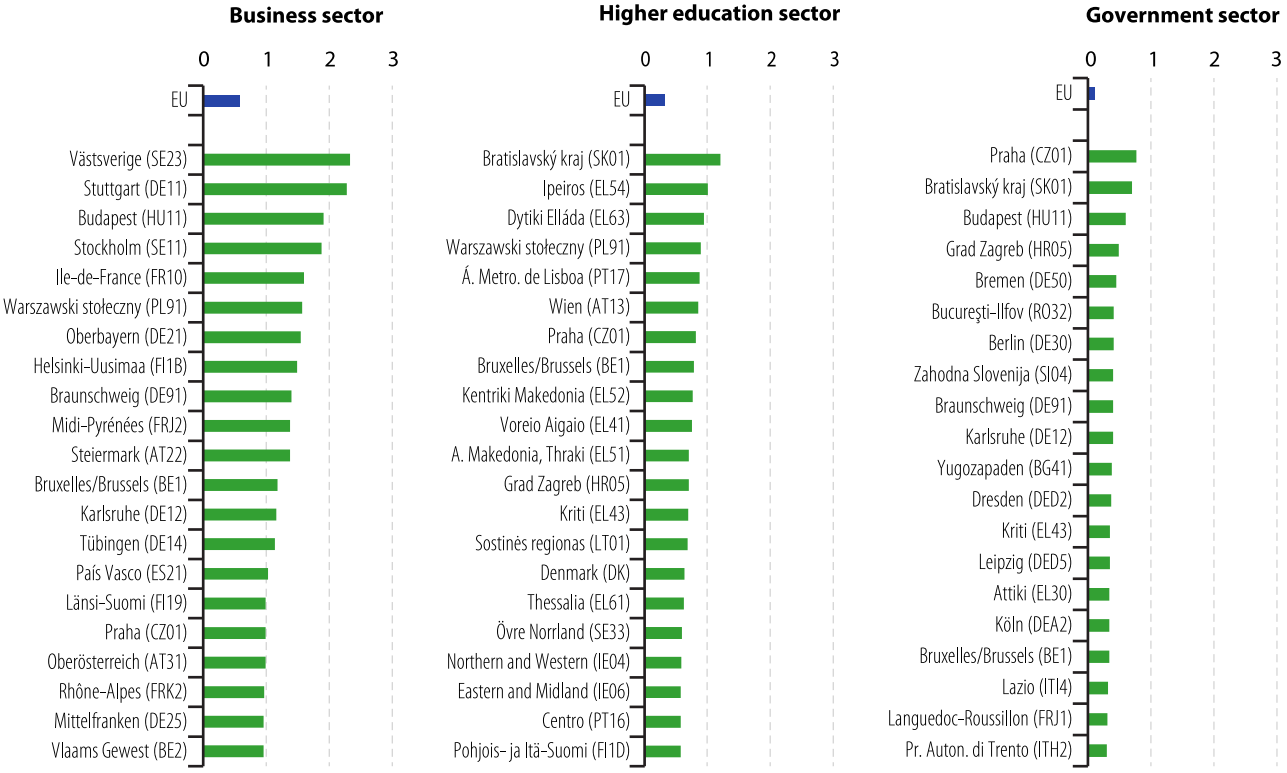
Statistics on researchers are compiled for 4 different institutional sectors: business, government, higher education and private non-profit. Figure 9.2 shows that the relative importance of these different sectors varied across regions. In 2021, researchers (measured in FTEs) in the EU's business sector accounted for 0.58% of total employment. Smaller shares were recorded for researchers employed in the EU's higher education (0.33%) and government sectors (0.11%); data for the private non-profit sector aren't shown as they accounted for a very small share of the workforce (0.01%).

The highest shares of researchers working within the business sector were generally recorded in western and Nordic EU countries. In 2021, researchers (measured in FTEs) working in the business sector as a share of total employment peaked at 2.33% in the Swedish region of Västsverige, closely followed by the German region of Stuttgart (2.28%).

Within the higher education sector, the highest share of researchers (measured in FTEs) was recorded in the Slovak capital region of Bratislavský kraj, where they accounted for 1.21% of all persons employed. The Greek region of Ipeiros had the 2nd highest share (1.01%) and was the only other region in the EU where researchers in the government sector accounted for more than 1.00% of total employment.

In 2021, the Czech capital region of Praha recorded the highest share of researchers (measured in FTEs) working in the government sector, equivalent to 0.77% of total employment. Relatively high shares were also recorded in the Slovak capital region of Bratislavský kraj (0.70%) and the Hungarian capital region of Budapest (0.60%).

Figure 9.2: Researchers, by sector of performance, 2021
(% of total employment (numerator measured in full-time equivalents), by NUTS 2 regions)



Note: the figure shows the EU regions with the highest shares for each sector of performance (subject to availability). The rankings include more than 20 regions if several regions have identical values. Belgium: NUTS level 1. Denmark and the Netherlands: national data.

Source: Eurostat (online data code: rd_p_persreg)

Human resources in science and technology – core

In 2023, there were 123.0 million people aged 15–74 in the EU classified as human resources in science and technology (HRST). Among these, there were 98.1 million people who met the HRST educational criterion (see the box for more details), 78.3 million who met the occupational criterion, and 53.4 million who met both the educational and occupational criteria. This latter group constitutes what is often referred to as the 'core' HRST group; they are the principal focus of the information presented in this section.

A skilled workforce is generally considered a key driver of growth, enhancing innovation and competitiveness. Equipping the EU workforce with the requisite skills also enhances the EU economy's ability to navigate the green and digital transitions, ensuring it grows in a sustainable and competitive manner. The European Year of Skills was designed to address skills gaps in the EU and to boost the EU's skills strategy. It contributed to the upskilling of people by highlighting national efforts as well as existing and new EU initiatives. The closing event of the Year (at the end of April 2024) highlighted, among other points, that

- there is a need to put people and their skills centre stage in the green and digital transitions
- the development of transversal skills (such as critical thinking, communication and problem-solving) represent a human advantage in a progressively automated environment
- skills are inclusive, empowering individuals who wish to upskill and/or reskill
- sufficient funding for training remains a challenge within the EU
- there is a need to address skills shortages.

More about the data: statistics on human resources in science and technology – core

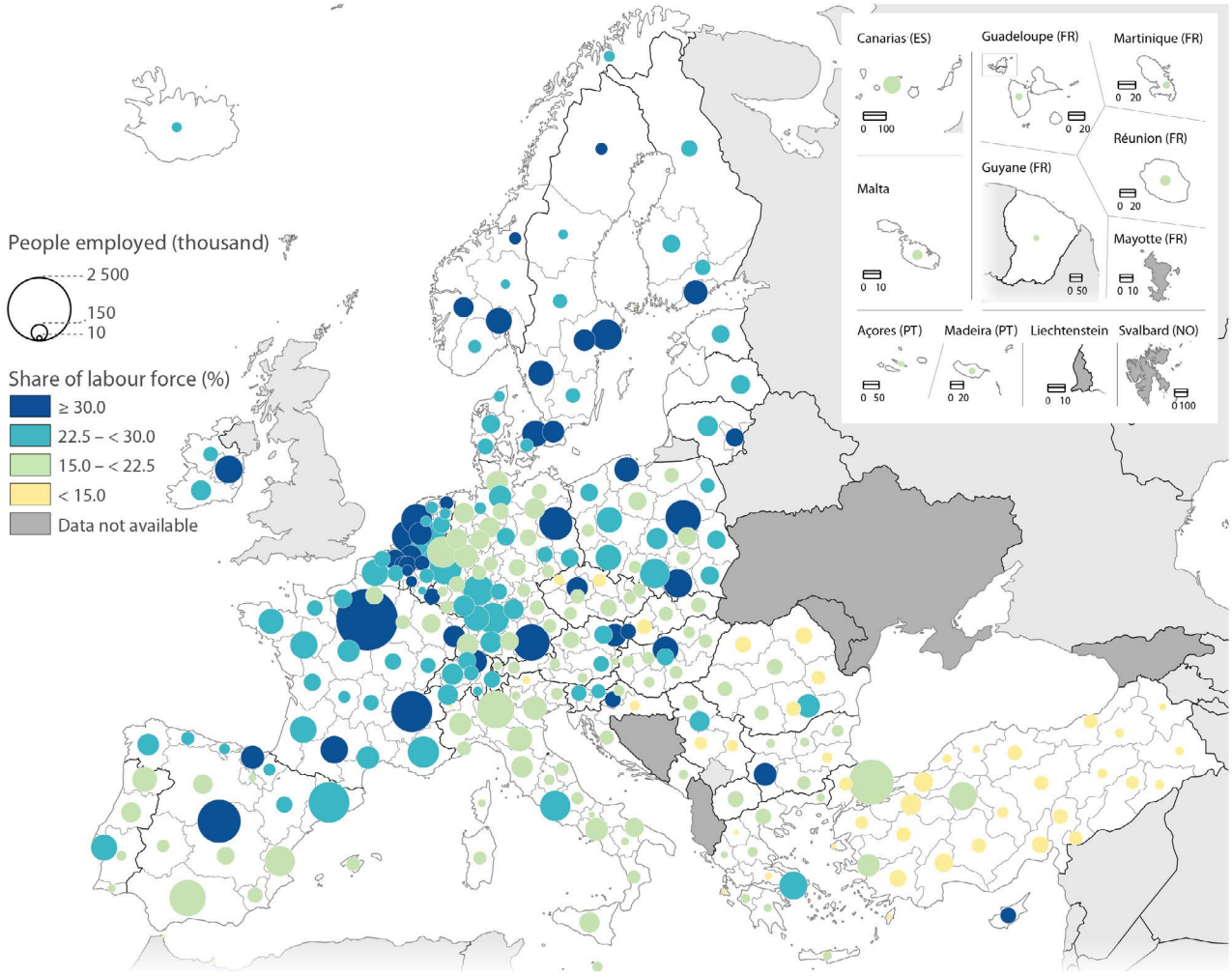
Human resources in science and technology – core are defined as people who fulfil both of the following criteria.

- They have successfully completed a tertiary education, as defined by the international standard classification of education (ISCED) levels 5–8.
- They are employed in a science and technology occupation where the above qualifications are normally required; in other words, people not formally qualified but working as professionals, technicians and associate professionals – as defined by the international standard classification of occupations (ISCO) major groups 2–3 – are also included. Science and technology occupations comprise those whose main tasks require either a high level of professional knowledge or technical knowledge and experience in 1 or more fields from the physical sciences, life sciences, social sciences or humanities.

The criteria used to define HRST statistics are broader than those used to delineate R&D personnel and researchers, as the latter refer specifically to occupations (namely, if a person is directly engaged in R&D through creative and systematic work undertaken to increase the stock of knowledge or to devise new applications of existing knowledge).

Map 9.4 shows the distribution of HRST – core across NUTS level 2 regions. Regions with high shares of HRST – core in their labour force are likely to experience a number of benefits, such as higher productivity, higher wage levels, and clusters of research and technology activity. Factors such as these, in turn, are likely to reinforce their attractiveness to graduates and to (new) businesses, thereby generating spillover effects.

Map 9.4: Human resources in science and technology – core, 2023
(by NUTS 2 regions)



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Cartography: Eurostat – IMAGE, 07/2024

Note: Montenegro and North Macedonia, 2020. Corse (FRM0): low reliability. Åland (FI20), human resources in science and technology – core as a share of the labour force: low reliability.

Source: Eurostat (online data code: hrst_st_rcat)

In 2023, the highest counts of HRST – core were recorded in some of the most populous NUTS level 2 regions of the EU: Ile-de-France (2.4 million) and Rhône-Alpes (1.1 million) in France, Comunidad de Madrid (1.2 million), Cataluña (1.0 million) and Andalucía (0.8 million) in Spain, Lombardia (0.9 million) in Italy, Oberbayern in Germany (0.8 million) and Warszawski stołeczny in Poland (0.8 million) were the only EU regions to report in excess of 0.75 million HRST – core. They were followed by 13 other regions, principally located in western EU countries, that had more than 0.5 million people classified as HRST – core: Germany (5 regions), the Netherlands, Poland (2 regions each), Spain, France and Sweden (single regions each). As well as the capital regions of France, Spain and Poland (mentioned above), there were an additional 4 capital regions – those of Germany, Sweden, the Netherlands and Italy – where more than 0.5 million people were classified as HRST – core.

HRST – core accounted for 24.5% of the EU's labour force in 2023. As with most other science and technology indicators, the regional distribution of this indicator was highly skewed. In approximately 1 in 3 regions (85 out of 241 NUTS level 2 regions for which data are available), the share of HRST – core in the labour force was higher than the EU average, while there were 155 regions that had lower than average shares.

In 2023, Luxembourg, the Hungarian capital region of Budapest and the Polish capital region of Warszawski stołeczny had the highest shares of HRST – core in their labour forces, at 45.4%, 44.8% and 44.4% respectively. There were 4 other regions that recorded shares of more than 40.0%: all 4 were capital regions, those of Sweden, Czechia, Croatia and Lithuania.

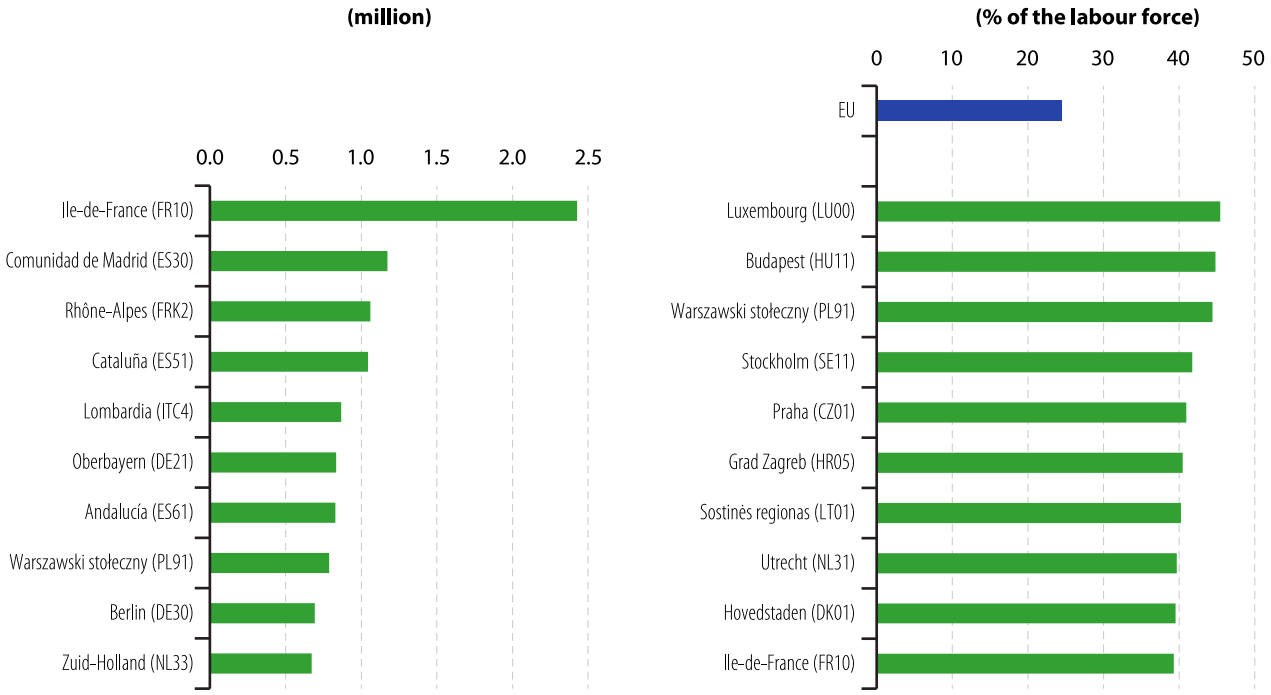
There were 18 NUTS level 2 regions where the share of HRST – core in the labour force was less than 15.0% in 2023 (as shown by the yellow shade in Map 9.4). This group was largely composed of rural and peripheral regions, which were exclusively located in eastern and southern EU countries. The lowest shares were observed in the Czech region of Severozápad (12.1%), the Romanian region of Sud-Muntenia (10.8%) and the Greek region of Notio Aigaio (10.6%).

Figure 9.3 provides a summary listing the NUTS level 2 regions with the highest numbers of HRST – core and those with the highest shares of HRST – core in the labour force. In 2023, the French and Polish capital regions of Ile-de-France and Warszawski stołeczny were the only regions to appear in both rankings

- Ile-de-France had 2.4 million HRST – core, which equated to 39.3% of its labour force
- Warszawski stołeczny had 0.8 million HRST – core, which equated to 44.4% of its labour force.

The data presented in Figure 9.3 underline that overall numbers of HRST tended to be relatively high in some of the EU's largest metropolitan regions, while capital regions were often characterised by high shares of HRST in the labour market. Utrecht in the Netherlands (39.7%) was the only non-capital region to feature among the 10 NUTS level 2 regions with the highest shares of HRST – core in the labour market.

Figure 9.3: Human resources in science and technology – core, 2023
(by NUTS 2 regions)



Note: the figure shows the EU regions with the highest number of human resources in science and technology – core and the EU regions where human resources in science and technology – core account for the highest share of the labour force. In 2023, the EU had 53.4 million human resources in science and technology – core.

Source: Eurostat (online data code: hrst_st_rcat)

In 2023, there were 10.3 million people employed in high-technology sectors across the EU

High-technology sectors are considered key drivers of economic growth and productivity, and often provide well-paid employment opportunities. In 2023, there were 10.3 million people employed in high-technology sectors across the EU, which represented 5.0% of total employment.

More about the data: employment in high-technology sectors

High-technology sectors comprise high-technology manufacturing sectors and knowledge-intensive high-technology services. The statistics presented for these sectors cover all people (including support staff) who work in enterprises in these sectors, not the number of highly qualified workers.

High-technology sectors are identified in terms of a sectoral approach

- high-technology manufacturing covers NACE Divisions 21 and 26 (manufacture of basic pharmaceutical products and pharmaceutical preparations; manufacture of computer, electronic and optical products)
- high-tech knowledge-intensive services cover NACE Divisions 59 to 63 and 72 (motion picture, video and television programme production, sound recording and music publish activities; programming and broadcasting activities; telecommunications; computer programming, consultancy and related activities; information service activities; scientific research and development).

A distinction is made between high-technology manufacturing sectors and knowledge-intensive high-technology services due to the existence of 2 different methodologies

- R&D intensities are used to distinguish between high, medium-high, medium-low and low-technology manufacturing industries
- the proportion of the workforce that has completed a tertiary education is used to distinguish between knowledge-intensive services and other services.

There were 24 NUTS level 2 regions where at least 100 000 people were employed in high-technology sectors in 2023 (as shown by the largest circles in Map 9.5). In keeping with most science and technology indicators, these regions were principally located in some of the largest capital/metropolitan regions of the EU. Just over half of this group (13 out of the 24) was composed of capital regions. The highest count of employment in high-technology sectors was recorded in the French capital region of Ile-de-France (469 100). There were 3 other regions across the EU with more than 250 000 people employed: Lombardia in northern Italy, the Spanish capital region of Comunidad de Madrid and Oberbayern in southern Germany.

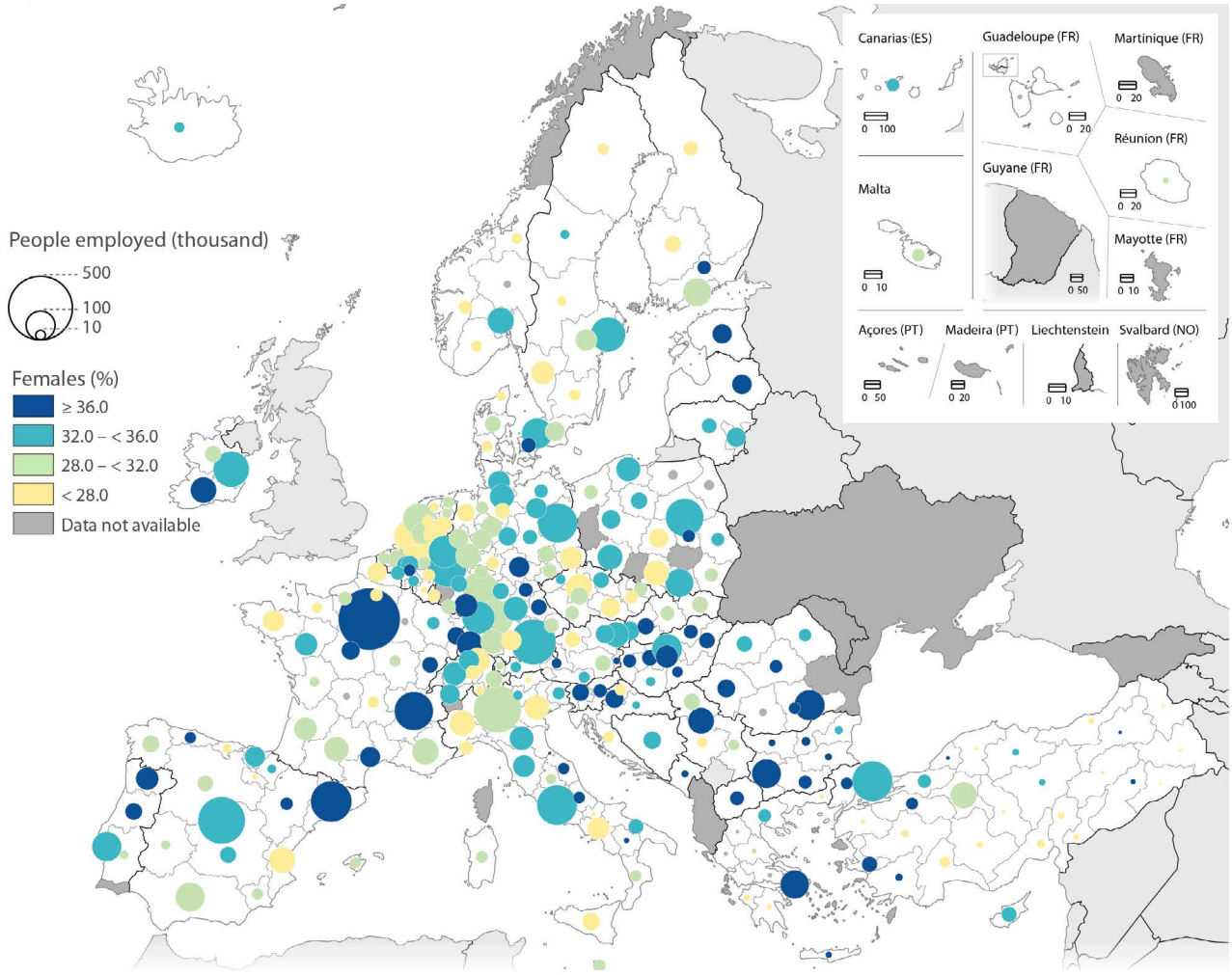
To give some idea of the skewed nature of the distribution, the 24 regions that employed at least 100 000 people in their high-technology sectors together employed 4.1 million people in 2023, equivalent to 40.2% of the EU total. This was similar to the cumulative share of the 172 regions which each had fewer than 60 000 people employed in high-technology sectors (4.1 million people; 39.5%). At the bottom end of the distribution, there were 14 regions where fewer than 5 000 people were employed in high-technology sectors. This group included 3 regions where 2 000 people or fewer were employed in high-technology sectors, all of them were located in Greece – Anatoliki Makedonia, Thraki; Ipeiros; and Dytiki Makedonia.

In 2023, the Romanian region of Sud-Muntenia had an almost equal gender balance for the number of people employed in high-technology sectors

As well as identifying the regions with the highest/lowest numbers of people employed in high-technology sectors, Map 9.5 also shows the relative importance of the male/female workforce in high-technology sectors. In 2023, women accounted for 32.9% of total employment in the EU's high-technology sectors. The female share of employment in high-technology sectors ranged across NUTS level 2 regions

- from highs of 47.2 to 48.7% in Sud-Muntenia in Romania, Severen tsentralen in Bulgaria, Alsace in France and Észak-Magyarország in Hungary
- down to less than 20.0% in the Belgian regions of Prov. Liège and Prov. Luxembourg, the Swedish regions of Småland med öarna and Norra Mellansverige, and the Dutch regions of Friesland and Flevoland.

Map 9.5: Employment in high-technology sectors, by sex, 2023
(by NUTS 2 regions)



Administrative boundaries: © EuroGeographics © UN–FAO © Turkstat
Cartography: Eurostat – IMAGE, 06/2024

Note: high-technology sectors are defined as high-technology manufacturing and knowledge-intensive high-technology services.
Bremen (DE50), Molise (ITF2) and Zonguldak, Karabük, Bartın (TR81): 2022. Montenegro and North Macedonia: 2020. Includes data with low reliability for some regions (too many to document).

Source: Eurostat (online data code: htec_emp_reg2)

10. Tourism

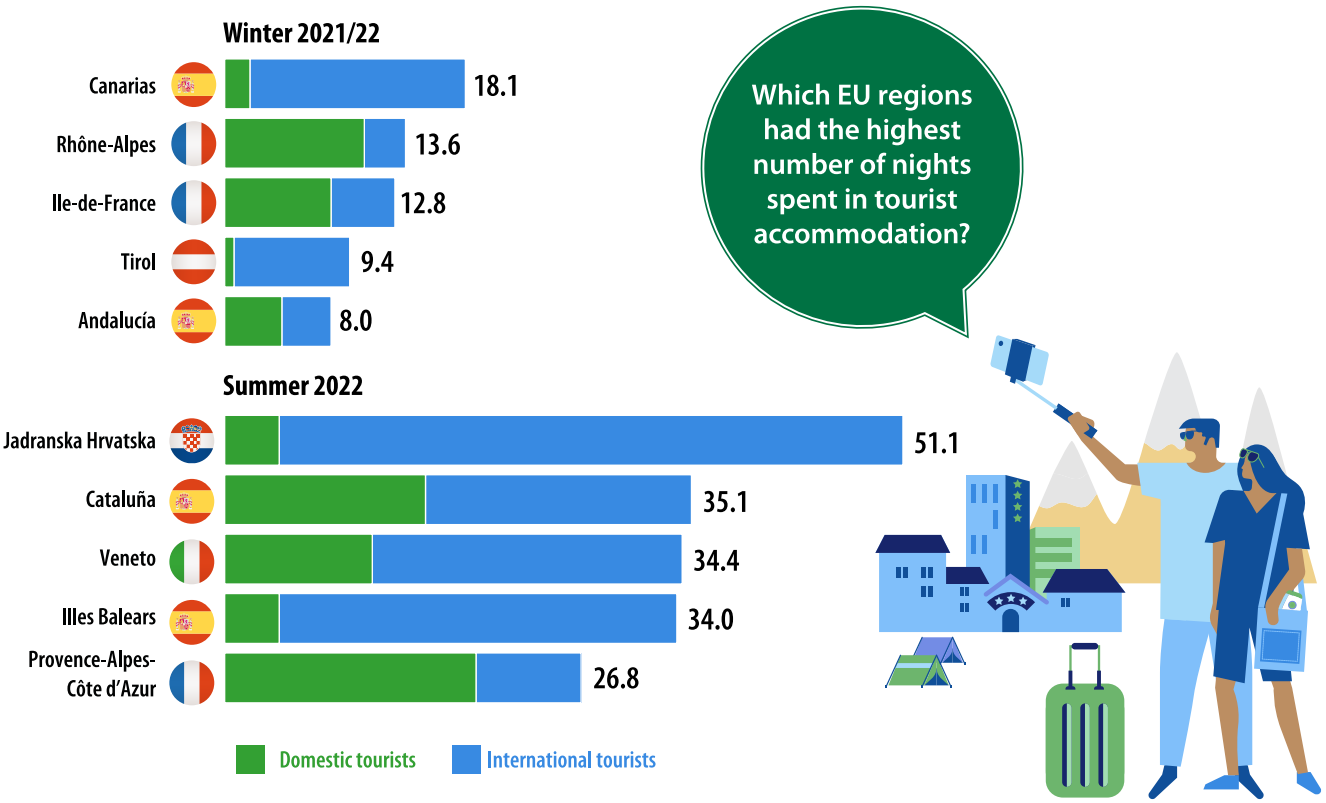
Tourism has the potential to play a significant role in many regional economies and can be of particular importance in remote/peripheral regions, such as the European Union (EU's) coastal, mountain or outermost regions. Infrastructure that is created for tourism purposes contributes to local and regional development, while jobs that are created or maintained can help counteract industrial or rural decline. By contrast, tourism can have negative consequences/externalities, as excess demand may put a strain on local infrastructure and be a nuisance to local communities. Furthermore, tourism can impact the environment locally through noise, pollution, waste and wastewater, habitat loss and globally through transport-related emissions.

The COVID-19 crisis led to virtually all EU countries implementing containment measures and restrictions on non-essential travel; some partially or completely closed their borders. As well as travel-related restrictions, many governments also imposed restrictions on the way that tourism-related businesses could operate. The tourism sector experienced the full impact of the economic shock associated with the pandemic. Initially, the recovery of the EU's tourism sector from the effects of the pandemic was driven by domestic demand, so-called 'staycations', with international tourists more cautious to travel once the restrictions linked to the pandemic had been lifted.

In 2022, there were 2 754 million nights spent in EU tourist accommodation. This figure was broadly in line with pre-pandemic levels, as there had been 2 875 million nights spent in 2019.

The infographic below provides information on the EU regions with the highest numbers of nights spent in tourist accommodation during winter 2021/22 (December 2021 to February 2022). The list included popular

- beach holiday destinations, such as Canarias and Andalucía in Spain
- city holiday destinations, such as the French capital region of Ile-de-France
- mountain holiday destinations, such as Rhône-Alpes in France and Tirol in Austria.



(million nights, winter 2021/22 and summer 2022, by NUTS 2 regions)

Note: winter 2021/22 is defined as December 2021 to February 2022. Summer 2022 is defined as June to August 2022. The data values at the end of each bar provide information on the total number of nights spent by both domestic and international tourists.

Source: Eurostat (online data code: tour_occ_nin2m)

During summer (June to August) 2022, popular beach holiday destinations accounted for the highest numbers of nights spent in tourist accommodation. There were 51.1 million nights spent in the Croatian coastal region of Jadranska Hrvatska, while the Spanish regions of Cataluña and Illes Balears and the Italian region of Veneto each recorded 34.0 to 35.1 million nights.

Some EU regions are characterised by their tourism demand being relatively evenly split between domestic and international tourists: this pattern was apparent, for example, in the Spanish regions of Andalucía and Cataluña. There were other regions, such as Rhône-Alpes and Provence-Alpes-Côte d'Azur in France, where domestic tourists accounted for a majority of the nights spent in tourist accommodation. By contrast, in regions such as Tirol and Jadranska Hrvatska, the number of nights spent by international tourists was more than 10 times as high as that for domestic tourists.

Issues such as seasonality and tourism pressures are explored in more detail below.

Number of nights spent in tourist accommodation

More about the data: tourism statistics

Tourism, in a statistical context, refers to the activity of visitors taking a trip to a destination outside their usual environment, for less than a year. This definition is wider than the common everyday definition, insofar as it encompasses not only private leisure trips but also visits to family and friends, as well as business trips.

Tourism statistics are traditionally collected from suppliers of tourism services through surveys of tourist accommodation establishments or from administrative data. These establishments include all types of accommodation which provide, as a paid service, accommodation for tourists. They are defined according to the activity classification NACE and include

- hotels and similar establishments (NACE Group 55.1)
- holiday and other short-stay accommodation (NACE Group 55.2)
- camping grounds, recreational vehicle parks and trailer parks (NACE Group 55.3).

The data are generally presented for NUTS level 3 regions. Exceptions are Belgium and Türkiye where the data refer to level 2 regions.

In 2022, there were 2.75 billion nights spent in all forms of tourist accommodation across the EU. This figure reflects both the length of stay and the number of tourists and is considered a key indicator for examining tourism developments, even if it doesn't cover stays at non-rented accommodation nor same-day visits (without an overnight stay).

Map 10.1 shows information for 2022 on the total number of nights spent in tourist accommodation (as denoted by the size of each circle). There were 7 NUTS level 3 regions where the number of nights spent was above 30.0 million

- the Spanish island region of Mallorca (48.3 million)
- the French capital region of Paris (41.9 million)
- the Spanish coastal region of Barcelona (35.7 million)
- the Italian coastal region of Venezia (35.4 million)
- the Italian mountainous region of Bolzano-Bozen (34.4 million)
- the Spanish island region of Tenerife (32.2 million)
- the Italian capital region of Roma (32.0 million).

In 2022, domestic tourists accounted for a majority (56.0%) of the total nights spent in EU tourist accommodation. Domestic tourists visited a broad range of regions across the EU, as they accounted for a majority of the nights spent in 960 out of 1 095 NUTS level 3 regions. By contrast, international tourists tended to cluster in a small number of regions that are among the most frequented tourist destinations; this may lead to tourism pressures and have implications for sustainable development.

Map 10.1 also presents information on the origin of tourists, identifying 3 specific groups, namely those regions characterised by

- a high proportion of nights spent by domestic tourists
- a relatively equal share of nights spent between domestic and international tourists
- a high proportion of nights spent by international tourists.

In 2022, domestic tourists accounted for at least 19 out of 20 nights spent in 69 NUTS level 3 regions across the EU; some of these high shares were recorded in regions characterised by relatively low overall tourist numbers. Looking in more detail, 26 of this group had at least 1.0 million nights spent in tourist accommodation. They were located in relatively large EU countries (where domestic demand is likely to be higher): 18 regions from Germany, 6 regions from Poland and 2 regions from Romania. Within this group of 26

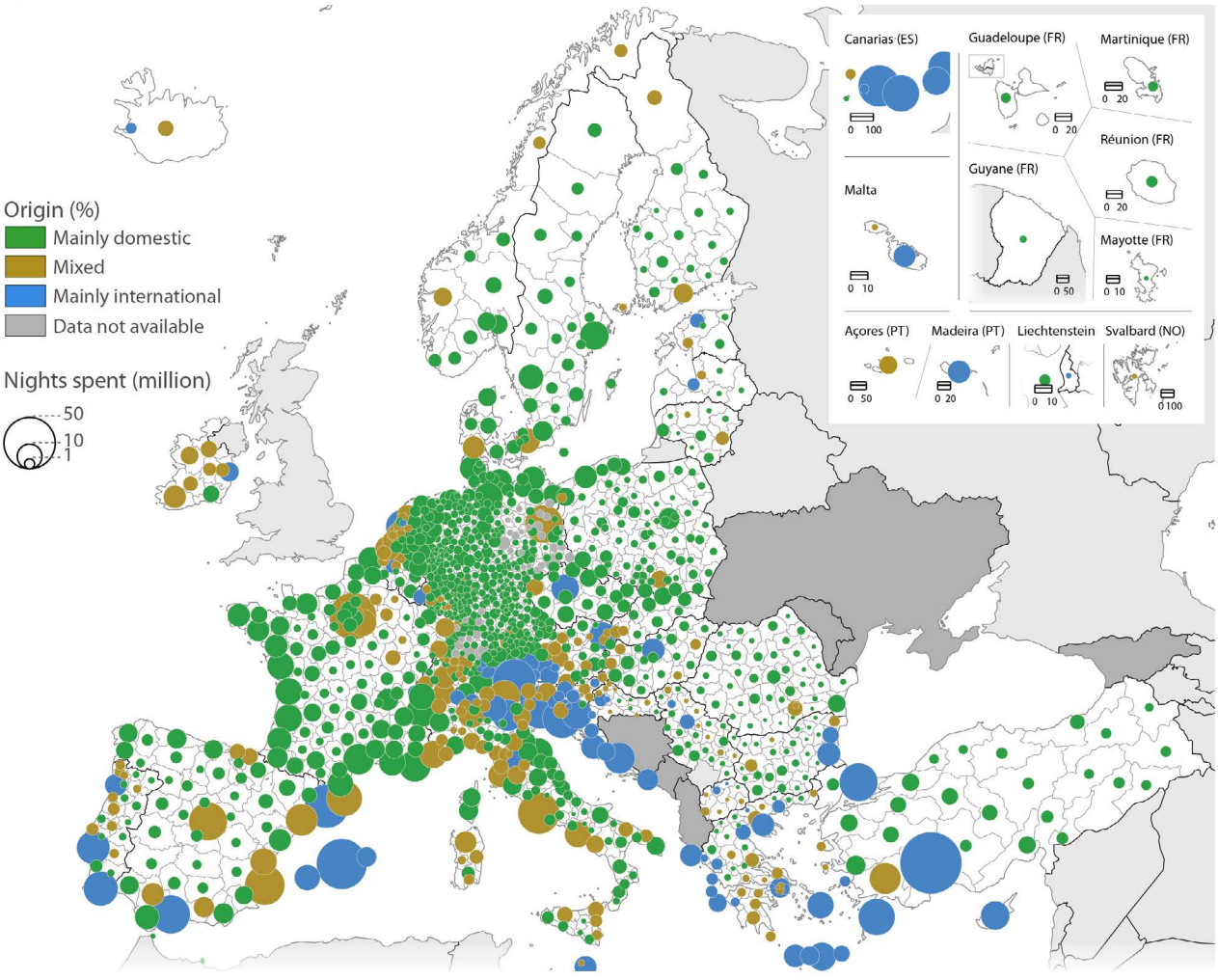
- the highest overall numbers of nights spent (by both domestic and international tourists) were observed in the northern, coastal regions of Ostholstein, Nordfriesland and Vorpommern-Rügen in northern Germany
- the highest share of nights spent by domestic tourists, 99.1%, was recorded in Wittmund (another coastal region in the north of Germany) and in Włocławski (in central Poland).

A similar analysis to that conducted for domestic tourists reveals that there were only 7 NUTS level 3 regions where international tourists accounted for at least 19 out of 20 nights spent in 2022

- the Austrian mountainous region of Außerfern
- the Croatian coastal region of Istarska županija
- 5 Greek island regions – Irakleio, Rethymni, Zakynthos, Lasithi, and Kalymnos, Karpathos, Kasos, Kos and Rodos.

Each of these 7 regions where international tourists accounted for at least 19 out of 20 nights spent in tourist accommodation was characterised by a relatively high overall number of nights spent (by both domestic and international tourists). The lowest count was in Außerfern (3.1 million nights), while very high numbers of tourist nights were spent in Irakleio (13.9 million), Kalymnos, Karpathos, Kasos, Kos, Rodos (24.2 million) and Istarska županija (27.7 million).

Map 10.1: Nights spent in tourist accommodation by origin of tourists, 2022
(by NUTS 3 regions)



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Cartography: Eurostat – IMAGE, 07/2024

Note: the origin of tourists is defined as a share of total nights spent – mainly domestic (≥ 65.0%), mixed (> 35.0% and < 65.0%), mainly international (≥ 65.0%). Belgium and Türkiye: NUTS level 2. Belgium, Iceland, Liechtenstein and Türkiye: 2021.

Source: Eurostat (online data code: tour_occ_nin3)

In 2022, Berlin had the highest count of nights spent in tourist accommodation by domestic tourists …

Figure 10.1 shows the most frequented tourist destinations in the EU: it is based on NUTS level 3 regions with the highest numbers of nights spent in tourist accommodation by domestic tourists (left-hand side of the figure) and by international tourists (right-hand side).

In 2022, there were 16.2 million nights spent by domestic tourists in the German capital region of Berlin. The other NUTS level 3 regions where the number of nights spent by domestic tourists was higher than 12.0 million included

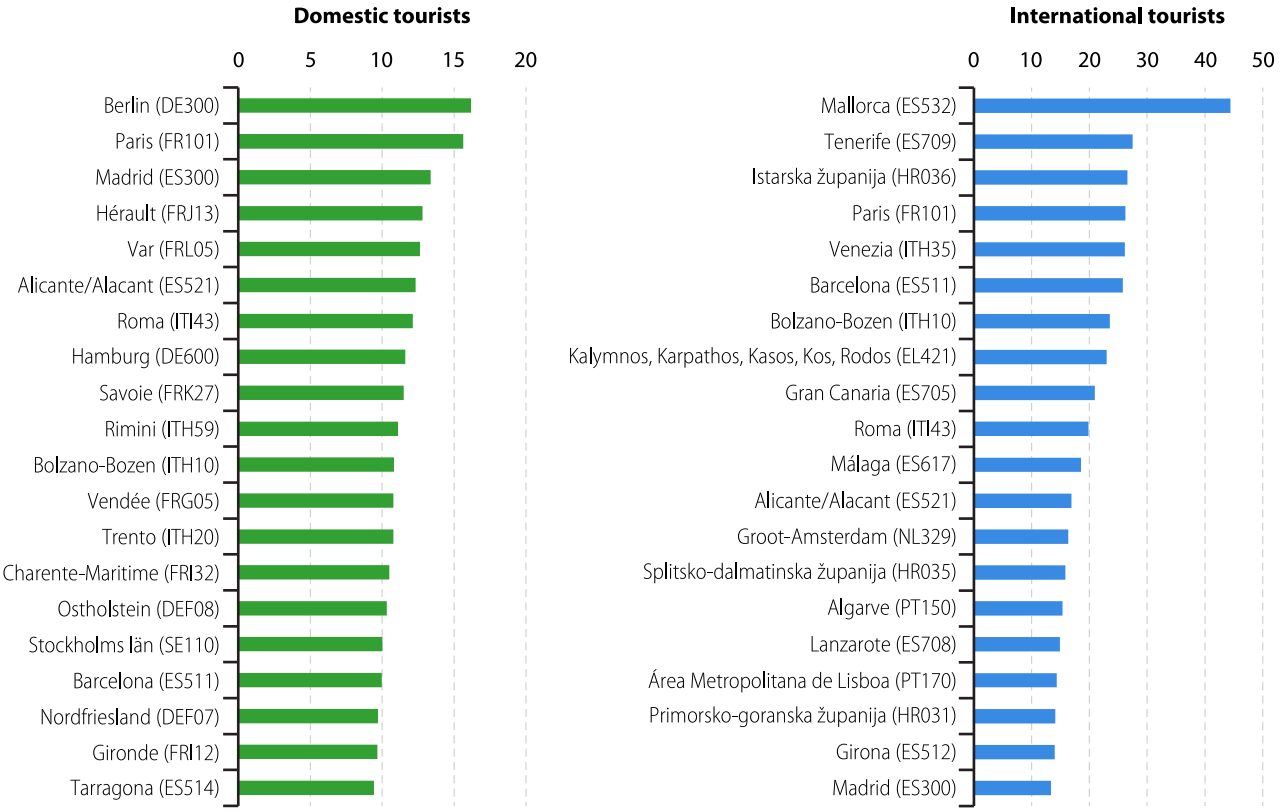
- the capital regions of Paris in France (15.6 million), Madrid in Spain (13.4 million) and Roma in Italy (12.1 million)
- the southern French coastal regions of Hérault (12.8 million) and Var (12.6 million)
- the Spanish coastal region of Alicante/Alacant (12.3 million).

… while the Spanish island region of Mallorca had the highest number of nights spent by international tourists

In 2022, the Spanish island region of Mallorca had, by far, the highest count of nights spent in tourist accommodation by international tourists, at 44.4 million. The other NUTS level 3 regions within the EU to report at least 25.0 million nights spent by international tourists included

- the Spanish island region of Tenerife (27.5 million)
- the Croatian coastal region of Istarska županija (26.6 million)
- the French capital region of Paris (26.3 million)
- the Italian coastal region of Venezia (26.1 million)
- the Spanish coastal region of Barcelona (25.8 million).

Figure 10.1: Top tourist regions in the EU, 2022
(million nights spent in tourist accommodation, by NUTS 3 regions)



Note: the figure shows the EU regions with the highest numbers of nights spent by domestic tourists and by international tourists. The scales on the numeric axes are different. Belgium: NUTS level 2, 2021. Several regions in Germany are not available (too many to document).

Source: Eurostat (online data code: tour_occ_nin3)

Figure 10.2 presents, for each EU country, the most frequented region by domestic and by international tourists (based on the share of the total number of nights spent in tourist accommodation in each country). These relative shares reflect, to some degree, the number of regions in each EU country, while Cyprus and Luxembourg are single regions at NUTS level 3 (and hence aren't shown).

There were 8 EU countries (out of 25 for which data are presented) where the same region was the most frequented among both domestic and international tourists

- in Germany, France, Malta, Finland and Sweden this was the capital region – Berlin, Paris, the island of Malta, Helsinki-Uusimaa and Stockholms län
- in Belgium, Bulgaria and Portugal this was a region other than the capital – Prov. West-Vlaanderen, Burgas and Algarve.

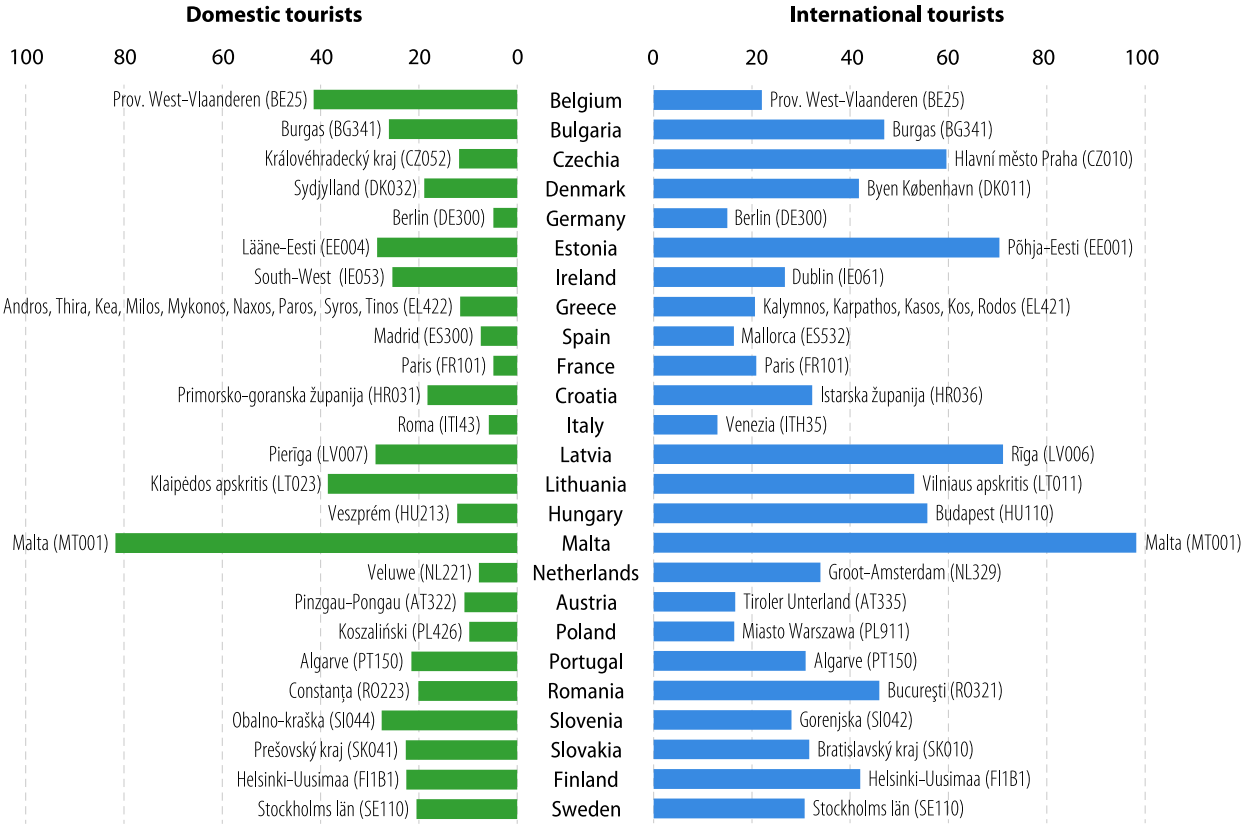
In 11 of the 17 remaining EU countries, the capital region was the most frequented among international tourists; this was the case in Czechia, Denmark, Estonia, Ireland, Latvia, Lithuania, Hungary, the Netherlands, Poland, Romania and

Slovakia. In the other 6 EU countries, the most frequented regions for international tourists were

- the coastal regions of Kalymnos, Karpathos, Kasos, Kos, Rodos in Greece, Mallorca in Spain, Istarska županija in Croatia and Venezia in Italy
- the mountainous regions of Tiroler Unterland in Austria and Gorenjska in Slovenia (which includes the popular tourist attraction of Lake Bled).

Among the same 17 EU countries, the most frequented regions for domestic tourists were often less well-known internationally. Leaving aside the 4 landlocked countries – Czechia, Hungary, Austria and Slovakia – all but 2 of the most frequented regions for domestic tourists were coastal: Sydjylland in Denmark, Lääne-Eesti in Estonia, South-West in Ireland, Andros, Thira, Kea, Milos, Mykonos, Naxos, Paros, Syros, Tinos in Greece, Primorsko-goranska županija in Croatia, Roma in Italy, Pierīga in Latvia, Klaipėdos apskritis in Lithuania, Koszaliński in Poland, Constanța in Romania and Obalno-kraška in Slovenia. The only exceptions were the Spanish capital region of Madrid and Veluwe in the centre of the Netherlands.

Figure 10.2: Regional concentration of nights spent in tourist accommodation in each EU country, 2022
(%, highest shares of nights spent, by NUTS 3 regions)



Note: the figure shows the regions which recorded the highest share of nights spent by tourists (separately for domestic and international tourists) in each EU country. Belgium: NUTS level 2, 2021. Cyprus and Luxembourg: single regions at NUTS level 3. Several regions in Germany are not available (too many to document).

Source: Eurostat (online data code: tour_occ_nin3)

The number of nights spent in EU tourist accommodation increased 50.4% between 2021 and 2022

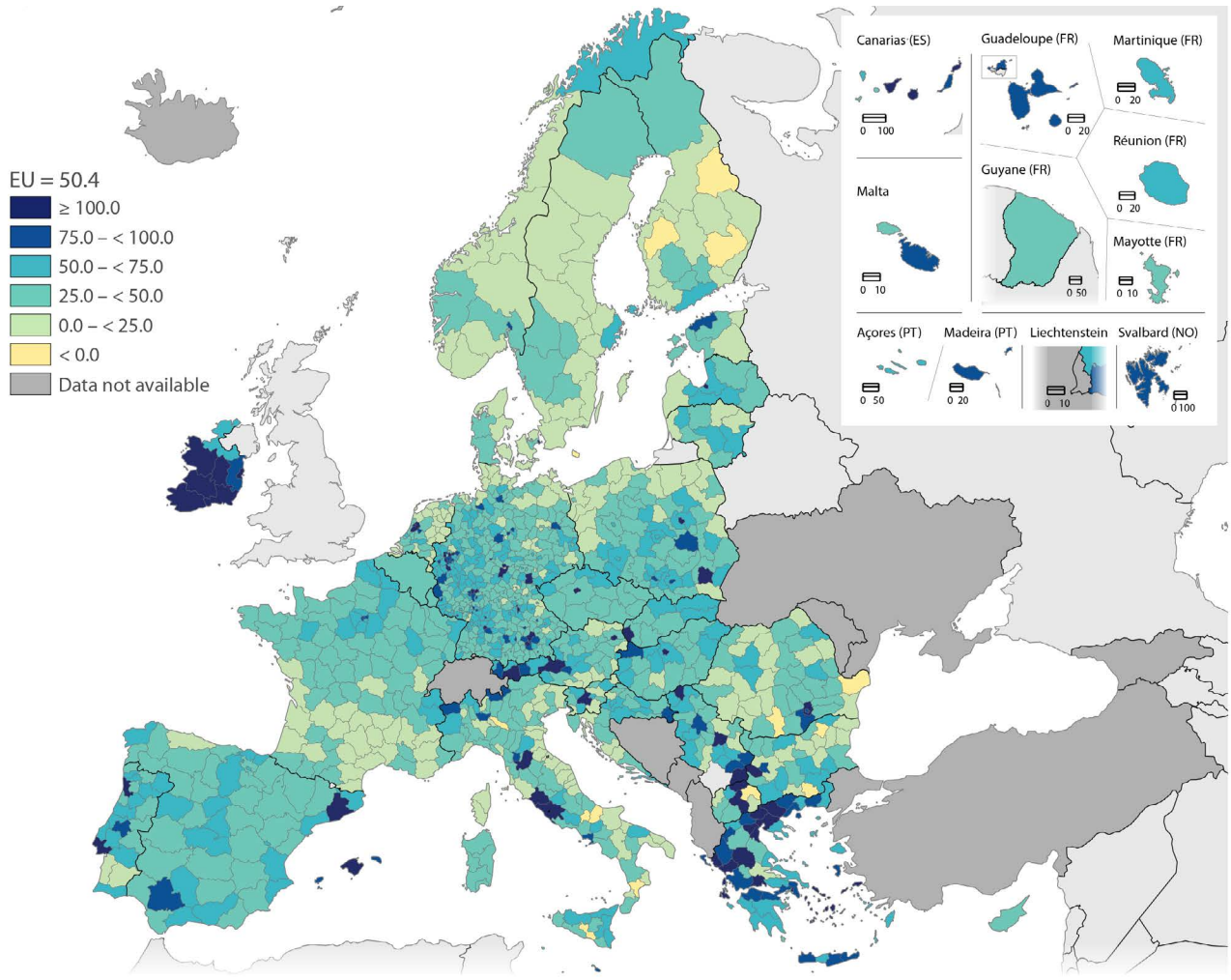
In 2022, the EU's tourism sector recovered strongly from the impact of the COVID-19 pandemic, as the number of nights spent in tourist accommodation increased 50.4% compared with 2021. The regional distribution of this change was skewed, insofar as 416 out of 1 122 regions (37.1% of all NUTS level 3 regions for which data are available) had a rate of growth higher than the EU average.

Map 10.2 shows information for the annual rate of change in the number of nights spent in tourist accommodation for 2022. At the top end of the distribution, there were 60 NUTS level 3 regions where the number of nights spent at least doubled (as shown by the darkest shade of blue in the map). These regions were dispersed across the EU and included several popular holiday destinations on the coast and in cities. At the top end of the distribution, the highest growth rates were recorded in

- the Midland region of Ireland, where the number of nights spent in tourist accommodation more than quadrupled
- Wartburgkreis in Germany, Imathia in Greece and Roma in Italy, where the number of nights spent in tourist accommodation more than trebled.

Although the vast majority of regions across the EU saw their number of nights spent in tourist accommodation increase between 2021 and 2022, there were 13 exceptions where there was a fall in the number of nights spent (they are denoted by a yellow shade in Map 10.2). For a majority of this group (11 regions), the decrease in the number of nights spent was less than 10.0%. However, larger contractions were recorded in 2 Romanian regions: Tulcea (−18.2%) and Olt (−23.8%).

Map 10.2: Change in nights spent in tourist accommodation, 2022
(%, annual change compared with 2021, by NUTS 3 regions)



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Cartography: Eurostat – IMAGE, 06/2024

Note: Belgium, national data.

Source: Eurostat (online data codes: tour_occ_nin3 and tour_occ_ninat)

Seasonality

Seasonality can have a considerable impact on tourism: it is linked to a range of environmental factors such as climate or geographical location, as well as socioeconomic factors like public and school holidays or factories closing for annual leave. Tourist arrivals are generally more evenly spread than the number of nights spent across the calendar year, due to a higher concentration of longer stays in the summer months.

There were 446 million and 481 million nights spent in EU tourist accommodation during the months of July and August 2022. As such, they were the 2 busiest months for tourism in the EU, together accounting for 33.6% of all nights spent in tourist accommodation during 2022. As was the case for the whole year, domestic tourists accounted for a small majority of the total number of nights spent in EU tourist accommodation: 54.1% in July and 56.2% in August 2022.

Map 10.3 shows for each NUTS level 2 region the share of the 2 busiest months in the total number of nights spent in tourist accommodation during 2022. In approximately 90% of EU regions (216 out of the 242 for which data are available), July and August had the highest numbers of nights spent. The exceptions – where July and August weren't the 2 busiest months – were principally observed among capital/predominantly urban regions, which may receive a relatively high number of tourists for professional reasons and/or may be popular destinations for short/weekend breaks. For example, October was among the 2 busiest months in 2022 for the Belgian, Spanish, French and Romanian capital regions. That said, some coastal destinations also had peaks in seasonality towards the end of the year that could be linked, at least in part, to their favourable climates. This was the case, for example, in the French outermost regions of Guadeloupe, Guyane and La Réunion where 1 or 2 months in the final quarter of the year were among the 2 busiest months.

There were 15 NUTS level 2 regions where the 2 busiest months of the year accounted for at least half of all the nights spent in tourist accommodation during 2022. All of this group with a high degree of seasonality were coastal regions; they are shown in the darkest shade of blue in Map 10.3. At the top end of the distribution, there were 5 regions where July and August were the 2 busiest months of the year, accounting for at least 60% of all nights spent during 2022

- the Mediterranean coastal region of Calabria in Italy – where July and August accounted for 64.8% of the total number of nights spent in tourist accommodation during 2022
- the Black Sea coastal regions of Sud-Est (64.5%) in Romania and Yugoiztochen (64.3%) and Severoiztochen (60.9%) in Bulgaria
- the Adriatic coastal region of Jadranska Hrvatska in Croatia (60.2%) – which had the 2nd highest number of nights spent in tourist accommodation among NUTS level 2 regions of the EU.

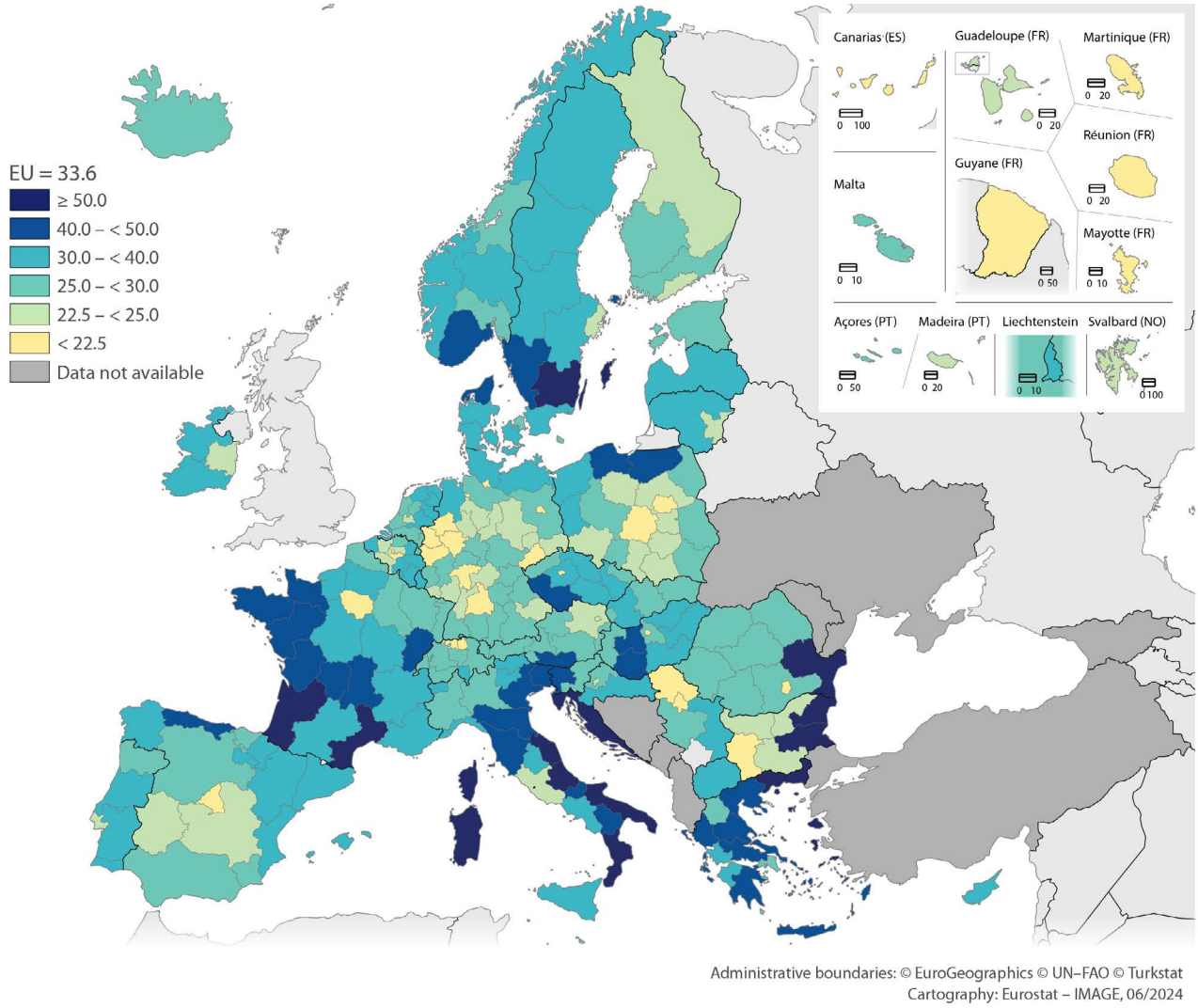
The lowest levels of concentration in the 2 busiest months were generally observed either in capital or predominantly urban regions or in more rural, sparsely populated regions that had relatively low levels of tourism; in both situations, demand was more evenly spread across the year. In 2022, there were 25 NUTS level 2 regions where the 2 busiest months accounted for less than 22.5% of the total nights spent in tourist accommodation (as shown by the yellow shade in Map 10.3). Among with a few others, this group included

- the capital regions of Belgium, Bulgaria, Czechia, Germany, Spain, France, Hungary, Poland and Romania
- several German regions with relatively large cities – Bremen, Chemnitz, Darmstadt, Düsseldorf, Hamburg, Köln, Münster and Stuttgart
- 4 out of the 5 outermost regions of France (while the 5th region, Guadeloupe, had a share of 23.0%) and the Spanish outermost region of Canarias (20.0%).

The lowest levels of seasonality during 2022 were observed in

- the French outermost region of Mayotte, where March and May accounted for 18.8% of all nights spent
- the Polish capital region of Warszawski stołeczny, where June and August accounted for 19.0% of all nights spent
- the Spanish capital region of Comunidad de Madrid, where June and October accounted for 19.2% of all nights spent
- the French outermost region of La Réunion, where August and October accounted for 19.8% of all nights spent.

Map 10.3: Nights spent in tourist accommodation during the 2 busiest months of the year, 2022
(% of total number of nights spent during the year, by NUTS 2 regions)



Note: Iceland and Liechtenstein, 2021. Guadeloupe (FRY1) and Martinique (FRY2): low reliability.
Source: Eurostat (online data code: tour_occ_nin2m)

Tourism pressures

Since the advent of mass tourism in the 1950s and 1960s, EU regions have been affected by tourism in different ways: while some regions continue to receive very few visitors, others have seen their numbers of tourists grow considerably. Many regions across the EU – particularly coastal regions – receive a majority of their visitors each year during a single season (see the section above on seasonality for more information).

Sustainable tourism involves the preservation and enhancement of cultural and natural heritage, including the arts, gastronomy or biodiversity. The success of tourism is, in the long-term, closely linked to its sustainability, with the quality of destinations often influenced by their natural and cultural environment and/or integration into the local community.

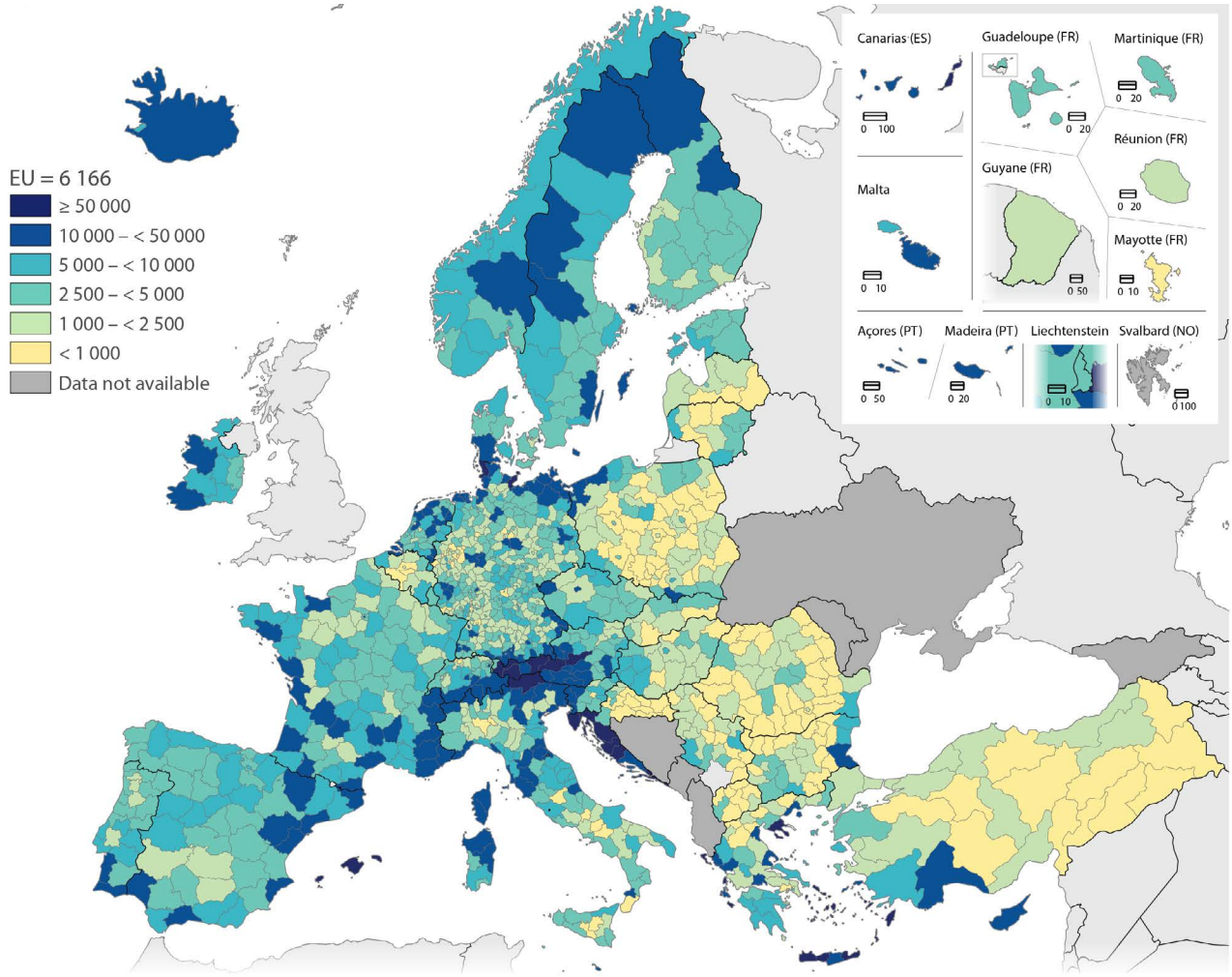
Tourism intensity is defined here as the number of nights spent in tourist accommodation per 1 000 inhabitants. There were 6 166 nights spent in EU tourist accommodation per 1 000 inhabitants in 2022. The regional distribution of tourism intensity was heavily skewed, highlighting that mass tourism tends to be concentrated in relatively few regions and those outside of capital cities and other major urban areas often have a relatively small resident population. Indeed, the ratio of tourist nights spent per 1 000 inhabitants was higher than the EU average in fewer than 3 out of 10 NUTS level 3 regions (317 out of 1 132 for which data are available). The statistics presented are likely to underestimate the true extent of tourism pressures, given the numerator for the ratio doesn't include same-day visitors or tourists staying in non-rented accommodation (such as 2nd homes, or stays with friends/relatives).

Map 10.4 shows where tourism pressures were concentrated in 2022. There were 29 NUTS level 3 regions where at least 50 000 nights were spent in tourist accommodation per 1 000 inhabitants (as shown by the darkest shade of blue).

At the upper end of the distribution, there were 6 NUTS level 3 regions where the number of nights spent in tourist accommodation rose to more than 100 000 per 1 000 inhabitants in 2022

- the Adriatic coastal region of Istarska županija in Croatia had the highest ratio of tourism intensity, at 131 411 nights spent per 1 000 inhabitants
- the Greek island regions of Zakynthos and of Kalymnos, Karpathos, Kasos, Kos, Rodos
- the Spanish island regions of Fuerteventura and of Lanzarote (that are both part of Canarias)
- the mountainous, western Austrian region of Tiroler Oberland.

Map 10.4: Nights spent in tourist accommodation relative to resident population, 2022
(per 1 000 inhabitants, by NUTS 3 regions)



Administrative boundaries: © EuroGeographics © UN–FAO © Turkstat
Cartography: Eurostat – IMAGE, 06/2024

Note: Belgium and Türkiye, NUTS level 2. Belgium, Iceland, Liechtenstein and Türkiye: 2021.
Source: Eurostat (online data code: tour_occ_nin3)

In 2022, there were, on average, 652 nights spent per km² in EU tourist accommodation

An alternative indicator for analysing tourism pressures is provided by tourism density, defined here as the total number of nights spent per square kilometre (km²) in tourist accommodation. In 2022, there were, on average, 652 nights spent per km² in EU tourist accommodation.

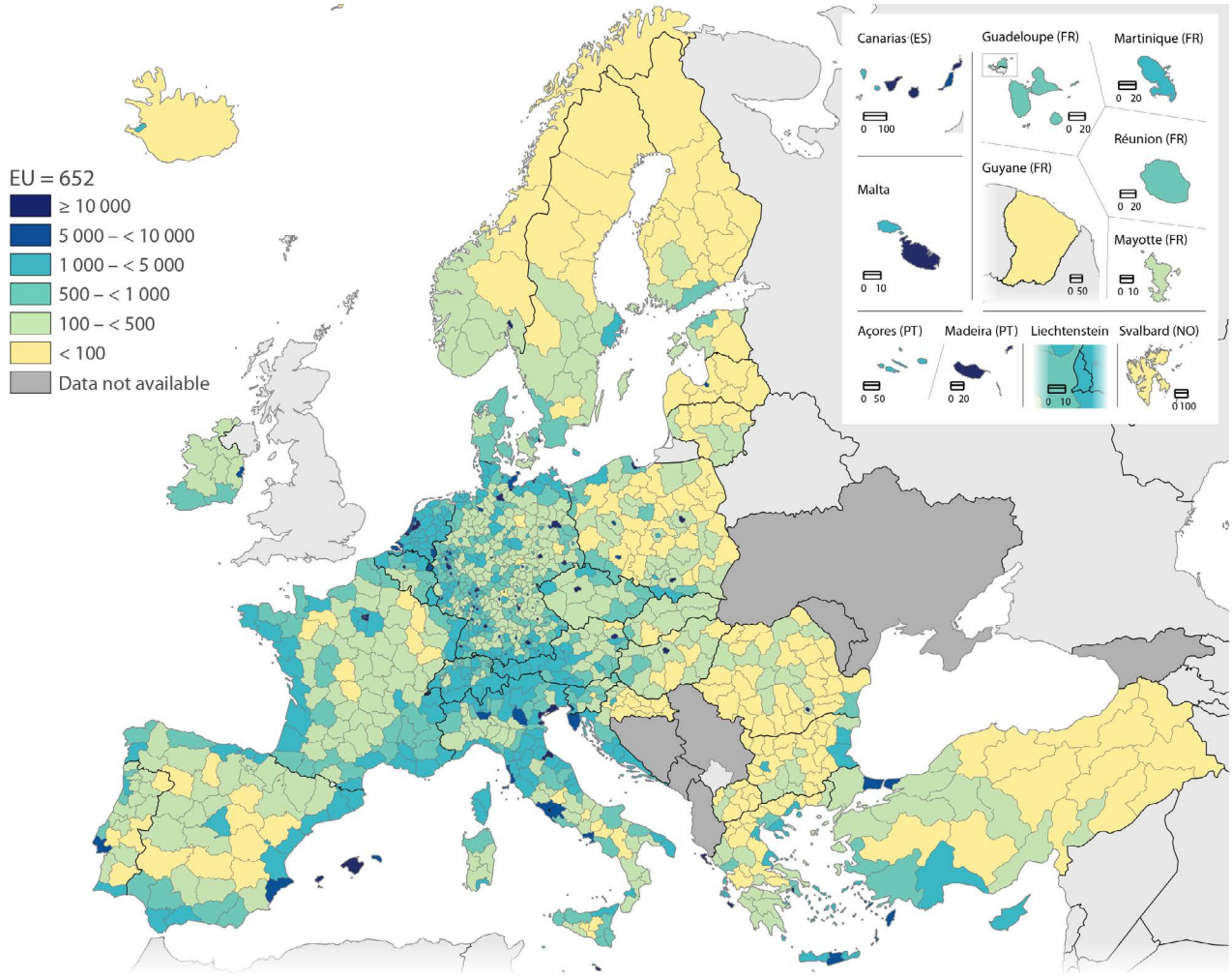
Map 10.5 shows that this measure of tourism pressures was concentrated in urban regions (which generally consist of much smaller areas). In 2022, there were 46 NUTS level 3 regions where tourism density was above 10 000 nights spent per km² (they are shown in the darkest shade of blue). Paris had by far the highest concentration of tourists, at 399 089 nights spent per km². The density of tourists in the French capital region was more than 5 times as high as any other

region of the EU, with Kentrikos Tomeas Athinon (which forms part of the Greek capital) recording the 2nd highest ratio (73 743 nights spent per km^2).

Among the 44 other NUTS level 3 regions which recorded tourism density of at least 10 000 nights spent per km^2 in 2022 there were 11 additional capital regions, those of Denmark, Malta, Austria, Germany, Czechia, the Netherlands, Hungary, Belgium, Poland and Romania; they were joined by a 2nd region that constitutes part of the Greek capital. Among other regions, high ratios were also observed in several

- predominantly urban regions, for example, München, Frankfurt am Main, Düsseldorf and Hamburg in Germany
- suburban regions, such as Hauts-de-Seine, Seine-Saint-Denis and Val-de-Marne located around the French capital
- popular island regions, such as Lanzarote, Eivissa y Formentera, Tenerife and Gran Canaria in Spain
- popular coastal regions, such as Rimini or Venezia in Italy.

Map 10.5: Nights spent in tourist accommodation relative to area, 2022
(per km^2, by NUTS 3 regions)



Administrative boundaries: © EuroGeographics © UN–FAO © Turkstat
Cartography: Eurostat – IMAGE, 06/2024

Note: Belgium and Türkiye, NUTS level 2. Belgium, Iceland, Liechtenstein and Türkiye: 2021.
Source: Eurostat (online data code: tour_occ_nin3)

GUEST NIGHTS SPENT AT SHORT-STAY ACCOMMODATION OFFERED VIA ONLINE COLLABORATIVE ECONOMY PLATFORMS

Developments in information and communication technologies have had a major impact on the tourist accommodation market. The emergence of online platforms has made it easier for small-scale service providers to advertise/offer their rooms, apartments and holiday homes to potential guests, with a rapid expansion of this market.

More about the data: experimental statistics on short-stay accommodation offered via online platforms

The information presented so far in this chapter has been based on official tourism statistics, compiled according to Regulation (EU) No 692/2011. These statistics provide limited coverage of holiday and short-stay accommodation, as data for holiday homes, apartments and rooms in otherwise private buildings are often outside the scope of tourism registers and surveys. Official statistics on holiday and short-stay accommodation are generally underestimated, given that several EU countries limit the scope of observations to establishments with, for example, at least 10 bed places. In recent years, this coverage issue has been further compounded by the emergence of online platforms that provide relatively simple methods for private individuals and small enterprises to offer short-stay accommodation; this has led to a surge in the provision of this type of accommodation.

For this reason, Eurostat embarked on an experimental data collection exercise aimed at improving the completeness of tourism statistics. It is based on a previously unexplored channel, namely data on listings/bookings obtained directly from 4 major online platforms (Airbnb, Booking.com, Tripadvisor and Expedia Group). This exercise was restricted to the collection of information on holiday and short-stay accommodation (NACE Group 55.2), reflecting the principal type of accommodation for service providers within the collaborative economy.

In 2022, Málaga in southern Spain was the most frequented region in terms of nights spent in short-stay accommodation offered via selected online booking platforms

Figure 10.3 shows the NUTS level 3 regions that recorded the highest number of nights spent by domestic and by international guests at short-stay accommodation offered via online booking platforms. In 2022, the highest counts for both types of guests were recorded in the southern Spanish coastal region of Málaga

- 4.0 million guest nights spent by domestic tourists
- 10.3 million guest nights spent by international tourists.

In 2022, the 20 most frequented NUTS level 3 regions among domestic guests for short-stay accommodation offered via selected online booking platforms were concentrated in Spain and France. In Spain, many of the regions that were most frequented by domestic guests were characterised as developed, coastal regions on the southern and eastern coastlines – Málaga, Alicante/Alacant, Cádiz and Valencia/València – the only exception was the capital region of Madrid. By contrast, several of the regions most frequented by French tourists were relatively rural areas, generally characterised by their coastline and/or mountains. Some of the regions with the highest numbers of nights spent by domestic guests in France included

- Haute-Savoie and Savoie in the Alps
- Var, Bouches-du-Rhône, Hérault and Alpes-Maritime on the Mediterranean coast
- Gironde, Charente-Maritime, Pyrénées-Atlantiques, Morbihan, Vendée and Finistère on the Atlantic coast.

Trójmiejski on the northern coastline of Poland was the only region from outside of Spain and France to feature in the ranking of most frequented regions by domestic guests.

In 2022, there were 7 different countries that featured in the ranking of the 20 most frequented NUTS level 3 regions among international guests for short-stay accommodation offered via selected online booking platforms. The vast majority of regions in this list were among the most popular holiday destinations, including several (capital) cities. There were 13 regions where the number of nights spent by international guests was higher than 5.0 million

- half of these were located in Spain – Málaga, Barcelona, Alicante/Alacant, Tenerife, Mallorca and Madrid
- 3 in Portugal – Área Metropolitana de Lisboa, Algarve and Área Metropolitana de Porto
- 2 on the Adriatic coastline of Croatia – Splitsko-dalmatinska županija and Istarska županija
- 1 each in Italy and France – the capital regions of Roma and Paris.

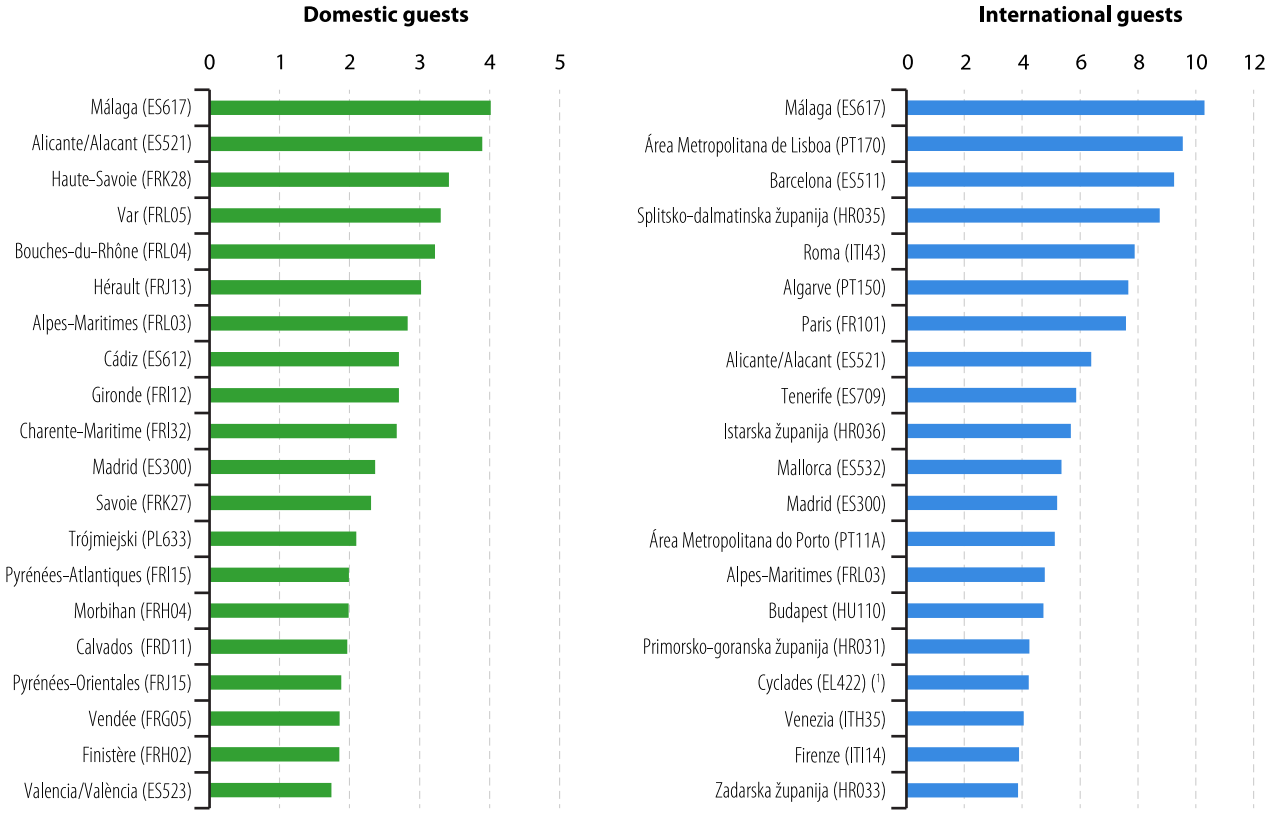
Comparing the 20 most frequented regions for domestic and for international guests – there were only 4 regions that featured in both rankings

- the Spanish regions of Málaga, Alicante/Alacant and Madrid
- the French region of Alpes-Maritimes.

The final part of this section based on data from online booking platforms concerns a timelier dataset. At the time of writing (May 2024), information is already available for the opening 3 quarters (January to September) of 2023, therefore including the peak holiday months of July and August. There were 546.2 million guest nights spent in the EU at short-stay accommodation offered via selected online booking platforms during the opening 3 quarters of 2023. These latest figures confirm that the online bookings market in the EU had recovered from the impact of the COVID-19 pandemic and was further expanding, as the number of nights spent during the opening 3 quarters of 2023 was

- 28.9% higher than during the opening 3 quarters of 2019
- 11.8% higher than during the opening 3 quarters of 2022.

Figure 10.3: Top tourist regions in the EU for short-stay accommodation offered via selected online booking platforms, 2022
(million guest nights, by NUTS 3 regions)



Note: the figure shows the EU regions with highest numbers of nights spent by domestic guests and by international guests. The scales on the numeric axes are different.
(1) Andros, Thira, Kea, Milos, Mykonos, Naxos, Paros, Syros, Tinos.

Source: Eurostat (online data code: tour_ce_oan3)

During the opening 3 quarters of 2023, the Croatian coastal region of Jadranska Hrvatska had the highest number of nights spent in short-stay accommodation offered via selected online booking platforms

The number of guest nights spent in short-stay accommodation offered via selected online booking platforms was heavily skewed across NUTS level 2 regions. At the top end of the distribution there were 11 regions with more than 10.0 million guest nights during the opening 3 quarters of 2023. At the other end of the distribution, more than half of the 242 regions for which data are available had fewer than 1.0 million guest nights. The NUTS level 2 regions with the highest numbers of guest nights spent during the opening 3 quarters of 2023 at short-stay accommodation offered via selected online booking platforms included

- the Croatian coastal region of Jadranska Hrvatska (30.3 million nights)
- the southern Spanish region of Andalucía (25.3 million)
- the southern French region of Provence-Alpes-Côte d'Azur (20.5 million).

There were 8 additional NUTS level 2 regions where the number of guest nights spent at short-stay accommodation offered via selected online booking platforms stood above 10.0 million during the opening 3 quarters of 2023 (as shown by the largest circles in Map 10.6). They were located in 3 EU countries: Spain (Cataluña, Comunitat Valenciana and Canarias), France (the capital region of Ile-de-France and Rhône-Alpes) and Italy (Toscana, Lombardia and the capital region of Lazio). Together, these 11 regions with the highest numbers of nights spent accounted for 33.7% of the total number of guest nights spent at EU short-stay accommodation during the opening 3 quarters of 2023.

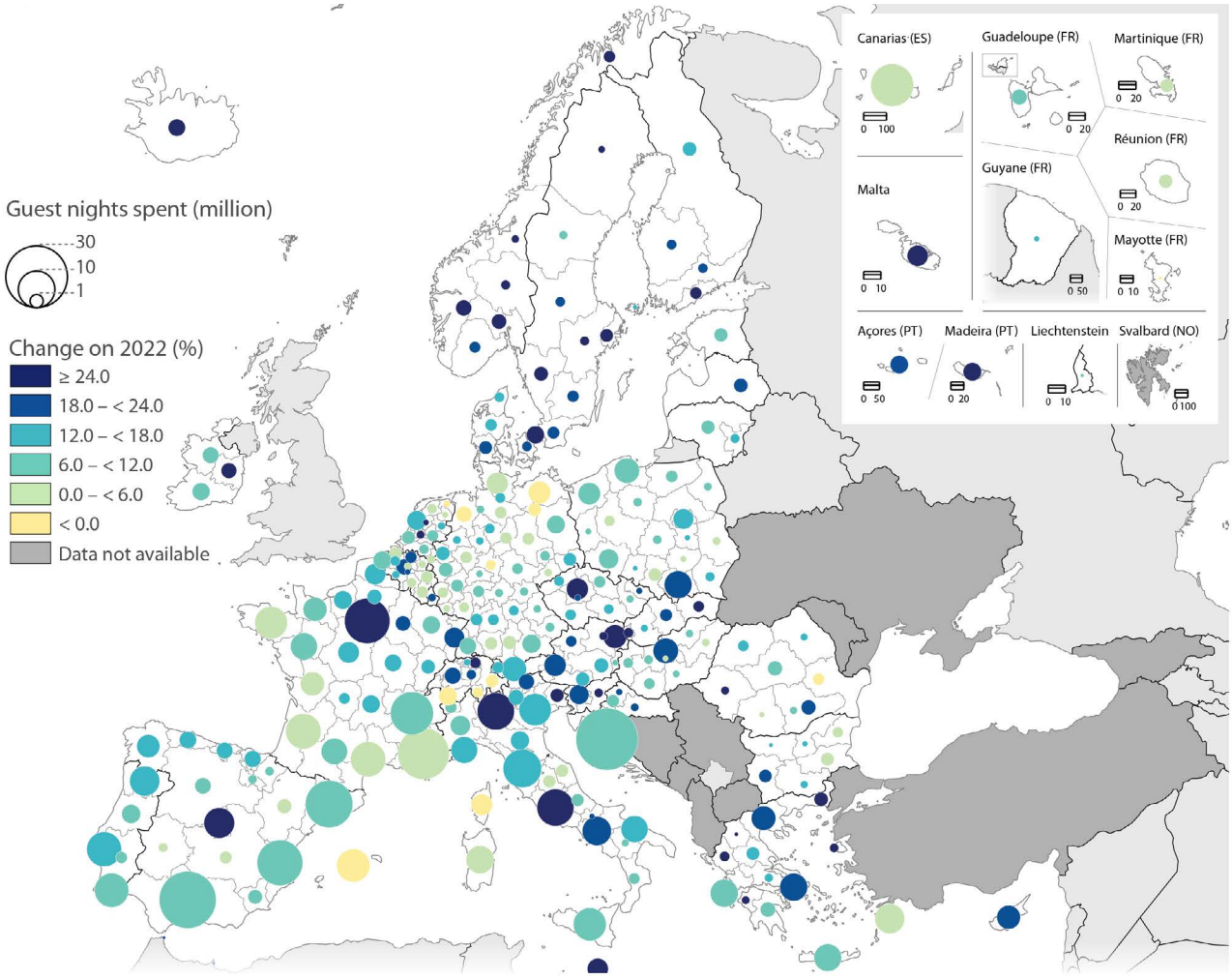
Map 10.6 also shows how the number of guest nights spent at short-stay accommodation offered via selected online booking platforms changed between the opening 3 quarters of 2022 and those of 2023. As noted above, the average growth rate for the whole of the EU was 11.8%. Growth was distributed quite evenly across NUTS level 2 regions, as 122 regions reported a rate of change that was equal to or higher than the EU average, while there were 120 that had lower than average rates. Within this latter group, there were 9 regions where the number of nights spent decreased between the opening 3 quarters of 2022 and those of 2023.

There were 28 NUTS level 2 regions where the number of guest nights spent at short-stay accommodation offered via selected online booking platforms grew by at least 24.0% between the opening 3 quarters of 2022 and 2023 (as shown by the dark blue circles in Map 10.6). This group contained several capital regions – those of Slovakia, Italy, France, Austria, Czechia, Denmark, Ireland, Sweden, Spain and Finland – suggesting that there was a marked upturn in the number of people visiting big cities for short breaks and/or in the number of business travellers (post-COVID). With the exception of Lombardia in Italy, the remaining regions that had such high growth rates were characterised by a relatively low level of supply for short-stay accommodation offered via selected online booking platforms.

The 9 NUTS level 2 regions that recorded a falling number of nights spent at short-stay accommodation offered via selected online booking platforms between the opening 3 quarters of 2022 and 2023 were predominantly located in western EU countries (as shown by the yellow circles in Map 10.6). This group was composed of 4 regions from Germany, 2 from France and a single region from the Netherlands, while there were also single regions from each of Romania and Spain. During the period under consideration, there was a fall in the number of nights spent at short-stay accommodation offered via selected online booking platforms in several relatively popular holiday destinations, including

- the French island region of Corse (down 5.6%)
- the German coastal region of Mecklenburg-Vorpommern (down 4.3%)
- the Spanish island region of Illes Balears (down 2.3%).

Map 10.6: Guest nights spent at short-stay accommodation via selected online booking platforms, 2023
(1st to 3rd quarters, by NUTS 2 regions)



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Cartography: Eurostat – IMAGE, 06/2024

Source: Eurostat (online data code: tour_ce_omn12)

C Environment and natural resources

11. Transport

Transport policy aims to promote environmentally friendly, safe and efficient travel, by means of integrated networks. Mobility is an enabler of economic and social life: for example, functioning global supply chains and logistical services, travel to a place of work or study, visiting family and friends, or spending time away from home for business, leisure or other purposes. The free movement of people and goods across its internal borders is one of the fundamental freedoms of the EU and its single market.

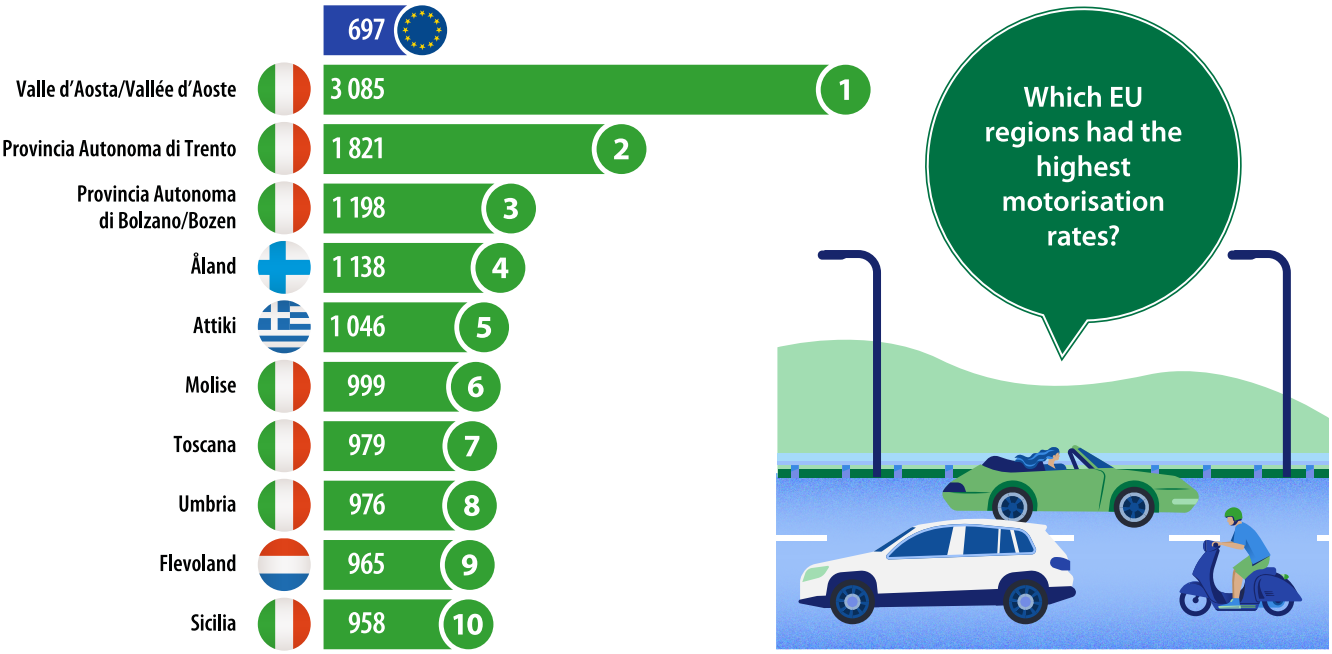
In its strategic plan for 2020–24, the European Commission's Directorate-General for Mobility and Transport outlined several specific objectives, including

- the creation of a sustainable transport area that reduces transport's impact on the environment, provides healthier and cleaner alternatives to mobility, and increases the uptake of sustainable alternative transport fuels
- a fully integrated and connected trans-European transport network for a robust and modern European transport infrastructure
- high levels of transport safety and security.

The passenger car revolutionised personal mobility, granting freedom and flexibility to individual travel plans, while playing a crucial role in economic development. Cars have a cultural significance, symbolise status and progress for some people. That said, some people forego the use of a passenger car by choice. As the EU transitions towards greener technologies, the passenger car remains central to discussions on sustainability and innovation.

In 2022, there were 313 million motor vehicles registered in the EU; these vehicles include passenger cars – which accounted for approximately 4 out of every 5 motor vehicles – as well as lorries, road tractors, motorcycles, motor coaches, buses, trolley buses and special vehicles. The EU's motorisation rate — the average number of motor vehicles per inhabitant — stood at 697 per 1 000 inhabitants.

The infographic below provides information on the EU regions with the highest motorisation rates in 2022. There were 5 NUTS level 2 regions that reported a higher number of motor vehicles than people. The 3 highest ratios were in northern Italy – Valle d'Aosta/Vallée d'Aoste (3 085 vehicles per 1 000 inhabitants), Provincia Autonoma di Trento (1 821) and Provincia Autonoma di Bolzano/Bozen (1 198). These statistics may reflect specific circumstances, for example, the high rates in several northern Italian regions may be attributed, at least in part, to lower taxation on new vehicle registrations. The Finnish archipelago of Åland (1 138) and the Greek capital region of Attiki (1 046) also reported a higher number of motor vehicles than people in 2022.



(number of motor vehicles per 1 000 inhabitants, 2022, by NUTS 2 regions)

Note: Germany and France, NUTS level 1. Portugal: national data. France and Portugal: excluding motorcycles. EU estimate made for the purpose of this publication (based on available data).

Source: Eurostat (online data codes: tran_r_vehst, demo_r_d2jan and demo_pjan)

The selection of information presented for regional transport statistics within the *Eurostat regional yearbook* changes on an annual basis (covering different modes of transport and focusing on different passenger/freight indicators). Previous editions of the publication can be found at: https://ec.europa.eu/eurostat/web/regions/publications.

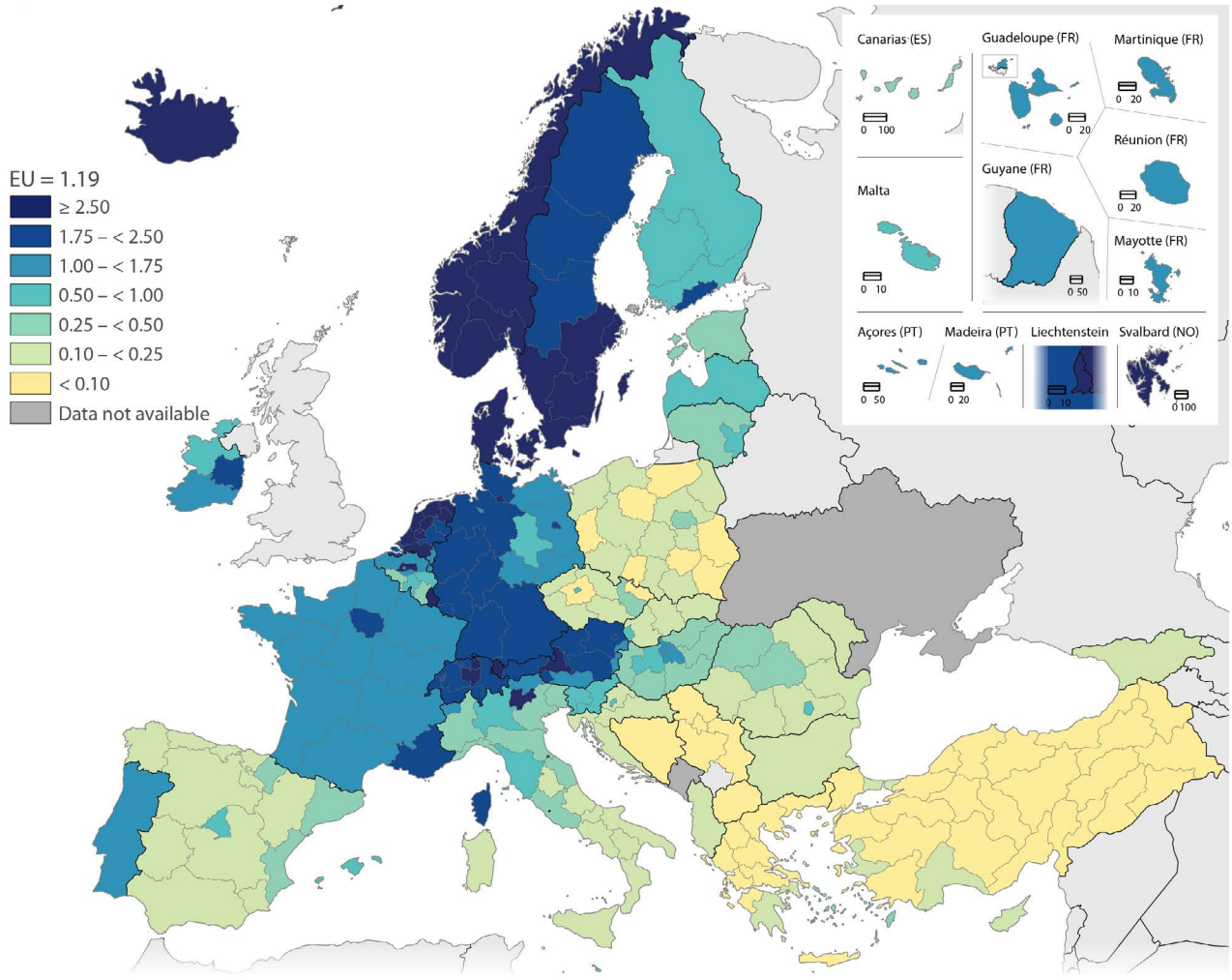
Road transport and accidents

Roads are by far the most common transport mode in the EU for passenger and inland freight transport. The EU's Sustainable and Smart Mobility Strategy – putting European transport on track for the future (COM(2020) 789 final) underlines that, although road mobility provides a wide range of benefits to people living in the EU, these aren't without costs (for society at large); these externalities include, among other issues, greenhouse gas emissions, pollution, accidents and congestion. The sustainable and smart mobility strategy identifies 10 flagship areas and a range of intermediate targets for 2030 and 2040 in order to help achieve the EU's ambitious goal of becoming the 'first climate-neutral continent by 2050'. As part of this work, the EU has set itself a target, namely, to ensure that at least 30 million zero-emission vehicles are operating on its roads by 2030.

ELECTRIC PASSENGER CARS

Across the EU, there were approximately 3 million electric cars in 2022; they accounted for 1.19% of all passenger cars. The uptake of electric passenger cars reflects, among other factors, electric vehicle prices, subsidies and incentives, infrastructure investment, battery technology, fuel prices, urban policies, the availability and cost of public transport, and environmental consciousness. Within the EU, the relative importance of electric passenger cars was high in the Benelux countries, Nordic countries, Germany and Austria. By contrast, many southern and eastern regions of the EU had very low shares of electric cars.

Map 11.1: Electric passenger cars, 2022
(% of all passenger cars, by NUTS 2 regions)



Administrative boundaries: © EuroGeographics © UN–FAO © Turkstat
Cartography: Eurostat – IMAGE, 07/2024

Note: Germany and France, NUTS level 1. Bulgaria, Denmark, Portugal and Albania: national data.
Source: Eurostat (online data codes: tran_r_elvehst and road_eqs_carpda)

In 2022, the regional distribution of the share of electric cars in all passenger cars was skewed insofar as almost 2 in 3 NUTS regions for which data are available (126 out of 191) reported a share that was below the EU average, while just over 1 in 3 (34.0%) of regions had rates above the average. Map 11.1 shows that the share of electric cars in all passenger cars was relatively homogeneous in most EU countries, highlighting that aspects such as national subsidies / incentives within EU countries or the environmental consciousness of consumers likely play an important role in determining the uptake of these vehicles.

There were 20 regions where electric cars accounted for at least 2.50% of all passenger cars in 2022 (as shown by the darkest shade of blue in Map 11.1). A majority of these 20 regions were concentrated in the Netherlands (8 regions) and Sweden (5 regions), while Austria was the only other country in the EU to report more than 1 region above this threshold.

At the top end of the distribution, the Dutch region of Flevoland was the only EU region where electric cars accounted for more than a tenth of all passenger cars in 2022; it had a share of 12.77%. This was almost twice as high as in any other region of the EU; the next highest shares were registered in another Dutch region – Utrecht (6.64%) – and the Swedish capital region of Stockholm (6.60%). There were 4 other regions where electric cars accounted for at least 4.00% of all passenger cars: Västsverige in Sweden, 2 more regions from the Netherlands – Noord-Holland (the capital region) and Noord-Brabant – and Denmark (only national data available).

At the lower end of the distribution, there were 69 regions where electric cars accounted for less than 0.25% of all passenger cars in 2022; they are denoted by the 2 lightest shades in Map 11.1. This group of 69 regions included

- Bulgaria (only national data available)
- Cyprus
- all but one of the regions in Greece (the exception was Notio Aigaio), Croatia (the exception was the capital region of Grad Zagreb), Poland (the exception was the capital region of Warszawski stołeczny) and Slovakia (the exception was the capital region of Bratislavský kraj)
- and several regions in Czechia, Spain, Italy and Romania.

ROAD FREIGHT TRANSPORT

The road freight transport sector plays an essential role in transport markets and is an important component of modern economic systems, providing services that connect producers, traders and consumers.

More about the data: road freight statistics

Road freight transport statistics relate to transport by heavy goods vehicles registered in any of the EU countries. Transport by light goods vehicles is excluded. The threshold for inclusion as a heavy goods vehicle may be based on the load capacity (maximum permissible weight of goods) or the legally permissible maximum weight (the vehicle, the load, the driver and other persons carried). Some countries have a somewhat broader coverage as they apply lower inclusion thresholds.

A tonne-kilometre is a unit of measure of freight transport which represents the transport of 1 tonne of goods (including packaging and tare weights of intermodal transport units) by a given transport mode (road, rail, air, sea, inland waterways, pipeline, and so on) over a distance of 1 kilometre.

Regional statistics for road freight transport should be interpreted with care as the data presented may reflect, to some extent, the size of each region, as those regions characterised by a large area normally transport more freight. In a similar vein, those regions that are characterised by transporting bulk products that tend to weigh a lot (such as raw materials) are also likely to report higher values. The information presented in this section refers to those regions where goods were unloaded.

In 2022, the total weight of goods transported by heavy goods vehicles registered in the EU was 13.6 billion tonnes. When taking account of the distance travelled for each transport operation, the transport performance of the EU's road freight transport sector was 1 920 billion tonne-kilometres (tkm).

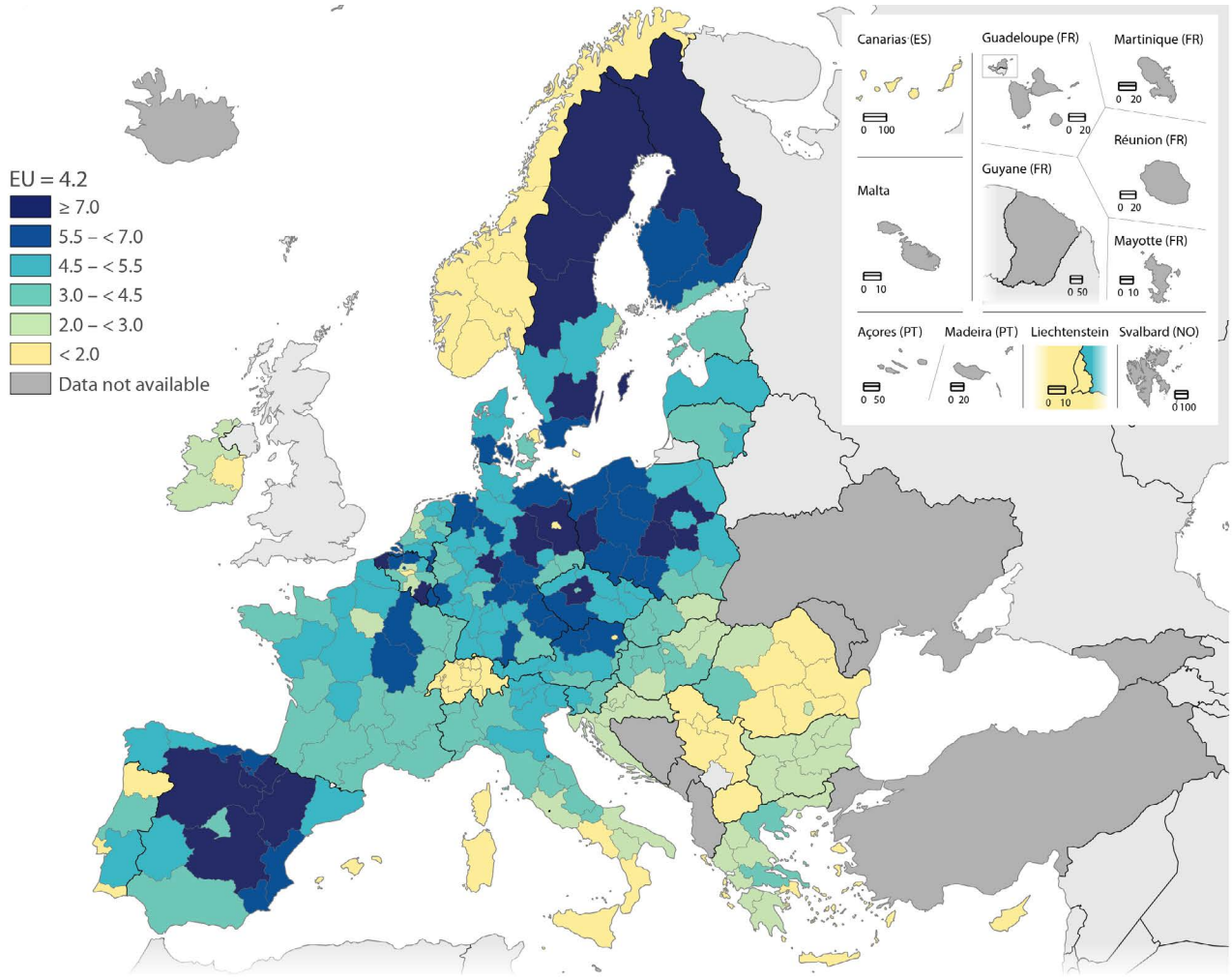
In 2022, the highest levels of road freight unloaded having been transported by EU-registered vehicles were recorded in some of the most populous regions of the EU. Lombardia in northern Italy – whose capital is the city of Milan – had 42.8 billion tkm of road freight unloaded having been transported by EU-registered vehicles, while Cataluña in Spain had a similar level (42.4 billion tkm). Veneto in Italy, Andalucía and Comunitat Valenciana in Spain, Ile-de-France and Rhône-Alpes in France all recorded road freight performance within the range of 25.2–33.8 billion tkm.

When expressed in relation to the number of inhabitants living in each region, the north-eastern Spanish region of Aragón had the highest level of road freight unloaded per inhabitant (10 400 tkm in 2022); it was followed by the Swedish regions of Övre Norrland (10 000) and Mellersta Norrland (8 700). There were 17 more regions across the

EU where the level of road freight unloaded having been transported by EU-registered vehicles averaged at least 7 000 tkm per inhabitant (as shown by the darkest shade of blue in Map 11.2)

- the Belgian regions of Prov. West-Vlaanderen and Prov. Luxembourg
- the Czech region of Střední Čechy
- the German regions of Kassel, Bremen, Sachsen-Anhalt and Brandenburg
- the Spanish regions of Castilla-La Mancha, Comunidad Foral de Navarra, Castilla y León and La Rioja
- the Polish regions of Mazowiecki regionalny, Łódzkie and Lubuskie
- the Finnish region of Pohjois- ja Itä-Suomi
- the Swedish regions of Norra Mellansverige and Småland med öarna.

Map 11.2: Road freight transport, 2022
(1 000 tonne-kilometres per inhabitant, by NUTS 2 region of unloading)



Administrative boundaries: © EuroGeographics © UN–FAO © Turkstat
Cartography: Eurostat – IMAGE, 06/2024

Note: North Macedonia, ratio based on population data for 1 January 2022. EU estimate made for the purpose of this publication (based on available data).

Source: Eurostat (online data codes: road_go_ta_ru and demo_r_d2jan)

ROAD FATALITIES

Whilst transport mobility brings many benefits, it isn't without environmental and societal costs: these include greenhouse gas emissions, pollution, congestion, as well as accidents – all of which affect our health and well-being.

Within a statistical context, the number of road fatalities concerns people who were killed immediately in a traffic accident or who died within 30 days as a result of an injury sustained in a road accident. In 2022, there were 20 653 road fatalities across the EU's territory; this equated to 46 fatalities per million inhabitants.

The EU's roads are among the safest in the world. The European Parliament adopted a resolution in October 2021 on an *EU Road Safety Policy Framework 2021–30 – Recommendations on next steps towards 'Vision Zero'* (2021/2014), which reaffirmed the EU's commitment to reduce the number of deaths on its roads to almost zero by 2050. The strategy set an initial goal of cutting in half the number of road fatalities and serious injuries by 2030.

In 2022, the highest number of road fatalities was registered in the Italian region of Lombardia …

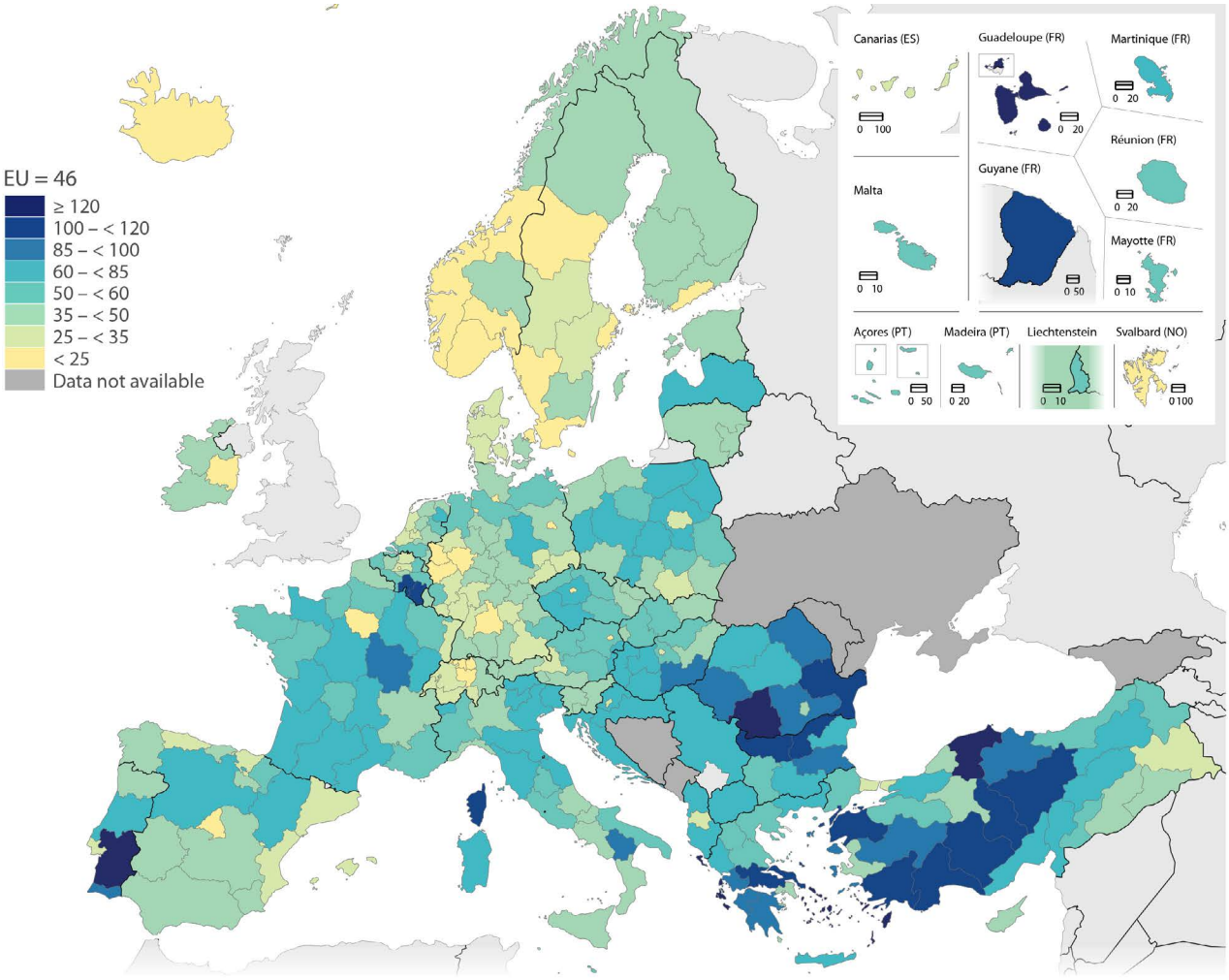
In 2022, the northern Italian region of Lombardia recorded the highest number of road fatalities among NUTS level 2 regions, at 402. This figure was considerably higher than in any other region of the EU, with the Italian capital region of Lazio (339 road fatalities) and the southern Spanish region of Andalucía (333 road fatalities) recording the 2nd and 3rd highest values.

There were 5 other regions within the EU where the number of road fatalities was at least 300 in 2022

- the southern French regions of Rhône-Alpes and Provence-Alpes-Côte d'Azur
- the northern Italian regions of Veneto and Emilia-Romagna
- the Romanian region of Nord-Est.

At the other end of the range, there were 4 NUTS level 2 regions which recorded fewer than 10 road fatalities in 2022. The sparsely populated archipelago of Åland in Finland was the only region in the EU to report no road fatalities. The other 3 regions that had fewer than 10 road fatalities were the relatively small Spanish autonomous regions of Ciudad de Ceuta (1 fatality) and Ciudad de Melilla (4 fatalities) and the sparsely populated Swedish region of Mellersta Norrland (8 fatalities).

Map 11.3: Number of road fatalities, 2022
(per million inhabitants, by NUTS 2 regions)



Administrative boundaries: © EuroGeographics © UN–FAO © Turkstat
Cartography: Eurostat – IMAGE, 09/2024

Note: Serbia, national data. Luxembourg and Iceland: 2021.
Source: Eurostat (online data codes: tran_r_acci and tran_sf_roadus)

… while the highest incidence of road fatalities per million inhabitants was recorded in the Portuguese region of Alentejo

In 2022, there were 46 road fatalities per million inhabitants in the EU. These fatalities were quite evenly distributed insofar as 129 out of 242 NUTS level 2 regions (or 53.3% of all regions) recorded an incidence of road fatalities that was above the EU average, while 108 had a value that was below; there were 5 regions that had the same number of road fatalities per million inhabitants as the EU average.

Map 11.3 confirms that some of the highest incidence rates for road fatalities were recorded in rural regions of the EU. In 2022, there were 13 NUTS level 2 regions with at least 100 road fatalities per million inhabitants (as shown by the 2 darkest shades of blue in the map). This group was quite widely dispersed, with 3 outermost/island regions of France, 3 regions in Greece, 2 regions from each of Belgium, Bulgaria and Romania, and a single region from Portugal. The 3 highest ratios were recorded in regions with high tourism intensity, namely the southern Portuguese region of Alentejo (149 road fatalities per million inhabitants) and the Greek island regions of Notio Aigaio (131) and Ionia Nisia (127).

By contrast, urban and capital regions tended to report much lower incidences of road fatalities. Among other factors, this may be linked to more extensive public transport networks, lower motorisation rates and lower average speeds – there may be lower speed limits in built-up areas, while motorway networks in and around major conurbations are often congested. There were 21 NUTS level 2 regions where the incidence of road fatalities was less than 25 deaths per million inhabitants in 2022 (as shown by the yellow shade in Map 11.3). As noted above, there was 1 region that reported no road deaths: Åland in Finland. Leaving this atypical case aside, a majority of this group of 21 regions were characterised as urban areas, including 10 that were capital regions. After Åland (0 road fatalities per million inhabitants), the next lowest incidence rates were observed in the Swedish capital region of Stockholm (7), the Austrian capital region of Wien (9), and the German capital region of Berlin (also 9).

ROAD ACCIDENTS

More about the data: road accident statistics

The information presented in this section on transport accidents comes from an alternative source, the Community database on road accidents (CARE), which is managed by the European Commission's Directorate-General for Mobility and Transport.

The CARE database contains information on road crashes that lead to death or injury; as such, it doesn't contain information on damage-only crashes (where there are no fatalities or injuries). Its main purpose is to provide evidence to identify and quantify road safety problems throughout the EU, to evaluate the efficiency of road safety measures, to determine the relevance of EU actions and to facilitate the exchange of experiences in this field.

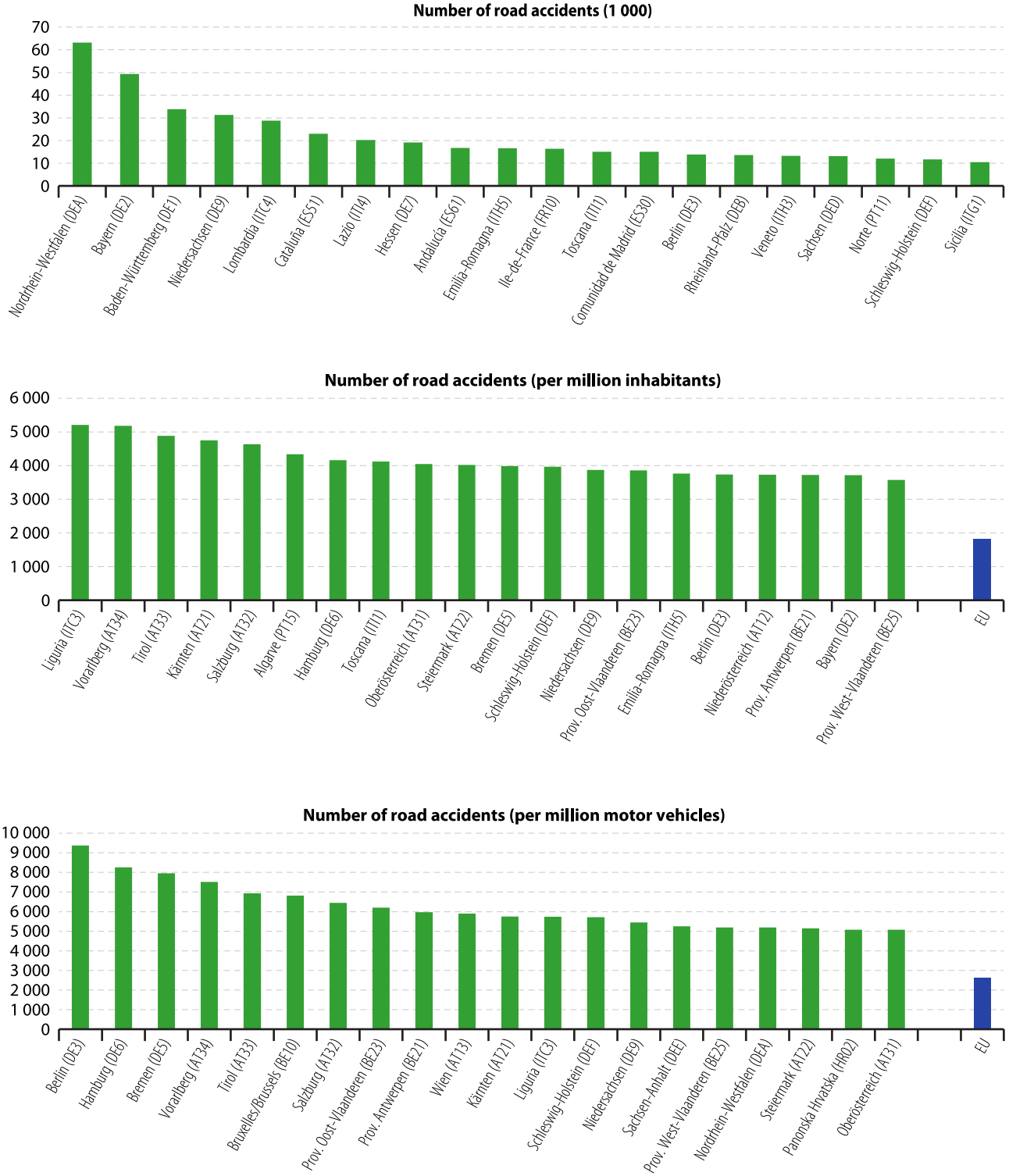
Road accident statistics include fatalities and injuries in vehicles which are in transit through a region as well as fatalities and injuries of non-residents staying in a region on holiday, for business or another reason. As such, and other things being equal, regions that have transit corridors or regions with high numbers of visitors may well experience a higher incidence of injuries and fatalities.

The regional statistics presented in this section for Germany concern NUTS level 1 regions, while the latest information available for the EU, Greece and Malta relates to 2021 and that for Ireland and Latvia to 2020.

In 2021, there were a provisional 813 200 crashes on the EU's roads that resulted in a death or injury; this total excludes information for Ireland and Latvia. The 1st part of Figure 11.1 shows the EU regions with the highest numbers of road accidents. The top of the ranking is, unsurprisingly, dominated by some of the most populous regions in the EU. In 2022, there were 63 200 crashes that resulted in a death or injury on the roads of Nordrhein-Westfalen in western Germany, this was the highest regional count in the EU; all of the statistics presented for Germany in this section concern NUTS level 1 regions. The German capital region of Berlin had the 2nd highest number of accidents (49 400), followed by 2 more German regions – Baden-Württemberg and Niedersachsen – each with more than 30 000 accidents. Outside of Germany, the highest numbers of road accidents were observed in the northern Italian region of Lombardia (28 800), Cataluña in Spain (23 100) and the Italian capital region of Lazio (20 300). There were 6 regions across the EU that recorded between 15 000 and 20 000 road accidents: Hessen in Germany, Andalucía and Comunidad de Madrid in Spain, Emilia-Romagna and Toscana in Italy, and the French capital region of Ile-de-France.

The 2nd part of Figure 11.1 shows the incidence of road accidents in 2022. When expressed in relation to the size of the population, there were 1 820 accidents per million inhabitants across the EU. The regional distribution of road accidents was skewed insofar as approximately 40% of all regions (86 out of the 215 for which data are available) had an incidence rate that was higher than the EU average, while there were 129 regions where the incidence was lower. The highest incidences of road accidents were largely concentrated in western and southern EU countries, with relatively high values in several regions of Germany, Austria, Italy, Belgium and Portugal.

Figure 11.1: Number of road accidents, 2022
(by NUTS 2 regions)



Note: accidents resulting in death or injury (no statistics available for damage-only accidents). There were a provisional 813 169 road accidents in the EU in 2021. Germany: NUTS level 1. EU, Greece and Malta: 2021. Ireland and Latvia: 2020. Régions Ultrapériphériques Françaises (FRY): not available. France and Portugal: not available per million motor vehicles.

Source: Eurostat (online data codes: tran_sf_roadnu, demo_r_d2jan and tran_r_vehst)

The northern Italian region of Liguria had the highest incidence rate, with 5 213 road accidents per million inhabitants in 2022, closely followed by the westernmost Austrian region of Vorarlberg (5 185 per million inhabitants). There were 8 regions which recorded between 4 000 and 5 000 road accidents per million inhabitants, 5 of which were located in Austria – Tirol, Kärnten, Salzburg, Oberösterreich and Steiermark. The other 3 regions with relatively high incidence rates were Algarve in southern Portugal, Hamburg in northern Germany and Toscana in central Italy. Across all EU regions, the number of road accidents per million inhabitants ranged from a high of 5 213 in Liguria, down to a low of 172 in the central French region of Auvergne. As such, relative to the size of the population the likelihood of having a road crash that resulted in a fatality or injury in Liguria was 30 times as high as it was in Auvergne.

The final part of Figure 11.1 shows the incidence of road accidents (resulting in death or injury) relative to the number of motor vehicles registered in each region. In 2022, the highest rate was recorded in the German capital region of Berlin, with 9 381 road accidents per million motor vehicles. Some of the highest rates – using this measure – were recorded across several regions of Germany, Austria and Belgium. There were 7 other regions with rates above 6 000 road accidents per million motor vehicles

- Hamburg (8 262) and Bremen (7 958) in Germany
- Vorarlberg (7 518), Tirol (6 937) and Salzburg (6 448) in Austria
- Bruxelles/Brussels (6 816) and Prov. Oost-Vlaanderen (6 201) in Belgium.

Rail

The trans-European transport network (TEN-T) is planned to comprise an EU-wide network of railways, inland waterways, short sea shipping routes, and roads. It aims to link major cities, ports, airports and terminals, presenting a coherent, efficient, multimodal, and high-quality transport infrastructure to foster the efficient transportation of people and goods. It is planned that the core network should be completed by 2030 and the more comprehensive network by 2050.

The TEN-T is designed to make the EU's transport network greener, more efficient and more resilient. Within the specific domain of rail, there remain several challenges for international services that are linked to different national standards being employed for electrification, signalling or the gauge of track. For example, the Baltic countries, Ireland, Spain (for main lines, not high-speed lines), Portugal and Finland use a broader gauge than in most EU countries. The European Railway Traffic Management System (ERTMS) is a single, interoperable system designed to replace more than 20 different national train control and command systems that are currently in operation. Its deployment should enhance cross-border interoperability, creating a seamless, Europe-wide railway system.

The regional distribution of railway infrastructure is shaped by specific historical developments, economic developments and the geographical characteristics of regions. For example, some large EU countries that have considerable distances between major cities have developed high-speed rail infrastructure (for example, Germany, Spain, France or Italy). Some of the EU countries that are more densely-populated, such as Belgium or the Netherlands, have a higher frequency of (generally less rapid) trains. Several eastern EU countries have relatively extensive rail networks, reflecting a legacy from the communist era when there was often a greater reliance on rail (compared with road) for transporting passengers and/or goods.

In 2022, there were around 202 100 km of railway lines across the EU; there are no railways in Cyprus and Malta (this is also the case in Iceland). More than half (56.9%) of the EU's railway lines (a line is made up of 1 or more tracks forming a route between 2 points) were electrified. Electrified railway lines offer a number of benefits (over diesel-powered trains running on non-electrified lines): they generally have lower operating costs, improved performance, higher energy efficiency, reduced emissions (especially if powered by renewable energy sources) and they tend to be quieter.

Within the EU, there were 6 NUTS level 2 regions where practically all (100.0%) of the railway lines were electrified in 2022. This was the case in

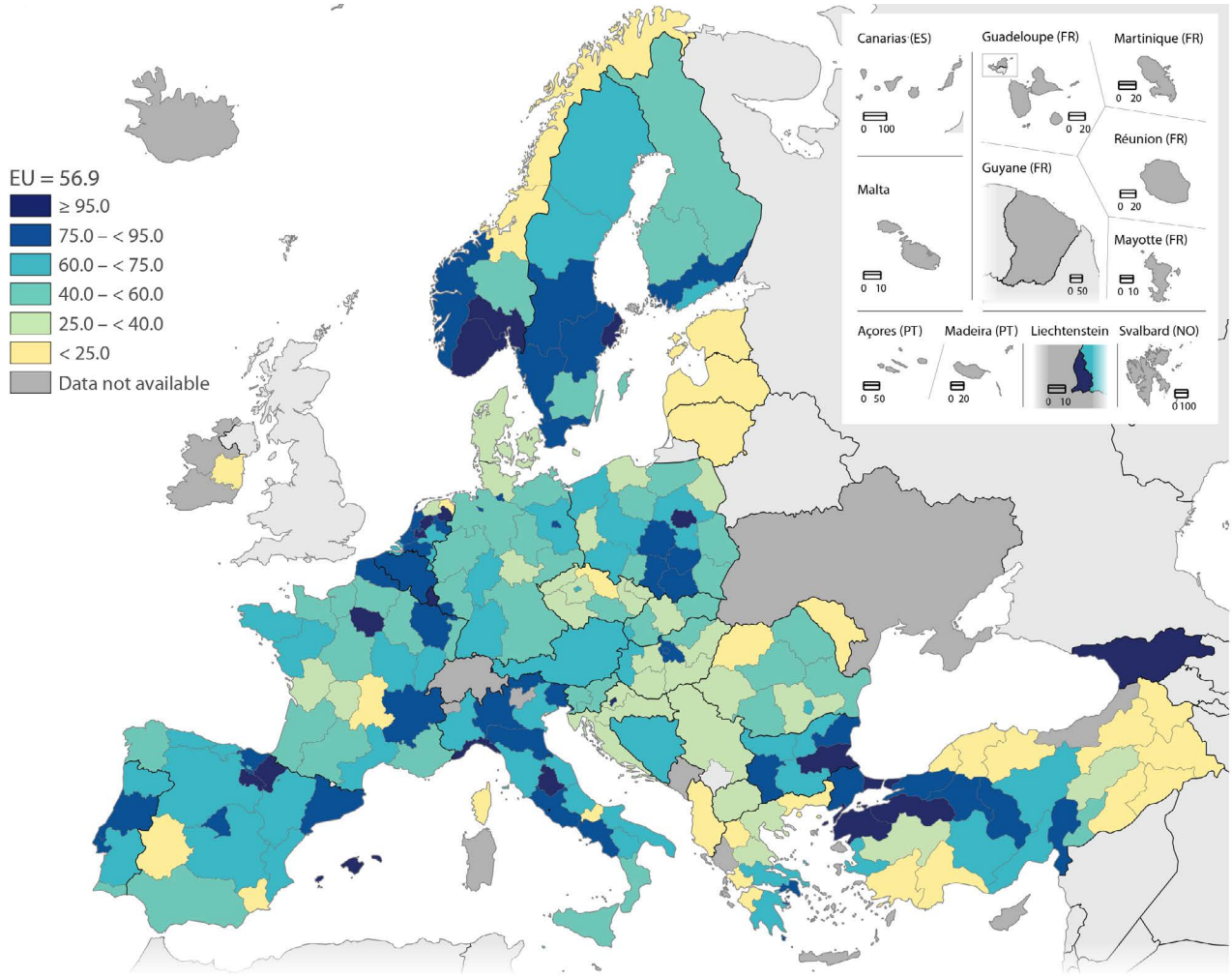
- the Spanish regions of Comunidad Foral de Navarra, La Rioja and Illes Balears
- the Dutch regions of Drenthe and Flevoland
- the Croatian capital region of Grad Zagreb.

Alongside these 6 regions, there were another 8 regions where the share of electrified railway lines was at least 95.0%; together these 2 groups are shown in the darkest shade of blue in Map 11.4. This group of 8 regions where at least 95.0% (but not 100.0%) of all railway lines were electrified was composed of the Polish, Swedish and French capital regions, Luxembourg, the eastern Bulgarian region of Yugoiztochen, Liguria and Umbria in Italy, and the Dutch region of Utrecht.

At the other end of the range, there were 15 regions where fewer than 25.0% of all railway lines were electrified in 2022. This group of regions was widely distributed across the EU, and contained all 3 Baltic countries (only national data available): a major infrastructure project – Rail Baltica – is underway which aims to develop a double-track electrified railway linking the Polish and Baltic capital cities. There were 5 regions within the EU where none of the railway lines were electrified

- the Greek regions of Anatoliki Makedonia, Thraki; Dytiki Makedonia; Dytiki Elláda
- the western Spanish region of Extremadura
- the French island region of Corse.

Map 11.4: Electrified railway lines, 2022
(% of all railway lines, by NUTS 2 regions)



Administrative boundaries: © EuroGeographics © UN–FAO © Turkstat
Cartography: Eurostat – IMAGE, 06/2024

Note: Germany, NUTS level 1. Belgium, Denmark, Lithuania, Austria, Albania and Serbia: national data. Germany: 2020.
Source: Eurostat (online data codes: tran_r_net and rail_if_line_tr)

Maritime traffic

The quality of life on many European islands and in peripheral maritime regions depends, to a large extent, upon the provision of maritime transport services — providing a means for passengers and freight to arrive/leave.

MARITIME FREIGHT

Maritime freight services facilitate trade within the EU and between the EU and the rest of the world. Along with other products, they contribute towards the security of supply of energy and food, while providing EU exporters with a means of reaching international markets and non-EU exporters with a means of reaching EU markets; indeed, the vast majority (in tonnage) of the EU's international freight is transported by sea.

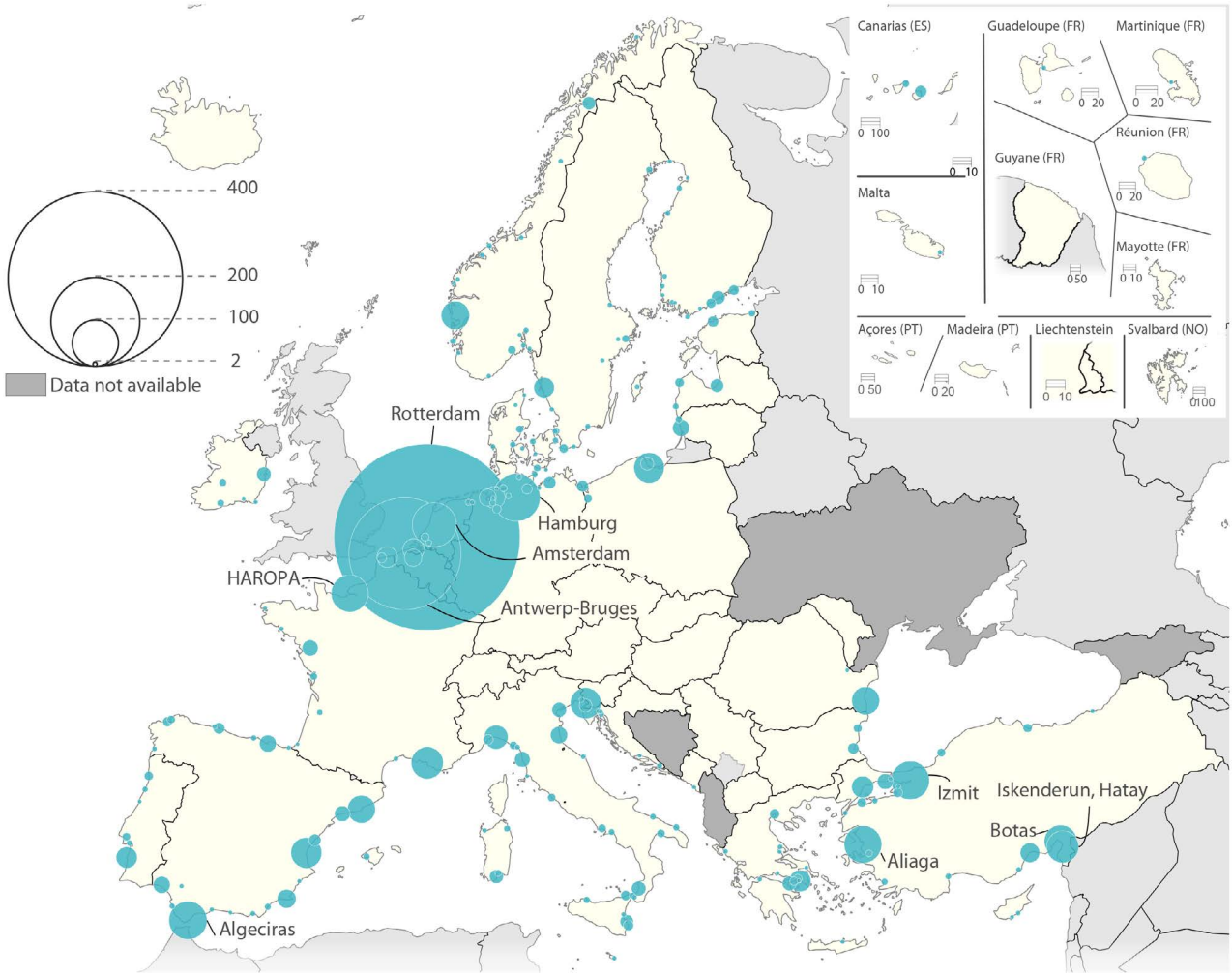
The distribution of ports around the EU's coastline reflects a range of influences including (among others) historical trade routes, geographic features, resource endowment, economic activities and political considerations. A large number of the EU's main ports are concentrated along North Sea coastlines, close to some of the most densely populated regions of the EU that are served by an extensive network of motorways, railways, rivers and canals.

Map 11.5 shows information for the EU's main ports in 2022: it covers ports with at least 2.0 million tonnes of freight handled (inward and outward combined).

Rotterdam in the Netherlands was, by far, the largest freight port in the EU. With 427.0 million tonnes of maritime freight handled in 2022, it accounted for 12.3% of all goods handled in EU ports. The position of Rotterdam as the EU's leading freight port is clearly evident, as its inward and outward

freight was almost twice as high as that recorded in any of the other ports in the EU. Most of the next largest freight ports were located within relatively close proximity of Rotterdam: the Belgian ports of Antwerp-Bruges (254.3 million tonnes of maritime freight handled), the German port of Hamburg (103.4 million tonnes), the Dutch capital of Amsterdam (95.5 million tonnes), and the French channel ports of HAROPA (Le Havre and Rouen; 79.1 million tonnes). Away from the North Sea, there were several relatively large freight ports located around the Mediterranean Sea: the Spanish ports of Algeciras (81.2 million tonnes) and Valencia (64.3 million tonnes), the French port of Marseille (67.0 million tonnes) and the Italian port of Trieste (64.3 million tonnes).

Map 11.5: Maritime freight handled, 2022
(million tonnes)



Administrative boundaries: © EuroGeographics © UN–FAO © Turkstat
Cartography: Eurostat – IMAGE, 06/2024

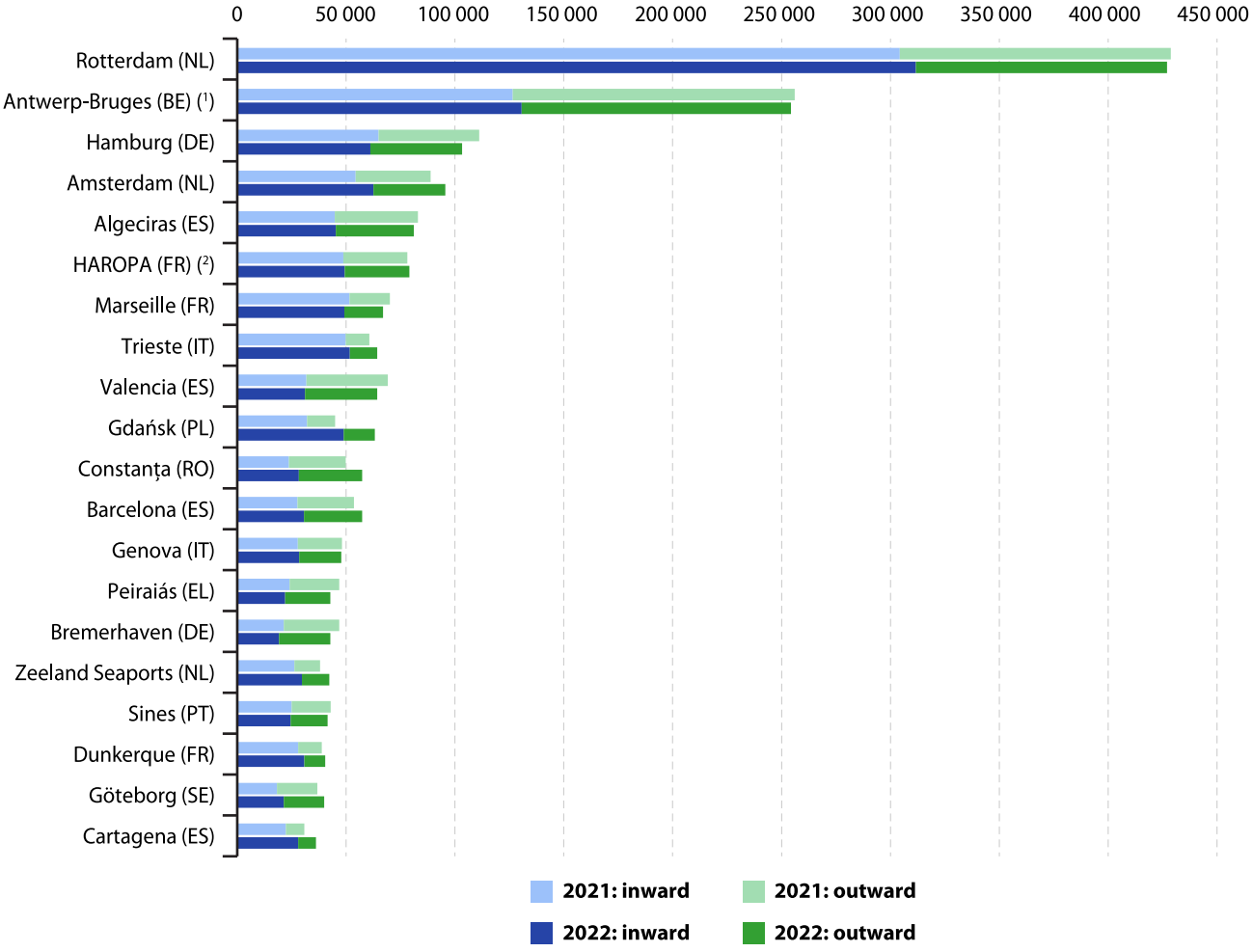
Note: the map shows data for those ports with at least 2.0 million tonnes of freight handled (inward and outward combined).
Source: Eurostat (online data codes: mar_mg_aa_pwhd and mar_go_aa)

Although the overall level of maritime freight handled in EU ports increased 0.8% between 2021 and 2022, some of the EU's principal ports experienced a decrease in their quantity of freight handled (inward and outward combined). The largest falls – among the top 20 ports in 2022 – were recorded in the Greek port of Peiraiás (−8.8%), the German ports of Bremerhaven (−8.6%) and Hamburg (−7.0%), and the Spanish port of Valencia (−7.1%). There were more modest contractions in 5 more of the top 20 ports, including a decrease of 0.4% in the largest, Rotterdam. By contrast, the fastest growth rate was recorded in the Polish port of Gdańsk, where the quantity of freight handled rose 40.3% in 2022. There were 3 other ports that recorded increases of more than 10%: Cartagena in Spain (up 17.3%), Constanța in Romania (up 15.2%) and Zeeland Seaports in the Netherlands (up 11.0%).

Most of the EU's principal ports have higher levels of inward (rather than outward) flows of maritime freight when measured in tonnes (see Figure 11.2). This apparent imbalance may be explained, at least in part, by the nature of EU imports, with a relatively high share of the inward flows made-up of bulk commodities such as raw materials and energy resources. By contrast, when ships leave EU ports they are laden with different types of freight that may be less bulky / of lower weight.

In the EU's main port, Rotterdam, inward freight flows amounted to 311.6 million tonnes in 2022, compared with outward freight flows of 115.3 million tonnes; as such, inward flows were 2.7 times as high. Higher ratios were recorded in several other leading ports within the EU: Trieste in Italy (where inward flows were 4.1 times as high as outward flows), Gdańsk in Poland and Cartegena in Spain (both 3.4), as well as the French ports of Dunkerque (3.2) and Marseille (2.8).

Figure 11.2: Top 20 ports for maritime freight handled, 2021 and 2022
(million tonnes)



Note: ranked on freight handled (inward and outward combined) in 2022.
(1) Starting from 2022, the ports Antwerpen and Zeebrugge have been merged and the data are reported under the new port name Antwerp-Bruges.
(2) Starting from 2022, the ports Le Havre and Rouen have been merged and the data are reported under the new port name HAROPA.

Source: Eurostat (online data codes: mar_mg_aa_pwhd and mar_go_aa)

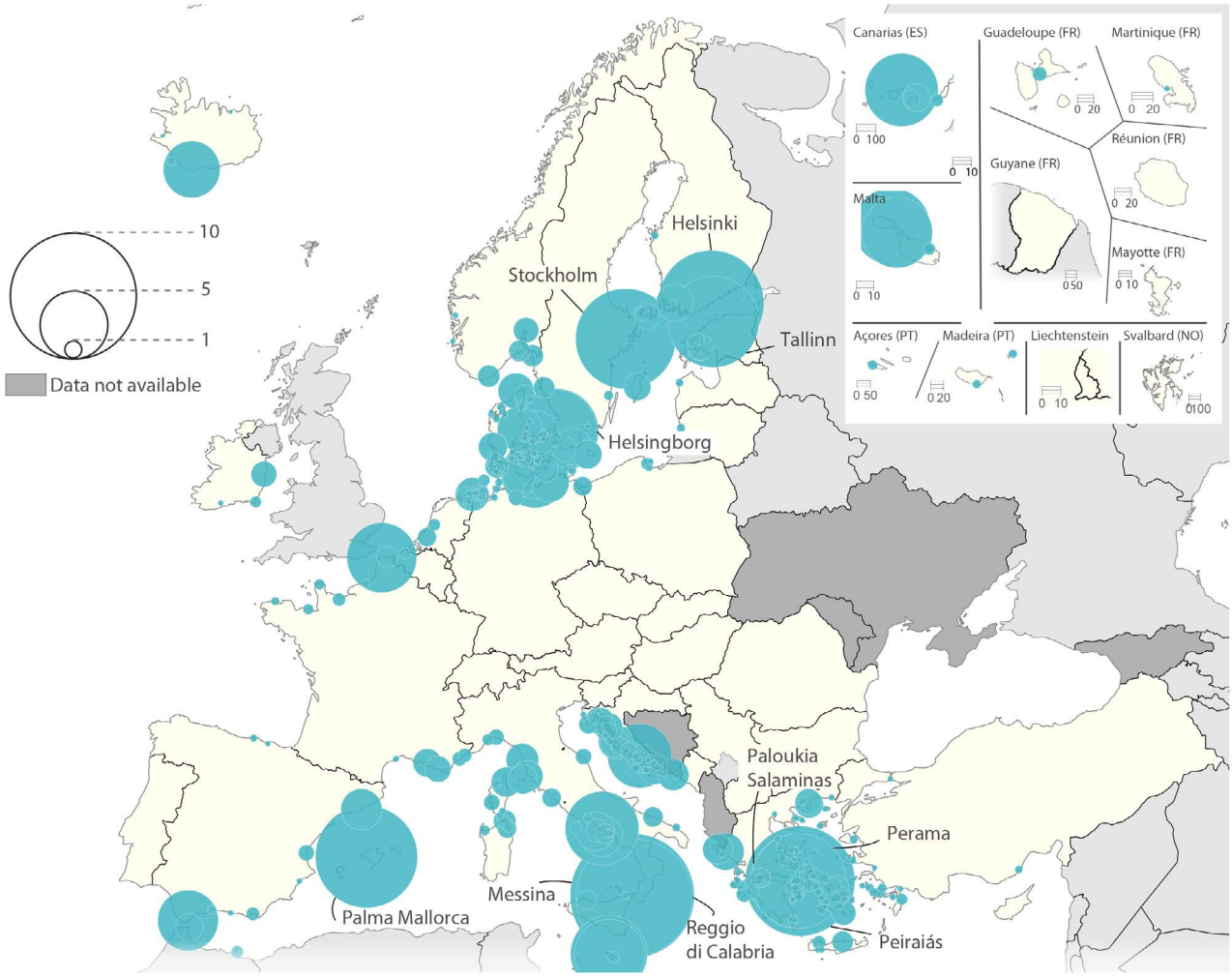
MARITIME PASSENGERS

Map 11.6 shows information for the top EU ports for maritime passengers embarked and disembarked. Some of the EU's most frequented maritime passenger routes are concentrated in the Mediterranean Sea and the Baltic Sea. The Italian port of Messina (Sicilia) remained the largest passenger port in the EU, with 9.4 million passengers embarked and disembarked in 2022, followed by Reggio di Calabria in southern Italy (8.8 million passengers) that acts as the main port linking the Italian mainland to Sicilia. The Greek port of Peiraiás that is located close to the capital city of Athens had the 3rd

highest number of maritime passengers (8.3 million), while there were 2 other ports close to the Greek capital – Paloukia Salaminas and Perama – that had high passenger numbers. Among the other principal maritime ports for passenger traffic in 2022, the following recorded the highest numbers of passengers in each EU country

- Helsinki in Finland (8.0 million passengers)
- Palma Mallorca in Spain (7.7 million passengers)
- Stockholm in Sweden (7.5 million passengers)
- Tallinn in Estonia (6.8 million passengers)
- Helsingør (Elsinore) in Denmark (6.3 million passengers)
- Mġarr, Gozo in Malta (5.7 million passengers)
- Calais in France (5.1 million passengers)
- Burgstaaken/Fehmarn in Germany (4.9 million passengers)
- Split in Croatia (4.7 million passengers).

Map 11.6: Maritime passengers embarked and disembarked, 2022
(million)



Administrative boundaries: © EuroGeographics © UN–FAO © Turkstat
Cartography: Eurostat – IMAGE, 06/2024

Note: the map shows data for those ports with at least 100 000 passengers carried (total of embarked and disembarked).
Source: Eurostat (online data codes: mar_mp_aa_pphd and mar_pa_aa)

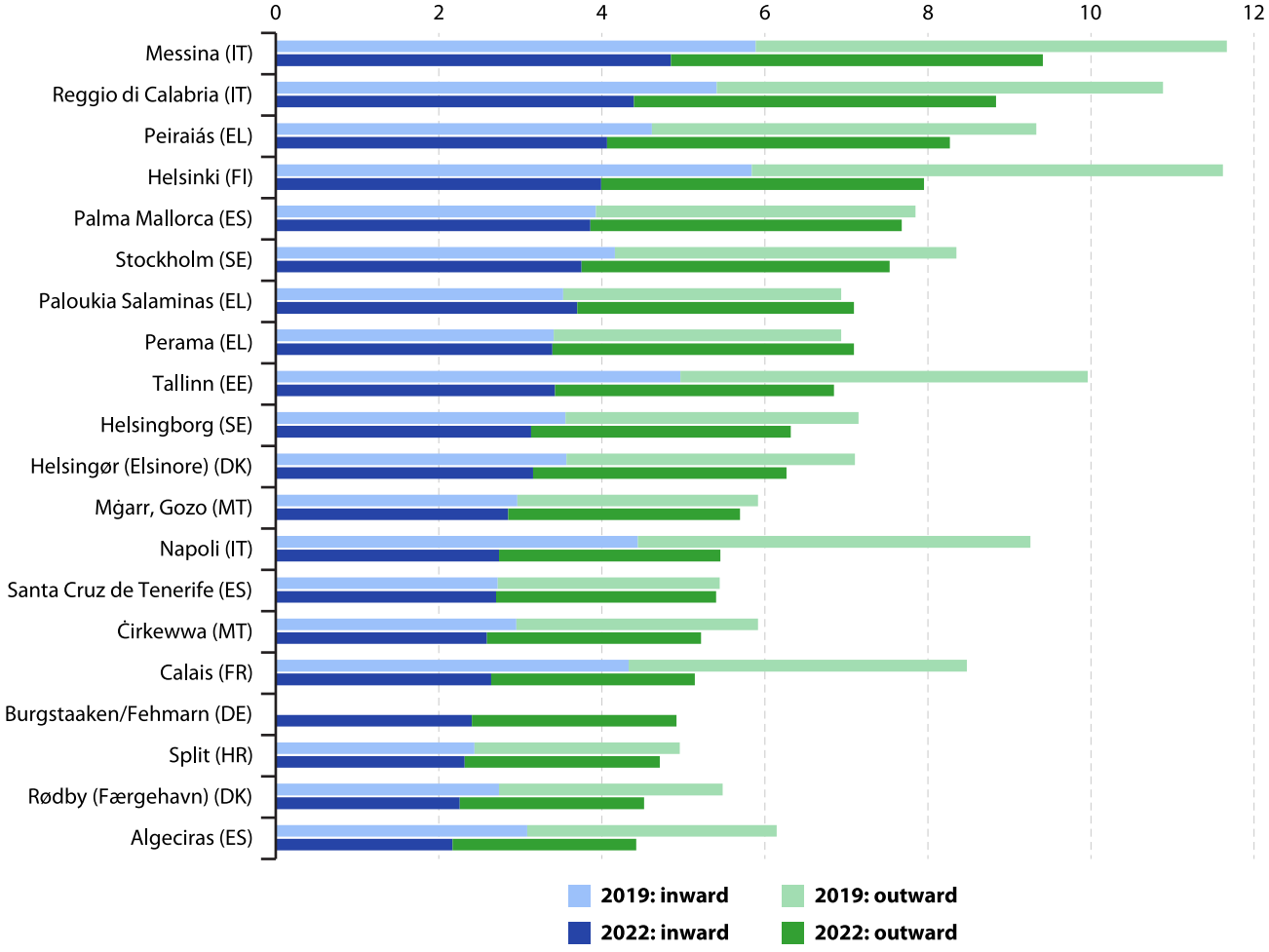
In 2019, prior to the onset of the COVID-19 pandemic, the total number of maritime passengers that embarked or disembarked in EU ports stood at 418 million. The impact of the crisis and its associated containment measures led to a rapid contraction in passenger services, in contrast to the situation for maritime freight. The total number of passengers that embarked or disembarked almost halved in 2020 (compared with 2019), falling 45.0% to 230 million. By 2022, the number of maritime passengers in the EU had partially recovered, reaching 349 million, although this remained 16.7% lower than prior to the pandemic.

Figure 11.3 compares the number of maritime passengers embarked and disembarked in the EU's principal passenger

ports with data for 2019 and 2020. The impact of the pandemic and partial recovery was mixed and reflects, at least to some degree, the balance between national and international services (with the latter taking longer to recover). For example, the number of passengers carried in the Finnish and Estonian capitals of Helsinki and Tallinn remained almost 33.3% lower in 2022 than prior to the pandemic in 2019, and even larger falls were recorded for Calais in France (down 39.3%) and Napoli in Italy (down 41.1%). There were 2 ports that are characterised by local services that recorded slightly higher passenger numbers in 2022 than in 2019 (both up 2.2%) – the Greek ports of Paloukia Salaminas and Perama that are located at either end of a ferry service in close proximity to Athens.

Unlike for the movement of goods, there was generally little difference between the number of passengers embarking and disembarking in EU ports, suggesting that most passengers made return journeys on the same route as their outward departure.

Figure 11.3: Top 20 ports for maritime passengers embarked and disembarked, 2019 and 2022
(million)



Note: ranked on total passengers embarked and disembarked in 2022. Burgstaaken/Fehmarn: 2019, not available.

Source: Eurostat (online data codes: mar_mp_aa_pphd and mar_pa_aa)

12. Environment

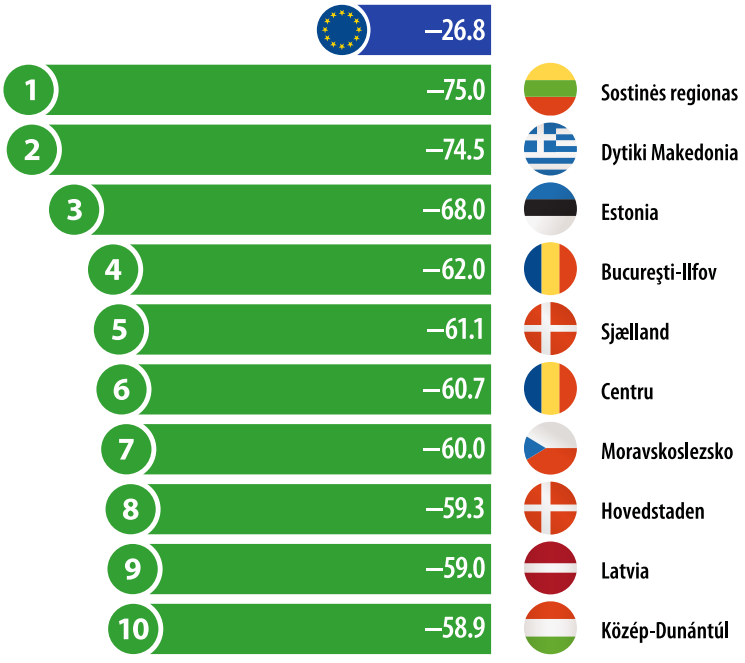
Since the industrial revolution, the presence of greenhouse gases in the Earth's atmosphere has increased at a rapid pace. Some of the principal man-made causes of greenhouse gas emissions include burning fossil fuels, deforestation and intensive livestock farming. Climate change and environmental degradation are interconnected: climate change affects biodiversity and triggers a range of environmental consequences, while healthy ecosystems provide services that are critical for climate change mitigation (carbon sinks and stocks) and adaptation (water retention, protection against floods and desertification, urban heat reduction, protection against air pollution, and so on).

The European Green Deal lays out plans to make the EU climate-neutral by 2050. It contributes to achieving the climate and environmental objectives of the United Nations' 2030 Agenda for Sustainable Development.

Climate change mitigation

SDG 13 on 'climate action' encourages urgent action to combat climate change and its impact. The Paris Agreement is a legally binding international treaty on climate change. It was adopted by 196 parties at the UN Climate Change Conference (COP21) in December 2015 and set forth an ambitious global goal 'to limit the temperature increase to 1.5°C above pre-industrial levels'. Without decisive action to curtail greenhouse gas emissions, it's likely the world will experience more frequent and extreme weather events, such as heatwaves, droughts and flooding. According to the UN, this will put the lives of over 3 billion people at risk.

The European Green Deal aims to reduce EU greenhouse gas emissions by at least 55% by 2030 (compared with 1990 levels). Such a reduction will require profound and transformative changes, for example, to energy and transport systems, industrial processes and agriculture, as well as increased carbon removal by ecosystems. Map 12.1 shows the progress made towards this target, with emissions in the EU falling 26.8% between 1990 and 2022.



(%, by NUTS 2 regions, 1990–2022)

Note: greenhouse gas emissions are expressed in tonnes of CO2-equivalents based on global warming potential values from the IPCC. Emissions from international shipping and aviation are excluded from the calculation.

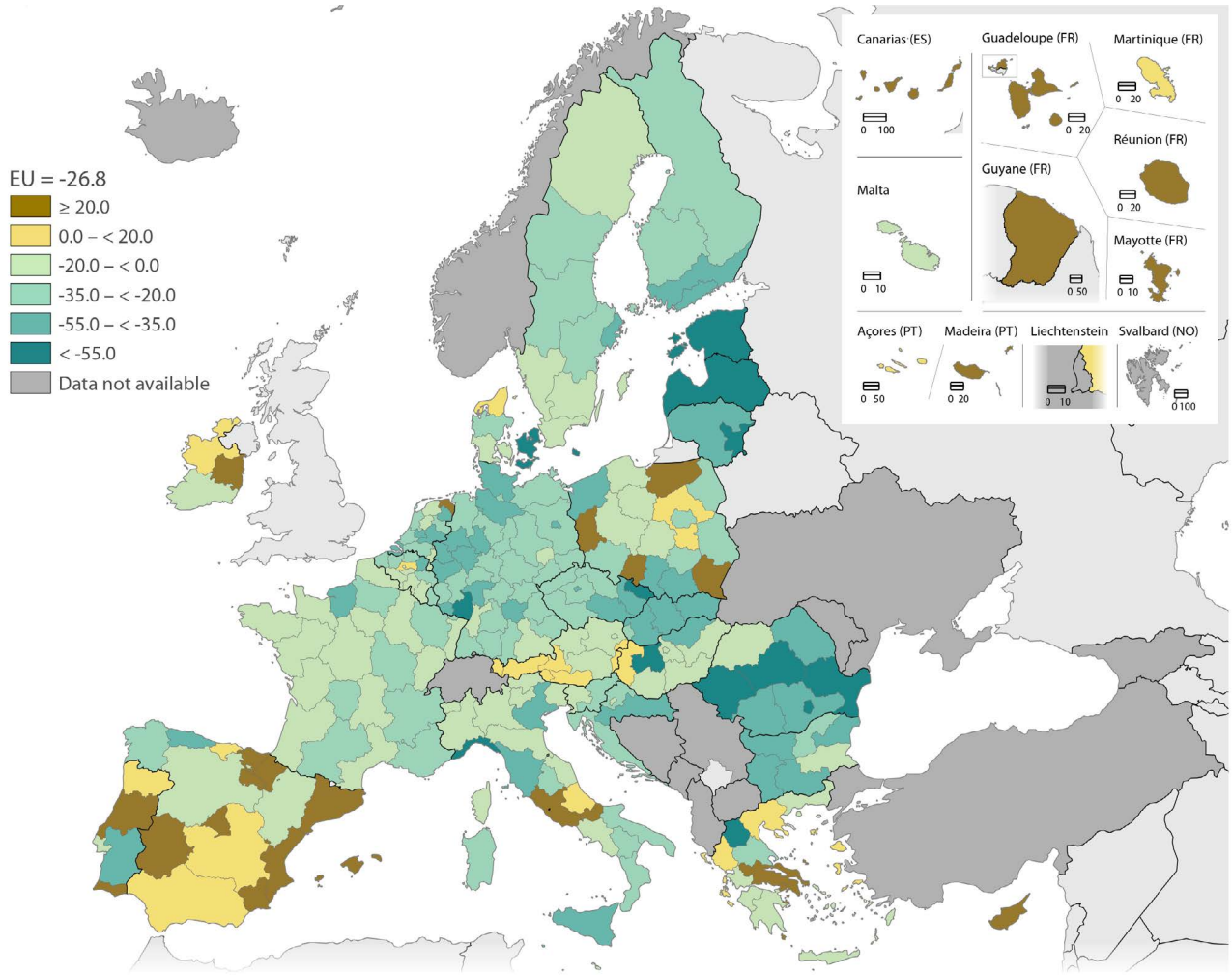
Source: EDGAR_GHG_NUTS2_v2.0. GHG emissions at subnational level, European Commission (Joint Research Centre), see https://edgar.jrc.ec.europa.eu/dataset_ghg80_nuts2

Greenhouse gas emissions fell in around 80% of EU regions between 1990 and 2022

There were 191 NUTS level 2 regions across the EU that recorded a fall in greenhouse gas emissions between 1990 and 2022, 50 regions where emissions increased, and a single region where there was no change. Every region of Bulgaria, Czechia, Germany, Croatia, Lithuania, Romania, Slovenia, Slovakia, Finland and Sweden recorded a fall in emissions during the period under consideration; this was the case in Estonia, Latvia, Luxembourg and Malta too. At the bottom end of the distribution, there were 14 regions in the EU where greenhouse gas emissions had already been reduced by more than 55.0% between 1990 and 2022 (they are shown in the darkest shade of teal in Map 12.1), including

- Centru, Sud-Est, Bucureşti-Ilfov (the capital region) and Vest in Romania
- Hovedstaden (the capital region) and Sjælland in Denmark
- Sostinės regionas, the capital region of Lithuania – which recorded the biggest overall fall (down 75.0%)
- the neighbouring Baltic countries of Estonia and Latvia
- Moravskoslezsko in Czechia, Rheinhessen-Pfalz in Germany, Dytiki Makedonia in Greece, Liguria in Italy and Közép-Dunántúl in Hungary.

Map 12.1: Change in greenhouse gas emissions, 1990–2022
(%, by NUTS 2 regions)



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Cartography: Eurostat – IMAGE, 07/2024

Note: change in million tonnes of CO2-equivalents based on global warming potential values from the IPCC. Emissions from international shipping and aviation are excluded from the calculation.

Source: EDGAR_GHG_NUTS2_v2.0. GHG emissions at subnational level, European Commission (Joint Research Centre), see https://edgar.jrc.ec.europa.eu/dataset_ghg80_nuts2

Looking in more detail at developments for these 14 regions, the reductions observed were often largely attributable to falls in greenhouse gas emissions within the energy sector. Indeed, the largest reductions between 1990 and 2022 were recorded for the energy sector in all 4 Romanian regions, the 3 Baltic regions, the 2 Danish regions, as well as Dytiki Makedonia and Közép-Dunántúl. Greenhouse gas emissions within the energy sector fell by 80-90% in all but one of these 11 regions, with an even larger fall observed in the Danish region of Sjælland (down 97%). A different development was observed in the Czech region of Moravskoslezsko and the German region of Rheinhessen-Pfalz, where the largest reductions in greenhouse gas emissions between 1990 and 2022 were recorded in the industrial sector, while in the Italian region of Liguria the largest reduction was recorded in the waste sector.

Greenhouse gas emission increased between 1990 and 2022 in a majority of the NUTS level 2 regions in Ireland, Spain and Portugal; this was also the case in Cyprus. At the top end of the distribution, the biggest increases were recorded in 2 of the French outermost regions, Mayotte (up 223.7%) and La Réunion (up 166.5%). Región de Murcia and La Rioja – both in Spain – were the only other regions to report that their greenhouse gas emissions more than doubled during the period under consideration.

RENEWABLE ENERGY FROM SOLAR PHOTOVOLTAIC PANELS

Solar energy can be used to help reduce dependence on fossil fuels, playing a key role in the EU's transition to clean energy. Photovoltaics generate electric power by using solar cells to convert energy from the sun into electricity. The EU's production of photovoltaic electricity accounted for 7.3% of its gross electricity output in 2022. Production of photovoltaic electricity rose 29.3% between 2021 and 2022.

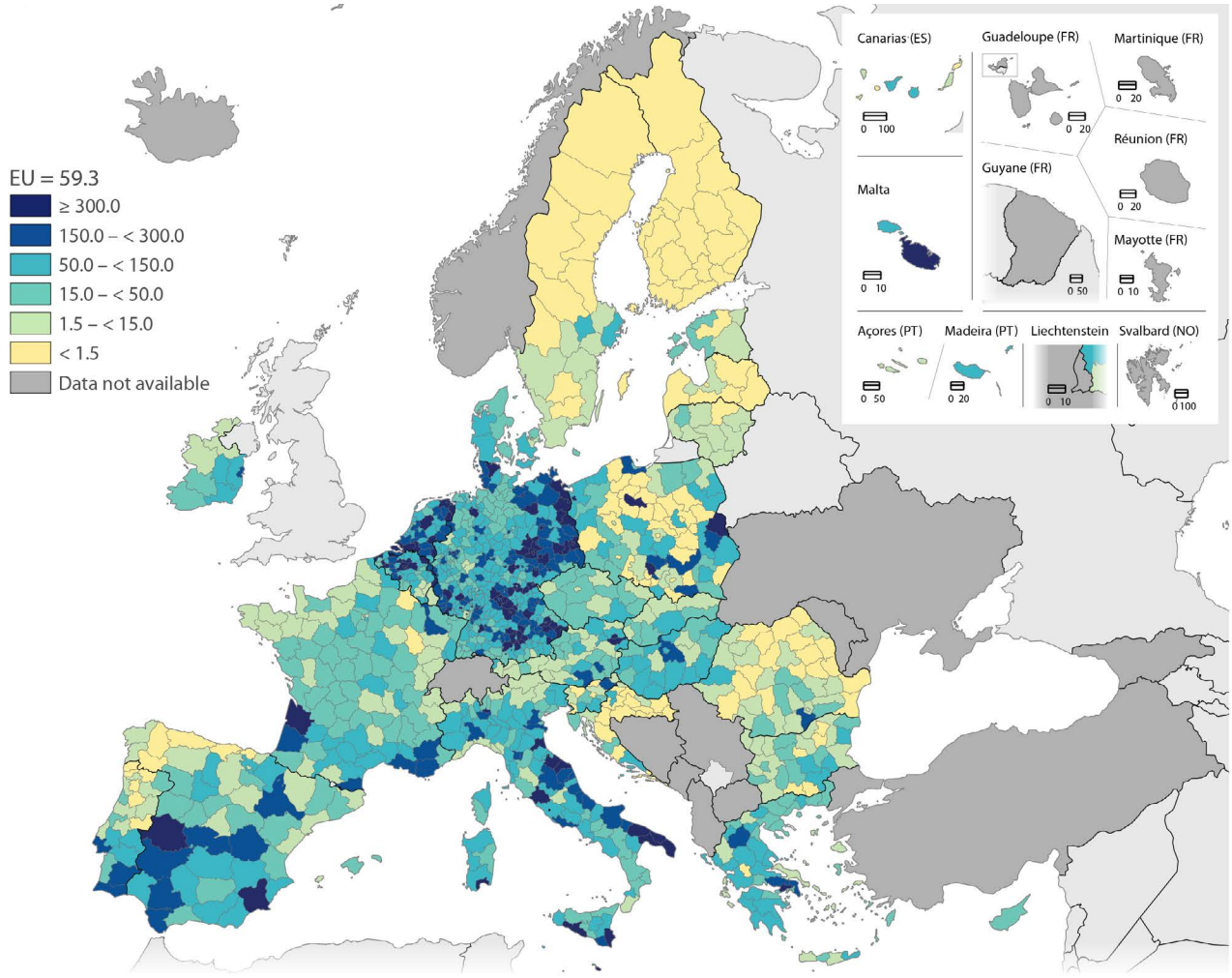
The most suitable regions for the generation of renewable energy from solar photovoltaic panels are those located in southern EU countries. This is especially the case for regions characterised by abundant solar radiation and barren/arid land that can be exploited for utility-scale installations; examples include the regions of Cáceres and Murcia in Spain. However, at the time of writing a relatively high proportion of the EU's installed solar capacity is located in western EU countries. These figures can change relatively quickly in response to national and regional policy initiatives that encourage new installations (both for residential and commercial rooftops and utility-scale installations).

The German region of Brandenburg an der Havel had the highest level of renewable energy production from solar photovoltaic panels in 2023, at 2 790 MWh per km²

On average, each square kilometre (km^2) of land in the EU produced 59.3 megawatt hours (MWh) of renewable energy from solar photovoltaic panels in 2023, enough for 22 medium-sized households (averaging 2.7 MWh of consumption). The generation of renewable energy from solar photovoltaic panels was concentrated in the NUTS level 3 regions of Belgium, Germany and the Netherlands, despite the fact that they had lower potential yields as a result of relatively cloudy weather and fewer daylight hours in the winter months; regional statistics on renewable energy from solar photovoltaic panels are estimates and may differ slightly from national totals. The German region of Brandenburg an der Havel to the west of Berlin and the north-western Belgian region of Arr. Veurne recorded the highest levels of production, at 2 790 MWh per km^2 and 2 175 MWh per km^2, respectively. They were among a group of 114 regions where renewable energy production from solar photovoltaic panels was at least 300.0 MWh per km^2 (as shown by the darkest shade of blue in Map 12.2).

By contrast, the northernmost regions of Finland and Sweden, as well as the Baltic countries, unsurprisingly recorded some of the lowest levels of renewable energy production from solar photovoltaic panels. That said, most regions in northern Spain and Portugal, as well as much of Croatia and Romania were also characterised by relatively low levels of production, highlighting the untapped solar energy potential of less-developed, rural regions. There were 122 NUTS level 3 regions where renewable energy production from solar photovoltaic panels was less than 1.5 MWh per km^2, with 26 regions reporting no production at all; a majority of this latter group were located in Finland.

Map 12.2: Renewable energy production from solar photovoltaic panels, 2023
(MWh per km², by NUTS 3 regions)



Administrative boundaries: © EuroGeographics © UN–FAO © Turkstat
Cartography: Eurostat – IMAGE, 06/2024

Source: European Commission (Joint Research Centre)

RENEWABLE ENERGY FROM ONSHORE WIND

Wind power is the EU's primary source of renewable energy, the majority comes from onshore (rather than offshore) sites. Wind turbines capture the kinetic energy present in the wind and convert it into mechanical energy, which is then transformed into electricity. The efficiency of a wind turbine is influenced by several factors, including wind speed, the length of the turbine blades and air density (denser air at lower altitudes typically enhances the efficiency of turbine rotors).

The EU has set itself an ambitious target for 2030, aiming to have at least 42.5% of its energy consumption supplied by renewable energy sources. If this goal is to be met, the European Commission estimates that installed wind capacity will need to grow to over 500 gigawatt hours (GWh) by 2030. In 2022, the EU's onshore wind production was 381 GWh of electricity, accounting for 13.5% of its total electricity output.

Between 2021 and 2022, the electricity generated by onshore wind production increased 7.2%.

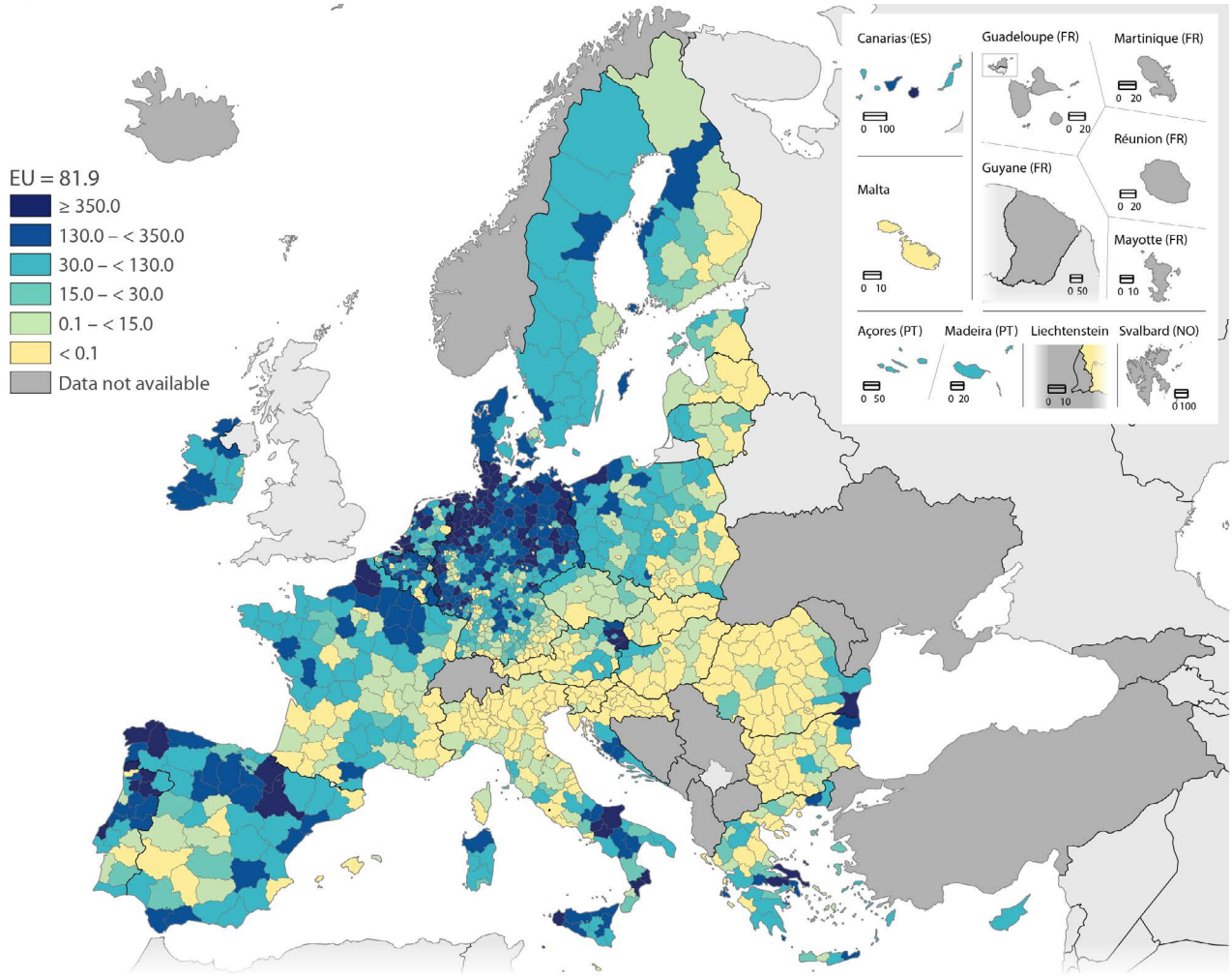
The German region of Emden had the highest level of renewable energy production from onshore wind in 2023, at 3 110 MWh per km²

For every square kilometre (km²) of land in the EU, an average of 81.9 MWh of renewable energy from onshore wind was produced in 2023. The regional distribution was relatively skewed insofar as around 1 in 3 NUTS level 3 regions – or 404 out of 1 161 – reported a level of renewable energy production from onshore wind that was equal to or above the EU average; regional statistics on renewable energy from onshore wind are estimates and may differ slightly from national totals. Renewable energy from onshore wind was largely concentrated in a band of regions characterised by their exposure to prevailing winds that move in an easterly or north-easterly direction. This group covered the north-

west corner of the Iberian Peninsula, Ireland, northern France, the Benelux countries, northern Germany and Denmark. By contrast, some of the lowest levels of renewable energy production from onshore wind were recorded in predominantly urban or mountainous regions and across eastern EU countries.

There were 109 NUTS level 3 regions where renewable energy production from onshore wind was at least 350.0 MWh per km^2 in 2023(as shown by the darkest shade of blue in Map 12.3). The north-west German region of Emden, Kreisfreie Stadt had the highest level of production, at 3 110 MWh per km^2. There were 4 other regions in the EU – all within relatively close proximity to Emden – where renewable energy production from onshore wind was higher than 2 000 MWh per km^2: 3 more northern German regions – Dithmarschen, Nordfriesland and Bremerhaven Kreisfreie Stadt – and Delfzijl en omgeving in the north-east of the Netherlands.

Map 12.3: Renewable energy production from onshore wind, 2023
(MWh per km^2, by NUTS 3 regions)



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Cartography: Eurostat – IMAGE, 06/2024

Source: European Commission (Joint Research Centre)

In 2023, there were 342 NUTS level 3 regions which had no renewable energy production from onshore wind (they are shown with a yellow shade in Map 12.3). The absence of energy from onshore wind can, at least in part, be attributed to a combination of geographical, meteorological, economic and structural constraints. For example, several of the regions in this group were predominantly urban regions with dense populations and limited space for wind turbine installations. Onshore wind developments may also be constrained, among other factors, by a lack of sufficient wind, an abundance of alternative energy sources, a lack of grid capacity and/or investment, and regulatory/planning barriers. Ireland and Sweden were the only EU countries to report every region having renewable energy production from onshore wind; this was the case in Cyprus and Luxembourg too.

It's interesting to contrast patterns of renewable energy output between onshore wind and solar photovoltaic panels. In several EU countries – for example, Germany, Spain, France and Portugal – there was a marked north-south divide. Northern regions tended to have higher levels of production from onshore wind, while southern regions generally exhibited higher levels of output from solar photovoltaic panels.

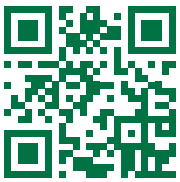
Climate change impacts

COOLING DEGREE DAYS

SDG 7 on 'affordable and clean energy' seeks to ensure access to affordable, reliable, sustainable and modern energy for all. In recent decades, changes in the weather and better insulated housing have modified the demand for heating and cooling. While warmer temperatures reduce the need for heating in winter, most buildings in the EU require some heating. With very hot summers and rising temperatures, an increasing number of buildings make use of air-conditioning during the summer, especially in southern Europe.

The EU has accelerated its plans for an energy transition away from fossil fuels alongside plans for energy efficiency savings (for example, through proposals to renovate millions of buildings so that they waste less energy). The Energy Efficiency Directive (EU) 2023/1791 adopted in September 2023 sets a new energy saving target for the EU, namely, to cut 11.7% of final energy consumption between 2024 and 2030.

For more detailed information on the heating and cooling degree days – see Regions in Europe (interactive publication)



More about the data: cooling degree days

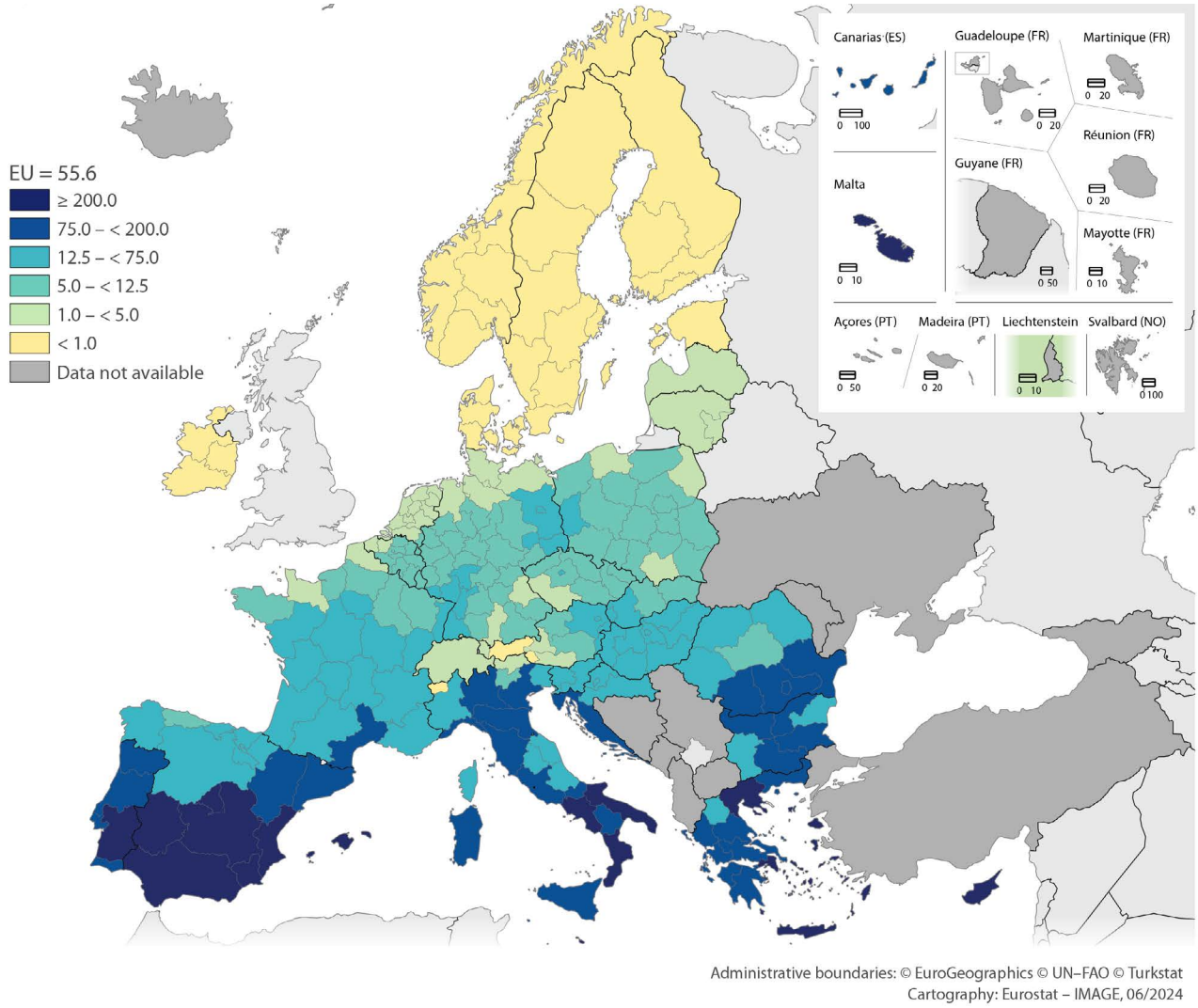
Cooling degree days are a metric used to estimate energy requirements for cooling. They measure the severity of the heat in a specific time period taking into consideration outdoor and average room temperatures (in other words, the need for cooling in a building). Cooling degree days are derived from meteorological observations of air temperature, interpolated to regular grids at 25 km resolution. The results are subsequently aggregated to a regional level, based on the NUTS classification.

The calculation of cooling degree days relies on a base temperature – the highest daily mean air temperature for which cooling isn't required. The base temperature is set to a constant value of 24°C (above which, it's assumed cooling is required). Cooling degree days are measured for each day the temperature rises above the threshold of 24°C. They are computed as the mean air temperature of the day in question minus 21°C. In other words, if the daily mean air temperature is 26°C, the value of cooling degree days is 5 (26°C minus 21°C). Daily information is subsequently compiled into monthly and annual averages.

Map 12.4 provides information for the average number of cooling degree days for 1983–93. It may be contrasted with Map 12.5 that shows the development for the number of cooling degree days across successive decades (compared to the average count in 1983–93).

In the initial period (1983–93), the average annual number of cooling degree days in the EU was 55.6 degree days. The regional distribution was skewed: of the 235 NUTS level 2 regions for which data are available, there were 69 – or 29.4% of all regions – where the number of cooling degree days was equal to or above the EU average. The regions with the highest numbers of cooling degree days were concentrated in southern EU countries, with a peak of 496.2 degree days in Malta.

Map 12.4: Average annual number of cooling degree days, 1983–93
(by NUTS 2 regions)



Note: only days with a daily mean air temperature equal to or above 24°C are considered. Switzerland: national data.
Source: Eurostat (online data code: nrg_chddr2_a)

During the period 2013–23, the need to cool buildings was highest in Cyprus and Malta

In the past 3 decades, there has been a rapid increase in the EU's number of cooling degree days. From a baseline of 55.6 cooling degree days during the period 1983–93, this figure was 15.9 degree days higher in 1993–2003, followed by further gains of 16.4 degree days and 15.6 degree days for the successive decades, such that an average of 103.6 cooling degree days was reported for the period 2013–23. In this final period (2013–23), the regions with the highest numbers of cooling degree days continued to be concentrated in southern EU countries, with a peak of 730.4 degree days in Cyprus.

In relative terms, the fastest rates of change for the average number of cooling degree days between 1983–93 and 2013–23 were concentrated in the northern half of Europe. The number of cooling degree days was at least 5.00 times as high in 2013–23 as it had been in 1983–93 in 37 different NUTS level 2 regions (as shown by the darkest shade of teal in the final part of Map 12.5). Among others, this group included all regions of the Baltic countries, every region of Denmark, 8 regions in the Netherlands and 6 regions in central and southern Sweden.

In absolute terms, the largest increases in average numbers of cooling degree days between 1983–93 and 2013–23 were concentrated in southern EU regions. Cyprus, Ionia Nisia

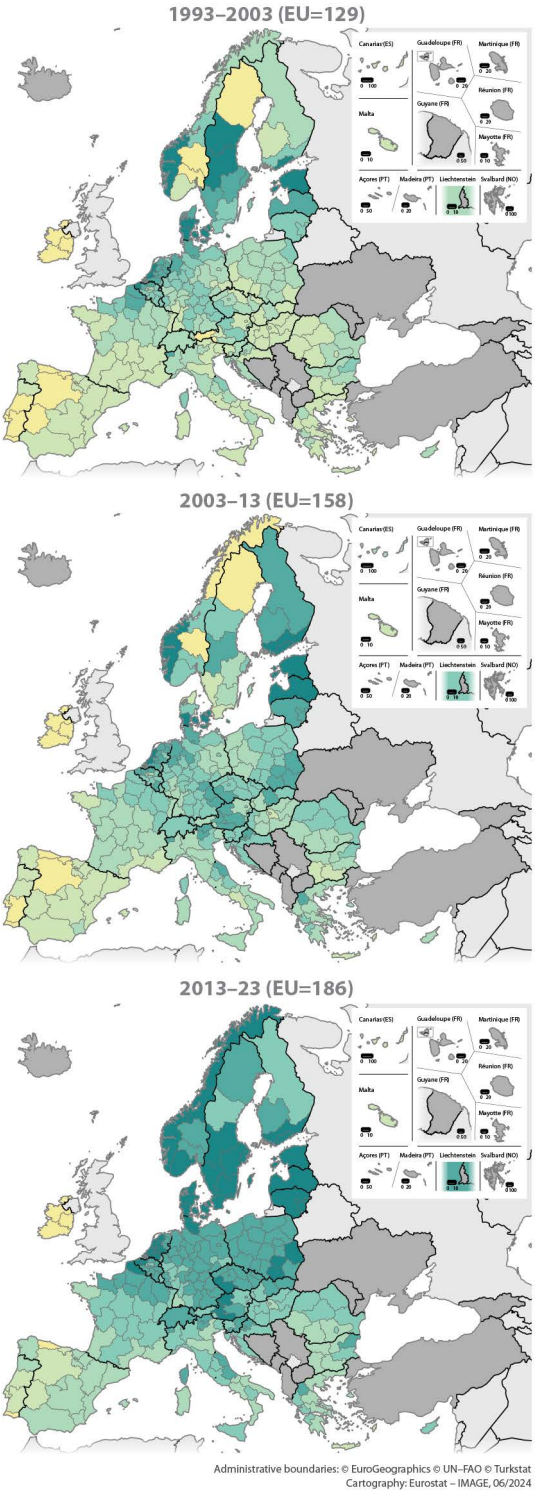
(Greece), Región de Murcia, Illes Balears (both in Spain) and Malta saw their average numbers rise by over 200 degree days. They were followed by 24 regions from Greece, Spain and Italy, as well as Yugoiztochen in south-east Bulgaria, where increases of 140–200 degree days were recorded. Among other EU countries, there were also relatively big increases in the average number of cooling degree days in the island region of Corse (France) and the Austrian and Romanian capital regions of Wien and Bucureşti-Ilfov.

When comparing the initial period (1983–93) to the final period (2013–23), there were 5 NUTS level 2 regions that experienced a fall in their average number of cooling degree days (as shown by the light yellow shade in the final part of Map 12.5)

- the largest reduction occurred in the southern Portuguese region of Algarve, where the average number of cooling degree days decreased by 5.2
- Principado de Asturias in Spain saw its average number of cooling degree days fall by 0.7
- the 3 Irish regions experienced little overall change in their respective number of cooling degree days, which remained close to zero throughout the period under consideration.

For more detailed information on the heating and cooling degree days – see Regions in Europe (interactive publication)

Map 12.5: Average annual number of cooling degree days, 1993–2023
(index 1983–93 = 100, by NUTS 2 regions)



Note: only days with a daily mean air temperature equal to or above 24°C are considered. Switzerland: national data.

Source: Eurostat (online data code: nrg_chddr2_a)

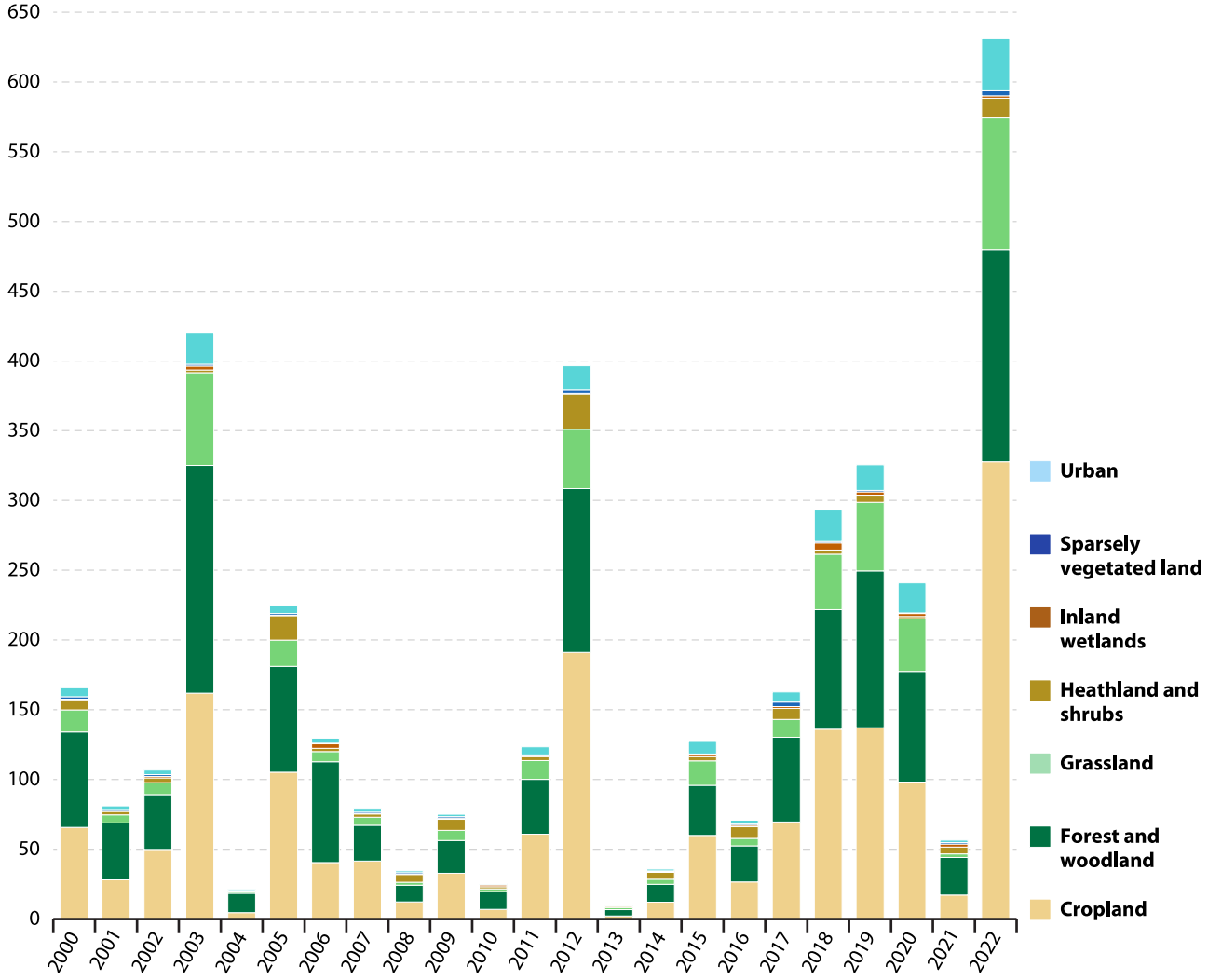
DROUGHT IMPACT

SDG 15 'life on land' aims to protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, halt and reverse land degradation, and halt biodiversity loss.

Most regions of the EU have sufficient water resources: however, water scarcity and drought are becoming increasingly frequent and widespread phenomena. Severe and frequent droughts may, among other impacts, lead to a reduction in water resources, reduce agricultural output, accelerate the process of soil erosion and cut carbon sequestration. Droughts can also impact biodiversity and the restoration of nature through habitat loss, the migration of species and the spread of invasive alien species.

Information on drought impacts can be used to indicate the severity of drought conditions, which arise when soil moisture availability to plants drops to such a level that it adversely affects crop yield, and hence, agricultural production. Monitoring vegetation response to water deficits makes it possible for policymakers to introduce measures that aim to increase the resilience of ecosystems in line with the EU's Nature Restoration Law – a key element of the EU's biodiversity strategy for 2030.

Figure 12.1: Area of drought impact on vegetation productivity, 2000–22
(1 000 km^2, EU)



Note: the areas shown measure drought pressures in terms of precipitation shortages and low soil moisture content. Anomalies are expressed compared with the long-term average vegetation productivity conditions.

Source: European Environment Agency (EEA), Copernicus Land Monitoring Service, Copernicus Emergency Management Service

During the period 2000–22, the average area of drought impact on vegetation productivity in the EU was approximately 167 000 km^2 (see Figure 12.1). Relatively large areas of land were under drought impact during 4 of the last 5 years for which data are available, the exception being 2021.

In 2022, the EU experienced its hottest summer and 2nd warmest year on record. The area of drought impact on vegetation was approximately 631 000 km^2, which was 3.8 times as high as the average for the period 2000–22. A majority of the impacted area was composed of cropland (51.9%), while forest and woodland (24.1%) and grassland (14.9%) also accounted for relatively high shares.

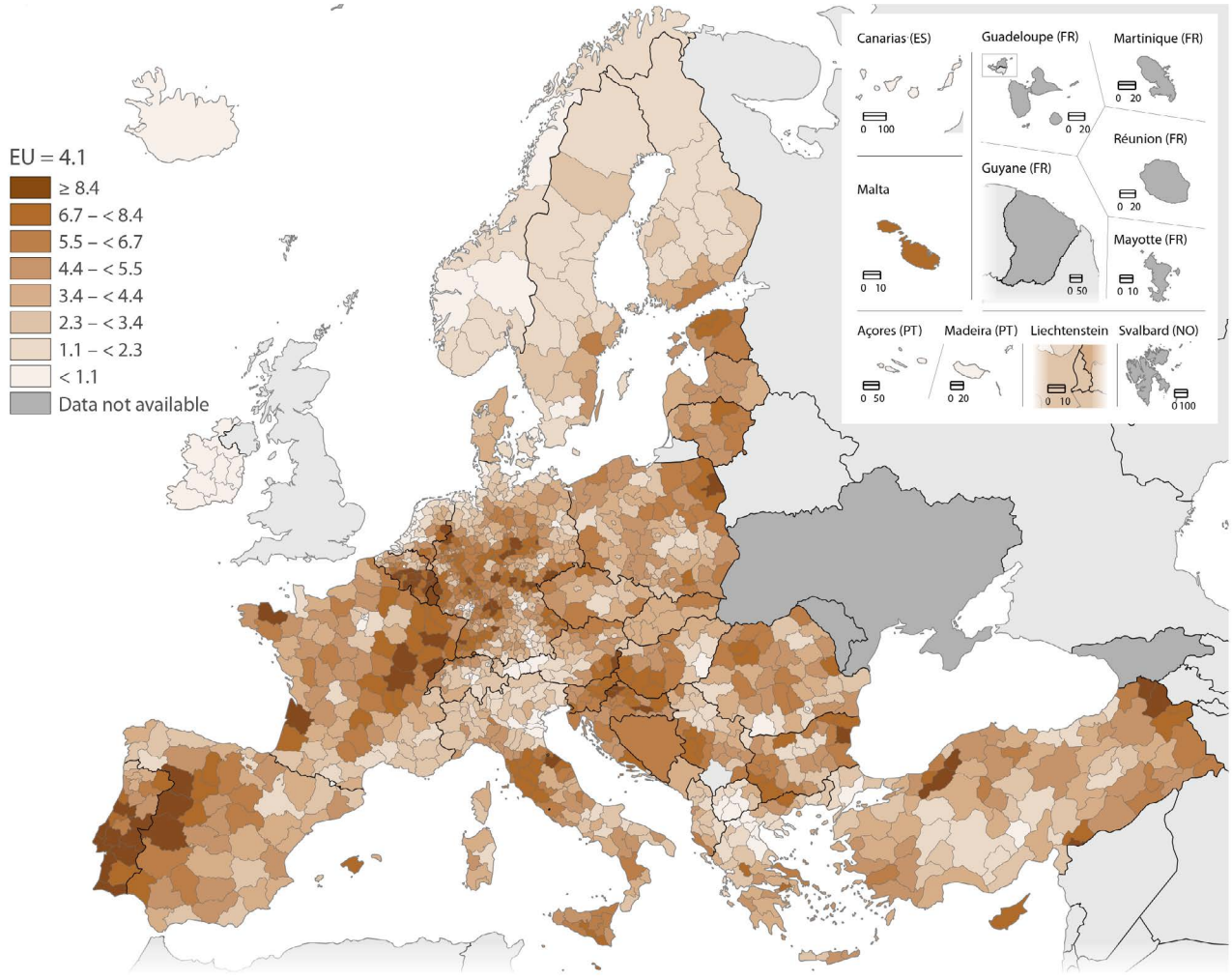
Several regions in Germany and Portugal experienced at least 10% of their area impacted by drought during the period 2000–22

Map 12.6 shows the average area of drought impact due to soil moisture deficit for the period between 2000 and 2022.

Each year, an average of 4.1% of the EU's land area faced drought impacts, with an increasing trend over time. The regional distribution of drought impacts was relatively even insofar as there were 603 NUTS level 3 regions out of 1 161 for which data are available (or 51.9% of all regions) where the average area impacted by drought was higher than the share recorded for the EU.

At the top end of the distribution, there were 61 NUTS level 3 regions where drought impacted, on average, at least 8.4% of the land during the period 2000–22 (these regions are denoted by the darkest shade of brown in Map 12.6). They were concentrated in Germany (21 regions), Belgium (12 regions), Portugal (9 regions) and France (6 regions), but also included 3 regions from each of Spain and Croatia, 2 regions from Austria, as well as Varna in Bulgaria, Pesaro e Urbino in Italy, Luxembourg, Twente in the Netherlands and Białostocki in Poland. Over the period 2000–22, the average area impacted by drought peaked at 12.1% in the central German region of Nordhausen.

Map 12.6: Average drought impact area, 2000–22
(% of land area, by NUTS 3 regions)



Administrative boundaries: © EuroGeographics © UN–FAO © Turkstat
Cartography: Eurostat – IMAGE, 07/2024

Source: European Environment Agency (EEA), Copernicus Land Monitoring Service, Copernicus Emergency Management Service

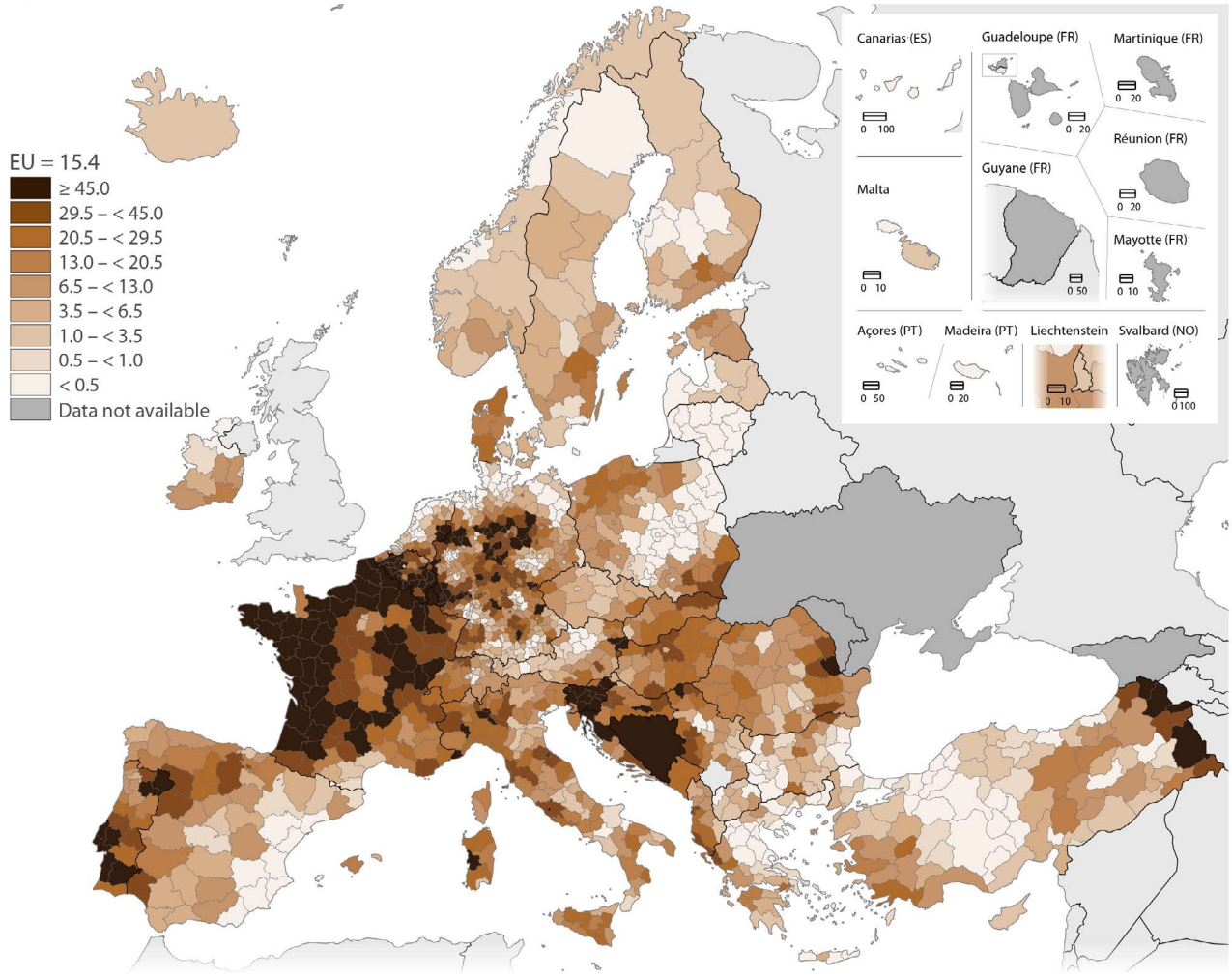
By contrast, there were 90 NUTS level 3 regions where, during the period 2000–22, the average drought impact area was less than 1.1% (they are shown with the lightest shade of brown in Map 12.6). Many of these regions were concentrated in western EU countries, principally across Germany and the Netherlands, and including every region of Ireland. At the bottom end of the distribution, there were 15 regions where none of the land was impacted by drought between 2000 and 2022. A majority of this group was composed of outermost regions that are located in the Atlantic Ocean

- 7 regions that form Canarias (Spain)
- Regiões Autónomas dos Açores e da Madeira (Portugal).

As noted above, the EU experienced its hottest summer on record in 2022, and consequently its highest area impacted by drought (631 000km^2); this was equivalent to 15.4% of its total land area. Map 12.7 shows that large parts of Belgium, Germany, France, Croatia, Luxembourg, Portugal and Slovenia were severely impacted by drought in 2022. For example, drought impacted 71.7% of the Luxembourgish territory, which was 6.5 times as high as the long-term average (11.0%) recorded over the period 2000–22.

There were 145 NUTS level 3 regions where at least 45.0% of all land was impacted by drought in 2022 (as shown by the darkest shade of brown in Map 12.7). The central Slovenian region of Zasavska recorded the highest share (97.2%). It was followed by 3 regions in north-western Belgium – Arr. Tielt, Arr. Aalst and Arr. Oudenaarde – each with shares in the range of 85.4–87.5%.

Map 12.7: Drought impact area, 2022
(% of land area, by NUTS 3 regions)



Administrative boundaries: © EuroGeographics © UN–FAO © Turkstat
Cartography: Eurostat – IMAGE, 07/2024

Source: European Environment Agency (EEA), Copernicus Land Monitoring Service, Copernicus Emergency Management Service

Across the EU, the area impacted by drought in 2022 was 3.8 times as high as the average area impacted during the period 2000–22. This situation was repeated in a majority of NUTS level 3 regions, as 7 out of 10 regions reported a greater area impacted by drought in 2022 (than their long-term average). At the top end of the distribution there were 121 regions where the area impacted by drought was at least 10 times as high as the long-term average. Almost a third of this group was located in France (40 regions), while there were 20 regions located in Belgium (20). For example,

- 70.9% of the land area in the northern French region of Calvados was impacted by drought in 2022, this was 18.4 times as high as average recorded between 2000 and 2022
- more than 75.0% of the land area in the north-western Belgian region of Arr. Ieper was impacted by drought in 2022, which was 21.7 times as high as its long-term average.

In 2022, 15.4% of the EU's land area was impacted by drought. This share was 11.3 percentage points higher than the average (4.1%) recorded for the whole of the period 2000–22. There were 77 NUTS level 3 regions where the area impacted by drought was at least 50.0 percentage points higher in 2022 than the long-term average for 2000–22. These regions were primarily concentrated in France, Belgium, Germany and Slovenia. The largest difference – in percentage point terms – was recorded for Zasavska in Slovenia, where the share of land impacted by drought was 97.2% in 2022, which was 90.3 points higher than the long-term average (6.9%). The next largest differences were recorded in Belgium, as the share of land impacted by drought was, in 2022, more than 75.0 points above the long-term average in Arr. Tielt, Arr. Aalst, Arr. Oudenaarde and Arr. Ath.

Air quality

SDG 11 'sustainable cities and communities' focuses on making cities and human settlements inclusive, safe, resilient and sustainable. Human activities can lead to a considerable deterioration in air quality, for example, through industrial processes (including electricity generation), the burning of solid fuels, transport, agriculture and the generation or treatment of waste. Naturally occurring air pollution can result, among other sources, from volcanic eruptions, desert dust or forest fires.

Air pollution is a major cause of disease and premature death in the EU, with fine particulate matter deemed to have the most severe impact. Some of the most common causes of both illness and premature death attributed to air pollution include heart disease, stroke, lung disease, lung cancer, and asthma; these illnesses also have an associated economic cost through lost working days and healthcare expenditure.

More about the data: air quality guidelines, commitments and targets

Fine particulate matter covers particles with a diameter of 2.5 micrometres or less (otherwise referred to as PM2.5). In September 2021, the World Health Organization (WHO) established global air quality guidelines, emphasising the need to safeguard public health: an annual average of 5 µg/m^3 for PM2.5, reflecting emerging scientific insights that even low concentrations of air pollution pose significant risks to human health.

To achieve the EU's ambitious vision of zero pollution by 2050, the European Commission has outlined key targets and initiatives. Among these, an intermediate goal to reduce premature deaths resulting from exposure to air pollution by at least 55% between 2005 and 2030. Additionally, the European Commission has proposed a revision (COM(2022) 542 final) of its air quality standards to align these more closely to the WHO's recommendations.

Directive (2016/2284/EU) on the reduction of national emissions of certain atmospheric pollutants sets emission reduction commitments for 5 air pollutants, including fine particulate matter. They are designed to reduce the health impacts of air pollution by 50% compared with 2005. The directive also requires EU countries to draw up national air pollution control programmes.

In 2021, the north-western Bulgarian region of Vidin had the highest number of premature deaths attributed to fine particulate matter per 100 000 inhabitants

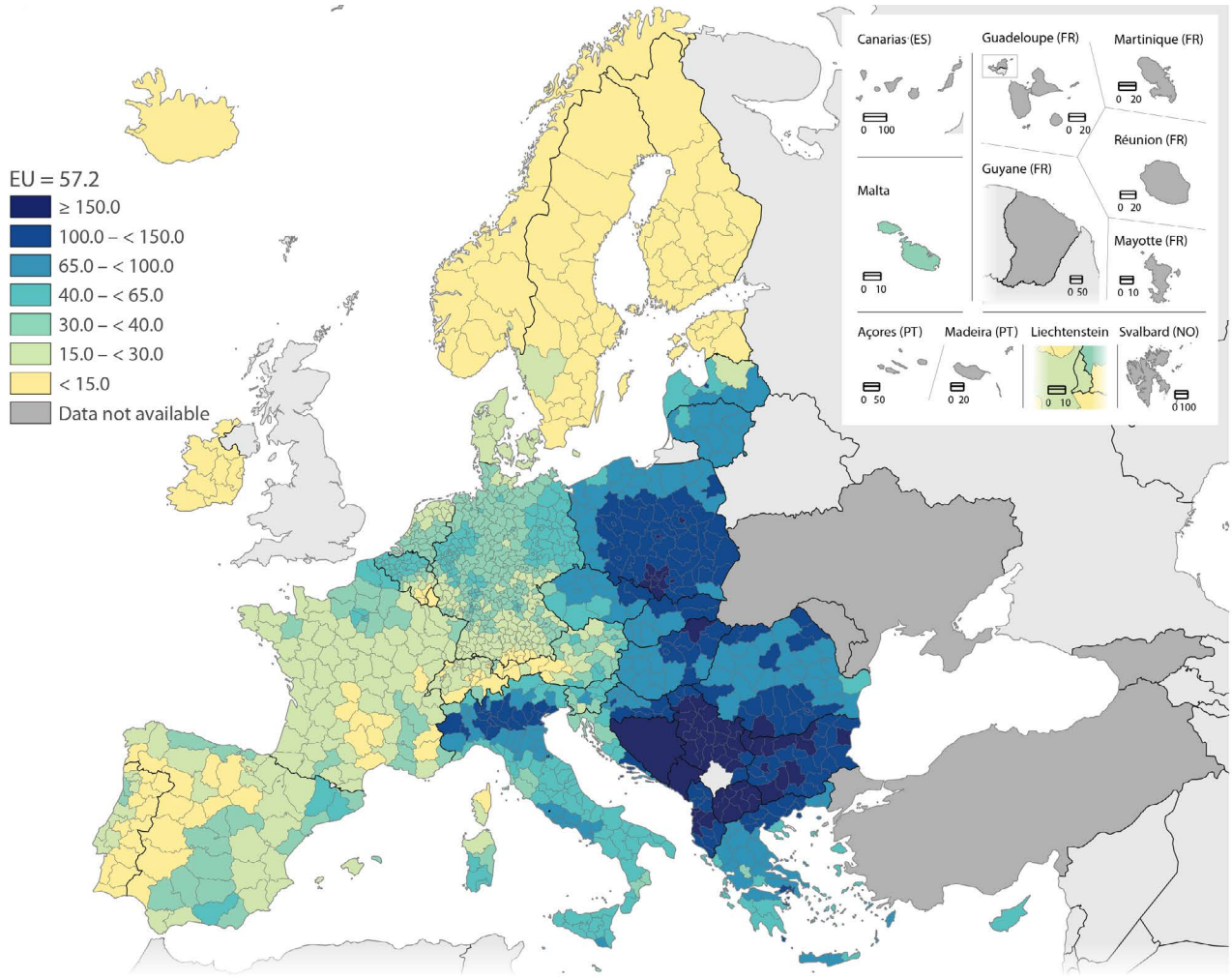
The European Environment Agency (EEA) estimates that around 253 000 premature deaths in the EU could be attributed to the impact of fine particulate matter in 2021; this equates to an average of 57.2 deaths per 100 000 inhabitants. The regional distribution was skewed, as the number of premature deaths attributable to air pollution per 100 000 inhabitants was below the EU average in 817 out of 1 152 – or 70.9% – of NUTS level 3 regions for which data are available.

Unsurprisingly, the highest absolute numbers of premature deaths associated with fine particulate matter were observed in some of the most populous NUTS level 3 regions; they were concentrated in southern and eastern EU countries and included many predominantly urban regions. The northern Italian region of Milano (3 917) recorded the highest number of premature deaths attributed to fine particulate matter in 2021. There were also high counts in Roma (2 819) and Barcelona (2 808), while 7 more regions in the EU had more than 2 000 premature deaths attributed to air pollution. Among these, 6 were capital regions: Miasto Warszawa in Poland, Bucureşti in Romania, Madrid in Spain, Berlin in Germany, Sofia (stolitsa) in Bulgaria and Budapest in Hungary; the other region was Torino in Italy.

While the absolute number of premature deaths attributed to exposure to fine particulate matter was highest in some of the most populous NUTS level 3 regions of the EU, the most significant impacts of air pollution when normalised by population were generally observed in eastern EU countries. In 2021, there were 156 NUTS level 3 regions within the EU where the number of premature deaths attributable to air pollution was at least 100.0 per 100 000 inhabitants (these regions are shown in the 2 darkest shades of blue in Map 12.8). Vidin in north-west Bulgaria and Miasto Kraków in southern Poland were the only regions to record more than 200 premature deaths per 100 000 inhabitants attributable to air pollution. There were 22 other regions where the number of premature deaths per 100 000 inhabitants attributable to air pollution was in the range of 150–200. This group was composed of 10 more regions from each of Bulgaria and Poland, as well as a single region from each of Romania and Hungary.

At the other end of the range, there were 106 NUTS level 3 regions where the number of premature deaths attributed to exposure to fine particulate matter was less than 15.0 per 100 000 inhabitants in 2021. This group – where this type of air pollution had a relatively low impact on human health – included every region of Estonia, Ireland and Finland and almost every region in Sweden; the only exception was Västra Götalands län.

Map 12.8: Premature deaths attributed to exposure to fine particulate matter (PM2.5), 2021
(per 100 000 inhabitants, by NUTS 3 regions)



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Cartography: Eurostat – IMAGE, 06/2024

Note: EU estimate, excluding Canarias (ES7), Régions Ultrapériphériques Françaises (FRY) and Regiões Autónomas dos Açores e da Madeira (PT2 and PT3).

Source: European Environment Agency (EEA)

13. Agriculture

Agricultural products, food, and culinary traditions play a significant role in shaping the regional and cultural identity of the European Union (EU). This is attributable, in part, to the diverse natural landscapes, climates, and farming techniques that are used across the EU, that in turn contribute to a wide variety of agricultural goods. In 2020, there were approximately 9.1 million farms in the EU. Together, they used 1.55 million km^2 of land, which is equivalent to 37.8% of the EU's total land area.

Farms across the EU play a crucial role in supplying safe, affordable food. Farm managers are increasingly encouraged to manage the countryside for the public good. This shift towards sustainability – alongside a rise in health-conscious consumers – has spurred rapid growth in organic farming. The infographic below illustrates that organic farming (defined here as fully converted land and land under conversion) accounted for 8.3% of the EU's utilised agricultural area in 2020, with a peak of 56.9% in the Austrian region of Salzburg.

The final chapter of this publication presents regional agricultural statistics. It focuses on 4 principal subjects

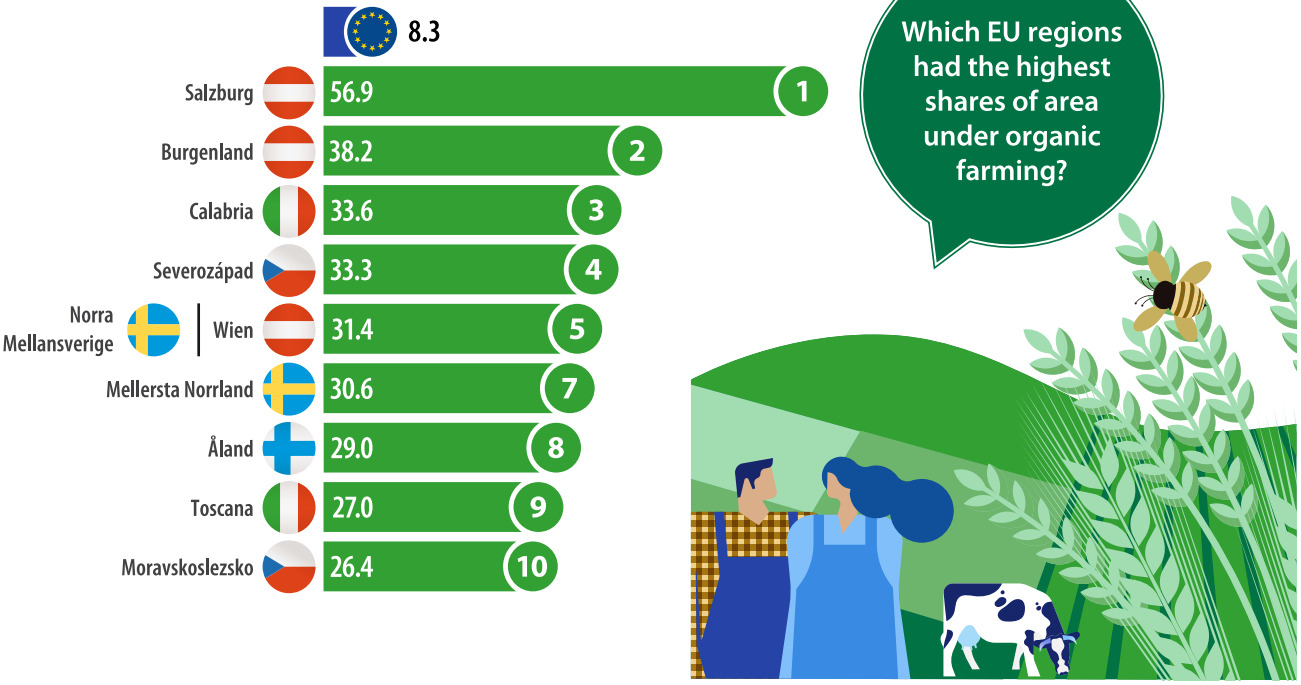
- economic accounts for agriculture that provide information on the performance of agricultural activity
- organic farming and its development between 2010 and 2020
- the harvested production of cereals – a key output of the EU's agricultural sector
- the agricultural labour force, with a special focus on farm managers participating in vocational training.

Economic situation of farms

The economic accounts for agriculture provide an overall picture of the performance of agricultural activity. This matters as farming is often the cornerstone of rural economies, upon which 'upstream' sectors (such as animal healthcare providers and wholesalers of agricultural inputs) and 'downstream' sectors (such as food processing, packaging and transport businesses) may depend.

GROSS VALUE ADDED FROM AGRICULTURE

Gross value added is the difference between the value of output and intermediate consumption, adjusted for taxes less subsidies on products. In 2021, the gross value added of EU farms was €191.7 billion. To put this figure into context, it was equivalent to 1.5% of added value from all activities across the EU economy.



(% of utilised agricultural area, 2020, by NUTS 2 regions)

Note: organic area fully converted and under conversion. Ciudad de Ceuta (ES63): not available.

Source: Eurostat (online data code: ef_lus_main)

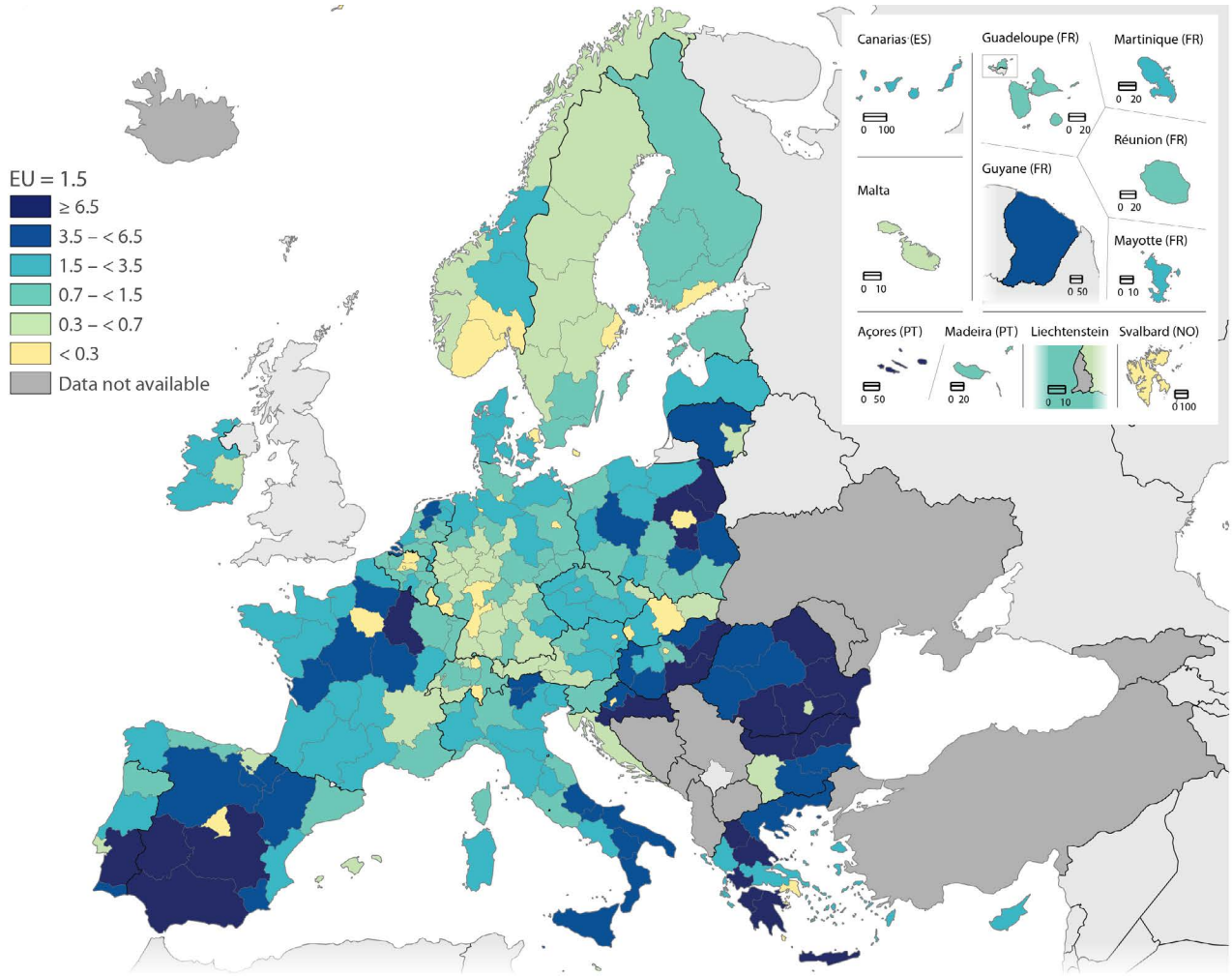
The economic contribution of agriculture to total gross value added was highest in Thessalia (Greece) and Severozapaden (Bulgaria)

Agriculture's contribution to total gross value added has generally been falling over a relatively lengthy period of time. That said, there were several rural regions in the EU where the economic importance of agriculture in 2021 was considerably higher than the EU average. Most of these regions were located in eastern and southern EU countries; they were often characterised by fertile plains that are suited to growing crops.

Aside from their capitals, all of the NUTS level 2 regions in Denmark, Ireland, Greece, Lithuania and Romania reported agriculture having a share of total gross value added that was in 2021 equal to or above the EU average of 1.5%; in Cyprus and Latvia, the share was also above the EU average. By contrast, agriculture's share of total gross value added was below the EU average in every region of Sweden and in all but one of the regions in Belgium (the exception being Prov. Namur); this share was also below the EU average in Estonia, Luxembourg and Malta.

In 2021, there were 23 NUTS level 2 regions where agriculture accounted for at least 6.5% of total gross value added (as shown by the darkest shade of blue in Map 13.1). The relative importance of agriculture was most pronounced in the Greek region of Thessalia (where it accounted for 16.2% of gross value added) and the Bulgarian region of Severozapaden (15.0%). There were 4 other regions where agriculture had a double-digit share: Dytiki Makedonia in Greece (11.7%), Panonska Hrvatska in Croatia (11.1%), Alentejo in Portugal (11.0%) and Severen tsentralen in Bulgaria (10.7%). Champagne-Ardenne in France – which is a major producer of cereals, sugar beet, grapes and vegetables – was the only region from western or northern EU countries among this group of 23, with agriculture contributing 7.6% of its total gross value added.

Map 13.1: Gross value added from agriculture, 2021
(% of the economy's value added, by NUTS 2 regions)



Administrative boundaries: © EuroGeographics © UN–FAO © Turkstat
Cartography: Eurostat – IMAGE, 06/2024

Note: Slovenia, national data. Région de Bruxelles-Capitale/Brussels Hoofdstedelijk Gewest (BE10): 2020. Poland: 2019.
Source: Eurostat (online data codes: agr_r_accts, nama_10r_3gva and aact_eaa01)

The economic importance of agriculture was generally very low in capital regions, where land tends to be at a premium. At the lower end of the distribution, there were 22 NUTS level 2 regions where gross value added from agriculture accounted for less than 0.3% of economic output in 2021 (as shown by the yellow shade in Map 13.1). This group included the capital regions of Belgium (2020 data), Denmark, Germany, Greece, Spain, France, Croatia, Hungary, Austria, Poland (2019 data), Slovakia, Finland and Sweden; it also included Luxembourg. Most of the remaining regions in this group were predominantly urban regions

- Prov. Antwerpen and Prov. Vlaams-Brabant in northern Belgium
- Bremen, Saarland, Darmstadt, Hamburg and Karlsruhe in Germany
- Stredné Slovensko in Slovakia.

Organic farming

Farming can have a considerable environmental impact. Among other issues, it can lead to an increase in greenhouse gas emissions and soil erosion, or result in habitat and biodiversity loss, deforestation or the contamination of waters. Recent years have seen an increasing number of EU farmers embracing organic farming methods. This may reflect several different factors, including

- a shift in consumer demand – heightened awareness among consumers driven by their concerns regarding health, environmental sustainability and animal welfare
- policy support – the EU's agricultural policies encourage farmers to transition to organic farming practices by providing subsidies, incentives and support schemes
- environmental sustainability – whereby farmers choose to minimise their use of synthetic pesticides and fertilisers, promote biodiversity and conserve natural resources, thereby building long-term resilience into their agricultural practices.

More about the data: promoting EU agriculture through organic policy measures

A sustainable food system is at the heart of the European Green Deal. Under the Farm to Fork strategy, the European Commission has set a target to have 'at least 25% of the EU's agricultural land under organic farming and a significant increase in organic aquaculture by 2030'.

In March 2021, the European Commission introduced an Action plan to promote organic production within the EU. It is structured according to 3 axes and focuses on: boosting consumer demand, stimulating production and processing, and enhancing environmental sustainability.

The EU's monitoring framework for the 8th Environment Action Programme (8th EAP), unveiled in 2022, includes measures to speed-up the transition to a greener economy and safeguard the environment. This programme is aligned with the United Nations 2030 Agenda and its sustainable development goals. Under a heading for 'environmental and climate pressures related to EU production and consumption', a key target to track progress is the above-mentioned European Green Deal target to have 25% of the EU's agricultural land organically farmed by 2030.

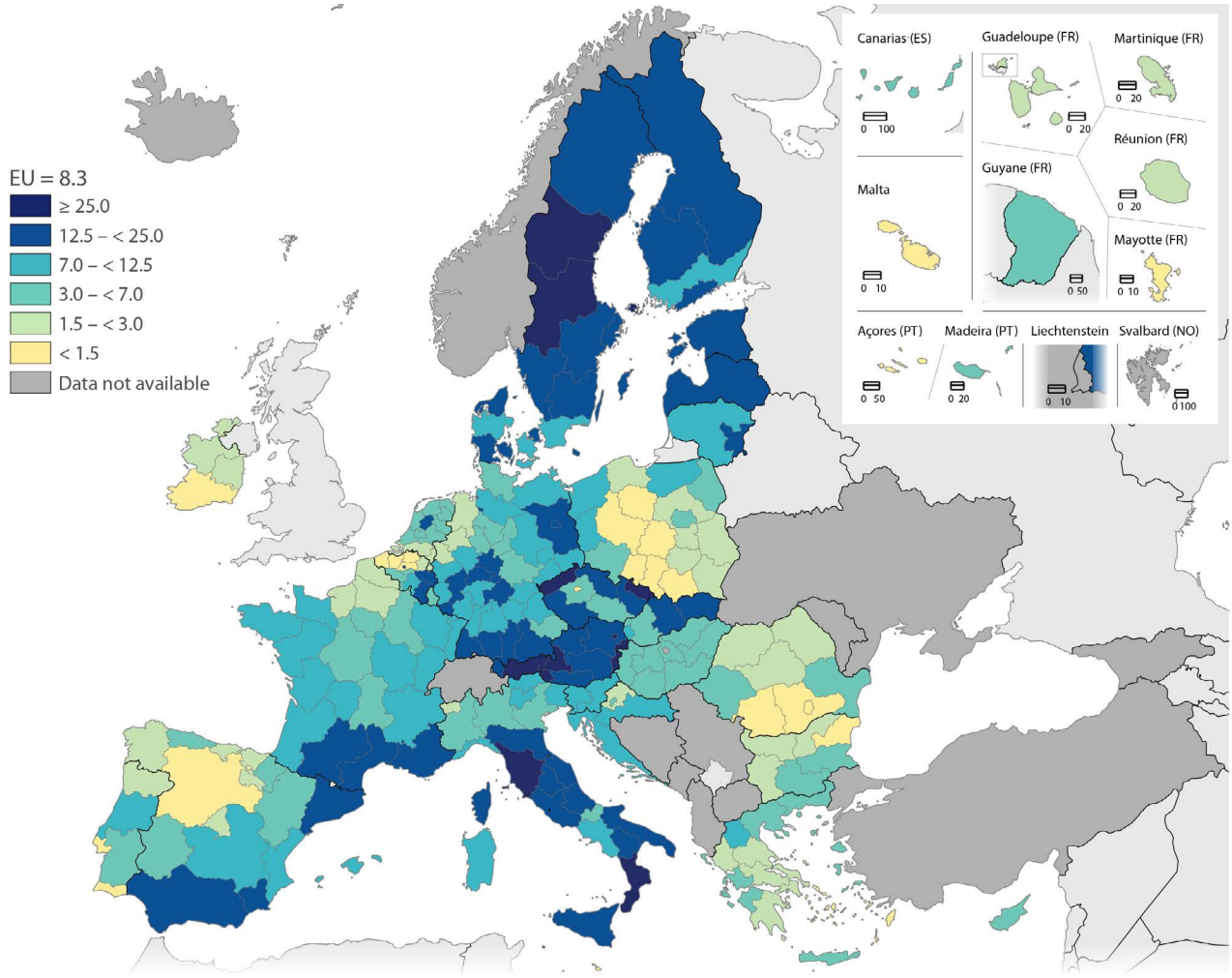
In 2020, the EU's organic area covered 13.1 million hectares (equivalent to 131 000 km^2). To put these figures into context, the EU's organic area accounted for 8.3% of its utilised agricultural area; this organic area encompasses both fully converted land and land currently under conversion to organic farming.

In 2020, Salzburg was the only region in the EU to report that more than 50.0% of its utilised agricultural area was under organic farming

The relative importance of organic farming shows considerable variations, both across EU countries and among NUTS level 2 regions. For instance, the share of utilised agricultural area that was under organic farming exceeded the EU average of 8.3% in every region of Austria, Slovenia, Finland and Sweden in 2020; the share was also above the EU average in Estonia and Lativa. Conversely, this share was lower than the EU average in every region of Bulgaria, Ireland, Greece, Hungary (incomplete data) and Romania; the share was also below the EU average in Cyprus, Luxembourg and Malta.

Among the 240 NUTS level 2 regions for which data are available in 2020, there were 24 regions – predominantly located in Poland, Belgium and Romania – where less than 1.5% of the utilised agricultural area was given over to organic farming. By contrast, there were 11 with more than 25.0% of their utilised agricultural area under organic farming (they are shown by the darkest shade of blue in Map 13.2). This group comprised 4 regions from Austria, 2 regions from each of Czechia, Italy and Sweden, as well as Åland in Finland. The Austrian region of Salzburg recorded the highest regional share in 2020, with over half (56.9%) of its utilised agricultural area under organic farming. There were 3 other NUTS level 2 regions where organic farming accounted for at least 33.3% of the utilised agricultural area in 2020: Burgenland in eastern Austria (38.2%), Calabria in southern Italy (33.6%) and Severozápad in north-west Czechia (33.3%) – see Figure 13.1.

Map 13.2: Area under organic farming, 2020
(% of utilised agricultural area, by NUTS 2 regions)



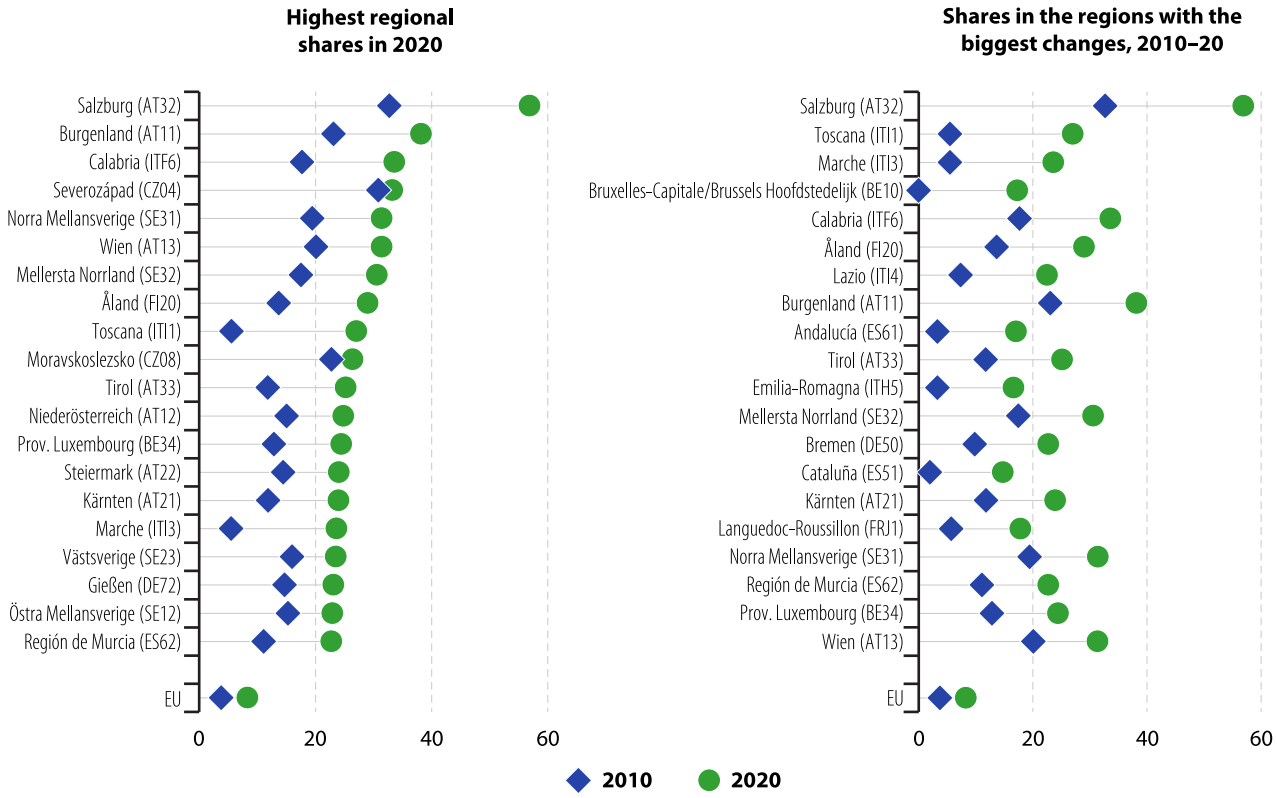
Administrative boundaries: © EuroGeographics © UN–FAO © Turkstat
Cartography: Eurostat – IMAGE, 06/2024

Note: organic area fully converted and under conversion.
Source: Eurostat (online data code: ef_lus_main)

Figure 13.1 shows the regions with the highest shares of the utilised agricultural area given over to organic farming and it also presents information for developments over time. Between 2010 and 2020, the area dedicated to organic farming in the EU rose from 3.8% to 8.3% of the utilised agricultural area. Salzburg recorded the largest increase among NUTS level 2 regions (in percentage point terms), as the relative importance of organic farming increased from 32.7% to 56.9% of its utilised agricultural area (up 24.2 points). The next highest increases were recorded in 2 central Italian regions: the share of utilised agricultural area under organic farming rose 21.5 points in Toscana (from 5.5% to 27.0%) and 18.2 points in Marche (from 5.5% to 23.6%), respectively.

In absolute terms and among NUTS level 2 regions, the southern Spanish region of Andalucía had, by far, the biggest area under organic farming (812 000 hectares in 2020, or 6.2% of the EU total). The area used for organic farming was also very large in the central Spanish region of Castilla-La Mancha (412 400 hectares), the south-western French region of Midi-Pyrénées (326 900 hectares) and the Italian island region of Sicilia (304 600 hectares). These values reflect, at least to some degree, differences between regions in terms of the administrative boundaries that are used to delineate each region. For instance, Andalucía was the 4th largest NUTS level 2 region in the EU (in terms of its land area), while Castilla-La Mancha was the 6th largest.

Figure 13.1: Area under organic farming, 2010 and 2020
(% of utilised agricultural area, by NUTS 2 regions)



Note: organic area fully converted and under conversion. The first part of the figure shows the EU regions with the highest shares in 2020, while the second part shows the regions with the biggest increases (in percentage point terms) compared with 2010. Ciudad de Ceuta (ES63): not available for 2020. Budapest (HU11): confidential for 2020. Ireland, Greece, Croatia and Lithuania: national data for the change between 2010 and 2020 (due to changes in the NUTS classification). Several regions are not available for the change between 2010 and 2020 (too many to document).

Source: Eurostat (online data code: ef_lus_main)

Focus on the harvested production of cereals

Arable land is often used for the production of cereals, a key output of the EU's agricultural sector. In 2022, EU farms cultivated 51.5 million hectares of land with cereals, resulting in a harvested production of 270.8 million tonnes. There is considerable diversity in the types of cereals grown across different EU regions, reflecting, among other factors, topography, soil type, climate, rainfall and competing land uses.

More about the data: statistics on the harvested production of cereals

Harvested production means production including losses and wastage on the agricultural holding, quantities consumed directly on the farm, and marketed quantities; it is indicated/measured in units of basic product weight.

Cereals are annual plants, generally of the graminaceous family, yielding grains. Cereals are used primarily for human consumption and animal feed, with some kept for seed. Cereals are also used to make drinks and industrial products (for example, starch). The data for cereals include buckwheat, barley, canary seed, common wheat, durum wheat, einkorn wheat, emmer wheat, grain maize, millet, oats, perennial sorghum, quinoa, rice, rye, rye and winter cereal mixtures (maslin), sorghum, spelt, spring cereal mixtures (mixed grain, other than maslin), triticale, cereal seeds, cereal grains harvested just before maturity, and cereals used for renewable energy production. The data presented for cereals exclude sweet corn cobs for human consumption, as well as maize that is harvested green for fodder or renewable energy use.

All of the regional statistics for Germany within this section on cereals concern NUTS level 1 regions.

In 2022, the harvested production of cereals peaked at 7.8 million tonnes in Centre — Val de Loire (France)

A majority of the EU's harvested cereals production is concentrated within a band of predominantly rural regions that span across the centre of the continent; regions situated further north and south tend to exhibit lower levels of production.

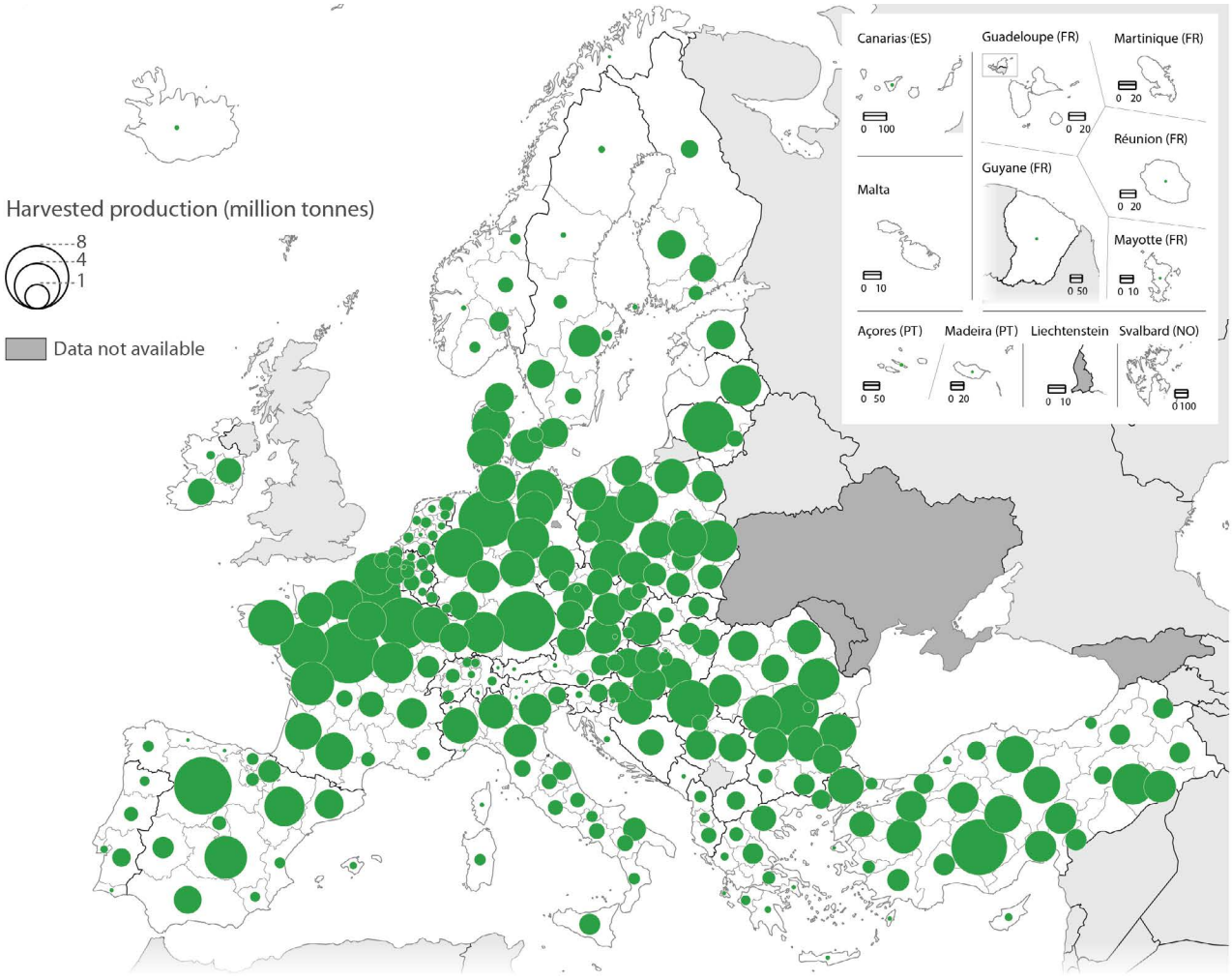
In 2022, there were 9 NUTS level 2 regions in the EU where the harvested production of cereals was at least 5.0 million tonnes (as depicted by the largest circles in Map 13.3). This group included 3 regions from central/northern France, namely, Centre — Val de Loire, Picardie, and Champagne-Ardenne; the former had the highest level of cereals production in the EU, at 7.8 million tonnes. The remainder of this group included: Bayern and Niedersachsen (both in Germany), Castilla y León (Spain), Vidurio ir vakarų Lietuvos regionas (Lithuania), Sud-Muntenia (Romania) and Wielkopolskie (Poland).

Crop production is intrinsically linked to weather conditions throughout the growing season and at harvest time, with temperature and precipitation playing a crucial role in determining yields. In the spring of 2022, many parts of the EU experienced drier than normal conditions, followed by an exceptionally hot and/or dry summer; indeed, some western EU countries had record-breaking temperatures. These drier than usual conditions – with drought in some regions – impacted the cereals harvest in the EU, as production fell 9.0% between 2021 and 2022. Among the principal cereal-growing regions of the EU, harvested production fell in Castilla y León (down 29.0%), Sud-Muntenia (down 21.7%) and Centre — Val de Loire (down 10.3%).

A majority of the NUTS level 2 regions for which data are available (128 out of 217) had a level of harvested cereals production that was less than 1.0 million tonnes.

For more detailed information on the harvested production of various cereals – see Regions in Europe (interactive publication)

Map 13.3: Harvested production of cereals, 2022
(million tonnes, by NUTS 2 regions)



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Cartography: Eurostat – IMAGE, 06/2024

Note: Germany, NUTS level 1. Switzerland: 2021. Norway: 2020.
Source: Eurostat (online data codes: apro_cpshr and apro_cpsh1)

In 2022, the EU's harvested production of common wheat and spelt was 126.6 million tonnes, representing nearly half (46.8%) of all cereals production. Grain maize and corn-cob mix accounted for 19.6% of the EU's cereals production, while barley had a similar share (19.2%). There were considerably lower levels of production for other types of cereal, with triticale – the 4th most harvested cereal in the EU – contributing 4.2%.

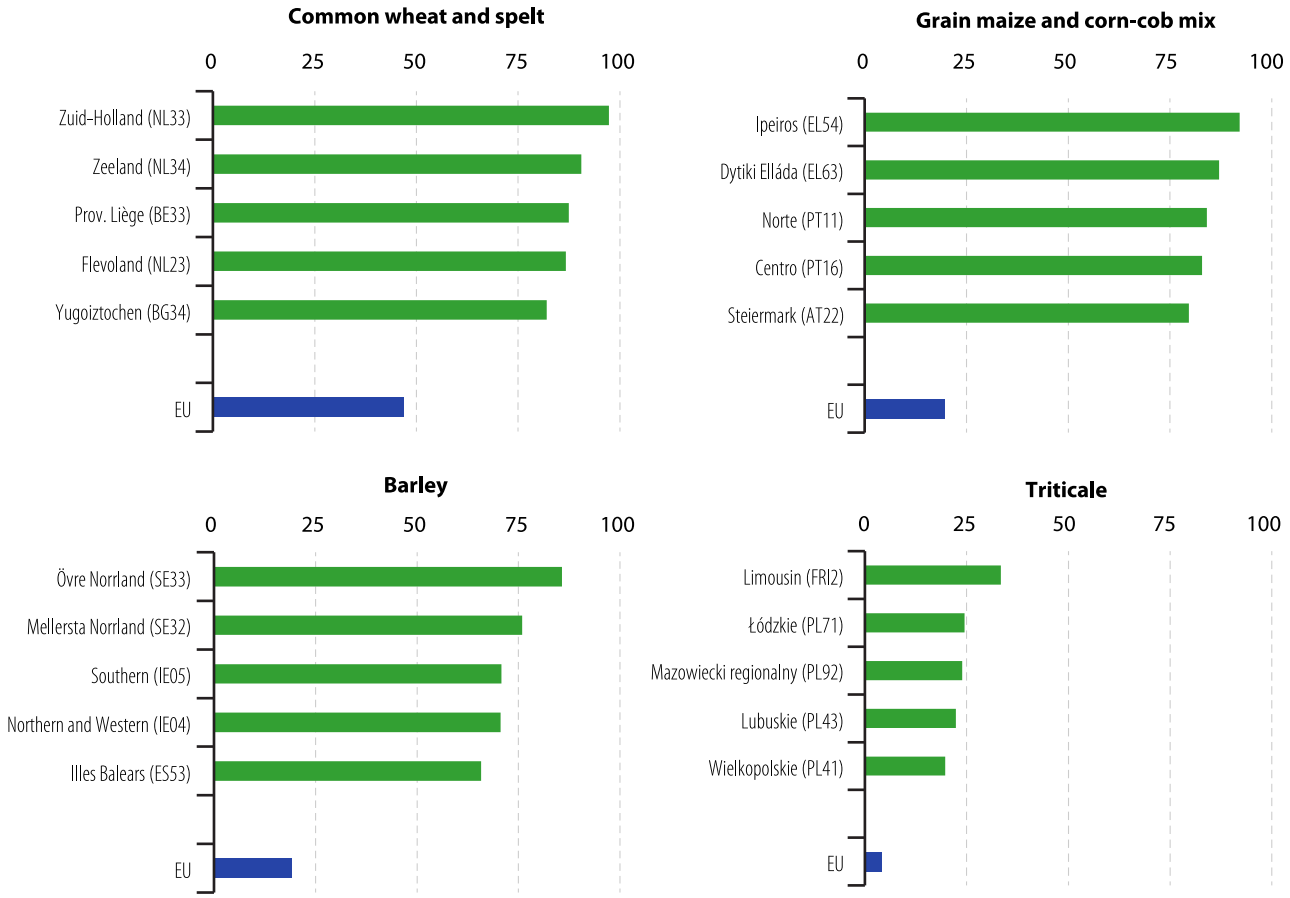
Common wheat and spelt are primarily cultivated in lowland regions of the EU characterised by extensive plains, temperate climates and modest levels of rainfall. In 2022, there were 3 NUTS level 2 regions that reported harvested production of common wheat and spelt exceeding 4.0 million tonnes: Picardie and Centre — Val de Loire (both in France) and Vidurio ir vakarų Lietuvos regionas (in Lithuania). However, several other regions revealed a higher degree of relative specialisation. For instance, 3 regions in the Netherlands reported that more than 85% of their total cereals production consisted of common wheat and spelt, with the highest share registered in Zuid-Holland (97.3%) – see Figure 13.2.

A significant share of the EU's production of grain maize and corn-cob mix is used by livestock farmers as a high-energy ingredient in animal feed. Many of the regions specialised in the production of grain maize and corn-cob mix are located in southern and eastern EU countries, where the requisite sunshine and warm temperatures prevail. In 2022, the highest degrees of specialisation were recorded in Greek and Portuguese regions, while the highest levels of harvested production were registered in the Romanian region of Sud-Muntenia (2.0 million tonnes) and the French region of Aquitaine (1.9 million tonnes).

Barley was the 3rd most harvested cereal in the EU; it is generally used as animal fodder and for the manufacture of beer and whisky. In regions where climatic conditions deter farmers from cultivating wheat, barley is often grown as an alternative. This was particularly true in northerly regions of Sweden and 2 out of the 3 regions in Ireland, where barley accounted for more than 70.0% of all cereals production in 2022. The highest levels of harvested barley production were recorded in the Spanish regions of Castilla y León (2.3 million tonnes) and Castilla-La Mancha (2.0 million tonnes).

Triticale is a hybrid crop species – a man-made cross between wheat and rye. It has a variety of uses, including: feed for livestock, the manufacture of bread and pasta, or as a raw material for biofuels. In 2022, triticale accounted for approximately 33% of all cereals production in the central French region of Limousin. Otherwise, the highest degrees of specialisation were recorded in Polish regions, which also recorded the highest levels of harvested production, with a peak of 1.0 million tonnes in Wielkopolskie.

Figure 13.2: Harvested production of cereals, 2022
(% of all cereals, by NUTS 2 regions)



Note: the figure shows the regions with the highest shares of production for the 4 most commonly harvested cereals in the EU. Only those regions with at least 10 000 tonnes of harvested production are taken into consideration.

Source: Eurostat (online data codes: apro_cpshr and apro_cpsh1)

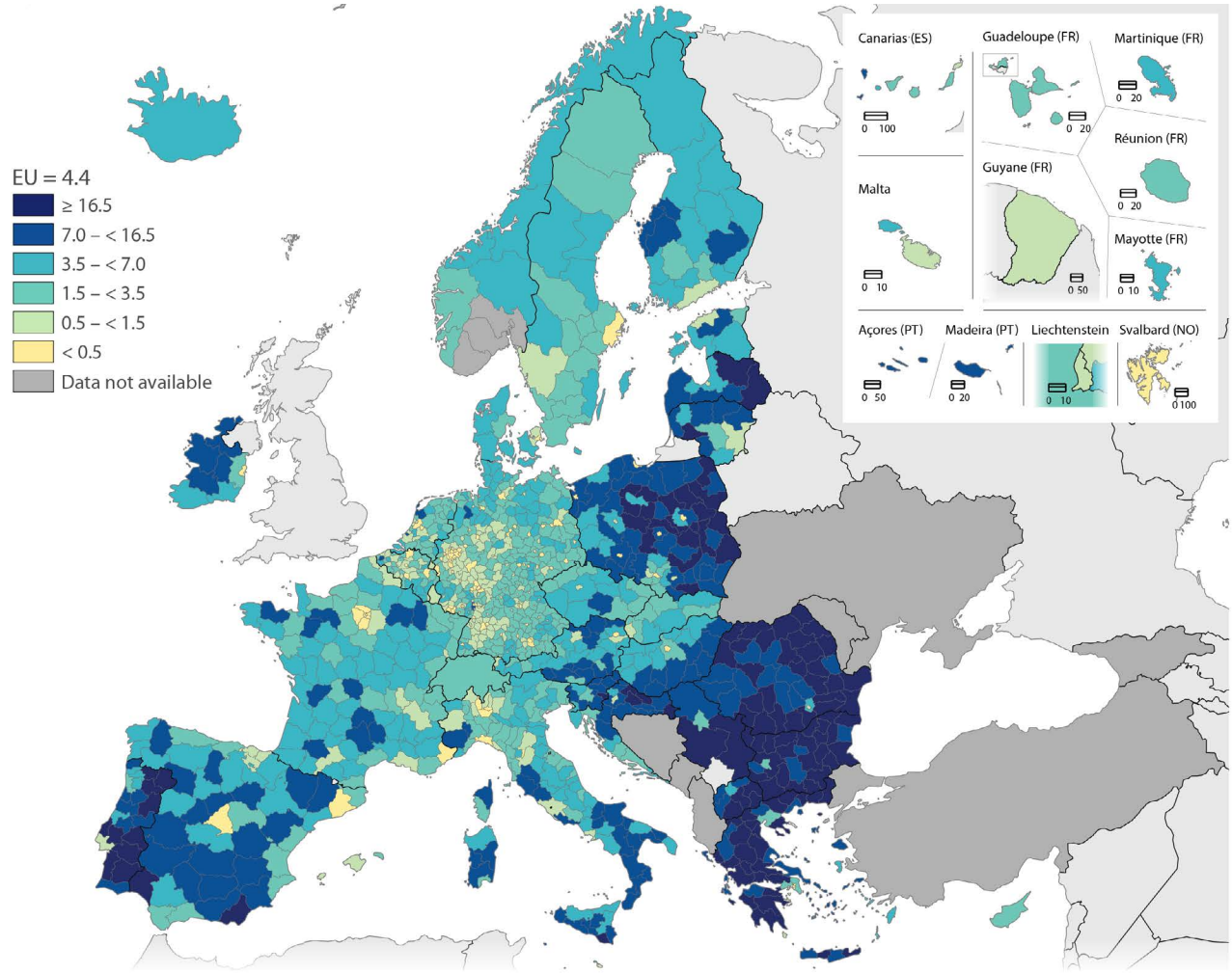
Farm managers and the agricultural labour force

For many people, working on a farm is a part-time or seasonal activity; they provide help during peak periods of activity that are generally linked to the harvest. Despite this caveat, the agriculture, forestry and fishing sector remains an important source of employment in the EU. In 2021, it provided work to approximately 9.3 million people, which was equivalent to 4.4% of the EU's workforce. The regional distribution of employment in agriculture, forestry and fishing was relatively skewed. Less than 40% of all NUTS level 3 regions – or 457 out of 1 166 regions – reported an employment share for agriculture, forestry and fishing that was equal to or above the EU average. These regions were predominantly concentrated in eastern and southern EU countries, notably across Bulgaria, Greece, Spain, Italy, Poland, Portugal and Romania, although there were also many regions in Germany and France.

At the top end of the distribution, there were 118 NUTS level 3 regions where in 2021 at least 16.5% of the total workforce was employed in the agriculture, forestry and fishing sector (as shown by the darkest shade of blue in Map 13.4). This group included 23 out of the 28 regions in Bulgaria and 28 out of the 42 regions in Romania.

In 2021, the agriculture, forestry and fishing sector accounted for 59.8% of the workforce in the Romanian region of Vaslui. This was the only NUTS level 3 region in the EU to report a majority of those employed being active within the agriculture, forestry and fishing sector. In absolute terms, there were 4 regions in eastern Romania where more than 100 000 people were employed in the agriculture, forestry and fishing sector; they were the only regions in the EU to surpass this level. The highest number of people employed was registered in Iași (130 800 in the agriculture, forestry and fishing sector), followed by Neamț, Vaslui and Suceava.

Map 13.4: Employment in agriculture, forestry and fishing, 2021
(% of total employment, by NUTS 3 regions)



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Note: Serbia, NUTS level 2. Iceland and Switzerland: national data.

Source: Eurostat (online data codes: nama_10r_3empers and nama_10_a64_e)

At the other end of the distribution, there were 14 NUTS level 3 regions where the employment share of agriculture, forestry and fishing was 0.0%. This group was largely composed of predominantly urban regions, including the capital regions of Belgium, Denmark, Germany and France.

FARM MANAGERS

There are many different forms of agricultural holdings across the EU: these range from very small, semi-subsistence holdings to large-scale, typically intensive farms. These structural differences are generally replicated in patterns of ownership and management: small farms tend to be family-owned and run, whereas larger farms are more likely to be owned by enterprises that employ professionally trained farm managers.

Farm managers are responsible for the normal daily financial and production routines of running a farm, such as what and how much to plant or rear and what labour, materials and equipment to employ. They are increasingly expected to have not only the necessary skills to produce crop and animal products efficiently, but also to be aware of related issues, such as sustainability, emissions and animal welfare. To do so, farm managers and members of the wider farm labour force often need to keep up to date with scientific and technological progress. As such, agricultural vocational training may be seen as a key enabler in the EU's transition towards a green and digital economy.

In 2020, around 7.1% of farm managers in the EU participated in vocational training during the 12 months preceding the survey

In 2020, 641 100 (or 7.1%) of the EU's 9.1 million farm managers participated in vocational training during the 12 months preceding the survey. The regional distribution was skewed as 166 out of 240 NUTS level 2 regions (almost 70%) reported participation rates for vocational training that were above the EU average. These regions were generally characterised by relatively few, large farms. Conversely, those regions with lower participation rates for vocational training typically had a much higher number of semi-subsistence and/or family-run farms.

More than half of all NUTS level 2 regions located in Czechia, Germany, the Netherlands, Austria and Slovenia reported that at least 27.5% of farm managers participated in vocational training during the 12 months preceding the 2020 survey; this was the case in Luxembourg too. At the top end of the distribution, Wien (the Austrian capital region), Düsseldorf and Münster (both in Germany) and Flevoland (in the Netherlands) were the only regions in the EU to report a majority of their farm managers participating in vocational training during the 12 months prior to the survey.

By contrast, less than 6.0% of all farm managers participated in vocational training across every NUTS level 2 region of Bulgaria, Ireland, Greece and Romania in 2020. At the lower end of the distribution, less than 1.0% of all farm managers participated in vocational training in 8 Romanian regions and in Cyprus. Romania is characterised by a very high number of small, semi-subsistence farms and accounted for 31.8% of the total number of farms in the EU.

Younger farm managers are more likely than older farm managers to participate in vocational training

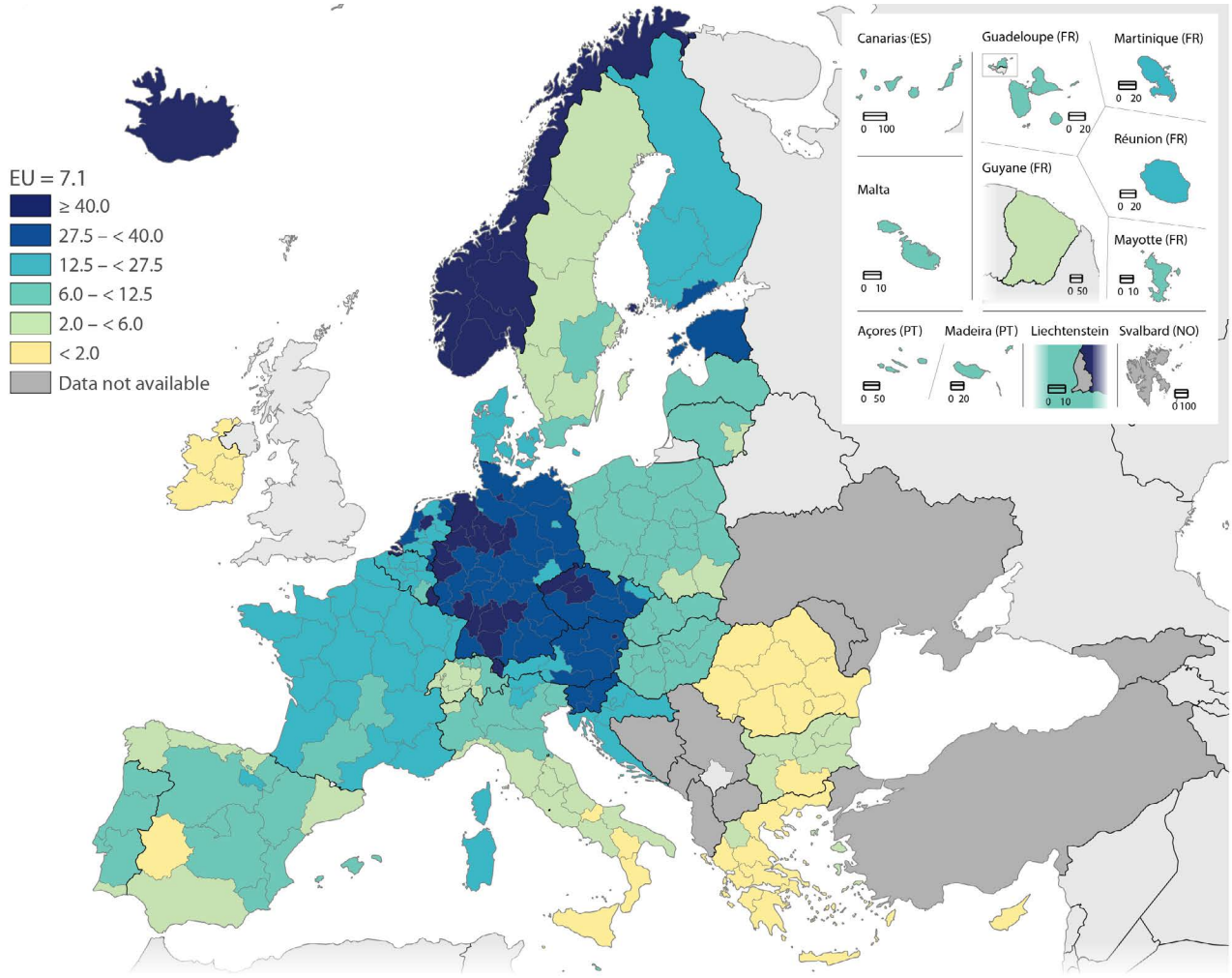
In 2020, 13.1% of the EU's young farm managers (defined here as those aged less than 35) participated in vocational training. This figure was 9.9 percentage points higher than the corresponding share for older farm managers (defined here as those aged 65 or over), which was 3.2%. This pattern – younger farm managers were more likely than older farm managers to participate in vocational training – was repeated in all but one of the NUTS level 2 regions for which data are available. The widest variations in participation rates between younger and older farm managers – at least 30.0 percentage points – were recorded in Noord-Holland (in the Netherlands), Illes Balears (in Spain), Estonia and Helsinki-Uusimaa (in Finland). The only exception was the German region of Oberfranken, where the participation rate for vocational training was higher among older farm managers (35.0%) than their younger counterparts (33.3%).

The share of EU farm managers participating in vocational training rose from 5.8% to 7.1% between 2010 and 2020, an increase of 1.3 percentage points. During this period, the participation rate rose in approximately 70% of the NUTS level 2 regions for which data are available. The share of farm managers participating in vocational training increased by at least 24.0 percentage points in the Dutch regions of Flevoland and Zeeland and in the German regions of Düsseldorf, Münster, and Rheinhessen-Pfalz. By contrast, the share of farm managers participating in vocational training declined in Ireland, Cyprus, Latvia, Lithuania and Slovenia (only national data available for these 5 EU countries). The number of farm managers participating in vocational training also fell during the period under consideration within every region of Sweden and in a majority of regions across Spain, Hungary, Poland and Slovakia.

For more detailed information on the age of farm managers – see Regions in Europe (interactive publication)

For more detailed information on farm managers with full agricultural training – see the Eurostat regional yearbook, 2023 edition (Chapter 13; PDF publication)

Map 13.5: Farm managers having participated in vocational training, 2020
(% of all farm managers, by NUTS 2 regions)



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Source: Eurostat (online data code: ef_mp_voctraining)

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